October 2018 | Initial Study

CERRITOS ELEMENTARY SCHOOL MULTI-PURPOSE FIELD PROJECT

Glendale Community Services and Parks

Prepared for:

City of Glendale
Contact: Peter Vierheilig, Project Manager
613 East Broadway, Room 120
Glendale, California 91206
818.548.2000

Prepared by:

PlaceWorks
Contact: Julian Capata
700 S. Flower Street, Suite 600
Los Angeles, CA 90017
213.623.1443
info@placeworks.com
www.placeworks.com

PLACEWORKS

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Abbreviations and Acronyms

AAQS	ambient air quality standards
AB	Assembly Bill
AQMP	air quality management plan
BMP	best management practices
CalEEMod	California Emissions Estimator Model
CARB	California Air Resources Board
CBC	California Building Code
CDFW	California Department of Fish and Wildlife
Cerritos ES	Cerritos Elementary School
CEQA	California Environmental Quality Act
CGS	California Geologic Survey
CMP	congestion management program
CNEL	community noise equivalent level
CO	carbon monoxide
CO_2e	carbon dioxide equivalent
CWA	Clean Water Act
dBA	A-weighted decibel
DOT	Department of Transportation
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
DWR	Department of Water Resources
EIR	environmental impact report
fc	foot-candle
FEMA	Federal Emergency Management Agency
GGP	Greener Glendale Plan
GHG	greenhouse gases
GUSD	Glendale Unified School District
kWh	kilowatt-hours

Abbreviations and Acronyms

LCFS	Low Carbon Fuel Standard
LOS	level of service
LSG	Light-Structure Green
LST	localized significance thresholds
MGD	million gallons per day
MS4	Municipal Stormwater Permit
$MTCO_2e$	Metric tons of carbon dioxide equivalent
NAHC	Native American Heritage Commission
ND	Negative Declaration
NOI	Notice of Intent
NO_X	nitrogen oxides
NPDES	National Pollution Discharge Elimination System
O_3	ozone
OEHHA	Office of Environmental Health Hazards Assessment
PM	particulate matter
RCRA	Resource Conservation and Recovery Act
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCS	Sustainable Communities Strategy
SoCAB	South Coast Air Basin
SO_X	sulfur oxides
SWRCB	State Water Resources Control Board
VMT	vehicle miles traveled
VOC	volatile organic compound

1. Introduction

The City of Glendale Community Services and Parks Department (City or Glendale) has partnered with the Glendale Unified School District (GUSD) to develop a multi-purpose field with sports field lighting on the campus of Cerritos Elementary School (Cerritos ES), at 120 East Cerritos Avenue in the Southern part of the City of Glendale. The City of Glendale will serve as the Lead Agency for the proposed project in accordance with the California Environmental Quality Act (CEQA), Section 15051(c). This Initial Study is a preliminary evaluation of the potential environmental consequences associated with the proposed project. As part of the City's approval process, the proposed project is required to undergo an environmental review pursuant to CEQA. The lead agency uses the initial study analysis to determine whether an environmental impact report (EIR) or a negative declaration (ND) is required. If the initial study concludes that the project may have a significant effect on the environment, an EIR must be prepared. Otherwise, a ND or mitigated negative declaration (MND) is prepared

1.1 PROJECT LOCATION

Cerritos ES is located at 120 East Cerritos Avenue (APN 5640035901) in the southern part of the City of Glendale, Los Angeles County, California (see Figure 1, *Regional Location*). The Cerritos ES Multi-Purpose Field Project (proposed project) would disturb approximately 1.6 acres – consisting of the existing athletic field and basketball courts – along the southern portion of the Cerritos ES campus. The proposed project would not impact other areas of the campus. The 1.6 acres will be referred to as the "project site." The project site is bounded by Cerritos ES campus buildings directly adjacent and to the north (fronting East Cerritos Avenue), Forest Lawn Memorial Park to the west across South Glendale Avenue, Cerritos Park directly adjacent to the south (fronting San Fernando Road), and commercial uses across South Brand Avenue to the east. The City of Glendale is surrounded by the cities of Los Angeles to the south, La Canada Flintridge to the north, Pasadena to the east, and Burbank to the west. Regional access to the Cerritos ES campus is via State Route 5 (SR-5) and Glendale Boulevard, approximately 1 mile to the northwest. The Cerritos ES campus is rectangularly shaped and bordered by East Cerritos Avenue to the north, San Fernando Road to the south, South Glendale Avenue to the east, and South Brand Boulevard to west (see Figure 2, *Local Vicinity*).

1.2 ENVIRONMENTAL SETTING

1.2.1 Existing Land Use

The Cerritos ES campus is approximately four acres in size and is currently developed with classroom buildings, administration building, a multi-purpose field, three outdoor basketball courts and play courts, staff/visitor parking lot, student drop-off/pick-up zone, pedestrian walkways and landscaped planters (see Figure 3, *Aerial Photograph*). School enrollment for the 2016-17 school year included 400 students attending

1. Introduction

Kindergarten through 6th grade (DataQuest 2017). The typical bell schedule begins the school day at 8:00 a.m. and dismissal occurs at 2:40 p.m. (GUSD 2016).

The existing field is located on the southernmost portion of the campus, to the northwest of the existing basketball courts. The field is 0.65-acre and comprised of natural turf. The basketball courts with surrounding track and hardscape area are approximately 0.9-acre. The field does not have bleachers or lights; however, two sport lighting fixtures, approximately 30 feet in height are located within the existing basketball courts (see Figure 4, *Existing Conditions*). The project site is approximately at the grade of South Glendale Avenue and East Cerritos Avenue. The field and the adjacent basketball courts are relatively level, with a minor slope towards the southwest.

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

Parking and Access

Main vehicular access to the Cerritos ES campus is provided along East Cerritos Avenue, including the student drop-off/pick-up zone and faculty/visitor parking located along East Cerritos Avenue. Limited parking is provided along the northern perimeter of the campus. Street parking is available on South Glendale Avenue, South Brand Avenue, and across East Cerritos Avenue.

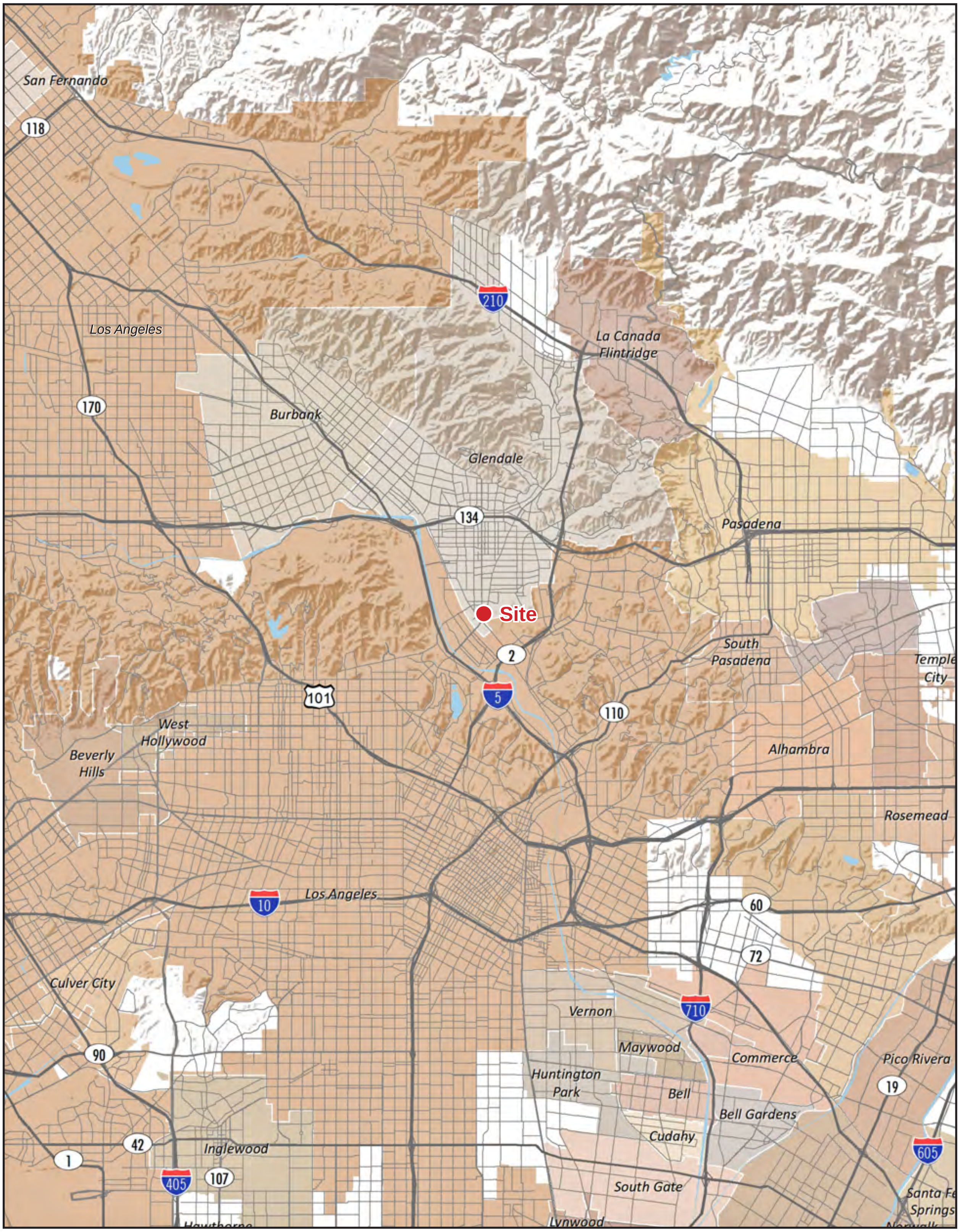
1.2.2 Surrounding Land Use

The project site is surrounded by academic facilities on the Cerritos ES campus, a park, a mix of commercial uses, and a cemetery. Directly to the north of the project site are the main buildings of Cerritos ES, with commercial uses and a church beyond East Cerritos Avenue. To the east across South Glendale Avenue is Forest Lawn Memorial Park, with commercial uses to the southeast. To the south, immediately adjacent the project site, is Cerritos Park, a gas station further south, multi-family residential and mixed uses across San Fernando Road. To the west are commercial uses across South Brand Boulevard. The project site is surrounded by land designated in the City of Glendale General Plan as Commercial – Community Services, with Mixed Use to the southwest. According to the City of Glendale Zoning Map, the project site is surrounded by areas zoned Commercial Service, with Commercial Auto to the northwest, and Commercial/Residential Mixed Use to the southwest. Directly to the southeast is the City of Los Angeles, with general plan designations of Limited Manufacturing and Open Space, and zoning of Agricultural and Open Space.

Cerritos park is located directly south and adjacent to Cerritos ES. It is 1.36 acres in size and encompasses a children's play area, water play features, six picnic tables under a shade structure, benches, approximately 17,000 square feet of open grass area, a drinking fountain, restroom facility, and parking lot accessed via South Glendale Avenue. Cerritos Park is open between 7:00 AM and 10:00 PM.

Figure 1 - Regional Location

1. Introduction



Note: Unincorporated county areas are shown in white.

0 3
Scale (Miles)

Source: ESRI, 2018

1. Introduction

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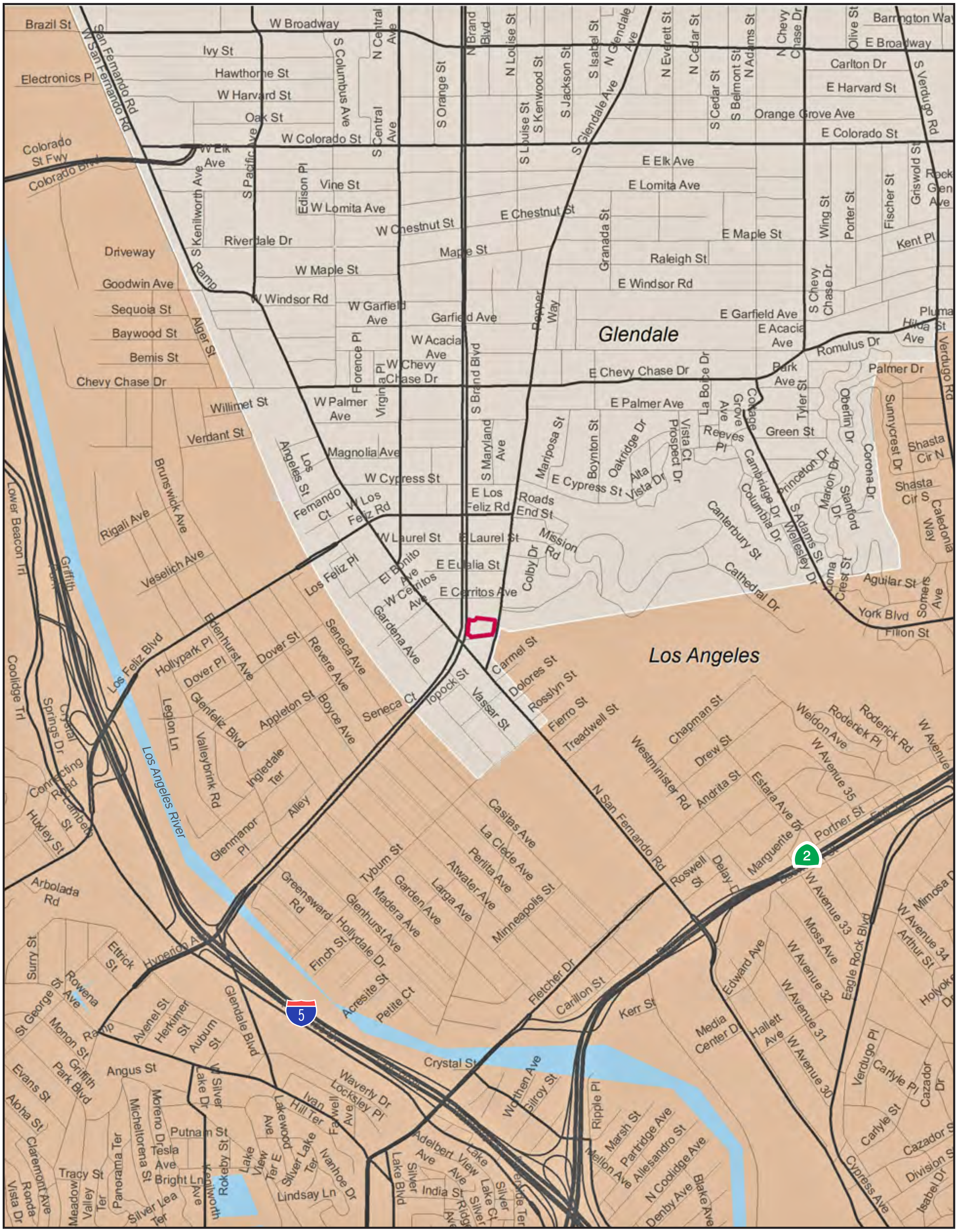
Figure 2 - Local Vicinity
1. Introduction



Project Boundary

0 2,000
Scale (Feet)

Source: ESRI, 2018

1. Introduction

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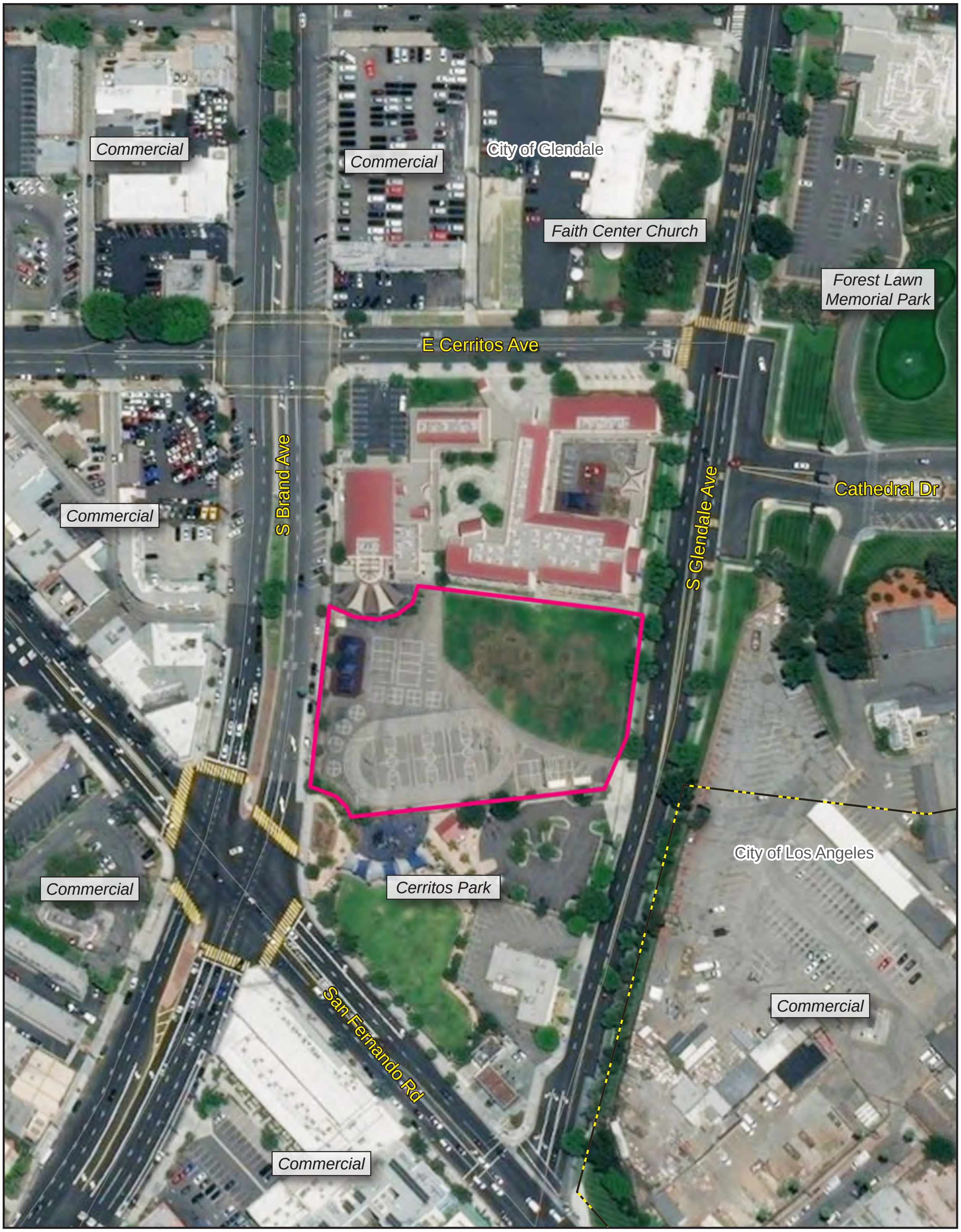
Figure 3 - Aerial Photograph
1. Introduction



Project Boundary

0 200
Scale (Feet)

Source: ESRI, 2018

1. Introduction

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Figure 4 - Existing Conditions

View looking east.

View looking northeast.

View looking south.

View looking southeast.

1. Introduction

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1.3 PROJECT DESCRIPTION

1.3.1 Proposed Land Use

The proposed project would result in the removal of the existing grass field and hardscape area with a joint use multi-purpose field with soccer markings for one large field overlaid with two smaller perpendicular fields, surrounding rubberized surface jogging track, perimeter security fence with privacy screening, seating, storage/maintenance building(s), walkways, landscaping, irrigation, re-grading of the existing hardscape area, and sports field lighting. The restroom building at the adjacent Cerritos Park would be demolished and replaced to accommodate upgraded restrooms and a storage room for sports equipment. No changes to the existing play structures at either Cerritos ES nor Cerritos Park would occur. The City would construct a fence between the picnic shelter and the school buildings, and the proposed multi-purpose field. No change in parking would occur, as the proposed project would make use of existing street and on-site parking. A pedestrian gate currently exists to allow access from Cerritos Park to the project site. The proposed field lighting is necessary for evening use on both weeknights and weekends. The City's use of the proposed field would be from 6:00 p.m. to 10:00 p.m. Monday through Friday, and 8:00 a.m. to 10:00 p.m. on Saturday, Sunday, and holidays. It is anticipated that the site would be utilized approximately 340 evening per year. The City would have a Community Services & Parks Department employee on site during permitted field times when the school is not in use.

The proposed project involves the installation and operation of four 60- to 70-foot-tall light poles along the perimeter of the running track and installation of a synthetic all-weather sports field and five-lane all-weather running track. Figure 5, *Proposed Site Plan* illustrates the location of the proposed field lighting fixtures on the project site. Each light pole would be mounted with four light fixtures, three utilizing 1,150-watt (1.15 kilowatt-hours [kWh]) Musco TLC-LED-1150 lamps and equipped with Light-Structure Green (LSG) visors at 60-70 feet high, and one utilizing 575-watt (0.58 kWh) Musco TLC-BT-575 lamps at 15-18 feet high. The new light poles would provide an average of 31 foot-candles (fc) across the athletic field, which is within the lighting standards for recreational activity. The lighting would also be designed to reduce illumination levels to zero at the site perimeter. The design of the proposed field lighting was selected in order to minimize spill light onto adjacent uses.

The field and surrounding track will be constructed in the northeast portion of the project site. The field alone will measure approximately 26,496 square feet, and together with the track will measure approximately 37,762 square feet. A new fire access driveway will be constructed along the southern and western perimeter of the field with access to South Glendale Avenue. Paved play courts will be installed to the south and east of the field. Additionally, as part of a previously approved project by the GUSD, a solar photovoltaic carport array with 33 panels measuring approximately 194 feet by 41 feet in total is to be installed above the southern perimeter of the multi-purpose field, overlapping the hardscape area. Construction of the solar array is not part of the proposed project. Additionally, the large ball wall in the hardscape area will be removed and replaced with two smaller ball walls.

The proposed project would not introduce new uses to the project site; rather, the proposed project would allow for the extended use of the project site by outside sporting groups during nighttime hours. Specifically, operation of field lighting would allow these groups to utilize the field until 10:00 p.m., in accordance with the 1999 Joint Use Agreement. Use of the proposed field lighting by outside groups would require a Facilities Use Permit issued by GUSD or the City of Glendale, similar to existing conditions that would establish the allowable hours of use.

1.3.2 Project Phasing

Construction activities are anticipated to begin in summer 2020. The construction would be completed in one stage, last approximately three months, and include the following activities: grading and excavation of the existing field, trenching for site utilities and irrigation, synthetic turf installation, and light pole installation. Grading activities would result in the disturbance of approximately 1.5 acres (65,340 square feet) of area and would result in the export of approximately 5,000 cubic yards of soil.

1.4 EXISTING ZONING AND GENERAL PLAN

The project site has a general plan designation of Community Services Commercial and is zoned as C3 I: Commercial Service Height District I. The project site would remain a school with project implementation and would continue to operate under the current designations.

1.5 OTHER AGENCY ACTION REQUESTED

STATE OF CALIFORNIA

- California Department of General Services, Division of the State Architect (construction plan review and approval)

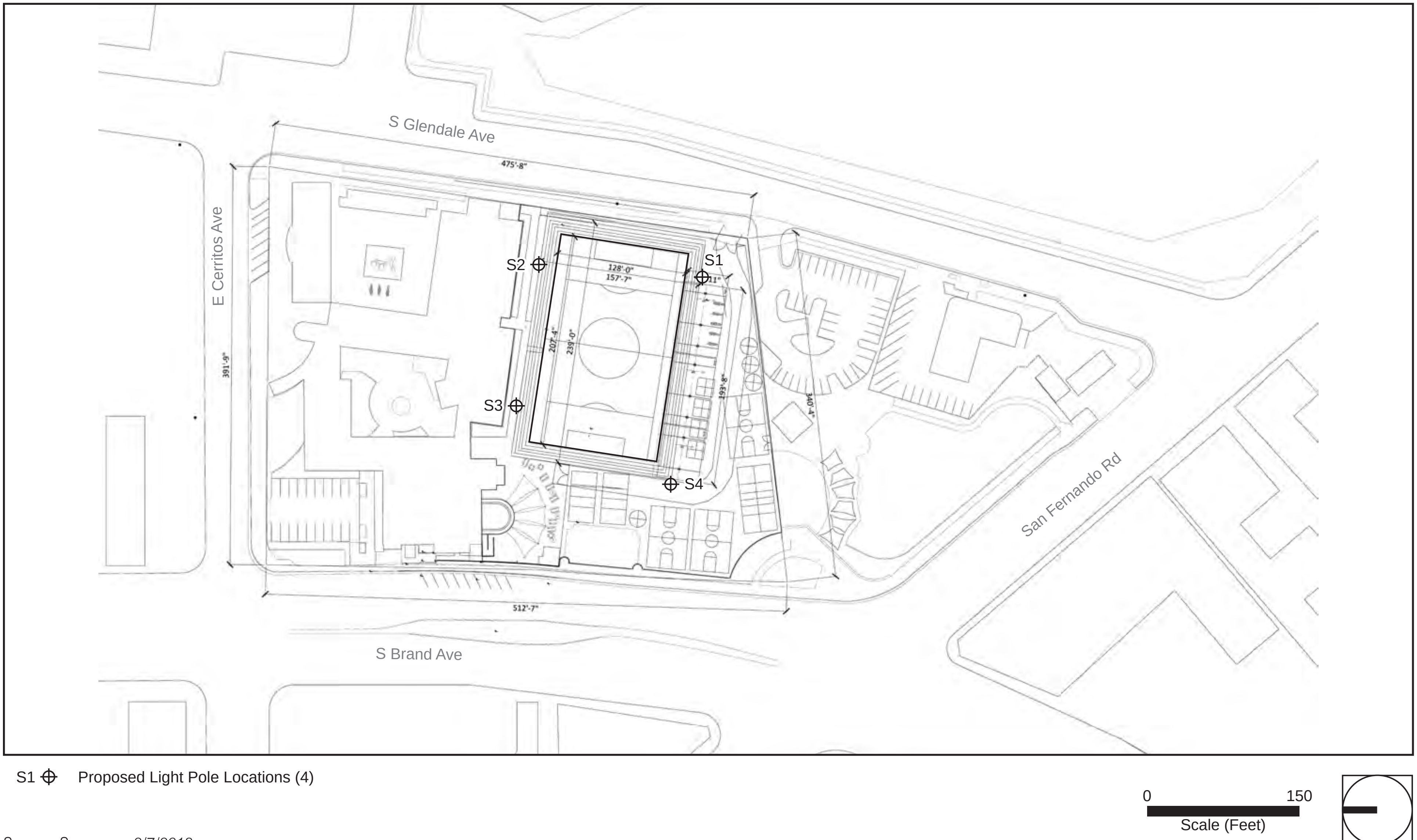
REGIONAL AGENCIES

- Los Angeles Regional Water Quality Control Board (NPDES permit; construction storm water run-off permits)
    - South Coast Air Quality Management District – Rule 201: Permit to construct

LOCAL AGENCIES

- City of Glendale Public Works/Engineering (for grading permit)
    - Storm Drain MS4 Permit

Figure 5 - Project Site Plan
1. Introduction



Source: Sunpower, 2/7/2018

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2. Environmental Checklist

2.1 BACKGROUND

1. **Project Title:** Cerritos Elementary School Multi-Purpose Field Project

2. **Lead Agency Name and Address:**
The City of Glendale
Community Services and Parks Department
613 East Broadway, Room 120
Glendale, California 91206

3. **Contact Person and Phone Number:**
Peter Vierheilig, Project Manager
818.548.2000

4. **Project Location:** 120 E. Cerritos Avenue in the southern part of Glendale, approximately 1 mile to the northeast of the intersection of Glendale Boulevard and Interstate-5. The Cerritos ES campus is rectangularly shaped and bordered by East Cerritos Avenue to the north, San Fernando Road to the south, South Glendale Avenue to the east, and South Brand Boulevard to west.

5. **Project Sponsor's Name and Address:**
City of Glendale
Community Services and Parks Department
613 East Broadway, Room 120
Glendale, California 91206

6. **General Plan Designation:** Community Services Commercial

7. **Zoning:** C3 I: Commercial Service Height District I

8. **Description of Project:**
The City of Glendale Community Services and Parks Department (City or Glendale) has partnered with the Glendale Unified School District (GUSD) to develop a multi-purpose field with sports field lighting on the campus of Cerritos Elementary School (Cerritos ES), at 120 E Cerritos Avenue in the southern part of Glendale. The proposed project would result in the removal of the existing grass field and paved play courts with a joint use multi-purpose field with soccer markings and surrounding rubberized surface jogging track, perimeter security fence with privacy screening, seating, restroom and storage/maintenance building(s), walkways, landscaping, irrigation, re-grading of the existing basketball and play court surface, and sports field lighting.

2. Environmental Checklist

9. Surrounding Land Uses and Setting:

The project site is surrounded by Cerritos ES buildings, community commercial, and a cemetery. Directly to the north of the project site are the main buildings of Cerritos ES, with commercial uses and a church beyond East Cerritos Avenue. To the east across South Glendale Avenue is Forest Lawn Memorial Park, with commercial uses to the southeast. To the south, immediately adjacent the project site, is Cerritos Park, a gas station further south, multi-family residential and mixed uses across San Fernando Road. To the west are commercial uses across South Brand Boulevard.

10. Other Public Agencies Whose Approval Is Required:

- California Department of General Services, Division of the State Architect (construction plan review and approval)
- Los Angeles Regional Water Quality Control Board (NPDES permit; construction storm water run-off permits)
- South Coast Air Quality Management District – Rule 201: Permit to construct

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, has consultation begun?

The Soboba Band of Luiseno Indians and the Fernandeno Tataviam Band of Mission Indians are on the City of Glendale's notification list pursuant to Assembly Bill (AB) 52. The City notified both tribes. The Fernandeno Tataviam Band of Mission Indians responded to the city's notification and the City has responded to this request.

2.2 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact," as indicated by the checklist on the following pages.

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

2.3 DETERMINATION (TO BE COMPLETED BY THE LEAD AGENCY)

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ 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.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ 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.

☐ 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	October 1, 2018 *Date*
Peter Vierheilig *Printed Name*	Onnig Bulanikian *For*

2.4 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 in the parentheses following each question. 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 would 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 off-site as well as on-site, 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 there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries 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.

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 Analyses Used.** Identify and state where they are available for review.

   b) I**mpacts 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. A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

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

2. Environmental Checklist

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) 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.

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
I. AESTHETICS. Would the project:				
a) Have a substantial adverse effect on a scenic vista?			X	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				X
c) Substantially degrade the existing visual character or quality of the site and its surroundings?			X	
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			X	
II. AGRICULTURE AND FORESTRY RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
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?				X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
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))?				X
d) Result in the loss of forest land or conversion of forest land to non-forest use?				X
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?				X

2. Environmental Checklist

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
III. AIR QUALITY. Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?			X	
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?			X	
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?			X	
d) Expose sensitive receptors to substantial pollutant concentrations?			X	
e) Create objectionable odors affecting a substantial number of people?			X	
IV. BIOLOGICAL RESOURCES. Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?				X
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?				X
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				X
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?				X
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
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?				X
V. CULTURAL RESOURCES. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?				X
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?		X		
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		X		

2. Environmental Checklist

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Disturb any human remains, including those interred outside of dedicated cemeteries?			X	
VI. GEOLOGY AND SOILS. Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
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.				X
ii) Strong seismic ground shaking?			X	
iii) Seismic-related ground failure, including liquefaction?			X	
iv) Landslides?				X
b) Result in substantial soil erosion or the loss of topsoil?			X	
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?			X	
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?			X	
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?				X
VII. GREENHOUSE GAS EMISSIONS. Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			X	
VIII. HAZARDS AND HAZARDOUS MATERIALS. Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?		X		
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?		X		
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			X	
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X

2. Environmental Checklist

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?				X
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?				X
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				X
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?				X
IX. HYDROLOGY AND WATER QUALITY. Would the project:				
a) Violate any water quality standards or waste discharge requirements?			X	
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?			X	
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in a substantial erosion or siltation on- or off-site			X	
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?			X	
e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?			X	
f) Otherwise substantially degrade water quality?			X	
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				X
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?				X
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?			X	
j) Inundation by seiche, tsunami, or mudflow?				X
X. LAND USE AND PLANNING. Would the project:				
a) Physically divide an established community?				X

2. Environmental Checklist

	Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
b)	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				X
c)	Conflict with any applicable habitat conservation plan or natural community conservation plan?				X
XI. MINERAL RESOURCES. Would the project:					
a)	Result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the state?				X
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?				X
XII. NOISE. Would the project result in:					
a)	Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			X	
b)	Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?			X	
c)	A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?			X	
d)	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?			X	
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				X
f)	For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?				X
XIII. POPULATION AND HOUSING. Would the project:					
a)	Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				X
b)	Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				X
c)	Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				X

2. Environmental Checklist

	Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. PUBLIC SERVICES. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:					
a)	Fire protection?			X	
b)	Police protection?			X	
c)	Schools?				X
d)	Parks?				X
e)	Other public facilities?				X
XV. RECREATION.					
a)	Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				X
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?				X
XVI. TRANSPORTATION/TRAFFIC. Would the project:					
a)	Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?			X	
b)	Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?			X	
c)	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				X
d)	Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				X
e)	Result in inadequate emergency access?			X	
f)	Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?			X	
g)	Result in inadequate parking capacity? (optional)			X	

2. Environmental Checklist

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. TRIBAL CULTURAL RESOURCES. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or		X		
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.		X		
XVIII. UTILITIES AND SERVICE SYSTEMS. Would the project:				
a) Exceed waste water treatment requirements of the applicable Regional Water Quality Control Board?			X	
b) Require or result in the construction of new water or waste water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			X	
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			X	
d) Have sufficient water supplies available to serve the project from existing entitlements and resources or are new or expanded entitlements needed?			X	
e) Result in a determination by the waste water treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?			X	
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?			X	
g) Comply with federal, state, and local statutes and regulations related to solid waste?			X	
XIX. MANDATORY FINDINGS OF SIGNIFICANCE.				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?			X	

2. Environmental Checklist

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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.)			X	
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X	

3. Environmental Analysis

Section 2.4 provided a checklist of environmental impacts. This section provides an evaluation of the impact categories and questions contained in the checklist and identifies mitigation measures, if applicable.

3.1 AESTHETICS

a) Have a substantial adverse effect on a scenic vista?

Less Than Significant Impact. The project site is fully developed and consists of an elementary school campus. The project's surrounding vicinity is urban and is fully developed with commercial uses. The project site does not contain unique visual features that would distinguish it from surrounding areas nor is it located within a designated scenic vista. According to the City of Glendale General Plan Open Space and Conservation Element (Glendale 1993), the project site is categorized as an area of low visual sensitivity due to its urban, interior, and low-lying location. The project site is screened from view from vantage points and without features of special visual interest. The Verdugo Mountains Open Space Preserve, approximately 3.5 miles to the north, and the San Rafael Hills, approximately 2.7 miles to the northeast, are considered designated scenic resources within the City. Additionally, the open space surrounding Griffith Park is approximately 1.15 miles to the west. There are no views from the project site to these scenic areas as they are obstructed by the surrounding urban environment. The cemetery across South Glendale Avenue, though visually pleasing in nature, is not considered a scenic resource by the Glendale General Plan. While implementation of the proposed project would construct field lighting and a restroom facility, the project is not considered an impediment to scenic vistas as it would not result in the obstruction or degradation of existing scenic views. Although project elements would be visible from the surrounding neighborhood, implementation of the proposed project would not impact scenic vistas, and impacts would be less than significant.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact. The project would be located on a developed elementary school campus. No state scenic highways, scenic resources, or historic buildings exist on the site or within the project vicinity (DOT 2011). The nearest historic parkway is Interstate 110, approximately 3.4 miles southeast of the project site. Therefore, the project would have no impact on scenic resources within a state scenic highway. As such, no impact would occur to scenic resources.

c) Substantially degrade the existing visual character or quality of the site and its surroundings?

Less than Significant Impact. The project site is a developed elementary school campus, with all construction taking place on the existing grass field at the south end of the campus. The grass field currently does not have field lighting or a track, although two lighting fixtures are currently located on the existing basketball courts onsite. The proposed project would result in the redevelopment of the existing grass field and a small portion of the hardscape area with a multi-purpose synthetic turf field, surrounding rubberized surface jogging track, perimeter security fence with privacy screening, restroom and storage/maintenance building(s), walkways, landscaping, irrigation, re-grading of the existing hardscape area, and sports field lighting. A fence would be built between Cerritos Park, where the restroom facility would be constructed, and the school campus. The proposed lighting design will limit light spillover to adjacent properties, as discussed in section d) below. Changing the existing grass field to a synthetic turf field would not change the visual character of the site or the surrounding areas, and it would continue to be used as it is presently. Implementation of the proposed lighting facilities, synthetic turf field, and, surrounding rubberized jogging track would not detract from the visual character of the site, as these improvements would be visually consistent with the uses that currently exist on the project site.

Grading and construction activities associated with the proposed project have the potential to cause temporary degradation of local aesthetics for Cerritos ES staff and students. However, such activities are temporary and would cease with completion of the field renovations. In addition, the construction activities would not alter the character of the surrounding area as the project would occur only on the school site. Upon completion of construction activities, the school's field would return to a use for which it was originally intended. Due to the short-term, temporary nature of construction activities and the non-altering effect on the surrounding area character, 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. Under current conditions, only minimal nighttime lighting is installed at the existing hardscape area, and therefore, programmed activity on the sports fields ceases at dusk, while activities on the basketball courts may extend into nighttime hours. The athletic fields are surrounded by the Cerritos ES campus to the north, South Glendale Avenue to the east, South Brand Boulevard to the west, and Cerritos Park to the south. Commercial uses and a church are beyond East Cerritos Avenue to the north. To the east across South Glendale Avenue is Forest Lawn Memorial Park, with commercial uses to the southeast. To the south, immediately adjacent the project site, is Cerritos Park, a gas station further south, and mixed uses across San Fernando Road. To the west are commercial uses across South Brand Boulevard. Cerritos Park encompasses a children's play area, water play features, six picnic tables under a shade structure, benches, approximately 17,000 square feet of open grass area, restroom facility, and parking lot.

All proposed lighting is intended to adequately illuminate the playing field surface in a manner that assures safety for all players on the field (i.e. consistent light levels without noticeable variation) and to assure adequate lighting along the walkways to the proposed restroom facility. The proposed lighting is compatible with general night lighting in the project vicinity. The four proposed light poles would each be equipped with four luminaries, three utilizing 1,150-watt (1.15 kilowatt-hours [kWh]) Musco TLC-LED-1150 lamps and equipped with Light-Structure Green (LSG) visors at 60-70 feet high, and one utilizing 575-watt (0.58 kWh) Musco TLC-BT-575 lamps at 15-18 feet high. Luminaries would be directed inward and downward to direct light onto the playing field and limit skyglow and light overspill. Additionally, the LSG visor would direct light downward, reducing spill light, sky glow, and glare. Based on the Design Element of Spill Light and Glare

Control Technical Bulletin prepared by Musco Sports Lighting LLC the height of the field lighting would also reduce spill lighting and sky glow to the maximum extent feasible while still meeting City objectives, because the increased height of the light poles allows for steeper vertical aiming angle for light fixtures which reduces spill light and glare.

The following terms are used in this discussion:

- *Spill light:* Spill light or light trespass is the light that illuminates surfaces beyond the property boundary. Typically, spill lighting is from a more horizontal source such as streetlights and way-finding/security lighting than sky glow which emanates from a more vertical source into the atmosphere. Spill light can be accurately calculated, and the effects of spill light can be measured for general understanding and comparison.

- *Obtrusive light:* Spill light that causes annoyance, discomfort, distraction, or a reduction in the ability to see essential information such as traffic signals. Light that is considered to be obtrusive is a subject of debate.

- *Sky glow:* Sky glow is the light that illuminates the sky above the horizon and reflects off of moisture and other tiny particles in the atmosphere. Sky glow would be considered a significant impact if it were a permanent addition to the environment. Control features are available on the light sources to reduce sky glow and glare from nighttime lighting. These control features direct light downward, thereby reducing the spill of light that causes sky glow and reducing glare.

- *Glare:* Glare can be described as direct or reflected glare, which can then result in discomfort or impairment of vision experienced when the image is excessively bright in relation to general surroundings.

- *Foot-candle (fc):* The recognized international unit for the measure of light (luminance) falling onto a surface. One fc = 0.01609696 watts.

The following are examples of light levels, expressed in foot-candles:

- Bright and sunny day: 3,000 fc
- Professional baseball-field lighting: 300 fc
- Office: 50 to 75 fc
- Residential lighting at night: 7 to 10 fc
- Main road junction street lighting: 2.5 to 3.0 fc
- Bright moonlight: 0.1 fc

A lighting impact is considered significant if the increase in spill lighting would exceed 2.5 fc at neighboring receptors, sky glow is perceptibly increased, or glare is at a level such that it impairs vision. The City of Glendale has not established a threshold for spill or obtrusive light. Therefore, the City has determined that if the proposed project were to result in horizontal or vertical spill light above 2.5 fc on adjacent properties, a significant impact would occur. For the purposes of this Initial Study, the City has adopted the 2.5 fc as a threshold as these light levels are consistent with the surrounding nighttime environment, where street lighting is the predominant source of lighting.

Due to the urbanized nature of the surrounding area, a significant amount of ambient nighttime light currently exists, reducing the views of stars and affecting views of the nighttime sky. Streetlights provide the majority of light along the streets that surround the project site. The new light poles would provide an average of 31 fc across the athletic field, which is the lighting standard for recreational activity. The lighting would be designed to reduce illumination levels to zero at the site perimeter. Lighting would not be used past 10:00 p.m. The site and the surrounding area currently have average ambient nighttime light levels for a commercial urbanized area. The closest light sensitive receptors to the site would be the mixed-use residential uses located to the south across San Fernando Road, which are already exposed to relatively high ambient night lighting from street lighting, the existing lighting at Cerritos Park and the commercial uses along San Fernando Road.

No new light or glare sources visible beyond the project site would be introduced during construction of the project. All construction work will be performed during normal daylight construction hours, thereby eliminating any need for temporary light sources necessary for nighttime work.

As a part of project development, a field lighting illumination summary and photometric plan was completed by Musco Lighting. This summary, included as Appendix A, identifies the location of all proposed lighting on-site and measures the light intensity within the interior of the project site and onto adjacent surroundings. The photometric plan is intended to demonstrate that lighting levels at the project boundaries will meet established lighting thresholds and will not result in light spillover onto adjacent properties. Figure 6, *Horizontal Photometric Plan* and Figure 7, *Vertical Photometric Plan* illustrate light spill onto surrounding properties. As shown in Figures 6 and 7, light from the new athletic field lighting would not intrude beyond the school campus except along South Glendale Avenue and Cerritos Park. The highest instance of light spill over would occur along South Glendale Avenue and would result in an illuminance of 0.4 foot-candles.

The illumination summary also includes a glare impact illustration, included as Figure 8, *Glare Impacts*. Significant glare is considered to be between 25,000 to 75,000 candelas. As shown on Figure 8, glare for the proposed project is possible on the cemetery property on the east side of the campus. However, the cemetery is not considered a sensitive receptor, and the area of glare impact would be located on parking lots and industrial facilities adjacent to the project site. As aforementioned, each of the lighting fixtures will be directed downward, onto the campus, and each of the light sources will be equipped with a visor that will further direct the lighting downward, reducing the potential for spill lighting outside of the athletic field.

The project would include use of the athletic field after dark, in accordance with the City's Joint Use Agreement. The expansion of available public use hours beyond daytime hours would require the use of the field lighting. In addition to the school's use of the field, playfield permits to nonprofit youth sports organizations would be issued by the City and would allow for the nighttime use of the playfield with the same limitations as the elementary school programs. Additionally, the athletic field lighting would not be utilized between the hours of 10:00 p.m. and 7:00 a.m. Monday through Friday or between the hours of 10:00 p.m. and 8:00 a.m. on Saturday and Sunday. Although the athletic field is permitted for use until 10:00

p.m., in the event that the field is not being utilized the entire duration, the lights will be promptly shut off through remote on/off shut-off. By restricting the number of nighttime hours that the athletic field lighting can be operational, the potential contribution to sky glow in the area is reduced. The proposed athletic field lighting will be heavily controlled (directional, addition of visors, hours of operation) that would substantially limit the effects of light spillover and glare to the surrounding area. In addition, as shown by the photometric analysis, light levels on surrounding properties would be below the 2.5 foot-candle threshold established for the proposed project. Therefore, the project would have less than significant impact regarding the creation of a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

3. Environmental Analysis

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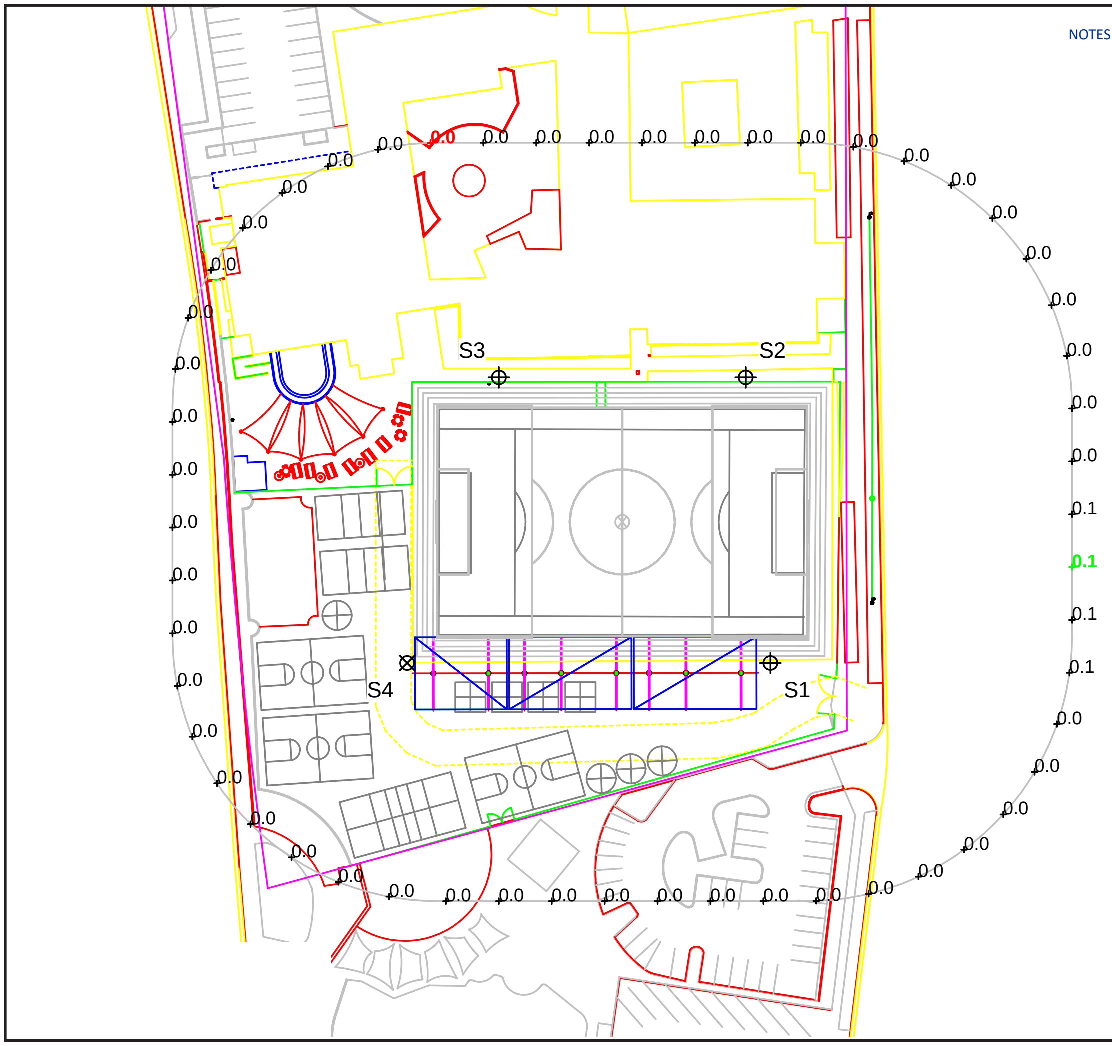
Figure 6 - Horizontal Photometric Plan

3. Environmental Analysis



NOTES: Pole S4 will be in a glare zone if football is played on this field. Pole S4 is placed to avoid casting a major shadow onto the field from the shade structure adjacent to the field. Shade structure is assumed to be 14' tall at the front and 9' tall at the back.

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

ILLUMINATION SUMMARY			
MAINTAINED HORIZONTAL FOOTCANDLES			
	Entire Grid		
Scan Average:	**0.013**		
Maximum:	0.063		
Minimum:	0.000		
No. of Points:	54		
LUMINAIRE INFORMATION			
Color / CRI:	5700K - 75 CRI		
Luminaire Output:	52,000 / 121,000 lumens		
No. of Luminaires:	**16**		
Total Load:	16.1 kW		
			Lumen Maintenance
Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-BT-575	>51,000	>51,000	>51,000
TLC-LED-1150	>51,000	>51,000	>51,000
Reported per TM-21-11. See luminaire datasheet for details.			

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

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

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

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

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	S1, S4	70'	-	18'	TLC-BT-575	1	1	0
				70'	TLC-LED-1150	3	3	0
2	S2-S3	60'	-	15'	TLC-BT-575	1	1	0
				60'	TLC-LED-1150	3	3	0
4	TOTALS					16	16	0

S1 ⌖ Proposed Light Pole Locations (4)

Dimensions are relative to 0,0 reference point(s) ⊠

0 100
Scale (Feet)

Source: Musco, 2018

3. Environmental Analysis

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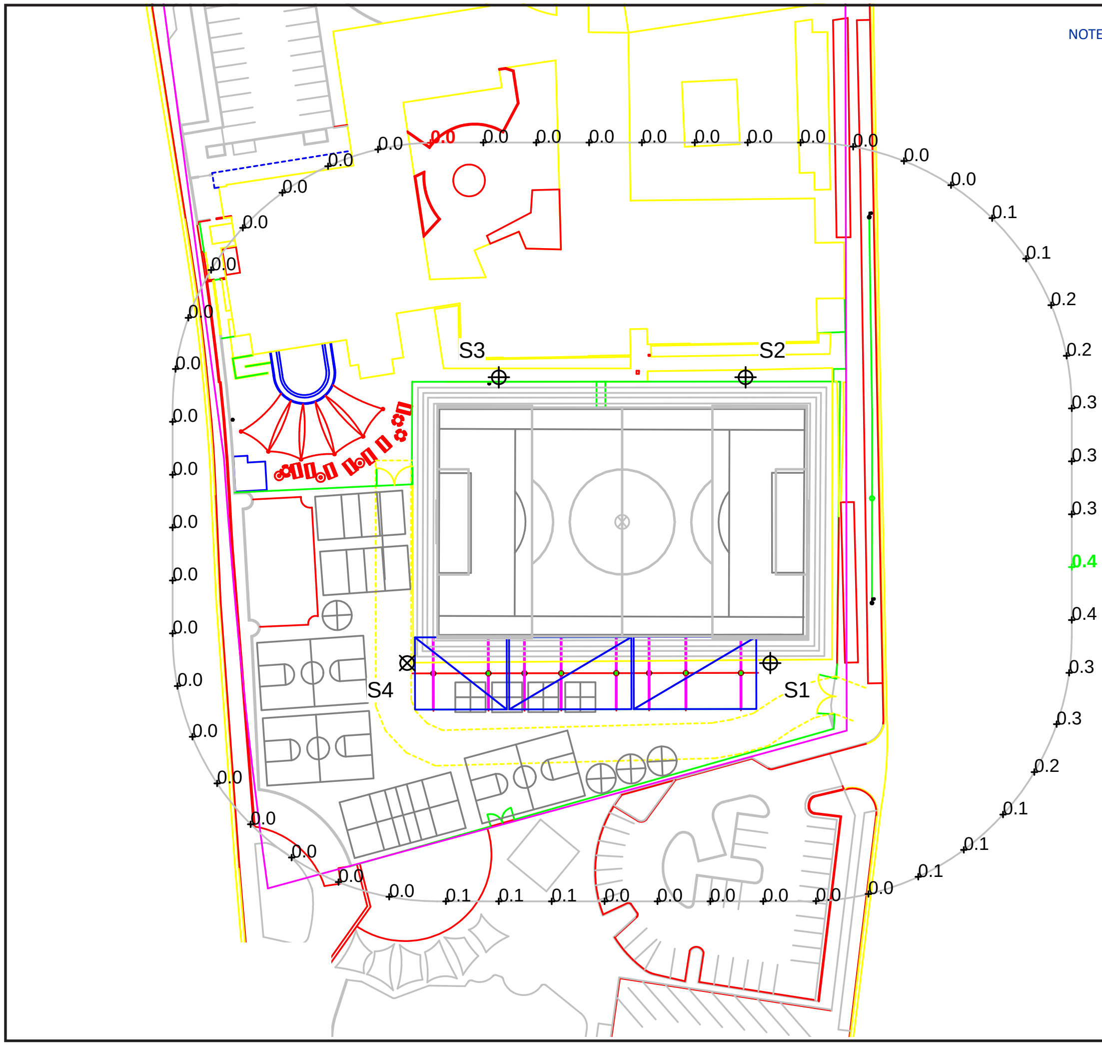
Figure 7 - Vertical Photometric Plan



NOTES: Pole S4 will be in a glare zone if football is played on this field. Pole S4 is placed to avoid casting a major shadow onto the field from the shade structure adjacent to the field. Shade structure is assumed to be 14' tall at the front and 9' tall at the back.

GRID SUMMARY

Name:	**Soccer Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED MAX VERTICAL FOOTCANDLES

	Entire Grid
Scan Average:	**0.075**
Maximum:	0.364
Minimum:	0.000
No. of Points:	54

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	52,000 / 121,000 lumens
No. of Luminaires:	**16**
Total Load:	16.1 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-BT-575	>51,000	>51,000	>51,000
TLC-LED-1150	>51,000	>51,000	>51,000

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

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

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

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

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

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	S1, S4	70'	-	18'	TLC-BT-575	1	1	0
				70'	TLC-LED-1150	3	3	0
2	S2-S3	60'	-	15'	TLC-BT-575	1	1	0
				60'	TLC-LED-1150	3	3	0
4	TOTALS					16	16	0

S1 ⌖ Proposed Light Pole Locations (4)

Dimensions are relative to 0,0 reference point(s) ⊠

0 100
Scale (Feet)

Source: Musco, 2018

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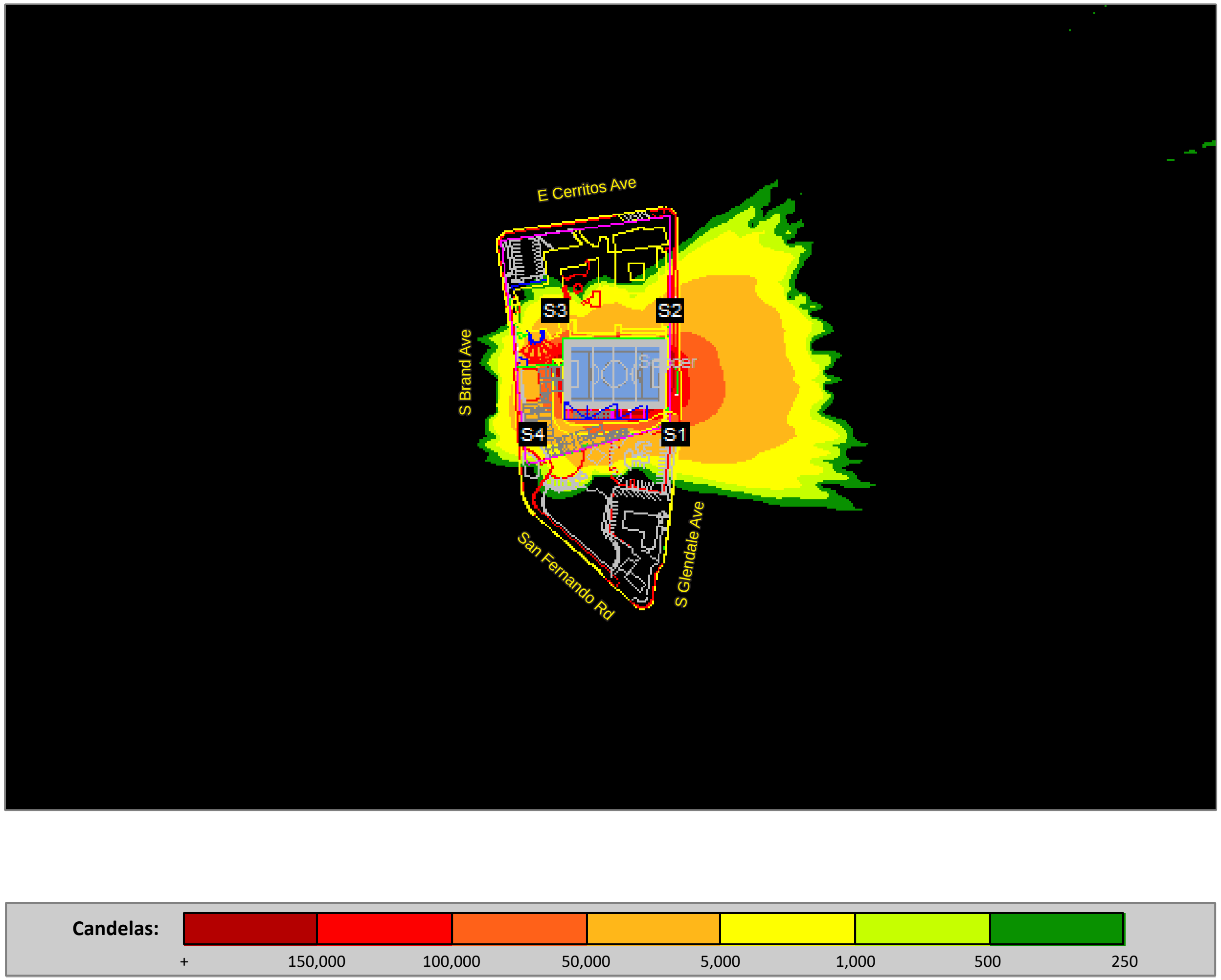
Figure 8 - Glare Impact
3. Environmental Analysis



Cerritos Elementary School
Glendale, CA

GLARE IMPACT
Summary

Map indicates the maximum candela an observer would see when facing the brightest light source from any direction.

A well-designed lighting system controls light to provide maximum useful on-field illumination with minimal destructive off-site glare.

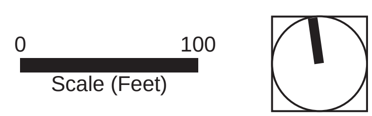
GLARE
Candela Levels

High Glare: 150,000 or more candela
Should only occur on or very near the lit area where the light source is in direct view. Care must be taken to minimize high glare zones.

Significant Glare: 25,000 to 75,000 candela
Equivalent to high beam headlights of a car.

Minimal to No Glare: 500 or less candela
Equivalent to 100W incandescent light bulb.

S1 Proposed Light Pole Locations (4)



Source: Musco, 2018

3. Environmental Analysis

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3.2 AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

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 conversion of forest land to non-forest use?**

No Impact. The California Department of Conservation manages the Farmland Mapping and Monitoring Program (FMMP), which identifies and maps significant farmland. Farmland is classified using a system of five categories including Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Grazing Land. The classification of farmland as Prime Farmland, Unique Farmland, and Farmland of Statewide Importance is based on the suitability of soils for agricultural production, as determined by a soil survey conducted by the Natural Resources Conservation Service (NRCS). The California Department of Conservation manages an interactive website, the California Important Farmland Finder. This website program identifies the project site as being outside of the survey area and is therefore not considered to be agriculturally important land (CIFF 2016).

The project site is fully developed with existing educational uses and no farmland exists within the area. The project would be located on a developed elementary school campus. This site is not subject to a Williamson Act contract, and the site is zoned as Commercial in the City of Glendale Zoning Ordinance. This zoning district was not intended for agricultural uses. The project site contains no forest or timber resources and is not zoned for forestland protection or timber production. The entirety of the project would occur on the existing grass field and hardscape portions of the school campus. The project site is not located adjacent to or within the vicinity of any farmland. Therefore, the project would result in no impact to agricultural or forest resources.

3.3 AIR QUALITY

This air quality evaluation was prepared in accordance with the requirements of CEQA to determine if significant air quality impacts are likely to occur in conjunction with future development that would be accommodated by the proposed project. The South Coast Air Quality Management District (SCAQMD) has published the *CEQA Air Quality Handbook* (Handbook) and updates on its website that are intended to provide local governments with guidance for analyzing and mitigating project-specific air quality impacts (SCAQMD 2017b). The Handbook provides the standards, methodologies, and procedures that were used in this analysis. Modeling of criteria air pollutants was conducted using the California Emissions Estimator Model (CalEEMod), version 2016.3.25. On-road transportation sources are based on trip generation rates and vehicle miles travelled (VMT) as shown in the traffic study (section 3.16, Transportation/Traffic).

This analysis focuses on criteria pollutants including the following:

- Particulate Matter (PM)
- Volatile Organic Compounds (VOCs)
- Carbon Monoxide (CO)
- Nitrogen Oxides (NO_x)
- Sulfur Oxides (SO_x)

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

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

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

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

The proposed project would result in the redevelopment of the existing grass field and paved play area with a joint use multi-purpose field with to serve the needs of the local community. The proposed project is not a project of statewide, regional, or areawide significant that would require intergovernmental review under Section 15206 of the CEQA Guidelines. Therefore, the project would not have the potential to substantially affect SCAG's demographic projections. Additionally, the regional emissions generated by construction and operation of the proposed project would be less than the SCAQMD emissions thresholds, and SCAQMD would not consider the project a substantial source of air pollutant emissions that would have the potential to affect the attainment designations in the SoCAB. Thus, the project would not affect the regional emissions inventory or conflict with strategies in the AQMP.

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less than Significant Impact. A project would normally have a significant effect on the environment if it violates any air quality standard or contributes substantially to an existing or projected air quality violation. Construction activities produce combustion emissions from various sources, such as onsite heavy-duty construction vehicles, vehicles hauling materials to and from the site, and motor vehicles transporting the construction crew. Site preparation activities produce fugitive dust emissions (PM_{10} and $PM_{2.5}$) from grading, excavation, and demolition. Exhaust emissions from construction onsite would vary daily.

Construction

Construction activities would occur on 1.6 acres of the approximately 4-acre Cerritos ES campus. Construction activities would temporarily increase PM_{10}, $PM_{2.5}$, VOC, NO_x, SO_x, and CO regional emissions within the SoCAB. Construction activities associated with buildout of proposed project would occur over approximately three months from June 2020 through August 2020. Construction would include demolition, site preparation, grading, paving, and painting. The construction schedule and equipment mix are based on preliminary engineering and is subject to changes during final design and as dictated by field conditions. Results of the construction emission modeling are shown in Table AQ-1, *Maximum Daily Regional Construction Emissions*. As shown in Table AQ-1, maximum daily construction emissions would not exceed SCAQMD's regional construction significance thresholds. Therefore, air quality impacts from project-related construction activities would be less than significant. No mitigation measures would be required.

Table AQ-1 Maximum Daily Regional Construction Emissions

Source	Criteria Air Pollutants (pounds per day)[1, 2]					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Demolition + Haul [3]	3	27	16	<1	2	1
Site Preparation	2	21	9	<1	4	2
Grading + Haul [4]	3	69	18	<1	6	3
Utility Trenching	2	6	5	<1	<1	<1
Paving	1	11	10	<1	1	<1
Architectural Coating	1	2	2	<1	<1	<1
Lighting Installation + Site Finishing	2	20	9	<1	1	1
Maximum Daily Emissions	3	69	18	<1	6	3
SCAQMD Regional Construction Threshold	75	100	550	150	150	55

3. Environmental Analysis

Table AQ-1 Maximum Daily Regional Construction Emissions

Source	Criteria Air Pollutants (pounds per day)[1, 2]					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Significant?	No	No	No	No	No	No

Source: CalEEMod 2016.3.2.25.
Note: Totals may not add up to 100 percent due to rounding.
1 Construction equipment mix is based on CalEEMod default construction mix. See Appendix D of the TIA for a list of assumptions on emissions generated on a worst-case day.
2 Grading includes compliance with SCAQMD Rule 403 fugitive dust control measures. Measures include requiring an application of water at least twice per day to at least 80 percent of the unstabilized disturbed onsite surface areas, replacing disturbed ground cover quickly, and restricting speeds on unpaved roads to less than 15 miles per hour. Modeling also assumes a VOC of 50 g/L for interior and 100 g/L for exterior paints pursuant to SCAQMD Rule 1113.
3 Assumes up to approximately 362 tons of asphalt would be demolished and hauled offsite.
4 Assumes up to 5,000 cubic yards of soil haul could be exported.

Operation

Long-term air pollutant emissions generated by the project would be generated by area sources (such as architectural coatings), mobile sources from vehicle trips, and energy use (natural gas) associated with lighting and operation of the proposed field improvements. Criteria air pollutant emissions for the proposed project were modeled using CalEEMod. Table AQ-2, *Maximum Daily Regional Operational Phase Emissions*, identifies criteria air pollutant emissions from the proposed project.

As shown in Table AQ-2, project-related air pollutant emissions would not exceed the SCAQMD's regional emissions thresholds for operational activities. Mobile-source emissions are based on the estimated 182 average daily weekday trips and 235 average daily weekend trips the proposed field improvements would generate. Total project-related air pollutant emissions from area sources, energy use, and project related vehicle trips from operation of the field renovation project would not exceed the SCAQMD's regional emissions thresholds for operational activities. Therefore, air quality impacts from project-related operation activities would be less than significant. No mitigation measures would be required.

Table AQ-2 Maximum Daily Regional Operational Phase Emissions

Source	Criteria Air Pollutants (lbs/day)					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Area	<1	<1	<1	<1	<1	<1
Energy	<1	<1	<1	<1	<1	<1
Mobile Sources	<1	1	6	<1	1	<1
Total Emissions	1	1	6	<1	1	<1
SCAQMD Regional Threshold	55	55	550	150	150	55
Exceeds Regional Threshold?	No	No	No	No	No	No

Source: CalEEMod Version 2016.3.2.
Note: Highest winter or summer emissions are reported. Totals may not add up to 100 percent due to rounding.

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Less than Significant Impact. The SoCAB is designated nonattainment for Ozone (O_3) and fine particulate matter ($PM_{2.5}$) under the California and National ambient air quality standards (AAQS), nonattainment for particulate matter (PM_{10}) under the California AAQS, and nonattainment for lead under the National AAQS. According to SCAQMD methodology, any project that does not exceed or can be mitigated to less than the daily threshold values would not add significantly to a cumulative impact. As discussed in Section 3.3.b, both short-term construction impacts and long-term operational impacts would not exceed thresholds, and the project would not result in a cumulatively considerable net increase in criteria pollutants. Consequently, the proposed project's contribution to cumulative air quality impacts would be less than significant.

d) Expose sensitive receptors to substantial pollutant concentrations?

Less than Significant Impact. Development of the proposed project could expose sensitive receptors to elevated pollutant concentrations during construction or operational activities if it would cause or contribute significantly to elevating those levels. Unlike the mass of construction emissions shown in Tables AQ-1 and AQ-2, described in pounds per day, localized concentrations refer to an amount of pollutant in a volume of air (ppm or μg/m3) and can be correlated to potential health effects.

Construction LSTs

Localized Significance Thresholds (LSTs) are the amount of project-related emissions at which localized concentrations (ppm or $\mu g/m^3$) would exceed the AAQS for criteria air pollutants for which the SoCAB is designated a nonattainment area. LSTs are based on the California AAQS, which are the most stringent AAQS that have been established to provide a margin of safety in the protection of public health and welfare. They are designated to protect sensitive receptors most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and people engaged in strenuous work or exercise. Construction LSTs are based on the size of the project site, distance to the nearest sensitive receptor, and Source Receptor Area. The nearest sensitive receptors are students at the current Cerritos Elementary School site, receptors proximate to the proposed project site are the multifamily residences to the southeast along San Fernando Road.

Air pollutant emissions generated by construction activities are anticipated to cause temporary increases in air pollutant concentrations. Table AQ-3, *Localized Construction Emissions*, shows the maximum daily construction emissions (pounds per day) generated during onsite construction activities compared with the SCAQMD's LSTs. As shown in the table, the maximum daily NO_x, CO, PM_{10} and $PM_{2.5}$ construction emissions generated from onsite construction-related activities would be less than their respective SCAQMD LSTs. Therefore, project-related construction activities would not have the potential to expose sensitive receptors to substantial pollutant. The impact would be less than significant, and no mitigation measures are required.

3. Environmental Analysis

Table AQ-3 Construction Emissions Compared to the Screening-Level Localized Significance Thresholds

Source	Pollutants(lbs/day)[1,2]			
	NO_X	CO	PM_{10}	$PM_{2.5}$
2019 Utility Trenching	5	5	0.37	0.34
2019 Asphalt Paving	10	9	0.61	0.56
2019 Architectural Coating	19	7	0.92	0.85
2019 Lighting Installation	2	2	0.15	0.15
SCAQMD ≤1.00-acre LST	80	498	4.00	3.00
Exceeds LST?	No	No	No	No
2019 Grading + Haul	17	7	3.12	1.83
SCAQMD 1.19-acre LST	86	552	4.56	1.83
Exceeds LST?	No	No	No	No
2019 Site Preparation	21	8	3.43	2.14
SCAQMD 1.44-acre LST	95	624	5.31	3.44
Exceeds LST?	No	No	No	No
2019 Demolition Haul	24	15	1.88	1.41
SCAQMD 1.6-acre LST	100	671	5.80	3.60
Exceeds LST?	No	No	No	No

Source: CalEEMod Version 2016.3.2.25., SCAQMD 2008, and SCAQMD 2011.
Notes: In accordance with SCAQMD methodology, only onsite stationary sources and mobile equipment occurring on the proposed project site are included in the analysis. LSTs are based on receptors within 82 feet (25 meters) of the proposed project site in Source Receptor Area (SRA) 7.
[1] The construction schedule is based on the preliminary information provided by the City. Where specific information regarding project-related construction activities was not available, construction assumptions were based on CalEEMod defaults, which are based on construction surveys conducted by SCAQMD of construction equipment and phasing for comparable projects.
[2] Includes implementation of fugitive dust control measures required by SCAQMD under Rule 403, including watering disturbed areas a minimum of two times per day, reducing speed limit to 15 miles per hour on unpaved surfaces, replacing ground cover quickly, and street sweeping with Rule 1186–compliant sweepers.

Construction Health Risk

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

Operation

Operation LSTs

Operation of the proposed project would not generate substantial quantities of emission from onsite, stationary sources. Land uses that have the potential to generate substantial stationary sources of emissions that would require a permit from SCAQMD include industrial land uses, such as chemical processing and warehousing operations where substantial truck idling could occur onsite. The proposed project does not fall within these categories of uses. Table AQ-4, *Localized Onsite Operational Emissions,* shows the increase in localized daily operational emissions. As shown in this table, while operation of the proposed project would result in the use of standard onsite mechanical equipment such as heating, ventilation, and air conditioning units in addition to occasional use of landscaping equipment for project site maintenance, air pollutant emissions generated from these activities would be nominal and would not exceed SCAQMD operational phase LSTs. Therefore, localized air quality impacts related to stationary-source emissions would be less than significant and no mitigation measures are required.

Table AQ-4 Localized Onsite Operational Emissions

Source	Pollutants (lbs/day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Area Sources	<1	<1	0.00	0.00
Energy Sources	<1	<1	0.00	0.00
Maximum Daily Onsite Operation Emissions	<1	<1	0.00	0.00
SCAQMD LST	172	1,434	4.00	2.00
Exceeds LST?	No	No	No	No

Source: CalEEMod Version 2016.3.2., SCAQMD 2008, and SCAQMD 2011.
Notes: LSTs are based on receptors within 82 feet (25 meters) of the proposed project site in Source Receptor Area (SRA) 7.

Carbon Monoxide Hotspots

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

The SoCAB has been designated attainment under both the national and California AAQS for CO. Under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited—in order to generate a significant CO impact (BAAQMD 2017). The proposed project would result in approximately 235 average daily trips during a weekday as well as approximately 36 afternoon peak hour trips, which are substantially less than the volumes cited above. Furthermore, the SoCAB has since been designated as attainment under both the national and California AAQS for CO. The project would not have the potential to substantially increase CO hotspots at intersections in the vicinity of the project site. Localized air quality impacts related to mobile-source emissions would be less than significant.

e) Create objectionable odors affecting a substantial number of people?

Less Than Significant Impact. The proposed project would not emit objectionable odors that would affect a substantial number of people. The threshold for odor is if a project creates an odor nuisance pursuant to SCAQMD Rule 402, Nuisance, which states:

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

The type of facilities that are considered to have objectionable odors include wastewater treatments plants, compost facilities, landfills, solid waste transfer stations, fiberglass manufacturing facilities, paint/coating operations (e.g., auto body shops), dairy farms, petroleum refineries, asphalt batch plants, chemical manufacturing, and food manufacturing facilities. The uses proposed by the project do not fall within the aforementioned land uses. Emissions from construction equipment, such as diesel exhaust and volatile organic compounds from architectural coatings and paving activities, may generate odors. However, these odors would be low in concentration, temporary, and are not expected to affect a substantial number of people. Therefore, impacts related to objectionable odors would be less than significant.

3.4 BIOLOGICAL RESOURCES

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 Wildlife 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 federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

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?

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?

No Impact. The project site is in the urbanized area of southern Glendale. The area is surrounded by commercial uses, with Cerritos Park to the south, and Forest Lawn Memorial Park to the east. No open space exists adjacent to the project site. The nearest open space area in the vicinity is Griffith Park in the City of Los Angeles, approximately 1.15 miles to the east.

The proposed project would be on the existing Cerritos ES campus that is developed and has been used for school-related activities for many years. Vegetation on the project site includes grass on the play field and entranceway, and bushes and trees adjacent to school buildings.

The school campus is in a completely built-out urban environment. The proposed project's improvements would occur on previously disturbed land. Existing vegetation at the campus consists primarily of landscaping trees and ornamental shrubs. As a result, no suitable habitat for sensitive mammals, reptile, or fish species exist on the project site. Additionally, no riparian habitat or other sensitive natural community exists on the project site, and no wetlands or other jurisdictional waters of the United States are located on the project site (FWS 2017). No surface water bodies or drainages occur on the project site. The site does not provide nursery sites for wildlife, nor is it conducive to function as a corridor for migratory wildlife. No streams or waterways are located on the project site. According to the City's General Open Space and Conservation Element, the project site is not located within a biological resource area, significant ecological area, or a natural community. There are no adopted habitat conservation plans, natural community conservation plans, or other approved local, regional, or state habitat conservation plans that govern the project site (Glendale 1993).

The installation of field lighting and synthetic turf on an existing grass field, and installation of an all-weather track surface, would not disrupt biological resources, and no impact would occur.

3.5 CULTURAL RESOURCES

a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?

No Impact. Section 15064.5 defines historic resources as resources listed or determined to be eligible for listing by the State Historical Resources Commission, a local register of historical resources, or the lead agency. Generally a resource is considered "historically significant" if it meets one of the following criteria:

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

According the City of Glendale General Plan, Historic Resources Element (Glendale 1997), there are no identified historic resources located on the Cerritos ES campus. The project would involve the installation of athletic field light fixtures, replacement of the field grass with synthetic turf, and the addition of a track. The installation of the athletic field lights would occur within the footprint of the existing athletic field and not near any listed historic buildings or other historic resources located in the vicinity of the project site. Athletic field improvements would occur on the existing field and would not result in changes to the existing elementary school buildings. Therefore, the proposed project would result in no impact to historic resources.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?

Less Than Significant Impact With Mitigation Incorporated. The proposed project involves replacing the existing grass field with synthetic turf, and installing a track, and field lighting. The project site is located within an urbanized area within the City of Glendale (i.e. not undeveloped, pristine land). As the property has been previously disturbed and currently supports similar sports field uses, it is not anticipated that unknown archaeological resources are present on-site. In the unlikely event such resources are discovered during project grading and/or excavation activities, adherence to standard protocols pertaining to the discovery of unknown cultural resources would ensure that any discovery is properly managed. In order to ensure that impacts to archeological resources do not occur, the following mitigation measure, CUL-1 has been identified.

Mitigation Measure

CUL-1 If any prehistoric and/or historic resources or other indications of cultural resources are found during future development of the site, all work in the immediate vicinity of the site must stop and the project construction contractor shall immediately notify the City of Glendale. An archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards in prehistoric or historical archaeology, as appropriate, shall be retained to evaluate the finds and recommend appropriate mitigation measures.

Timing/Implementation: *During future grading and construction activities*

Monitoring/Enforcement: *City of Glendale*

With implementation of mitigation measure CUL-1, impacts would be less than significant.

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant Impact With Mitigation Incorporated. No paleontological resources are known to exist within the project area. The project site has been previously graded and any surficial paleontological resources, which may have existed at one time, have likely been previously disturbed or destroyed and therefore, implementation of the proposed project is not likely to uncover any such resources. In the unlikely event such resources are discovered during project grading and/or excavation activities, adherence to standard protocols pertaining to the discovery of unknown paleontological resources would ensure that any discovery is properly managed. In order to ensure that impacts to paleontological resources do not occur, the following mitigation measure, CUL-2 has been identified.

Mitigation Measure

CUL-2 If any paleontological resources are found during future development of the site, all work in the immediate vicinity of the find must stop and the project construction contractor shall immediately notify the City of Glendale. A qualified paleontologist (i.e., one with a graduate degree in paleontology, geology, or related field and having demonstrated experience in the vertebrate, invertebrate, or botanical paleontology of California) shall be retained to evaluate the finds and recommend appropriate mitigation measures.

Timing/Implementation: *During grading and construction activities*

Monitoring/Enforcement: *City of Glendale*

With implementation of mitigation measure CUL-2, impacts would be less than significant.

d) Disturb any human remains, including those interred outside of dedicated cemeteries?

Less Than Significant Impact. There are no cemeteries or known human burials at the site, and the subject property has been previously disturbed during construction of the facilities present on the site; however, ground disturbance (i.e., grading and excavation) would have the potential to result in discovery of human remains (although the potential is considered to be very low). In this unlikely event, the District would be responsible for compliance with California Health and Safety Code Section 7050.5 and CEQA Guidelines Section 15064.5. California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the county coroner has made the necessary findings as to origin. Further, pursuant to California Public Resources Code Section 5097.98(b), remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made. If the Los Angeles County coroner determines the remains to be Native American, the Native American Heritage Commission shall be contacted within a reasonable time frame. Subsequently, the Native American Heritage Commission shall identify the most likely descendant. The most likely descendant shall then make recommendations and engage in consultations concerning the treatment of the remains, as provided in Public Resources Code Section 5097.98. Mitigation measure MM-CUL-1 would ensure that impacts in this regard would be less than significant.

3.6 GEOLOGY AND SOILS

a) Expose people or structures to 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.

No Impact. The proposed project site is not listed within an Alquist-Priolo Earthquake Fault Zone (CGS 1999, 2014). No active faults are known to transect the site and, therefore, the site is not expected to be adversely affected by surface rupturing. No fault rupture is delineated by the Alquist-Priolo Earthquake Fault Zoning Map, and no hazard is anticipated at the proposed project site. Therefore, no impact would occur.

ii) Strong seismic ground shaking?

Less Than Significant Impact. As with all development in Southern California, the proposed project site is located in a seismically active region and may be subject to the effects of ground shaking. Strong ground shaking occurs when energy is released during an earthquake and varies dependent on the distance between the site and the earthquake, the magnitude of the earthquake, and the geologic conditions underlying and surrounding the site. The project site could be expected to experience strong ground shaking from numerous local and regional faults. Structures for human occupancy, such as the new restrooms proposed under this project, must be designed to meet or exceed California Building Code (CBC) standards for earthquake resistance. The CBC comprises California Code of Regulations Title 24 Part 2; is updated triennially; and the 2016 CBC took effect on January 1, 2017. The CBC contains provisions for earthquake safety based on factors including occupancy type, the types of soil and rock onsite, and the strength of ground motion with a specified probability at the site. Further, all development that would occur on the Cerritos ES campus would be required to comply with the requirements of the Division of the State Architect (DSA), that includes stringent seismic standards required by the Field Act. Conformance with the seismic safety provisions of the most current requirements of the CBC and the DSA would ensure adequate mitigation of the risks associated with faulting within, or proximate to, the project site. Impacts of the project would be less than significant.

iii) Seismic-related ground failure, including liquefaction?

Less Than Significant Impact. Liquefaction is a phenomenon in which cohesionless, saturated, fine-grained sand and sandy silt soils lose shear strength and fail due to ground shaking. Liquefaction is defined as the transformation of granular material from a solid state into a liquefied state as a consequence of increased pore-water pressure. The project site is not located within a liquefaction zone (CGS 1999, 2014). Impacts occurring as a result of seismic-related ground failure, including liquefaction, would be less than significant.

iv) Landslides?

No Impact. Significant landslides and erosion typically occur on steep slopes where stormwater and high winds can carry topsoil down hillsides. The project is located in a relatively level area, and there are no steep slopes where stormwater and high winds can carry topsoil down hillsides. Additionally, the project site is not located within an earthquake induced landslide zone (CGS 1999, 2014). Therefore, no impact would occur.

b) Result in substantial soil erosion or the loss of topsoil?

Less than Impact. The potential exists for soil erosion to occur during project construction when the grass field is removed, exposing the underlying ground surface. The construction contractor would be required to implement standard dust control measures and construction site storm water runoff control measures. Conformance with such standards would reduce the potential for substantial soil erosion or the loss of topsoil from the site during the grading and construction phase. Once the synthetic turf is installed, all exposed soil materials would be covered, and there would be limited potential for erosion or siltation to occur. Impacts in this regard would be less than significant.

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

Less Than Significant Impact. Due to the flat topography of the proposed project site, the potential for lateral spreading is considered very low. Additionally, as indicated under Section 3.6.a)(iii), the soils on the proposed project site are not susceptible to liquefaction. The potential for lateral spreading, liquefaction, subsidence, and other types of ground failure or collapse would be less than significant.

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

Less Than Significant Impact. Expansive or shrink-swell soils are soils that swell when subjected to moisture and shrink when dry. Expansive soils typically contain clay minerals that attract and absorb water, greatly increasing the volume of the soil. This increase in volume can cause damage to foundations, structures, and roadways. Conformance with the provisions of the most current requirements of the CBC would ensure adequate mitigation of the risks associated with expansive soils. Therefore, the potential impacts of expansive soils at the proposed project site would be less than significant.

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

No Impact. The proposed project would not produce wastewater that requires support of septic tanks or alternative wastewater disposal systems. Therefore, no impact would occur.

3.7 GREENHOUSE GAS EMISSIONS

This section evaluates the impacts of the Cerritos ES Multi-Purpose Field Project (proposed project) to cumulatively contribute to greenhouse gas (GHG) emissions. Because no single project is large enough to result in a measurable increase in global concentrations of GHG emissions, climate change impacts of a project are considered on a cumulative basis. The analysis in this section is based on buildout of the proposed project, as modeled using the California Emissions Estimator Model (CalEEMod) and trip generation found in the traffic impact analysis (see Section 3.16, Transportation/Traffic). The GHG emissions modeling for construction and operational phases are included in Appendix C.

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

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

Implementation of the proposed project would contribute to global climate change through direct emissions of GHG from on-site area sources and vehicle trips generated by the project, and indirectly through off-site energy production required for on-site activities, water use, and waste disposal. The total and net annual GHG emissions associated with full buildout of the proposed project are shown in Table GHG-1, *Operational Phase GHG Emissions*. As shown in this table, the net increase in GHG emissions of 221 Metric tons of carbon dioxide equivalent ($MTCO_2e$) annually would not exceed SCAQMD's bright-line screening threshold of 3,000 $MTCO_2e$. Therefore, the proposed project's cumulative contribution to the long-term GHG emissions in the state would be considered less than significant.

Table GHG-1 Operational Phase GHG Emissions

Sector	GHG Emissions $MTCO_2e$/Year	
	Proposed Project	Percent
Area	<1	<1%
Energy	0	<1%
Stadium Lighting	5	2%
Mobile	212	96%
Waste	<1	<1%
Water/Wastewater	<1	<1%

Table GHG-1 Operational Phase GHG Emissions

Amortized Construction[1]	3	1%
Total	221	100%
SCAQMD Bright-Line Threshold	3,000	N/A
Exceed Threshold?	No	N/A

Source: CalEEMod 2016.3.2. Based on IPCC's Fourth Assessment Report (AR4) Global Warming Potentials (GWPs). Totals may not equal 100 percent due to rounding.
Notes: Totals may not add to 100 percent due to rounding. $MTCO_2e$: Metric Tons of Carbon Dioxide-Equivalent.
[1] Short-term (one time) total construction emissions are amortized over a 30-year project lifetime in accordance with SCAQMD guidance and incorporated into the operational emissions analysis.

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

Less Than Significant Impact. Applicable plans adopted for the purpose of reducing GHG emissions include California Air Resources Board's (CARB) Scoping Plan, SCAG's 2016-2040 Regional Transportation Plan (RTP)/ Sustainable Communities Strategy (SCS), and the Greener Glendale Plan (GGP). A consistency analysis with these plans is presented below.

CARB Scoping Plan

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

Development projects accommodated under the proposed project are required to adhere to the programs and regulations identified by the Scoping Plan and implemented by state, regional, and local agencies to achieve the statewide GHG reduction goals of AB 32. These future individual development projects would comply with these statewide GHG emissions reduction measures. Project GHG emissions shown in Table GHG-1 include reductions associated with statewide strategies that have been adopted since AB 32. Therefore, the proposed project would not obstruct implementation of the CARB Scoping Plan.

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

SCAG's 2016-2040 RTP/SCS was adopted April 7, 2016. The RTP/SCS identifies multimodal transportation investments, including bus rapid transit, light rail transit, heavy rail transit, commuter rail, high-speed rail, active transportation strategies (e.g., bike ways and sidewalks), transportation demand management strategies, transportation systems management, highway improvements (interchange improvements, high-occupancy vehicle lanes, high-occupancy toll lanes), arterial improvements, goods movement strategies, aviation and airport ground access improvements, and operations and maintenance to the existing multimodal transportation system.

SCAG's RTP/SCS identifies that land use strategies that focus on new housing and job growth in areas served by high quality transit and other opportunity areas would be consistent with a land use development pattern that supports and complements the proposed transportation network. The overarching strategy in the 2016-2040 RTP/SCS is to allow the southern California region to grow in more compact communities in existing urban areas; provide neighborhoods with efficient and plentiful public transit and abundant and safe opportunities to walk, bike, and pursue other forms of active transportation; and preserve more of the region's remaining natural lands (SCAG 2016). The 2016-2040 RTP/SCS contains transportation projects to help more efficiently distribute population, housing, and employment growth as well as a forecast development that is generally consistent with regional-level general plan data. The projected regional development pattern—when integrated with the proposed regional transportation network identified in the RTP/SCS—would reduce per capita vehicular-travel-related GHG emissions and achieve the GHG reduction per capita targets for the SCAG region. The RTP/SCS does not require that local general plans, specific plans, or zoning be consistent with the RTP/SCS, but provides incentives for consistency for governments and developers. The proposed project would maintain the site's current land use and would not interfere with SCAG's ability to implement the regional strategies outlined in the 2016-2040 RTP/SCS. No impact would occur, and no mitigation measures are required.

Greener Glendale Plan

On March 27, 2012, City Council adopted the Greener Glendale Plan for Community Activities. This document was the last of three to addresses how the City of Glendale can help the community improve livability and conservation. Together with the Greener Glendale Plan for Municipal Operations (adopted November 1, 2011), and the 2010 Report, this document constitutes the GGP. The GGP inventories existing emissions in the City, adopts a target consistent with state goals, and develops an implementation plan to achieve a more sustainable Glendale. The GGP identifies and evaluates feasible and effective policies to reduce GHG emissions in order to reduce energy costs, protect air quality, and improve the economy and the environment. The policies identified in the GGP represent the City's actions to achieve the GHG reduction targets of AB 32. The GGP includes sustainability measures for the following focus areas: Cross-Cutting Approaches, Economic Development, Urban Design, Waste, Energy, Urban Nature, Water, Transportation, and Environmental Health. The proposed athletic field replacement would include artificial turf fields, which will reduce water demand and waste from the school facilities. Similarly, the proposed project will be consistent with the urban design and urban nature goals of the GGP by redesigning the current athletic space and creating green space for the community to enjoy. Lighting associated with the field improvements will be energy efficient in compliance with the latest California regulations. Therefore, the proposed project would be consistent with applicable potions of the GGP and would not conflict with the GGP. Impacts are considered less than significant.

3.8 HAZARDS AND HAZARDOUS MATERIALS

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

Less Than Significant Impact With Mitigation Incorporated. Hazardous materials associated with the proposed project would consist mostly of construction related equipment and materials. Operation of the proposed project would not require the handling of hazardous materials or result in the production of large amounts of hazardous waste. Use and/or storage of any hazardous materials at the project site are expected to be minimal and would not constitute a level that would be subject to regulation.

During the construction phase, hazardous materials in the form of solvents, glues, and other common construction materials containing toxic substances may be transported to the site, and construction waste that possibly contains hazardous materials could be transported off the site for purposes of disposal.

There are no known hazardous materials on the project site other than typical custodial and landscaping related materials, and no known previous site uses that would indicate the presence of hazardous materials. Any potential hazardous materials encountered during construction activities would be disposed of in compliance with all applicable federal, state, and local regulations for the handling of such waste. Adherence to all applicable federal and state laws related to appropriate documentation, routine transport, use, or disposal of hazardous materials would reduce the likelihood and severity of accidents which might occur during disposal of site-generated hazardous wastes, transit of hazardous waste, and project-induced upset from hazardous materials to a level that is less than significant with mitigation. Implementation of mitigation measure MM-HAZ-1 would ensure that impacts are less than significant.

Mitigation Measure

HAZ-1 If grading activities indicate the presence of any hazardous materials, work will cease to allow for the appropriate investigation into and action of the potential hazards. A licensed environmental assessment team will be enlisted to perform soil sampling of the area in question and determine the necessary actions to ensure the safety of the site with regards to hazardous materials.

Timing/Implementation: *During grading and construction activities*

Monitoring/Enforcement: *City of Glendale*

With implementation of mitigation measure HAZ-1, impacts would be less than significant.

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?

Less Than Significant Impact With Mitigation Incorporated.

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CONSTRUCTION EFFECTS

The project site appears on a regulatory agency database (GeoTracker 2018) due to the Department of Toxic Substances Control (DTSC) No Action Required determination based on the results of a Phase 1 investigation conducted in 1999 indicating no presence of hazardous materials on the project site. While not anticipated, construction activities associated with the proposed project could result in the exposure of construction personnel and the public to unidentified hazardous substances in the soil. Exposure to unanticipated hazardous substances could also occur from previously unidentified soil contamination caused by migrating contaminants originating at nearby listed sites, namely a Leaking Underground Storage Tank located to the southeast of the site that was issued a No Further Action Letter by DTSC after a cleanup operation in 2005. Exposure to hazardous materials during construction activities could occur as a result of any of the following:

- Direct dermal contact with hazardous materials
- Incidental ingestion of hazardous materials (usually due to improper hygiene, when workers fail to wash their hands before eating, drinking, or smoking)
- Inhalation of airborne dust released from dried hazardous materials

The California Occupational Safety and Health Administration (Cal-OSHA) regulates worker safety with respect to the use of hazardous materials, including requirements for safety training, availability of safety equipment, hazardous materials exposure warnings, and emergency action and fire prevention plan preparation. Cal-OSHA enforces the hazard communication program regulations, which include provisions for identifying and labeling hazardous materials, describing the hazards of chemicals, and documenting employee training programs.

Compliance with existing regulations would ensure that construction workers and the general public are not exposed to any unusual or excessive risks related to hazardous materials during construction activities. Mitigation measure HAZ-1, above, would ensure that impacts associated with the exposure of construction workers and the public to hazardous materials during construction activities for the proposed project would be less than significant.

OPERATIONAL EFFECTS

It is not anticipated that operation of the proposed project would create a significant hazard to the public or the environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the environment. Hazardous materials that could be stored within the project site would consist of common chemicals associated with custodial and landscaping activities. Development of the proposed project would include the use and storage of common hazardous materials such as paints, solvents, and cleaning products for maintenance of the restroom facilities.

The properties and health effects of different chemicals are unique to each chemical and depend on the extent to which an individual is exposed. The extent and exposure of individuals to hazardous materials would be limited by the relatively small quantities of these materials that are expected to be stored and used on the project site. As common maintenance products and chemicals would be used in accordance with all warning labels and storage recommendations from the individual manufacturers, these hazardous materials would not pose any greater risk than at any other similar development. Therefore, the probability of a major hazardous materials incident would be remote for the proposed project. Minor incidents could occur, but the consequences of such accidents would likely not be severe due to the types and amount of common chemicals anticipated to be used at the site. Impacts would be less than significant.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Less Than Significant Impact. The proposed project site is the grass field and hardscape area on the existing Cerritos ES campus. The next closest school to the project site is the Armenia School Foundation located 0.25 mile to the southeast. As discussed above under Responses 8.a) and 8.b), the use of hazardous materials and substances during the operation of the proposed project are generally minimal and in small quantities. Currently, hazardous materials are used at Cerritos ES for maintenance and repair activities, landscaping, air conditioning, and medical supplies. Operation of the Cerritos ES facility would continue as under existing conditions. All hazardous materials and substances at the proposed project site would be subject to federal, state, and local health and safety requirements (i.e. Resource Conservation and Recovery Act (RCRA), California Hazardous Waste Control Law, and principles prescribed by the California Department of Health Services, Centers for Disease Control and Prevention, and National Institutes of Health) and the proposed project would be under the regulatory oversight agencies (e.g., Los Angeles County Environmental Health Division, DTSC and/or Regional Water Quality Control Board (RWQCB). Impacts on the proposed project would be less than significant regarding the emission or handling of hazardous or acutely hazardous materials, substances, or wastes within 0.25 mile of an existing or proposed school (air quality emissions are discussed in Section 3, above).

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

No Impact. The proposed project site is not known to be a hazardous materials site as discussed in 8.b) above. Adherence to existing laws and regulations would ensure that the no impact associated with exposure to hazardous materials from the development of the proposed project would occur.

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

No Impact. The proposed project site is located approximately 7.75 miles southeast of the Hollywood Burbank Airport, located at 2627 North Hollywood Way in the City of Burbank. According to the Burbank/Glendale/Pasadena Airport Influence Area Map, the proposed project site is not located in an airport land use plan area (Los Angeles 2004). As a result, the proposed project would not result in safety hazards for people residing or working in the area, and no impact would occur.

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

No Impact. Refer to Response 8.e) above

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No Impact. The installation of a turf field and field lighting system would not interfere with an emergency response plan or an emergency evacuation plan and will in no way interfere with the City of Glendale emergency operations. Therefore, implementation of the proposed project would have no impact on emergency response or evacuation plans.

h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

No Impact. The proposed project site and surrounding area are characterized by features typical of an urban landscape. No wildlands exist within the immediate vicinity of the proposed project site. Consequently, development of the proposed project would not result in the exposure of people or structures to hazards associated with wildland fires and no impact would occur.

3.9 HYDROLOGY AND WATER QUALITY

a) Violate any water quality standards or waste discharge requirements?

Less Than Significant Impact. Urban runoff (both dry and wet weather) discharges into storm drains and in most cases, flows directly to creeks, rivers, lakes, and the ocean. Polluted runoff can have harmful effects on drinking water, recreational water, and wildlife. Urban runoff pollution includes a wide array of environmental, chemical, and biological compounds from both point and nonpoint sources. In the urban environment, stormwater characteristics depend on site conditions (e.g., land use, impervious cover, pollution prevention, types and amounts of best management practices), rain events (duration, amount of rainfall, intensity, and time between events), soil type and particle sizes, multiple chemical conditions, the amount of vehicular traffic, and atmospheric deposition. Major pollutants typically found in runoff from urban areas include sediments, nutrients, oxygen-demanding substances, heavy metals, petroleum hydrocarbons, pathogens, and bacteria.

Urban runoff can be divided into two categories: dry and wet weather urban runoff.

- Dry weather urban runoff occurs when there is no precipitation-generated runoff. Typical sources include landscape irrigation runoff, driveway and sidewalk washing, noncommercial vehicle washing, groundwater seepage, fire flow, potable water line operations and maintenance discharges, and permitted or illegal non-stormwater discharges.

- Wet weather urban runoff refers collectively to nonpoint source discharges that result from precipitation events, including stormwater runoff. Stormwater discharges are generated by runoff from land and impervious areas such as building rooftops and paved streets and parking lots.

In 1999, the State Water Resources Control Board (SWRCB) adopted Order No. 99-08-DWQ, National Pollution Discharge Elimination System (NPDES) General Construction Permit No. CAS000002, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction Activity (General Construction Permit). This permit was subsequently amended to include smaller construction sites. The general construction permit requires that construction sites with 1 acre or greater of soil disturbance, or less than 1 acre, but part of a greater common plan of development, apply for coverage for discharges under the general construction permit by submitting a Notice of Intent (NOI) for coverage, developing a stormwater pollution prevention plan (SWPPP), and implementing best management practices (BMPs) to address construction site pollutants. The SWRCB is responsible for implementing the Clean Water Act and issues NPDES permits to cities and counties through the individual Regional Water Quality Control Boards.

Construction of the proposed project would be subject to local, state, and federal water quality regulations. This includes, but is not limited to, required adherence to the federal Clean Water Act (CWA), Los Angeles RWQCB regulations, NPDES requirements, the National Flood Insurance Act, California Department of Water Resources (DWR) requirements, the California Fish and Wildlife Code, the California Water Code, and other applicable regulatory requirements. Development of the proposed project would cause a significant impact to hydrology and water quality if associated construction activities or operations would result in the violation of any water quality or waste discharge standards.

Prior to construction, the City would be required to prepare a SWPPP and obtain a waste discharge identification number from the SWRCB. The SWPPP would include a series of specific measures that would be included in the construction process to address erosion, accidental spills, and the quality of stormwater runoff. BMPs that must be implemented as part of a SWPPP can be grouped into two major categories: erosion and sediment control BMPs, and non-stormwater management and materials management BMPs. Erosion controls include practices to stabilize soil, to protect the soil in its existing location, and to prevent soil particles from migrating. Sediment controls are practices to collect soil particles after they have migrated but before the sediment leaves the site. Examples of sediment control BMPs are street sweeping, fiber rolls, silt fencing, gravel bags, sand bags, storm drain inlet protection, sediment traps, and stockpile management areas. Tracking controls prevent sediment from being tracked off site via vehicles leaving the site to the extent practicable. A stabilized construction entrance not only limits the access points to the construction site but also functions to partially remove sediment from vehicles prior to leaving the site.

Requirements for waste discharges to stormwater from operation of developed land uses within the coastal watersheds of Los Angeles and Ventura counties are set forth in the Municipal Stormwater Permit (MS4 Permit), Order No. R4-2012-0175 as amended by State Water Board Order WQ 2015-0075 and Los Angeles Water Board Order R4-2012-0175-A01, issued by the Los Angeles Regional Water Quality Control Board in 2015. The project would include preparation and implementation of a water quality management plan pursuant to the MS4 Permit, specifying BMPs to be used during project design and operation to minimize stormwater pollution. In compliance with the MS4 Permit, specific non-structural (i.e., litter/debris control program) and structural source control BMPs (i.e., design and construct outdoor material storage and trash and waste storage areas to reduce pollution introduction) would be incorporated into the project design. It is anticipated that project conformance with appropriate BMPs and compliance with applicable local, state, and federal water quality regulations, in combination with design standards implemented by the City, would reduce potential water quality impacts during construction and operation to less than significant. Refer also to Section 9.(c).

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

Less Than Significant Impact. The project site is currently developed land on the existing Cerritos ES campus. The majority of the project would result in the installation of synthetic all-weather turf for the field and track, thereby allowing stormwater to continue to infiltrate through the ground surface. Only the hardscape area, which would be smaller than that of the current site, as well as the addition of restroom and storage facilities, would support impervious surfaces. The increase in impervious surfaces on-site with project implementation, as compared to existing conditions, is not anticipated to be substantial relative to groundwater recharge in the area.

The proposed project site is neither a designated groundwater recharge area, nor does the project site serve as a primary source of groundwater recharge. No water features (e.g., streams or creeks) that serve the purpose of groundwater recharge for the area are located in the project vicinity. Therefore, implementation of the proposed project would not substantially deplete groundwater supplies or interfere with groundwater recharge, and a less than significant impact would occur.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in a substantial erosion or siltation on- or off-site.

Less Than Significant Impact. Refer to Response 9.a), above. As stated above, the contractor would be responsible for preparation and implementation of a SWPPP by using a qualified SWPPP practitioner as defined in the General Construction Permit. This includes maintenance of erosion and sediment control during the life of the project.

Implementation of the proposed project would not substantially alter the existing drainage patterns as the proposed uses would occur on the existing athletic field and track. The City's contractor will be required to prepare a SWPPP in order to comply with the RWQCB's General Construction Storm Water Permit. The SWPPP will identify BMPs to be implemented during construction activities at the proposed project site to minimize soil erosion and protect existing drainage systems. Compliance with existing regulations developed to minimize erosion and siltation would reduce this impact to a less than significant level.

Synthetic turf field would not inhibit groundwater recharge and drainage, compared to the existing grass field. Project infrastructure would connect to existing off-site storm drain infrastructure, and no upgrades or expansion of such existing off-site facilities would occur with project implementation. The proposed on-site drainage system would slow stormwater runoff velocities, allow sediment to settle out of the water, and capture trash and debris collected in the system. Furthermore, standard BMPs designed to prevent erosion both during and after construction would be implemented. While the proposed project would alter the existing on-site drainage patterns, any such alterations would be designed to meet local, state, and federal water quality standards and to ensure that stormwater flows do not result in substantial erosion or siltation.

The proposed project would not substantially alter the existing drainage pattern of the site, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site. Impacts would be less than significant.

d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

Less Than Significant Impact. Refer to Response 9.c), above. The project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site. Impacts would be less than significant.

e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?

Less Than Significant Impact. Refer to Responses 9.b) and 9.c), above. Grading and drainage improvement plans will be prepared for the project, consistent with local, state, and federal water quality requirements. The project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. All drainage improvements proposed would occur in conformance with the grading and drainage improvement plans prepared and approved by the DSA to reduce potential water quality impacts during construction and operation to less than significant. The City's existing stormwater infrastructure is adequate to accommodate stormwater runoff from the site, which would not increase in rate or amount as compared to existing conditions with project implementation. Impacts would be less than significant.

f) Otherwise substantially degrade water quality?

Less Than Significant Impact. As stated in Responses 9.a) and 9.e), above, compliance with existing laws and regulations would ensure that the proposed project would result in a less than significant impact with respect to water quality or drainage of the proposed project area.

g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

No Impact. The proposed project area is within Federal Emergency Management Agency (FEMA) Flood Zone Designation X (Zone X) (FEMA 2008). Zone X is an area of minimal flood hazard, usually depicted on Flood Insurance Rate Maps (FIRMs) as above the 500-year flood level. According to the City of Glendale General Plan Safety Element, the proposed project site is located within a dam failure inundation pathway,

3. Environmental Analysis

however due to current design and construction practices and on-going programs of review and modification, catastrophic failure is considered unlikely (Glendale 2003). Additionally, dam owners are required to submit emergency response plans to the State, and the City is required to have in place emergency procedures for the evacuation and control of populated areas within the limits of dam inundation. The proposed project site is not within a 100-year flood hazard area. No housing is proposed with the project, and no impacts would occur.

h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?

No Impact. Refer to Response 9.g), above. Proposed site improvements are similar in nature to that of the existing site and do not have the capacity to impede or redirect flood flows. No impacts would occur.

i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

Less Than Significant. Refer to Response 9.g), above. The project site is not located in a flood hazard area; therefore, the significant risk of loss, injury, or death involving flooding is minimal. Although the project site is located in a dam inundation zone, inundation is unlikely, safety and emergency evacuation protocols would be followed, and onsite uses would not change as a result of the project.

The project site is currently developed with activity field uses similar to those proposed with the project. As such, the proposed improvements would not substantially change on-site circumstances regarding flooding or substantially increase the number of people potentially exposed to hazards caused by flooding events. If a flooding event occurred, occupants of the project site would follow existing evacuation procedures, as under present conditions, or other hazard mitigation plans in effect at the time to minimize or avoid potential risks to public safety. Therefore, the project would not expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam. No impacts would occur.

j) Inundation by seiche, tsunami, or mudflow?

No Impact. A seiche is a surface wave created when a body of water is shaken, usually by earthquake activity. Seiches are of concern relative to water storage facilities because inundation from a seiche can occur if the wave overflows a containment wall, such as the wall of a reservoir, water storage tank, dam or other artificial body of water. Although there are no large water tanks in the area that could impact the proposed project site, there are dams in the region that could create flooding impacts. Thirteen dams in the greater Los Angeles area moved or cracked during the 1994 Northridge earthquake. However, none were severely damaged. This low damage level was due in part to completion of the retrofitting of dams and reservoirs pursuant to the 1972 State Dam Safety Act.

The project site is located approximately 15.75 miles to the northeast of the Pacific Ocean and is therefore not located in a tsunami inundation zone. Furthermore, the project site is an existing elementary school campus surrounded by developed, urban land uses. Topography on the campus is generally flat. Lands immediately surrounding the site are also generally flat in nature with topography sloping to the southwest, and no hillsides that would be potentially subject to mudslide events are present in the immediate vicinity. Large bodies of water such as lakes or reservoirs located within a 5-mile radius of the site include the Los Angeles River approximately 1 mile to the west, the Rowena Reservoir approximately 1.3 miles to the southwest, and the Ivanhoe Reservoir approximately 1.6 miles to the southwest, all of which are located downstream from the project site. Therefore, the project is not subject to inundation by tsunami, seiche, or mudflow, and no impacts would occur.

3.10 LAND USE AND PLANNING

a) Physically divide an established community?

No Impact. The proposed project would not divide an established residential community, as the proposed project would occur entirely on an existing school campus. It is anticipated that all proposed improvements would occur within the interior of the site, and that no off-site improvements (e.g. construction of new roadways) would be required. Therefore, no impacts would occur.

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact. The City of Glendale General Plan Land Use Element designates the project site as Community Services Commercial (Glendale 1986). The elementary school campus is zoned as Commercial Service Height District I (C3 I); however, government (state) owned facilities (i.e. public schools) override city zoning (Government Resources Code Sections 53094, 65402[a], 65403, and Public Resources Code Section 21151.2). No changes to the existing land use designation or zoning is required or proposed with the project. The proposed project would result in a continuation of the existing use of the site as athletic fields, allow for the extended use of the project site by existing uses, and therefore would not conflict with the intended use of the property or with surrounding land uses. The project site would remain designated as a school with implementation of the proposed project and would continue to operate under the current general plan and zoning designations. Therefore, the proposed project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project. No impacts would occur.

c) Conflict with any applicable habitat conservation plan or natural community conservation plan?

No Impact. The project site is in an urbanized area where surrounding lands are largely built out. There is no adopted habitat conservation plan (HCP), natural community conservation plan (NCCP), or other approved local, regional, or state habitat conservation plan that governs the project site (CDFW 2017). Therefore, the proposed project would not conflict with any applicable habitat conservation plan or natural community conservation plan. No impacts would occur.

3.11 MINERAL RESOURCES

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

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

No Impact. No mineral resource recovery sites of statewide or regional significance are located on or in the immediate vicinity of the project site according to the City of Glendale General Plan, Open Space and Conservation Element. The project site is identified as being in a Mineral Resource Zone (MRZ) 3, an area containing mineral deposits whose significance cannot be evaluated from available data (Glendale 1993). Urbanized areas in Glendale are precluded from resource development and the project site is currently developed as an existing elementary school campus; therefore, implementation of the proposed project would not result in the loss of availability of a known mineral resource or resource recovery site. No mineral resource impacts would occur.

3.12 NOISE

Noise is defined as sounds that are loud, unpleasant, unexpected, or otherwise undesirable. Excessive noise is known to have several adverse effects on people, including hearing loss, speech and sleep interference, physiological responses, and annoyance. Based on these known adverse effects of noise, the federal government, state, and City have established criteria to protect public health and safety and to prevent the disruption of certain human activities, such as classroom instruction.

Existing Noise Environment

The project site is located on the Cerritos ES campus, in the City of Glendale. The project site is bounded by East Cerritos Avenue to the north, San Fernando Road to the south, South Glendale Avenue to the east, and South Brand Boulevard to west (see Figure 2, *Local Vicinity*). Cerritos Avenue is an east-west two-lane Minor Arterial roadway; San Fernando Road, Glendale Avenue, and South Brand are all four lane Major Arterial roadways. The major sources of noise in the project site are vehicular traffic along these roadways. Land uses surrounding the project site include commercial, retail and restaurant uses, including auto service and sales to the north and west of the site.

The generation of noise and vibration associated with the proposed project would occur over the short-term for site construction activities. In addition, noise would result from the long-term operation of the project. Both short-term and long-term noise impacts associated with the project are examined in the following analyses that correspond to the CEQA Guidelines.

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less than Significant Impact. Sound is measured on a logarithmic scale consisting of sound pressure levels known as a decibel (dB). The sounds heard by humans typically do not consist of a single frequency but of a broadband of frequencies having different sound pressure levels. The method for evaluating all the frequencies of the sound is to apply an A-weighting level to reflect how the human ear responds to the different sound levels at different frequencies. The A-weighted sound level adequately describes the instantaneous noise whereas the equivalent sound level depicted as Leq represents a steady sound level containing the same total acoustical energy as the actual fluctuating sound level over a given time interval.

The Community Noise Equivalent Level (CNEL) is the 24-hour A-weighted average for sound, with corrections for evening and nighttime hours. The corrections require an addition of 5 decibels to sound levels in the evening hours between 7 p.m. and 10 p.m. and an addition of 10 decibels to sound levels at nighttime hours between 10 p.m. and 7 a.m.

SHORT-TERM NOISE LEVELS

The construction activities associated with the proposed project could result in a temporary increase in ambient noise levels. Construction noise could be generated by dirt haulers, concrete mixers, materials delivery and on-site movement, and hand and power tools such as hammers, skill saws, pneumatic nail guns, and power drills, as well as by the arrival and departure of construction laborers and the on-site servicing of equipment.

Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., land clearing, grading, excavation, paving). Noise generated by construction equipment, including earth movers, material handlers, and portable generators, can reach high levels. Typical noise levels associated with individual construction equipment are listed in Table NOI-1 (Typical Outdoor Construction Noise Levels).

Table NOI-1 Typical Outdoor Construction Noise Levels

Equipment	Typical Noise Level (dBA) at 50 Feet from Source	
	L_{max}	L_{eq}
Air Compressor	80	76
Backhoe/Front End Loader	80	76
Compactor (Ground)	80	73
Concrete Mixer Truck	85	81
Concrete Mixer (Vibratory)	80	73
Concrete Pump Truck	82	75
Concrete Saw	90	83
Crane	85	77
Dozer/Grader/Excavator/Scraper	85	81

Table NOI-1 Typical Outdoor Construction Noise Levels

Equipment	Typical Noise Level (dBA) at 50 Feet from Source	
	L_{max}	L_{eq}
Drill Rig Truck	84	77
Generator	82	79
Gradall	85	81
Hydraulic Break Ram	90	80
Jackhammer	85	78
Impact Hammer/Hoe Ram (Mounted)	90	83
Pavement Scarifier/Roller	85	78
Paver	85	82
Pneumatic Tools	85	82
Pumps	77	74
Truck (Dump/Flat Bed)	84	80

Construction activities are projected to last approximately three months. The City of Glendale General Plan Noise Element identifies that noise sensitive land uses include residences of all types, hospitals, rest homes, places of worship and schools (Glendale 2007). The closest noise sensitive receptor, in addition to the project site, is the Faith Center Church, located approximately 370 feet to the north of the proposed project site, across from Cerritos Avenue, and the mixed-use residential uses, located approximately 585 feet to the south of the project site, across from San Fernando Road.

As shown in Table NOI-1, maximum noise levels from construction activities could be as high as 85 dBA. However, overall noise emissions vary considerably, depending on what specific activity is being performed at any given moment. Noise attenuation due to distance, the number and type of equipment, and the load and power requirements to accomplish tasks at each construction phase would result in different noise levels from construction activities at a given sensitive receptor. Since noise from construction equipment is intermittent and diminishes at a rate of at least 6 dB per doubling distance (conservatively ignoring other attenuation effects from air absorption, ground effects, and/or shielding/scattering effects), the average noise levels at noise-sensitive receptors could vary considerably, because mobile construction equipment would move around the site with different loads and power requirements. As such, it is anticipated that construction related noise levels would be substantially lower than the maximum 85 dBA at the Faith Center Church or the mixes-use residential uses. Further, the existing Cerritos ES campus buildings are located between the proposed project site and the Faith Center Church, which will serve to reduce the effect of elevated construction noise. Further, the Faith Center Church hold services once weekly on Sundays at 11:00 A.M., and thus attendees of the church would not be exposed construction related noise (Scott, 2018).

The City of Glendale Municipal Code Section 8.36.080 allows for noise resulting from construction activities to be exempt from noise limits established in the Code. In accordance with the Noise Ordinance, construction activities would also be limited to the hours of 7:00 a.m. and 7:00 p.m. on Monday through Saturday and is prohibited on Sundays and federal holidays. Construction would not occur except during the times permitted in the Noise Ordinance, and the Municipal Code Section 8.36.080 allows construction noise in excess of standards to occur between these hours. As construction would not occur except during the times permitted in the Noise Ordinance, and as the Municipal Code Section 8.36.080 allows construction noise in excess of standards to occur between these hours, the proposed project would not violate established standards.

OPERATIONAL NOISE LEVELS

Operation of the proposed project would not involve new uses at the Cerritos ES practice field, rather, the proposed project would allow for the extended use of the project site past dusk by existing uses and the increase in use due to the utilization of the sports fields by city programs. The adjacent Cerritos Park is available for public use until 10:00 p.m. seven days a week. As such, the extension of the hours of operation of the athletic field that would result with implementation of the proposed project would represent a minimal expansion of nighttime activities compared to the existing conditions. City of Glendale Municipal Code Section 8.36.290(b) (Exemptions) specifically allows for:

> Activities conducted on public parks or playgrounds and public or private school grounds including but not limited to school athletic and school entertainment events or outdoor activities such as public dances, shows, sporting events, and entertainment events provided such events are conducted pursuant to a permit issued by the City where otherwise required.

The proposed project includes two fields; a main field and a practice field. The proposed project would not include any spectator seating; spectators are expected to stand or bring their own portable seating. It is assumed that the multi-purpose field would be in use approximately 340 days out of the year. The event-noise analysis assumed soccer games occurring at both fields, with spectator areas to the south of the main field and to the east of the practice field. Event noise is highly variable, depending on the type and level of activities; both in the spectator areas and on the field. These variables include:

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

It is anticipated that the field lights would not be in use past the hour of 10:00 PM at any time, similar to the Cerritos Park. Therefore, night time use that would utilize the field lighting would not result in new noise sources associated with uses on the practice field but would result in changes to when these uses typically occur, as evening uses could more easily be accommodated. As previously identified, the closest noise sensitive receptor is the Faith Center Church, located approximately 370 feet to the north of the project site, and mixed-use residential uses, located approximately 580 feet to the south. It is anticipated that nighttime noise generated from project implementation would be reduced by the intervening structures of the Cerritos ES campus and the church structures. Additionally, the Faith Center Church hold services once weekly on Sundays at 11:00 A.M., and thus attendees of the church would not be exposed evening game time related noise. Similarly, the residential uses to the south would not be impacted as the noise would be masked by the ambient sounds from vehicle traffic along San Fernando Boulevard, and the intervening structure of the gas station between the new field and the residential structures. For these reasons, long-term operational noise levels would be considered a less than significant impact.

b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Less than Significant Impact. Vibration generated by construction-related activities on the proposed project site would be restricted by the requirements of the City's noise ordinance pursuant to the provisions of Municipal Code Section 8.36.080, which states:

> Operating or permitting the operation of any device that creates a vibration which is above the vibration perception threshold of an individual at or beyond the property boundary of the source if on private property or at one hundred fifty feet from the source if on a public space or public right-of-way shall be a violation.

Project construction would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved. Vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. The City of Glendale defines the "vibration perception threshold" as a motion velocity of 0.01 in/sec over the range of one to one hundred Hz. This is also the level at which vibrations may begin to annoy people in buildings. Table NOI-2 (Typical Construction Equipment Vibration Levels) displays vibration levels for typical construction equipment.

Table NOI-2 Typical Construction Equipment Vibration Levels

Equipment Type	Peak Particle Velocity at 25 Feet (inches per second)
Large Bulldozer	0.089
Caisson Drilling	0.089
Loaded Trucks	0.076
Rock Breaker	0.059
Jackhammer	0.035
Small Bulldozer/Tractor	0.003

It is acknowledged that construction activities would occur throughout the project site and would not be concentrated at the point closest to the nearest structure. The nearest off-site structures to any of the construction areas include commercial buildings 265 feet to the west. Based on the vibration levels presented in Table NOI-2, ground vibration generated by heavy-duty equipment could reach levels of 0.089 inches per second peak particle velocity at 25 feet. Therefore, the use of construction equipment would not result in a groundborne vibration velocity level above 0.1 inches per second at the nearest off-site structure 265 feet away. Once operational, the project would not be a source of groundborne vibration. For these reasons, the impact would be less than significant.

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Less than Significant Impact.

CONSTRUCTION RELATED NOISE

Construction activities may take place while school is in session; therefore, construction noise would be audible inside some classrooms. At times, noise levels may be high enough to cause some temporary annoyance. Construction would occur over approximately 3 months; however, during this timeframe, not all phases of construction would involve the use of noisy construction equipment. As with other construction projects at schools throughout the District, if construction occurs while classes are in session, school administrators will ensure that classroom instruction is not significantly affected by construction noise.

School administration and the construction contractor will work together to coordinate and stay informed about construction activities, location, schedule, and possible high noise levels during each construction phase. Administrators can arrange for alternative classroom occupancy in the event that construction noise causes any disturbance to classroom instruction. Other typical methods for dealing with classroom disruption are for the construction contractor to conduct the loudest or closest activities before or after class instruction at the nearest classrooms, or to install a noise barrier. Construction noise would not significantly impact surrounding commercial neighborhoods. Field construction would generate the same type of construction noise as other construction projects on other school campuses. Impacts to classrooms would be less than significant.

ROADWAY RELATED NOISE LEVELS

The project would generate noise associated with additional vehicles traveling to and from the project site on local roadways. However, community noise environments would not appreciably change as a result of project implementation. That is, per the traffic impact analysis, the project would generate 4 trips in the AM peak hour, 49 trips in the PM peak hour, and 69 trips in weekend peak hours. (PlaceWorks, 2018). In comparison to existing traffic flows on Brand Avenue (8,342 average daily trips in the vicinity of the project site), the project contribution represents a worst-case increment of less than 0.005 percent (PlaceWorks 2018). San Fernando Road has an average daily trip rate of 5,462. Therefore, project contribution represents a worst-case increment of less than 0.08 percent. This small increment in flows translates into less than 0.05 dB of traffic-generated noise. Further, the project site is surrounded by commercial uses, and the minor incremental increase in noise levels would be masked by the existing noise environment. While there will be an increase in average daily trips, the intensity of hourly trips as a result of the proposed project will not be more than activities during school hours, such as student pick up and drop off. The increases in vehicle noise from implementation of the proposed project would be well below the threshold of audibility and well below the 3 dB threshold of significance.

As such, no roadways in the vicinity of the project site would experience project-generated increases in traffic noise levels that would be significant. Therefore, traffic noise increases would be less than significant, and no mitigation measures are necessary.

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STATIONARY NOISE

The proposed project would not introduce new uses to the Cerritos ES campus; rather the proposed project would allow for the extended use of the site by City of Glendale nonprofit youth groups (including youth sports, enrichment classes, and camps). Specifically, operation of field lighting would allow for these groups to utilize the field until 10:00 p.m., in accordance with the 199 Joint Use Agreement. Noise from outdoor activities would occur from the use of these facilities. Noise would be highly variable depending on the level of activity. However, as previously stated, the extension of the hours of operation of the athletic field that would result with implementation of the proposed project would represent a minimal expansion of nighttime activities compared to the existing conditions. Therefore, long-term noise-related impacts associated with the proposed project would be similar to existing conditions and the proposed project is not expected to result in any substantial changes in the noise environment. As there are no noise sensitive receptors that would be exposed to increase in noise levels as a result of operation of the proposed project, impacts would be less than significant.

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Less than Significant Impact. As stated under Issue 3.12-a) above, short-term construction noise impacts to off-site sensitive receptor would be a less than significant impact. Implementation of the proposed project would allow for the extended use of the Cerritos ES campus by City of Glendale nonprofit youth groups represents an intermittent noise source, though one generated on an on-going basis. As stated under Issue 3.12-c) above, the effects of these activities are a less than significant impact.

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

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

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. Refer to Response 3.12.e), above.

3.13 POPULATION AND HOUSING

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

No Impact. The project site is located within the established Cerritos ES campus, and no new roads or extensions of existing roads that could enable development of undeveloped land are proposed. The proposed project does not include the construction of any new homes or businesses and would not result in any change in school enrollment**.** The objective of the proposed project is to provide athletic field/track improvements and lighting for the existing school and community uses. Therefore, no impacts involving direct or indirect increases in population growth would occur as a result of the proposed project.

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

No Impact. The project site is completely within the existing school boundaries. No residences would be displaced or removed as a result of the proposed project, and the proposed project would have no impact on existing housing. Therefore, no significant new housing impacts would occur.

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

No Impact. The proposed project would not involve the removal or relocation of any housing and would therefore not displace any people or necessitate the construction of any replacement housing. Therefore, no significant new displacement impacts would occur.

3.14 PUBLIC SERVICES

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

a) Fire protection?

Less Than Significant Impact. Fire prevention, fire protection, and emergency medical services in the project area are provided by the Glendale Fire Department. The proposed improvements would be constructed to meet the requirements of the state fire marshal. By adhering to the City's fire safety standards, the proposed project will not affect the Fire Department's performance objectives. Although the proposed improvements would result in additional usage of the site during organized events or practices, due to the nature of the facilities proposed, it is not anticipated that such conditions would substantially increase the need for fire protection services, alter response times, or adversely affect the department's ability to provide service to the site using existing equipment and personnel. Additionally, the City would have a Community

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Services & Parks Department employee on site during permitted field times when the school is not in use. Therefore, a less than significant impact would occur.

b) Police protection?

Less Than Significant Impact. Law enforcement services in the area are provided by the Glendale Police Department. Although the proposed improvements would result in additional usage of the site during organized events or practices, due to the nature of the facilities proposed, it is not anticipated that such conditions would substantially increase the need for police protection services, alter response times, or adversely affect the department's ability to provide service to the site using existing equipment and personnel. Additionally, the City would have a Community Services & Parks Department employee on site during permitted field times when the school is not in use. Therefore, a less than significant impact would occur.

c) Schools?

No Impact. The proposed project improvements would benefit students attending the existing Cerritos ES and would not result in an increase in student population. The proposed project would not result in land uses (e.g., housing) that would result in population growth or create a greater demand for school services. Therefore, no impact to schools would result from project implementation.

d) Parks?

No Impact. The proposed project is intended to allow for the construction and operation of a new athletic field/running track and field lighting at the existing Cerritos ES that would enhance recreational opportunities for students and enable community usage of the site. As such, the proposed project would not result in increased demand for additional park and recreation services either on-site or in the surrounding area. Access to community recreational opportunities would be increased, and the adjacent Cerritos Park would be utilized in conjunction with the proposed project. The proposed project would not cause an increase in area population that would have the potential to increase demands on the city's recreational amenities or public parks. As such, no impact regarding parks would occur.

e) Other public facilities?

No Impact. The proposed project is designed to serve the existing and future student population at Cerritos ES and to provide improved and expanded sports facilities for use by students and utilization of the multi-purpose field by the community. No new population would be generated by the proposed uses; therefore, no increased demand on other public facilities is anticipated. The project would not significantly affect any other public facilities. No impact would occur.

3.15 RECREATION

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

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 currently developed as a grass field that is utilized by Cerritos ES students and the surrounding community. Implementation of the proposed project would result in the installation and operation of a turf field, running track and field lighting, as well as the construction of a restroom and storage facility on the adjacent Cerritos Park, intended to better accommodate existing Cerritos ES students and community users. No residential uses are proposed with the project that would have the potential to generate new population growth that could increase demand for local or regional recreational facilities or parks. Due to the nature of the land uses proposed, the proposed project would not increase the use of existing neighborhood and regional parks or other recreational facilities, nor would the proposed project require the construction or expansion of recreational facilities that would result in adverse physical effects on the environment. No impact regarding recreation would occur.

3.16 TRANSPORTATION/TRAFFIC

a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

Less Than Significant Impact. Main access to the Cerritos ES campus is currently from East Cerritos Avenue. The proposed project will offer a multi-purpose field that will be similar in nature to the existing facilities, but that will improve upon the quality and capabilities of the facilities to provide recreational opportunities for Cerritos ES students and the community. The proposed project would not expand the school's enrollment capacity but is expected to increase traffic and parking demand around the project site due to expanded public use and city programming on weekday evenings and weekends. Project effects on the circulation system will generally be limited to late afternoon to evening and/or weekend hours, when outside community members will access the field for practices or events.

Construction of the proposed project would generate additional traffic on the existing area roadway network. These new vehicle trips would include construction workers traveling to the site as well as delivery trips associated with construction equipment and materials. Delivery of construction materials to the site would likely require oversize vehicles that may travel at slower speeds than existing traffic and, due to their size, may intrude into adjacent travel lanes. These oversize trips may decrease the existing level of service (LOS) on area freeways, roadways, and/or at intersections. Additionally, the total number of vehicle trips associated with all construction-related traffic (including construction workers) would temporarily increase daily traffic volumes traveling on local roadways and intersections.

Because of the limited nature of the proposed improvements, a significant number of construction trips to/from the site is not anticipated. Once materials are delivered to the site, all construction activities would occur on-site within the existing boundaries of the school campus and would not disrupt off-site traffic flows. Lane closures are not anticipated, and no off-site roadway improvements are required or proposed that would have the potential to interrupt area circulation or redirect traffic. As such, project construction is not anticipated to substantially disrupt area traffic or cause a significant increase in daily traffic on area roadways or at local intersections, thereby adversely affecting existing conditions. Per standard construction procedures, the construction contractor would prepare and implement a traffic control plan to ensure that public safety and emergency access are maintained during the construction phase. Implementation of the traffic control plan would ensure that existing conditions are not adversely affected or substantially degraded by project construction.

A traffic impact assessment (TIA) was prepared for the proposed project to estimate trip generation, analyze effects on intersection operations, and review area roadway capacity and access during weekday evenings and weekends. Appendix D encompasses this TIA and associated elements. Figure 9, *Study Area Roadway Network and Intersections*, identifies the five study area intersections and the number of through lanes for roadways in the study area. Five locations were defined as study intersections. One of the study intersections at Glendale Avenue and Cerritos Avenue is a three-way stop intersection, while the other four locations are four-way light intersections, as follows:

1) Glendale Avenue at San Fernando Road (signalized)
2) Brand Boulevard at San Fernando Road (signalized)
3) San Fernando Road at Cerritos Avenue (signalized)
4) Brand Avenue at Cerritos Avenue (signalized)
5) Glendale Avenue at Cerritos Avenue (three-way stop sign)

Weekday evening and weekend midday peak hour traffic operations were evaluated at the study intersections for each of the following traffic scenarios:

- Existing Conditions
- Existing With Project
- Opening Year Without Project
- Opening Year With Project

The City's General Plan Circulation Element has Level of Service (LOS) policies to maintain acceptable operations during weekday peak hours. A level of service is a standard performance measurement to describe the operating characteristics of a street system in terms of the level of congestion or delay experienced by motorists. Service levels range from A through F, that is, from the best traffic conditions (uncongested, free-flowing conditions) to the worst (total breakdown with stop-and-go operation). Table T-1, *Intersection Level of Service Descriptions* describes the level of service concept and the operating conditions expected under each level of service for signalized and unsignalized intersections.

The Intersection Capacity Utilization (ICU) method is used to calculate LOS for signalized intersections in the City of Glendale. The ICU signalized intersection methodology presents LOS in terms of volume to capacity ratio.

For unsignalized intersections, the Highway Capacity Manual (HCM) 2010 methodology is used to calculate LOS. The HCM 2010 unsignalized intersection methodology presents LOS in terms of control delay (in seconds per vehicle). Vistro software was used to determine the LOS at the study area intersections.

The intersection LOS analysis uses traffic volumes observed during the peak hour conditions. The peak hours selected for the analysis are the highest volumes that occur in four consecutive 15-minute periods from 4:00 PM to 6:00 PM on weekday evenings, and midday Saturday from 11:00 AM to 2:00 PM.

Table T-1 Intersection Level of Service Descriptions

		ICU Methodology (Signalized)	HCM Methodology (Unsignalized)
LOS	Description	V/C Ratio	Delay (seconds)
A	Level of Service A occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	0.000–0.600	≤ 10.00
B	Level of Service B generally occurs with good progression and/or short cycle lengths. More vehicles stop than for Level of Service A, causing higher levels of average total delay.	0.601–0.700	>10 to 15
C	Level of Service C generally results when there is fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.	0.701–0.800	>15 to 25
D	Level of Service D generally results in noticeable congestion. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	0.801–0.900	>25 to 35

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Table T-1 Intersection Level of Service Descriptions

E	Level of Service E is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high volume to capacity ratios. Individual cycle failures are frequent occurrences.	0.901–1.000	>35 to 50
F	Level of Service F is considered to be unacceptable to most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high volume to capacity ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.	Over 1.000	>50

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

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

In the City of Glendale, impacts at signalized intersections are considered significant if the project-related increase in the volume-to-capacity (V/C) ratio equals or exceeds 0.02 at intersections that have LOS D or worse. For unsignalized intersections, the impact is considered significant if the project-related increase in the delay equals or exceeds 3 seconds at intersections that have LOS D, or worse. The same target LOS and thresholds were utilized to evaluate impacts at study intersections for the Saturday midday peak hour.

EXISTING CONDITIONS

The weekday PM peak hour intersection operations analysis results for all study area intersections are summarized in Table T-2, *Existing Intersection Levels of Service, Weekday PM Peak Hour*. The Saturday Midday peak hour intersection operations analysis results for all study area intersections are summarized in Table T-3, *Existing Intersection Levels of Service, Saturday Midday Peak Hour*.

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

Intersection	Intersection Control	Weekday PM Peak Hour	
		ICU (V/C) or Average Delay (sec/veh)	LOS
1. Glendale Avenue at San Fernando Road	Signal	0.698	B
2. Brand Boulevard at San Fernando Road	Signal	0.839	D
3. San Fernando Road at Cerritos Avenue	Signal	0.0.507	A
4. Brand Boulevard at Cerritos Avenue	Signal	0.552	A
5. Glendale Avenue at Cerritos Avenue	CCS	17.8 sec	C

Notes: CSS = Cross-Street Stop.
LOS worksheets are included in Appendix C of the TIA.

Table T-3 Existing Intersection Levels of Service, Saturday Midday Peak Hour

Intersection	Intersection Control	Weekday PM Peak Hour	
		ICU (V/C) or Average Delay (sec/veh)	LOS
1. Glendale Avenue at San Fernando Road	Signal	0.706	C
2. Brand Boulevard at San Fernando Road	Signal	0.880	D
3. San Fernando Road at Cerritos Avenue	Signal	0.453	A
4. Brand Boulevard at Cerritos Avenue	Signal	0.487	A
5. Glendale Avenue at Cerritos Avenue	CCS	18.2 sec	C

Notes: CSS = Cross-Street Stop.
LOS worksheets are included in Appendix C of the TIA.

For all study intersections along major arterials (San Fernando Road, Brand Boulevard, and Glendale Avenue), a minimum desired level of service is "E" during afternoon peak hours is acceptable. As shown in Tables T-2 and T-3, all study intersections currently operate at acceptable LOS during the Weekday PM Peak hour and the Saturday Midday peak hour.

TRIP GENERATION

The proposed project would not expand the school's enrollment capacity but is expected to increase traffic and parking demand around the project site due to expanded public use and city programming on weekday evenings and weekends. The trip generation rates for soccer fields were obtained from the Institute of Transportation Engineers' (ITE) Trip Generation manual. The ITE Trip Generation manual is the most widely recognized resource for estimating the number of trips generated by a land use or project type.

Table T-4, *Project Trip Generation Based on Usage Estimates*, shows the estimated project trip generation for the proposed 2 fields based on usage estimates. The project trip generation based on usage estimates is highest for youth games. The highest trip generation would occur at 2 youth games occurring concurrently. This would result in 40 peak hour trips in the weekday PM peak hour and 78 peak hour trips in the weekend.

Table T-4 Project Trip Generation Based on Usage Estimates

Land Use	Variable type	Players/ Referee/ Coaches	Fields	Trip Generation					
				PM Peak Hour			Weekend Peak Hour		
				In	Out	Total	In	Out	Total
Youth Game	Youth Players	16	2	26	13	39	38	38	76
	Referee	1	1	1	0	1	1	1	2
	TOTAL	**17**	**3**	**27**	**13**	**40**	**39**	**39**	**78**
Adult Game	Players	22	2	35	0	35	35	35	70
	Referees	3	1	2	0	2	2	2	4
	TOTAL	**25**	**3**	**37**	**0**	**37**	**37**	**37**	**74**

1 For Youth Games it is assumed that each team has 8 players. Each coach is also a parent that has a child in the team.
2 For Adult Games it is assumed that each team has 11 players.
3 Referees are needed only in one field, as one of the fields is for practices only.

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In total, the project would generate 4 trips in the AM peak hour, 49 trips in the PM peak hour, and 69 trips in weekend peak hours.

To assess Existing Year With Project traffic conditions, project traffic was added to the existing traffic levels. LOS for these conditions as summarized in Tables T-5, *Existing With Project Intersection LOS, Weekday PM Peak Hour* and T-6, *Existing With Project Intersection LOS, Saturday Midday Peak Hour.*

Table T-5 Existing With Project Intersection LOS, Weekday PM Peak Hour

Intersection	Intersection Control	Saturday Midday Peak Hour	
		ICU (V/C) or Average Delay (sec/veh)	LOS
1. Glendale Avenue at San Fernando Road	Signal	0.709	C
2. Brand Boulevard at San Fernando Road	Signal	0.843	D
3. San Fernando Road at Cerritos Avenue	Signal	0.508	A
4. Brand Boulevard at Cerritos Avenue	Signal	0.553	A
5. Glendale Avenue at Cerritos Avenue	CCS	18.2 sec	C

Notes: CSS = Cross-Street Stop.
Bold show intersections operating at unacceptable LOS.
Intersection volumes, Delay and LOS worksheets are included in Appendix D of the TIA.

Table T-6 Existing With Project Intersection LOS, Saturday Midday Peak Hour

Intersection	Intersection Control	Saturday Midday Peak Hour	
		ICU (V/C) or Average Delay (sec/veh)	LOS
1. Glendale Avenue at San Fernando Road	Signal	0.718	C
2. Brand Boulevard at San Fernando Road	Signal	0.887	D
3. San Fernando Road at Cerritos Avenue	Signal	0.456	A
4. Brand Boulevard at Cerritos Avenue	Signal	0.488	A
5. Glendale Avenue at Cerritos Avenue	CCS	18.7sec	C

Notes: CSS = Cross-Street Stop.
Bold show intersections operating at unacceptable LOS.
Intersection volumes, Delay and LOS worksheets are included in Appendix D of the TIA.

As shown in Tables T-5 and T-6, all study intersections operate at acceptable LOS during the Weekday PM Peak hour and the Saturday Midday peak hour for the Existing With Project traffic conditions.

Future traffic conditions were assessed using opening year scenarios based on the year 2020. To conservatively estimate future year buildout conditions, a total ambient growth of 3 percent over the 3-year period from 2017 to 2020 was used. Cumulative traffic is the traffic generated by the development of future projects that have been approved but not yet built and/or for which development applications have been filed and are under consideration by the City. Trip generation values were extracted from the ITE Trip Generation Manual for five cumulative projects in the project vicinity. Based on a review of the circulation system, the trip generation, location, and land use type, the cumulative projects addressed in the TIA, would have the potential for directly adding measurable traffic to the study area street system. The cumulative development projects were assumed to generate 613 average daily trips (ADT) on weekdays and 588 ADT on weekends, 57 trips during the weekday PM peak hour, and 50 trips during the midday weekend peak hour.

The TIA assumed that all the cumulative projects are developed and operational at the buildout of the proposed project. This is the most conservative, worst-case approach, since it is possible that not all these projects will be operational when the proposed project begins operations. To assess Opening Year No Project traffic conditions, existing traffic values were combined with ambient growth and cumulative traffic. The intersection operations for the Opening Year Without Project traffic conditions are shown in Tables T-7, *Opening Year Without Project Intersection LOS, Weekday PM Peak Hour* and T-8, *Opening Year Without Project Intersection LOS, Saturday Midday Peak Hour*. All intersections are forecast to operate at acceptable LOS under Opening Year Without Project conditions on Weekday PM and Saturday Midday peak hours.

Table T-7 Opening Year Without Project Intersection LOS, Weekday PM Peak Hour

Intersection	Intersection Control	Weekday PM Peak Hour	
		ICU (V/C) or Average Delay (sec/veh)	LOS
1. Glendale Avenue at San Fernando Road	Signal	0.718	C
2. Brand Boulevard at San Fernando Road	Signal	0.867	D
3. San Fernando Road at Cerritos Avenue	Signal	0.520	A
4. Brand Boulevard at Cerritos Avenue	Signal	0.572	A
5. Glendale Avenue at Cerritos Avenue	CCS	19.3 sec	D

Notes: CSS = Cross-Street Stop.
Bold show intersections operating at unacceptable LOS.
Intersection volumes, Delay and LOS worksheets are included in Appendix G of the TIA.

Table T-8 Opening Year Without Project Intersection LOS, Saturday Midday Peak Hour

Intersection	Intersection Control	Saturday Midday Peak Hour	
		ICU (V/C) or Average Delay (sec/veh)	LOS
1. Glendale Avenue at San Fernando Road	Signal	0.726	C
2. Brand Boulevard at San Fernando Road	Signal	0.907	E
3. San Fernando Road at Cerritos Avenue	Signal	0.465	A
4. Brand Boulevard at Cerritos Avenue	Signal	0.501	A
5. Glendale Avenue at Cerritos Avenue	CCS	19.8 sec	D

Notes: CSS = Cross-Street Stop.
Bold show intersections operating at unacceptable LOS.
Intersection volumes, Delay and LOS worksheets are included in Appendix G of the TIA.

To assess Opening Year With Project traffic conditions, existing traffic was combined with ambient growth, cumulative, and project traffic. The intersection operations for the Opening Year With Project traffic conditions are shown in Tables T-10, *Opening Year With Project Intersection LOS, Weekday PM Peak Hour* and T-11, *Opening Year With Project Intersection LOS, Saturday Midday Peak Hour*. Under With Project conditions, all intersections would operate at acceptable LOS and traffic related to stadium events would not cause any intersections to deteriorate to an unacceptable LOS during the Weekday PM peak hour or the Saturday midday peak hour.

3. Environmental Analysis

Table T-10 Opening Year With Project Intersection LOS, Weekday PM Peak Hour

Intersection	Intersection Control	Weekday PM Peak Hour ICU (V/C) or Average Delay (sec/veh)	LOS
1. Glendale Avenue at San Fernando Road	Signal	0.728	C
2. Brand Boulevard at San Fernando Road	Signal	0.871	D
3. San Fernando Road at Cerritos Avenue	Signal	0.521	A
4. Brand Boulevard at Cerritos Avenue	Signal	0.573	A
5. Glendale Avenue at Cerritos Avenue	CCS	19.8 sec	C

Notes: CSS = Cross-Street Stop.
Bold show intersections operating at unacceptable LOS.
Intersection volumes, Delay and LOS worksheets are included in Appendix H of the TIA.

Table T-11 Opening Year With Project Intersection LOS, Saturday Midday Peak Hour

Intersection	Intersection Control	Saturday Midday Peak Hour ICU (V/C) or Average Delay (sec/veh)	LOS
1. Glendale Avenue at San Fernando Road	Signal	0.738	C
2. Brand Boulevard at San Fernando Road	Signal	0.914	E
3. San Fernando Road at Cerritos Avenue	Signal	0.468	A
4. Brand Boulevard at Cerritos Avenue	Signal	0.502	A
5. Glendale Avenue at Cerritos Avenue	CCS	20.4 sec	C

Notes: CSS = Cross-Street Stop.
Bold show intersections operating at unacceptable LOS.
Intersection volumes, Delay and LOS worksheets are included in Appendix H of the TIA.

In conclusion, on all analyzed study area intersections and study area roadway segments, the proposed project traffic would not degrade the operation of the circulation system on weekdays during the weekday PM hours or Saturday midday peak hours. The City's LOS policies try to maintain the continuous performance of the circulation system and to work toward the mobility goals in the general plan. The level of congestion that is anticipated to occur prior to a full-capacity event at the proposed field would not affect the typical weekday commuter peak hours or weekend traffic. Opening Year With Project traffic conditions were determined by combining existing traffic with ambient growth, cumulative impacts, and project traffic. Opening Year With Project traffic conditions will operate well within the designed capacity for all analyzed study area intersection and study area roadway segments. All intersections would continue to operate at acceptable LOS without, and with the project, no substantial increases in delay would occur. The proposed project will not degrade existing traffic conditions, and impacts would be less than significant.

Additionally, a parking study was prepared to determine potential effects on the adequacy of existing on-site parking, as well as to evaluate the potential for spillover parking on surrounding local streets, as further discussed in Section g). In addition to adequate circulation of vehicular and transit systems, the existing sidewalk and crosswalks would provide adequate pedestrian travel in the area for accessing the site on foot or parking on public streets and walking to the school. The proposed project would not conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system. Impacts would be less than significant.

b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

Less Than Significant Impact. Construction of the proposed project would generate vehicle trips and may require roadway lane closures, which could temporarily increase daily traffic volumes and congestion on local roadways and intersections. Operation of the proposed project would also generate trips on local roadways. As discussed in Issue a) above, the proposed project would have a less than significant impact on established LOS standards for all site access roads. In action, the Changed Project would not affect the intersections listed in CMP Guidance. The Changed Project would have no impact.

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

No Impact. The proposed project site is located approximately 7.75 miles southeast of the Hollywood Burbank Airport, located at 2627 North Hollywood Way in the City of Burbank. The Hollywood Burbank Airport is governed by the Los Angeles County Airport Land Use Commission Comprehensive Land Use Plan guidelines. This document is intended to provide for reasonable, safe, and efficient use of the airport as a public transportation facility, provide a base for aviation and aviation-related operations, and protect the municipal environment from the effects of aircraft noise. According to the Burbank/Glendale/Pasadena Airport Influence Area Map, the proposed project site is not located in an airport land use plan area (Los Angeles 2004). The proposed project does not include an aviation component and would not change air traffic patterns. No impact would occur

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No Impact. No off-site improvements are proposed or required to implement the proposed project. The main access points would be from the north side of the school site where existing surface parking lots are present. Other parking would be available in surrounding areas, off the school property. No new access drives or roadway improvements are proposed to provide access to the project site; therefore, no improvements that may result in hazardous conditions would occur. Additionally, the proposed project would not change the existing land use of the site, as the property currently is developed as sporting fields. The proposed project would not substantially increase hazards due to a design feature or incompatible uses and no impact would occur.

e) Result in inadequate emergency access?

Less Than Significant Impact. Construction of the proposed project will generate construction vehicle trips, potential roadway lane closures, and potential increases in construction and operational traffic that could impact daily traffic volumes on local roadways and intersections, thereby impeding emergency access. A

Traffic Control Plan will be prepared to address such issues, and preparation of the plan will reduce any potential impacts relative to this topic to less than significant.

During operation of the proposed project, emergency vehicles will enter the site via a fire access lane that enters from the east on South Glendale Avenue, travels west along the southern perimeter of the site, and turns north to follow the field. Usage of the proposed projects will be similar to current site uses, and adequate emergency access would continue to be provided. Impacts would be less than significant.

f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

Less Than Significant. There are no marked bicycle lanes in the study area. All roads in the vicinity of the school have paved sidewalks on both sides of the street. In addition, yellow crosswalks are painted on all major intersections in the study area including Brand Avenue at Cerritos Avenue, Brand Avenue at San Fernando Road, Glendale Avenue at Cerritos Avenue. Signalized intersections include actuated pedestrian signal heads. The existing sidewalk and crosswalks would provide adequate pedestrian travel in the area for accessing the site on foot or parking on public streets and walking to the school. Bus stops are located on Glendale Avenue, Brand Avenue, and on San Fernando Road. The bus stops are served by Metro's routes 90, 91, 92, 94, 603 and 794. The proposed project includes the replacement of the existing grass athletic field with a synthetic turf field, an all-weather track, and new field lighting. All of these improvements would occur within the existing developed campus area and would not affect any bicycle, pedestrian or transit facilities that provide travel routes to the campus. None of these uses would conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. There would be no impact in this area. Therefore, no significant new bicycle, pedestrian, or transit facility impact would occur,

g) Result in inadequate parking capacity?

Less Than Significant Impact. Although not required by CEQA Guidelines, an assessment of parking within the immediate neighborhood was conducted to determine the availability of parking to support the expansion of public use of the school site. In addition to the on-site parking lot off Glendale Avenue and the school parking lot off Cerritos Avenue, off-site parking is available on public streets in the vicinity of the school. Figure 10, *Offsite Parking* Locations shows the area and roadways analyzed for parking capacity both on- and off- site. The parking demand along the following 6 roadway segments were analyzed:

1) San Fernando Road from Brand Boulevard to Glendale Avenue
2) Brand Boulevard from E Eulalia Street to San Fernando Road
3) W Cerritos Avenue from San Fernando Road to Brand Boulevard
4) E Cerritos Avenue from Brand Boulevard to Glendale Avenue
5) S Glendale Avenue from E Eulalia Street to San Fernando Road

6) Carmel Street east of San Fernando Road

Parking counts were taken at the Cerritos Park parking lot, school parking lot, and along 6 roadway segments on a weekday evening and on a Saturday. The proposed project would make use of existing street and on-site parking, and no change in site access or parking would occur. Table T-12, *Existing Curbside On-Street Parking Occupancy* shows the curbside on-street parking occupancy on weekday and on Saturdays at the hours of lowest occupancy and highest occupancy, while excluding the off-street parking lots at the Cerritos Park and at the Cerritos School. On weekdays, the period in which the highest overall occupancy was observed started at 6:00 PM, and the lowest occupancy period started at 10:00 PM. On a Saturday, the period in which the highest overall occupancy was observed started at 3:00 PM, and the lowest occupancy period started at 8:00 AM. As shown on Table T-12, the overall on-street parking occupancy ranges from 29 percent to 100 percent. The school lot has plenty of parking available on weekdays after 5:00 PM and on weekends. In addition, there is unused parking available in several public streets in the vicinity of the school.

Table T-12 Existing Curbside On-Street Parking Occupancy

	Parking Locations	Parking Supply (spaces)	Weekday		Saturday	
			Highest Occupancy (6 PM)	Lowest Occupancy (10 PM)	Highest Occupancy (3 PM)	Lowest Occupancy (8 AM)
1	San Fernando Rd from Brand Blvd to Glendale Av	9	56%	67%	44%	56%
2	Brand Blvd from E Eulalia St to San Fernando Rd	60	48%	20%	63%	22%
3	W Cerritos Av from San Fernando Rd to Brand Blvd	17	53%	24%	71%	53%
4	E Cerritos Av from Brand Boulevard to Glendale Av	29	24%	14%	66%	10%
5	S Glendale Av from E Eulalia St to San Fernando Rd	22	9%	0%	23%	0%
6	Carmel St east of San Fernando Rd	23	74%	91%	100%	70%
		Overall Occupancy	43%	29%	66%	29%

Parking demand for the proposed project is based on ITE's Parking Generation manual. The peak parking demand for the proposed two fields would be 77 during the weekday and 118 on Saturday.

The proposed project will increase parking demand around the project vicinity during use of the multi-purpose field for non-school use on weekdays after 5 PM and on weekends. There are parking spots available in the school parking lot off East Cerritos Avenue, Cerritos Park parking lot, and off-site along the public streets. Table T-13, *Parking Demand in Terms of Available Parking*, presents a worst-case scenario for a weekday and a weekend, where the peak parking demand for the project would coincide with the least amount of parking supply that was observed at any time during the field surveys at the school lot and along public streets. As shown in Table T-13, on weekdays there is expected to be approximately 49 available spaces at the school lot and an additional 91 curbside spaces on public streets. The available supply of 140 spaces in the study area will be able to absorb the anticipated parking demand of 77 spaces. On weekends, there is expected to be approximately 55 available spaces at the school lot and an additional 54 curbside spaces on public streets. The available supply of 109 spaces in the study area will be able to absorb the anticipated parking demand of 108 spaces.

3. Environmental Analysis

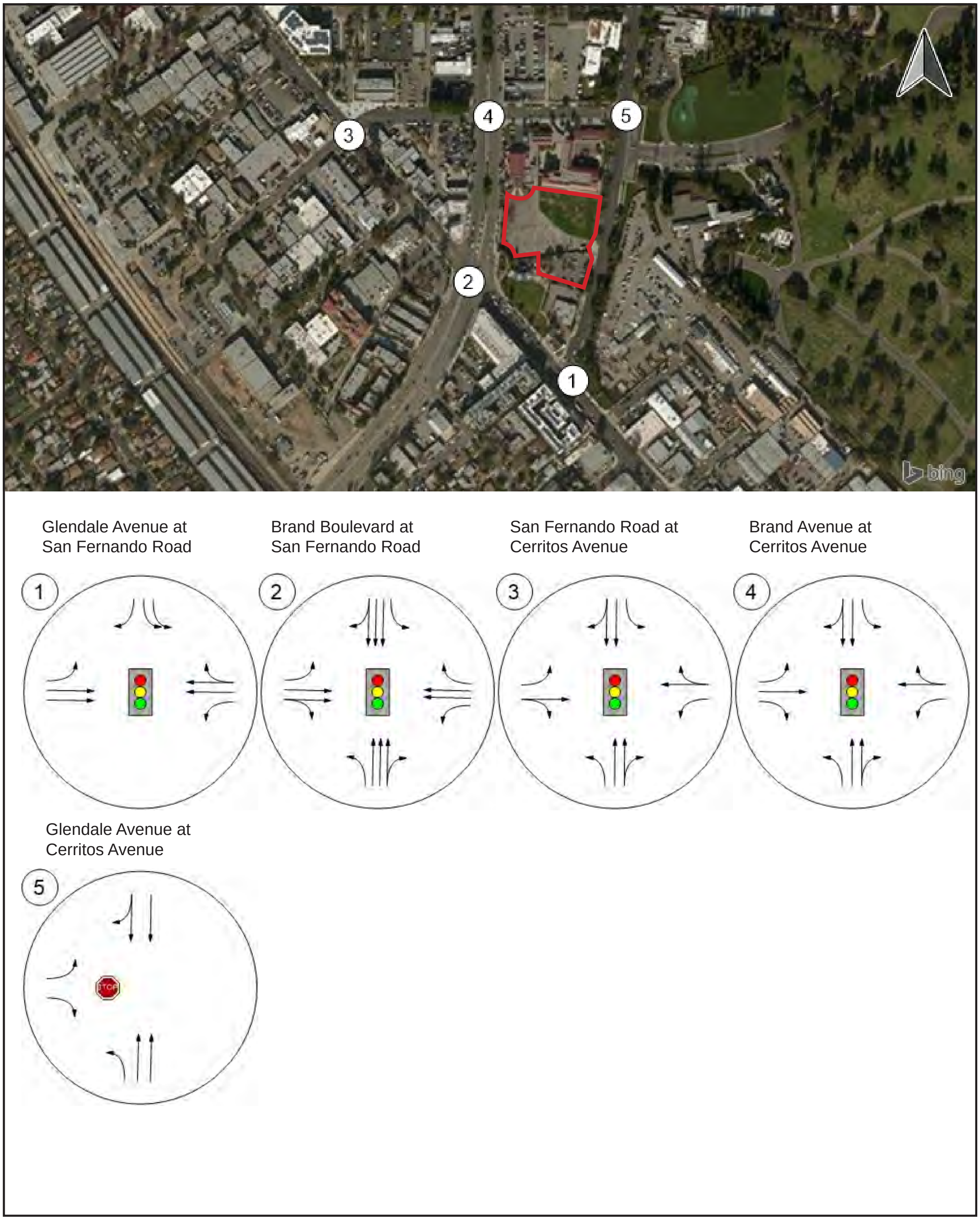
Table T-13 Parking Demand in Terms of Available Parking

	Weekday Peak Hour	Saturday Peak Hour
Parking Demand Estimate	77	108
Available On-site Parking	49	55
Available Off-site Parking	91	54
Total Available Parking	**140**	**109**
Available minus Demand	**63**	**1**

The parking demand from the project can be absorbed by the available parking supply at the school lot and on public streets, and impacts would be less than significant.

Figure 9 - Study Area Roadway Network and Intersections

3. Environmental Analysis



Project Boundary

0 550
Scale (Feet)

3. Environmental Analysis

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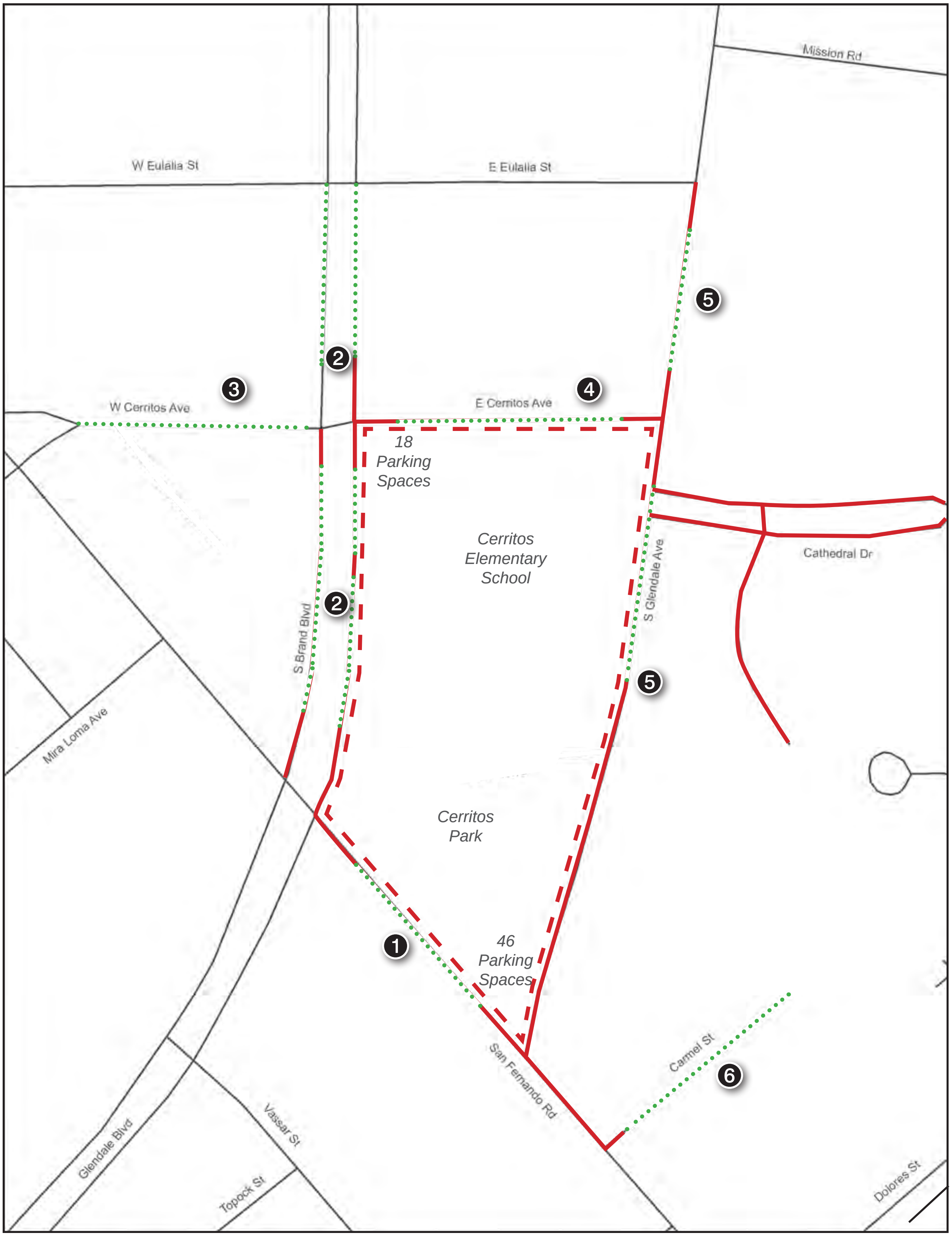
Figure 10 - Off-Site Parking Locations
3. Environmental Analysis



On-Site Parking Boundary
No Parking Allowed
Segment Number
Parking Count Locations
0 250 Scale (Feet)

Source: ESRI, 2017

3. Environmental Analysis

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3.17 TRIBAL CULTURAL RESOURCES

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

Less Than Significant Impact With Mitigation Incorporated. As of July 1, 2015, Public Resources Code Sections 21080.1, 21080.3.1, and 21080.3.2 require public agencies to consult with California Native American tribes recognized by the Native American Heritage Commission (NAHC) for the purpose of mitigating impacts to tribal cultural resources. This law does not preclude agencies from initiating consultation with the tribes that are culturally and traditionally affiliated with their jurisdictions.

In accordance with Public Resources Code Section 21080.1(d), a lead agency is required to provide formal notification of intended development projects to Native American tribes that have requested to be on the lead agency's list for receiving such notification. The formal notification is required to include a brief description of the proposed project and its location, lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation for tribal cultural resources. The Soboba Band of Luiseno Indians and the Fernandeno Tataviam Band of Mission Indians are on the City of Glendale's notification list pursuant to AB 52 and were notified by the City on March 20, 2018. The Fernandeno Tataviam Band of Mission Indians sent a response requesting consultation on April 13, 2018, and the City has responded to this request on May 10, 2018. As of the time of the publication of this Initial Study, the Fernandeno Tataviam Band of Mission Indians have not responded to the City's consultation offer, and as such, no consultation has been in initiated.

The project would involve the installation of athletic field light fixtures, replacement of the field grass with synthetic turf, and the addition of a track. The installation of the athletic field lights would occur within the existing grass field. No historic resources on the project site are listed in the City of Glendale General Plan, Historic Preservation Element (Glendale 1997). The project site is not 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). If any tribal cultural resource is found on the project site, excavation will be halted, mitigation measures CUL-1 and CUL-2 shall be implemented as necessary and the NAHC will be contacted. As the property has been previously disturbed and currently supports similar activity field uses, it is not anticipated that unknown tribal cultural resources are present on-site. Impacts would be less than significant.

b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Less Than Significant Impact With Mitigation Incorporated. The project would involve the installation of athletic field light fixtures, replacement of the field grass with synthetic turf, and the addition of a track. The installation of the athletic field lights would occur within the existing athletic field. No historic resources on the project site are listed in the City of Glendale General Plan, Historic Preservation Element (Glendale 1997). The project site is not 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). If any tribal cultural resource is found on the project site, excavation will be halted, mitigation measures CUL-1 and CUL-2 shall be implemented as necessary and the NAHC will be contacted. As the property has been previously disturbed and currently supports similar activity field uses, it is not anticipated that unknown tribal cultural resources are present on-site. Impacts would be less than significant.

3.18 UTILITIES AND SERVICE SYSTEMS

a) Exceed waste water treatment requirements of the applicable Regional Water Quality Control Board?

Less Than Significant Impact. Implementation of the proposed project would result in the construction of a restroom/storage facility intended to better accommodate Cerritos ES field users. The restroom and storage facility would include restroom, storage, electrical, and custodial uses. The Glendale Public Works Department (GPWD) provides sewer collection and treatment services in the City. Sewage from the City is treated by the City of Los Angeles Hyperion System, which includes the Los Angeles/Glendale Water Reclamation Plant, located outside the Glendale City limits in the city of Los Angeles, and the Hyperion Treatment Plant, located in the city of Los Angeles, in the community of Playa del Rey. The City and the City of Los Angeles jointly own and share operating capacity of the Los Angeles/Glendale Water Reclamation Plant. Any City sewage not treated at the Los Angeles/Glendale Water Reclamation Plant is treated at the Hyperion Treatment Plant. The proposed project would not increase student population at the Cerritos ES Campus and community uses would be limited to after school and weekends, and the new restroom would replace an existing restroom at Cerritos Park. On an average day, the Hyperion Treatment Plant processes 350 million gallons per day (MGD) and the Los Angeles/Glendale Water Reclamation Plant processes 20 MGD. The existing wastewater conveyance and treatment systems would adequately account for the proposed project's additions. The proposed project would not exceed wastewater treatment requirements and this impact would be less than significant.

b) Require or result in the construction of new water or waste water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Less Than Significant Impact. The proposed project site is located in an area served by an existing sewer collection and conveyance system, all of which are maintained by the GPWD. Because the existing on-site fields would be replaced with the proposed synthetic turf, water demand for purposes of irrigation would be substantially reduced as compared to existing conditions; however, some irrigation use would still be required for the project components. The new restroom associated with the project would connect to the existing treatment system, which involves coordination with the GPWD regarding design, operation, and maintenance. All utility connections to the proposed project would be required to comply with applicable Uniform Codes, City ordinances, Public Works standards, and Water Division criteria. Implementation of the proposed project would not result in an increase in overall student population, and community uses would be limited to permitted activities, such that the net increase in wastewater generation is not anticipated to exceed the existing capacity. As such, construction of facilities or expansion of existing facilities would not be required. Impacts would be less than significant.

c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Less Than Significant Impact. The project site is located in a developed area of the City of Glendale, which contains an existing stormwater collection and conveyance system. Development of the proposed project would introduce new areas of impervious coverage on portions of the site where the restroom facility and light fixtures are proposed. The proposed project would result in a minor increase in impervious surface, and therefore an increase in storm water runoff. However, the storm drain system on the Cerritos campus would be able to accommodate this minor increase in storm water prior to discharge into the City of Glendale storm drain system. Construction of the new storm drain system associated with the synthetic turf field will ensure that adequate drainage, filtration and recharge is achieved. As part of the proposed project, stormwater drainage plans will comply with regulatory requirements specified in the MS4 Permit. Compliance with the MS4 Permit would ensure that the capacity of the existing storm drainage infrastructure serving the project site would not be diminished and impacts of the proposed project to the storm drain system would be less than significant.

d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

Less Than Significant Impact. The proposed project would install a turf field and replace an existing restroom facility. The turf field would use less water compared to the existing grass field, and the updated restroom facility water use would be similar to that of the existing facility. The campus' water supply would adequately supply the new restroom's water needed, no increase in water demand would occur and, therefore, would have a less-than-significant impact to water supply.

e) Result in a determination by the waste water treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Less Than Significant Impact. The project site is located in an area served by an existing sewer collection and conveyance system, all of which are maintained by the GPWD. The new restroom associated with the project would connect to this existing system, which involves coordination with the GPWD regarding design, operation, and maintenance. All utility connections to the proposed project would be required to comply with applicable Uniform Codes, City ordinances, Public Works standards, and Water Division criteria. Restroom facilities are currently operational at Cerritos Park as indicated on the City's website. Since the overall student population will not change and community use of the facility will be minimal, there will not be a substantial net increase in wastewater generation. Impacts would be less than significant.

f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Less Than Significant Impact. Operation of the proposed project would not generate solid waste at the proposed project site other than minor landscaping cuttings and trash from restroom facilities, similar to existing conditions. Construction activity related solid waste would be disposed of at the landfills that serve the City of Glendale. The construction related solid waste contribution to any of the landfills under the proposed project would be less than 0.1 percent. The California Integrated Waste Management Act of 1989 (AB 939) requires city and county jurisdictions to identify an implementation schedule to divert 50 percent of the total waste stream from landfill disposal by the year 2000 and 70 percent by the year 2020. The Scholl Canyon Landfill would serve the project site. This landfill has a capacity of 58,900,000 cubic yards and is expected to close in 2030. Given current and future landfill capacity, the solid waste impacts resulting from implementation of the proposed project would be less than significant.

g) Comply with federal, state, and local statutes and regulations related to solid waste?

Less Than Significant Impact. A significant impact would occur if the proposed project were to generate solid waste that is not disposed of in accordance with applicable regulations. As stated above, the proposed project would not result in a significant increase in the demand for solid waste services compared to existing conditions. As under current conditions, solid waste generated on site would be disposed of in accordance with all applicable federal, state, and local regulations related to solid waste. In addition, as the proposed project site is located within California, it would be required to comply with the California Integrated Waste Management Act of 1989 (AB 939) which was enacted to reduce, recycle, and reuse solid waste generated in the state to the maximum amount feasible. Specifically, the Act requires city and county jurisdictions to identify an implementation schedule to divert 50 percent of the total waste stream from landfill disposal by the year 2000 and 70 percent by the year 2020. Therefore, impacts would be less than significant.

3.19 MANDATORY FINDINGS OF SIGNIFICANCE

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

Less Than Significant Impact. The site is presently developed with a grass field and hardscape area, and ongoing maintenance of the existing facilities (i.e. mowing) greatly reduces the potential for sensitive habitat or species to be present on-site. The proposed project site is located within an urban and fully developed area and would not have an impact on the habitat or population level of fish or wildlife species; threaten a plant or animal community; or impact the range of a rare or endangered plant or animal. The potential exists for as-yet undiscovered archaeological resources, paleontological resources, or human remains to be encountered during excavation and grading activities. Conformance with standard protocols for the discovery of such resources, and the implementation of mitigation measures MM-CUL-1 and MM-CUL-2 that outline approaches for responding to encounters of cultural, paleontological, or tribal significance in a manner consistent with all applicable laws and best practices, will ensure that project impacts remain 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. Implementation of the proposed project, in conjunction with other approved or pending projects in the region, has the potential to result in cumulatively considerable impacts to the physical environment. However, implementation of the proposed project would not result in cumulatively considerable impacts. Where appropriate, the environmental checklist questions above include a cumulative construction impact discussion to address the cumulative impacts of the proposed project when developed in conjunction with related projects. As concluded throughout the analysis, the proposed project would include both operation- and construction-related project components whose adherence to applicable regulations would ensure the proposed project's incremental contribution would be less than cumulatively considerable. Further, the proposed project would not achieve short-term environmental goals to the disadvantage of long-term goals. Therefore, impacts would be considered 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 With Mitigation Incorporated. No potentially significant impacts on human beings are identified in this Initial Study. Mitigation measures included herein with regards to hazardsMM-HAZ-1 would reduce any impacts to less than significant.

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b. 1997. Historic Preservation Element

4. References

c. 2003. Safety Element

d. 1986. Land Use Element

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5. List of Preparers

LEAD AGENCY

Peter Vierheilig, Project Manager

PLACEWORKS

Julian Capata, Senior Associate, School Facilities Planning

Robyn Chaconas, Project Engineer

Cary Nakama, Graphic Designer

Fernando Sotelo, Traffic Engineer

Alexis Whitaker, Project Scientist

5. List of Preparers

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Appendix A. Lighting Summary

Appendices

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Control System Summary

Project Specific Notes:

Project Information

Project #:	191461
Project Name:	Cerritos Elementary School
Date:	03/14/18
Project Engineer:	DLohman
Sales Representative:	Mike Marchetti
Control System Type:	Control and Monitoring
Communication Type:	Digital Cellular
Scan:	191461a
Document ID:	191461P1V1-0314133719
Distribution Panel Location or ID:	Soccer
Total # of Distribution Panel Locations for Project:	1
Design Voltage/Hertz/Phase:	480/60/3
Control Voltage:	120

Equipment Listing

DESCRIPTION	APPROXIMATE SIZE
1.Control and Monitoring Cabinet	24 X 48

	QTY	SIZE
Total Contactors	4	30 AMP
Total Off/On/Auto Switches:	1	

Materials Checklist

Contractor/Customer Supplied:

- ❑ A single control circuit must be supplied per distribution panel location.
  - — If the control voltage is NOT available, a control transformer is required.
- ❑ Electrical distribution panel to provide overcurrent protection for circuits
  - — Thermal/Magnetic circuit breaker sized per full load amps on Circuit Summary by Zone Chart
- ❑ Wiring:
  - — Dedicated control power circuit
  - — Power circuit to and from lighting contactors
  - — Harnesses for cabinets at remote locations
  - — Means of grounding, including lightning ground protection
- ❑ Electrical conduit wireway system
  - — Entrance hubs rated NEMA 4: must be die-cast zinc, PVC, or copper-free die-cast aluminum
- ❑ Mounting hardware for cabinets
- ❑ Control circuit lock-on device to prevent unauthorized power interruption to control power
- ❑ Anti-corrosion compound to apply to ends of wire, if necessary

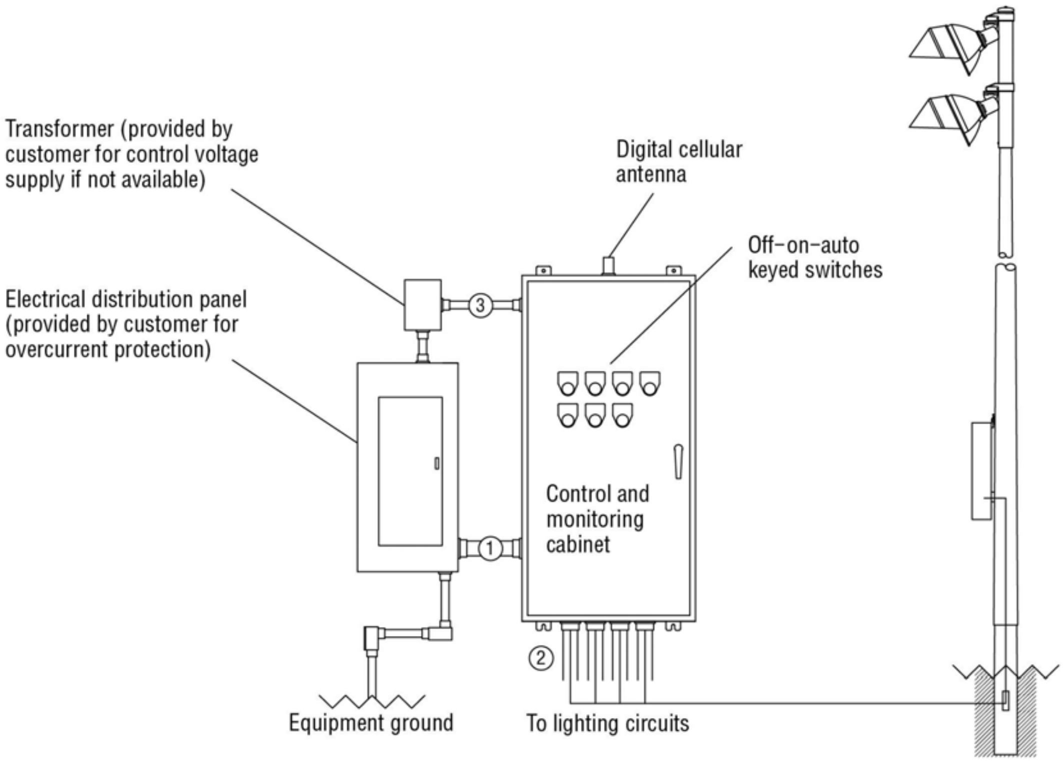
Call Control-Link Central ™ operations center at 877/347-3319 to schedule activation of the control system upon completion of the installation. Note: Activation may take up to 1 1/2 hours

IMPORTANT NOTES

1. Please confirm that the design voltage listed above is accurate for this facility. Design voltage/phase is defined as the voltage/phase being connected and utilized at each lighting pole's ballast enclosure disconnect. Inaccurate design voltage/phase can result in additional costs and delays. Contact your Musco sales representative to confirm this item.
2. In a 3 phase design, all 3 phases are to be run to each pole. When a 3 phase design is used Musco's single phase luminaires come pre-wired to utilize all 3 phases across the entire facility.
3. One contactor is required for each pole. When a pole has multiple circuits, one contactor is required for each circuit. All contactors are UL 100% rated for the published continuous load. All contactors are 3 pole.
4. If the lighting system will be fed from more than one distribution location, additional equipment may be required. Contact your Musco sales representative.
5. A single control circuit must be supplied per control system.
6. Size overcurrent devices using the full load amps column of the Circuit Summary By Zone chart- Minimum power factor is 0.9.

NOTE: Refer to Installation Instructions for more details on equipment information and the installation requirements

Control•Link® Control and Monitoring System



Wire	Description	# of Wires	Typ. Wire Size (AWG)	Max. Wire Length (FT)	Wire from Musco	Notes
1	Line power to contactors, and equipment grounding conductor	Note A	Note B	27	No	A – E
2	Load power to lighting circuits	Note A	Note B	N/A	No	A – D
3	Control power (dedicated, 20A)	3	12	N/A	No	C, D

R60-32-00_C

Notes:
A. Voltage and phasing per the notes on cover page.
B. Calculate per load and voltage drop.
C. All conduit diameters should be per code.
D. Refer to control and monitoring system installation instructions for more details on equipment information and the installation requirements.
E. Contact Musco if maximum wire length from circuit breaker to contactor exceeds value in chart.

IMPORTANT: Control (3) wires must be in separate conduit from line and load power wiring (1, 2).

Control System Summary

SWITCHING SCHEDULE

Field/Zone Description	Zones
Soccer	**1**

CONTROL POWER CONSUMPTION	
120V Single Phase	
VA loading of Musco Supplied Equipment	INRUSH: 1568.0
	SEALED: 194.8

CIRCUIT SUMMARY BY ZONE

POLE	CIRCUIT DESCRIPTION	# OF FIXTURES	# OF DRIVERS	*FULL LOAD AMPS	CONTACTOR SIZE (AMPS)	CONTACTOR ID	ZONE
S1	Soccer	4	4	**6.3**	30	C1	1
S2	Soccer	4	4	**6.3**	30	C2	1
S3	Soccer	4	4	**6.3**	30	C3	1
S4	Soccer	4	4	**6.3**	30	C4	1

*Full Load Amps based on amps per driver.

Control System Summary

PANEL SUMMARY						
CABINET #	CONTROL MODULE LOCATION	CONTACTOR ID	CIRCUIT DESCRIPTION	FULL LOAD AMPS	DISTRIBUTION PANEL ID (BY OTHERS)	CIRCUIT BREAKER POSITION (BY OTHERS)
1	1	C1	Pole S1	6.32		
1	1	C2	Pole S2	6.32		
1	1	C3	Pole S3	6.32		
1	1	C4	Pole S4	6.32		

ZONE SCHEDULE				
			CIRCUIT DESCRIPTION	
ZONE	SELECTOR SWITCH	ZONE DESCRIPTION	POLE ID	CONTACTOR ID
Zone 1	1	Soccer	S1	C1
			S2	C2
			S3	C3
			S4	C4

Cerritos Elementary School

Glendale, CA

NOTES: Pole S4 will be in a glare zone if football is played on this field. Pole S4 is placed to avoid casting a major shadow onto the field from the shade structure adjacent to the field. Shade structure is assumed to be 14' tall at the front and 9' tall at the back.

Lighting System

Pole / Fixture Summary

Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Group
S1, S4	70'	18'	1	TLC-BT-575	0.58 kW	A
		70'	3	TLC-LED-1150	3.45 kW	A
S2-S3	60'	15'	1	TLC-BT-575	0.58 kW	A
		60'	3	TLC-LED-1150	3.45 kW	A
4			*16*		*16.10 kW*	

Group Summary

Group	Description	Load	Fixture Qty
A	Soccer	16.1 kW	16

Fixture Type Summary

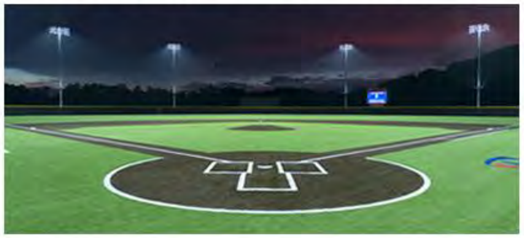
Type	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-BT-575	LED 5700K - 75 CRI	575W	52,000	>51,000	>51,000	>51,000	4
TLC-LED-1150	LED 5700K - 75 CRI	1150W	121,000	>51,000	>51,000	>51,000	12

Light Level Summary

Calculation Grid Summary

Grid Name	Calculation Metric	Illumination					Groups	Fixture Qty
		Ave	Min	Max	Max/Min	Ave/Min		
Soccer Spill	Horizontal Illuminance	0.01	0	0.06	683.28		A	16
Soccer Spill	Max Candela Metric	10334	43.8	53621	1224.46	235.99	A	16
Soccer Spill	Max Vertical Illuminance Metric	0.08	0	0.36	810.16		A	16
Soccer	Horizontal Illuminance	31	25.1	41.6	1.66	1.24	A	16

From Hometown to Professional



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EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	S1, S4	70'	-	18'	TLC-BT-575	1	1	0
				70'	TLC-LED-1150	3	3	0
2	S2-S3	60'	-	15'	TLC-BT-575	1	1	0
				60'	TLC-LED-1150	3	3	0
4	TOTALS					16	16	0

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Glendale, CA

GRID SUMMARY

Name:	Soccer
Size:	210' x 130'
Spacing:	20.0' x 20.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Scan Average:	**31.0**
Maximum:	41.6
Minimum:	25.1
Avg / Min:	1.24
Max / Min:	**1.66**
UG (adjacent pts):	1.37
CU:	0.57
No. of Points:	70

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	52,000 / 121,000 lumens
No. of Luminaires:	**16**
Total Load:	16.1 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-BT-575	>51,000	>51,000	>51,000
TLC-LED-1150	>51,000	>51,000	>51,000

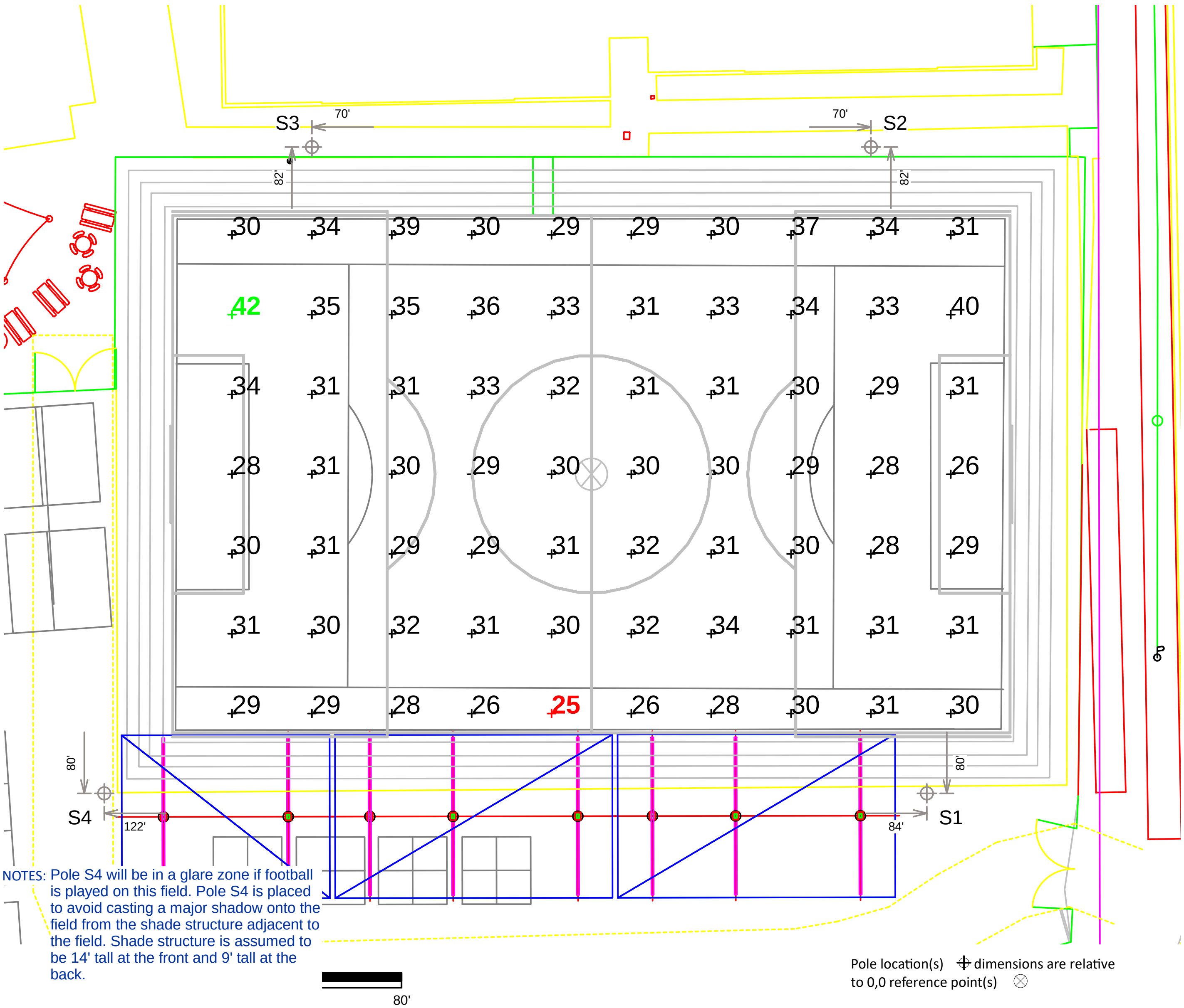
Reported per TM-21-11. See luminaire datasheet for details.

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

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

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

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



NOTES: Pole S4 will be in a glare zone if football is played on this field. Pole S4 is placed to avoid casting a major shadow onto the field from the shade structure adjacent to the field. Shade structure is assumed to be 14' tall at the front and 9' tall at the back.

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

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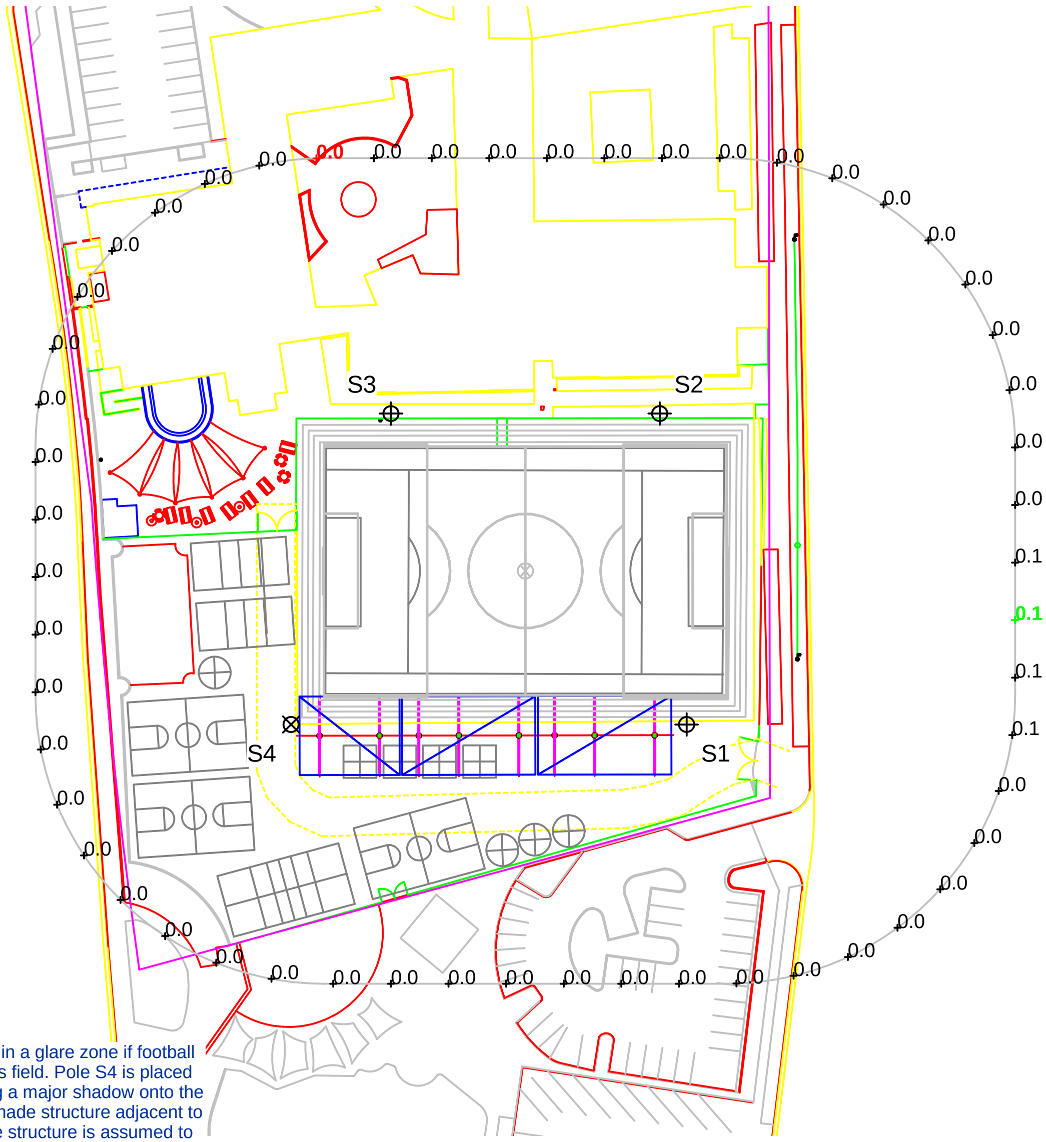
EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	S1, S4	70'	-	18'	TLC-BT-575	1	1	0
				70'	TLC-LED-1150	3	3	0
2	S2-S3	60'	-	15'	TLC-BT-575	1	1	0
				60'	TLC-LED-1150	3	3	0
4	TOTALS					16	16	0



NOTES: Pole S4 will be in a glare zone if football is played on this field. Pole S4 is placed to avoid casting a major shadow onto the field from the shade structure adjacent to the field. Shade structure is assumed to be 14' tall at the front and 9' tall at the back.

200'

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

Cerritos Elementary School

Glendale, CA

GRID SUMMARY

Name:	**Soccer Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Scan Average:	**0.013**
Maximum:	0.063
Minimum:	0.000
No. of Points:	54

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	52,000 / 121,000 lumens
No. of Luminaires:	**16**
Total Load:	16.1 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-BT-575	>51,000	>51,000	>51,000
TLC-LED-1150	>51,000	>51,000	>51,000

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

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

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

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

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

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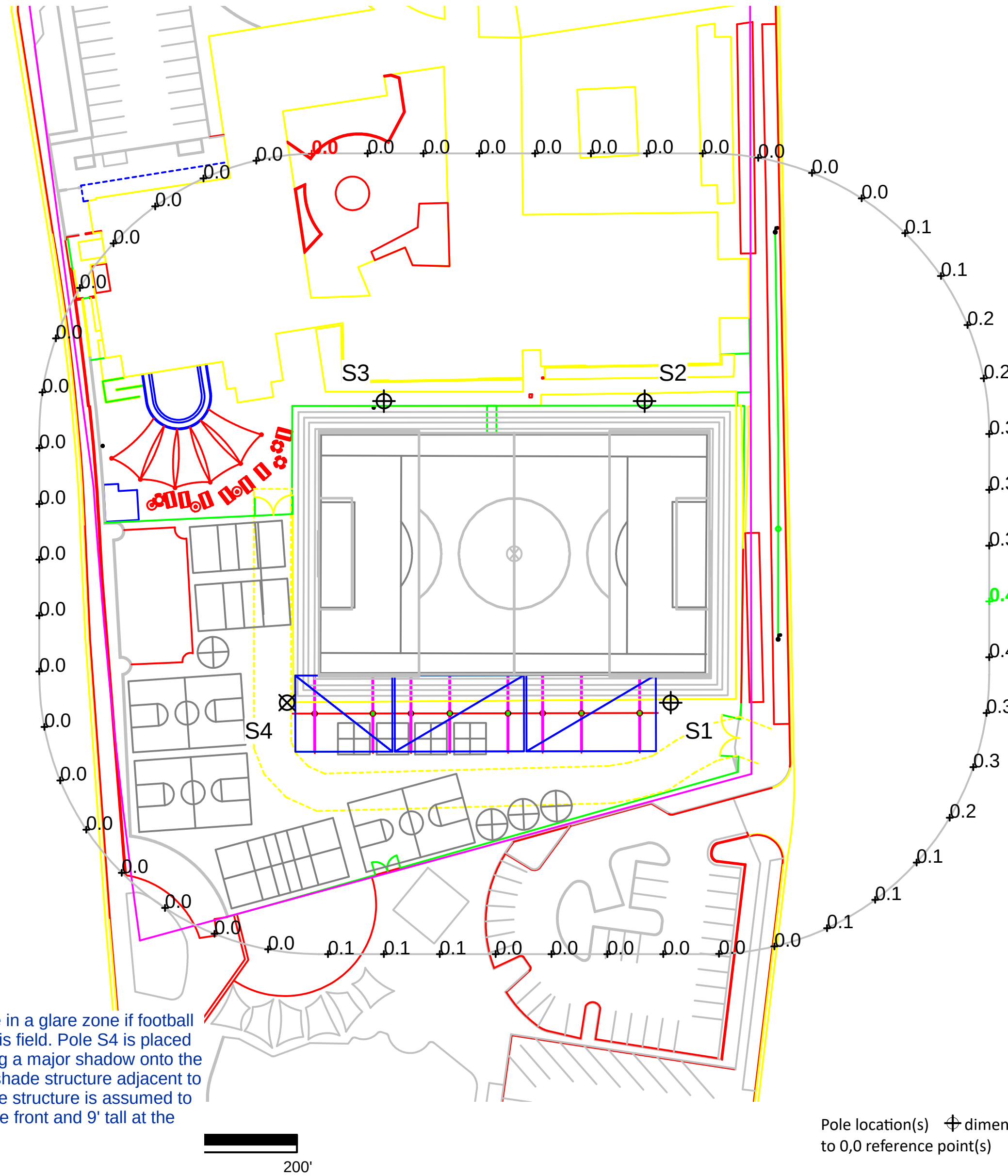
EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	S1, S4	70'	-	18'	TLC-BT-575	1	1	0
				70'	TLC-LED-1150	3	3	0
2	S2-S3	60'	-	15'	TLC-BT-575	1	1	0
				60'	TLC-LED-1150	3	3	0
4	TOTALS					16	16	0



NOTES: Pole S4 will be in a glare zone if football is played on this field. Pole S4 is placed to avoid casting a major shadow onto the field from the shade structure adjacent to the field. Shade structure is assumed to be 14' tall at the front and 9' tall at the back.

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

Cerritos Elementary School

Glendale, CA

GRID SUMMARY

Name:	Soccer Spill
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED MAX VERTICAL FOOTCANDLES

	Entire Grid
Scan Average:	**0.075**
Maximum:	0.364
Minimum:	0.000
No. of Points:	54

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	52,000 / 121,000 lumens
No. of Luminaires:	**16**
Total Load:	16.1 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-BT-575	>51,000	>51,000	>51,000
TLC-LED-1150	>51,000	>51,000	>51,000

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

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

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

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

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

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EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	S1, S4	70'	-	18'	TLC-BT-575	1	1	0
				70'	TLC-LED-1150	3	3	0
2	S2-S3	60'	-	15'	TLC-BT-575	1	1	0
				60'	TLC-LED-1150	3	3	0
4	TOTALS					16	16	0

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GRID SUMMARY

Name:	**Soccer Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED CANDELA (PER FIXTURE)

	Entire Grid
Scan Average:	10334.331
Maximum:	53621.121
Minimum:	43.792
No. of Points:	54

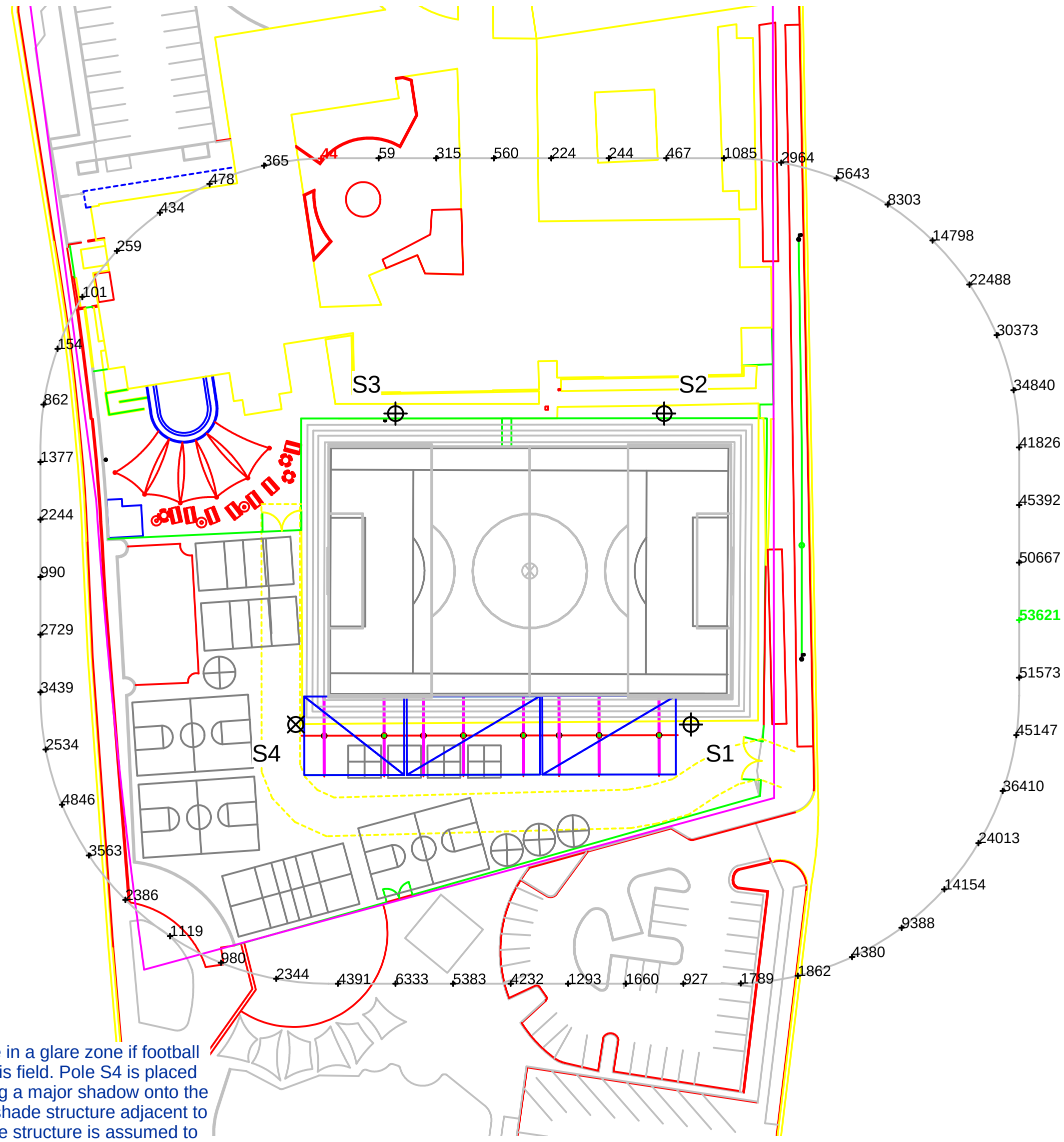
LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	52,000 / 121,000 lumens
No. of Luminaires:	**16**
Total Load:	16.1 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-BT-575	>51,000	>51,000	>51,000
TLC-LED-1150	>51,000	>51,000	>51,000

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



NOTES: Pole S4 will be in a glare zone if football is played on this field. Pole S4 is placed to avoid casting a major shadow onto the field from the shade structure adjacent to the field. Shade structure is assumed to be 14' tall at the front and 9' tall at the back.

200'

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

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

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

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

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

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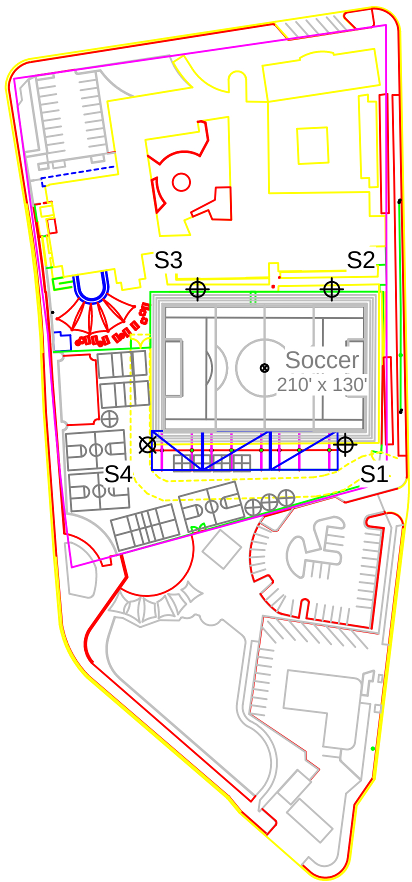
NOTES: Pole S4 will be in a glare zone if football is played on this field.
Pole S4 is placed to avoid casting a major shadow onto the field from the shade structure adjacent to the field. Shade structure is assumed to be 14' tall at the front and 9' tall at the back.



SCALE IN FEET 1 : 200

0' 200' 400'

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

Cerritos Elementary School

Glendale, CA

EQUIPMENT LAYOUT

INCLUDES:

· Soccer

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

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

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires		
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE
2	S1, S4	70'	-	18' 70'	TLC-BT-575 TLC-LED-1150	1 3
2	S2-S3	60'	-	15' 60'	TLC-BT-575 TLC-LED-1150	1 3
4	TOTALS					16

SINGLE LUMINAIRE AMPERAGE DRAW CHART

Ballast Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)						
Single Phase Voltage	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
TLC-BT-575	3.2	3.0	2.8	2.4	1.9	1.7	1.4
TLC-LED-1150	6.8	6.5	5.9	5.1	4.1	3.7	3.0

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Cerritos Elementary School

Glendale, CA

GLARE IMPACT

Summary

Map indicates the maximum candela an observer would see when facing the brightest light source from any direction.

A well-designed lighting system controls light to provide maximum useful on-field illumination with minimal destructive off-site glare.

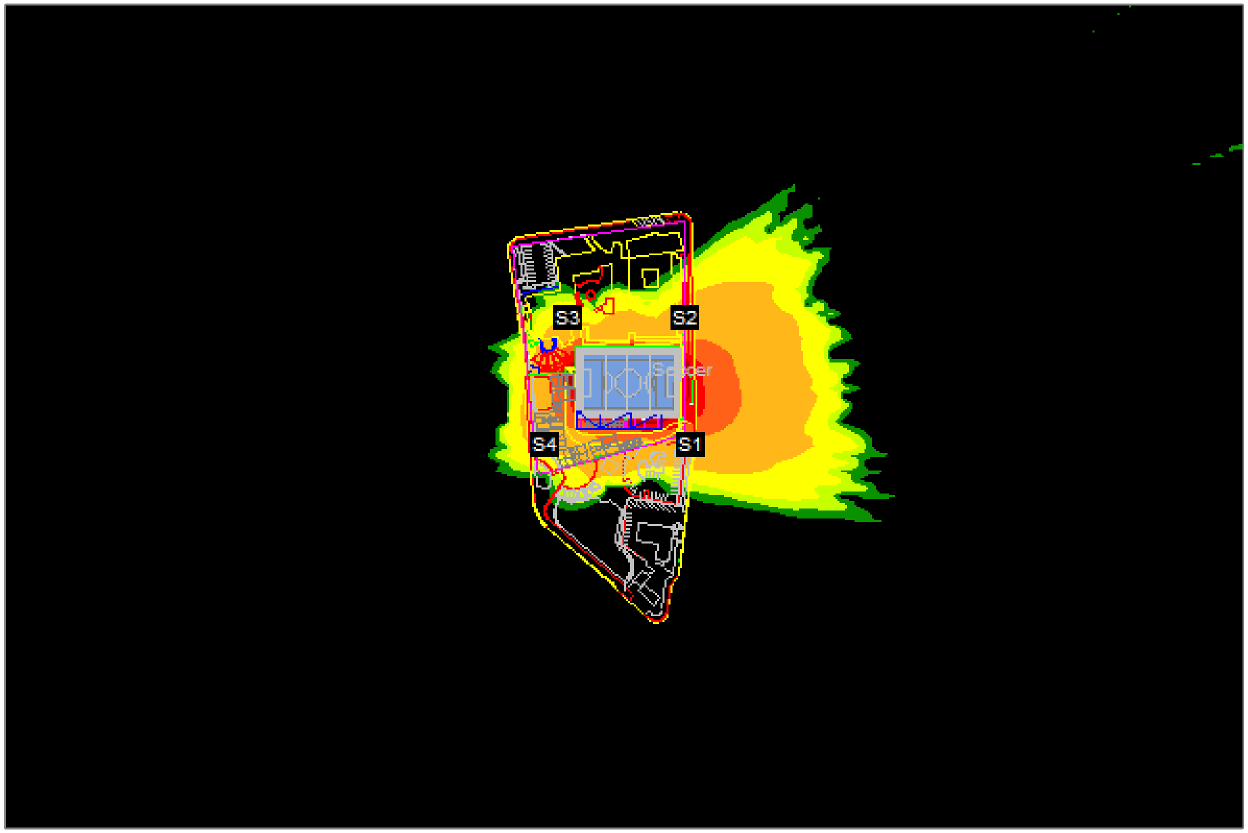
GLARE

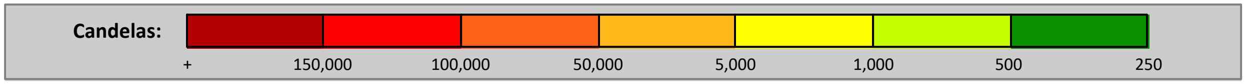
Candela Levels

High Glare: 150,000 or more candela
Should only occur on or very near the lit area where the light source is in direct view. Care must be taken to minimize high glare zones.

Significant Glare: 25,000 to 75,000 candela
Equivalent to high beam headlights of a car.

Minimal to No Glare: 500 or less candela
Equivalent to 100W incandescent light bulb.





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Appendix B. Air Quality Emissions Modeling

Appendices

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Construction Localized Significance Thresholds: Demolition

SRA No.	Acres	Source Receptor Distance (meters)	Source Receptor Distance (Feet)
7	1.60	25	82

Source Receptor	East San Fernando Valley		Equipment	Acres/8-hr Day	Acres/Hr	Equipment Used	Number of Hrs	Acres
Distance (meters)	25		Tractors	0.5	0.0625	3	8	1.5
NOx	**100**		Graders	0.5	0.0625			0
CO	**671**		Dozers	0.5	0.0625	1	8	0.5
PM10	**5.80**		Scrapers	1	0.125			0
PM2.5	**3.60**						**Acres**	2.00

	Acres	**25**	**50**	**100**	**200**	**500**
NOx	1	80	81	94	122	191
	2	114	111	121	144	204
		100	99	110	135	199
CO	1	498	732	1158	2227	7267
	2	786	1068	1594	2786	7947
		671	934	1420	2562	7675
PM10	1	4	13	26	54	136
	2	7	21	34	62	144
		6	18	31	59	141
PM2.5	1	3	4	8	18	68
	2	4	6	10	21	73
		4	5	9	20	71

East San Fernando Valley

1.60 Acres

	25	**50**	**100**	**200**	**500**
NOx	100	99	110	135	199
CO	671	934	1420	2562	7675
PM10	6	18	31	59	141
PM2.5	4	5	9	20	71

Acre Below		**Acre Above**	
SRA No.	Acres	SRA No.	Acres
7	1	7	2
Distance Increment Below			
25			
Distance Increment Above			
25			

Updated: 10/21/2009 - Table C-1. 2006 – 2008

Construction Localized Significance Thresholds: Site Prep

SRA No.	Acres	Source Receptor Distance (meters)	Source Receptor Distance (Feet)
7	1.44	25	82

Source Receptor	East San Fernando Valley	Equipment	Acres/8-hr Day	Acres/Hr	Equipment Used	Number of Hrs	Acres
Distance (meters)	25	Tractors	0.5	0.0625	1	8	0.5
NOx	**95**	Graders	0.5	0.0625	1	8	0.5
CO	**624**	Dozers	0.5	0.0625	1	7	0.4375
PM10	**5.31**	Scrapers	1	0.125			0
PM2.5	**3.44**					**Acres**	1.44

	Acres	**25**	**50**	**100**	**200**	**500**
NOx	1	80	81	94	122	191
	2	114	111	121	144	204
		95	94	106	132	197
CO	1	498	732	1158	2227	7267
	2	786	1068	1594	2786	7947
		624	879	1349	2472	7565
PM10	1	4	13	26	54	136
	2	7	21	34	62	144
		5	17	30	58	140
PM2.5	1	3	4	8	18	68
	2	4	6	10	21	73
		3	5	9	19	70

East San Fernando Valley

1.44 Acres

	25	**50**	**100**	**200**	**500**
NOx	95	94	106	132	197
CO	624	879	1349	2472	7565
PM10	5	17	30	58	140
PM2.5	3	5	9	19	70

Acre Below		**Acre Above**	
SRA No.	Acres	SRA No.	Acres
7	1	7	2

Distance Increment Below

25

Distance Increment Above

25

Updated: 10/21/2009 - Table C-1. 2006 – 2008

Construction Localized Significance Thresholds: Grading

SRA No.	Acres	Source Receptor Distance (meters)	Source Receptor Distance (Feet)
7	1.19	25	82

Source Receptor	East San Fernando Valley	Equipment	Acres/8-hr Day	Acres/Hr	Equipment Used	Number of Hrs	Acres
Distance (meters)	25	Tractors	0.5	0.0625	1	7	0.4375
NOx	**86**	Graders	0.5	0.0625	1	6	0.375
CO	**552**	Dozers	0.5	0.0625	1	6	0.375
PM10	**4.56**	Scrapers	1	0.125			0
PM2.5	**3.19**					**Acres**	1.19

	Acres	**25**	**50**	**100**	**200**	**500**
NOx	1	80	81	94	122	191
	2	114	111	121	144	204
		86	87	99	126	193
CO	1	498	732	1158	2227	7267
	2	786	1068	1594	2786	7947
		552	795	1240	2332	7395
PM10	1	4	13	26	54	136
	2	7	21	34	62	144
		5	15	28	56	138
PM2.5	1	3	4	8	18	68
	2	4	6	10	21	73
		3	4	8	19	69

East San Fernando Valley

1.19 Acres

	25	**50**	**100**	**200**	**500**
NOx	86	87	99	126	193
CO	552	795	1240	2332	7395
PM10	5	15	28	56	138
PM2.5	3	4	8	19	69

Acre Below		**Acre Above**	
SRA No.	Acres	SRA No.	Acres
7	1	7	2
Distance Increment Below			
25			
Distance Increment Above			
25			

Updated: 10/21/2009 - Table C-1. 2006 – 2008

Construction Localized Significance Thresholds: Trenching

SRA No.	Acres	Source Receptor Distance (meters)	Source Receptor Distance (Feet)
7	1.00	25	82

Source Receptor	East San Fernando Valley	Equipment	Acres/8-hr Day	Acres/Hr	Equipment Used	Number of Hrs	Acres
Distance (meters)	25	Tractors	0.5	0.0625	2	8	1
NOx	**80**	Graders	0.5	0.0625			0
CO	**498**	Dozers	0.5	0.0625			0
PM10	**4.00**	Scrapers	1	0.125			0
PM2.5	**3.00**					**Acres**	1.00

	Acres	**25**	**50**	**100**	**200**	**500**
NOx	1	80	81	94	122	191
	1	80	81	94	122	191
		80	81	94	122	191
CO	1	498	732	1158	2227	7267
	1	498	732	1158	2227	7267
		498	732	1158	2227	7267
PM10	1	4	13	26	54	136
	1	4	13	26	54	136
		4	13	26	54	136
PM2.5	1	3	4	8	18	68
	1	3	4	8	18	68
		3	4	8	18	68

East San Fernando Valley

1.00 Acres

	25	**50**	**100**	**200**	**500**
NOx	80	81	94	122	191
CO	498	732	1158	2227	7267
PM10	4	13	26	54	136
PM2.5	3	4	8	18	68

Acre Below		**Acre Above**	
SRA No.	Acres	SRA No.	Acres
7	1	7	1
Distance Increment Below			
25			
Distance Increment Above			
25			

Updated: 10/21/2009 - Table C-1. 2006 – 2008

Construction Localized Significance Thresholds: Paving

SRA No.	Acres	Source Receptor Distance (meters)	Source Receptor Distance (Feet)
7	1.00	25	82

Source Receptor	**East San Fernando Valley**	**Equipment**	**Acres/8-hr Day**	**Acres/Hr**	**Equipment Used**	**Number of Hrs**	**Acres**
Distance (meters)	25	Tractors	0.5	0.0625	1	8	0.5
NOx	**80**	Graders	0.5	0.0625			0
CO	**498**	Dozers	0.5	0.0625			0
PM10	**4.00**	Scrapers	1	0.125			0
PM2.5	**3.00**					**Acres**	0.50

	Acres	**25**	**50**	**100**	**200**	**500**
NOx	1	80	81	94	122	191
	1	80	81	94	122	191
		80	81	94	122	191
CO	1	498	732	1158	2227	7267
	1	498	732	1158	2227	7267
		498	732	1158	2227	7267
PM10	1	4	13	26	54	136
	1	4	13	26	54	136
		4	13	26	54	136
PM2.5	1	3	4	8	18	68
	1	3	4	8	18	68
		3	4	8	18	68

East San Fernando Valley

1.00 Acres

	25	**50**	**100**	**200**	**500**
NOx	80	81	94	122	191
CO	498	732	1158	2227	7267
PM10	4	13	26	54	136
PM2.5	3	4	8	18	68

Acre Below		**Acre Above**	
SRA No.	Acres	SRA No.	Acres
7	1	7	1
Distance Increment Below			
25			
Distance Increment Above			
25			

Updated: 10/21/2009 - Table C-1. 2006 – 2008

Air Quality and Greenhouse Gas Background and Modeling Data

AIR QUALITY

Climate/Meteorology

SOUTH COAST AIR BASIN

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

Temperature and Precipitation

The annual average temperature varies little throughout the SoCAB, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The climatological station nearest to the project site that best represents the climatological conditions of the project area is the Glendale Monitoring Station (ID 043350). The average low is reported at 40.1°F in January, and the average high is 87.2°F in August (WRCC 2018).

In contrast to a very steady pattern of temperature, rainfall is seasonally and annually highly variable. Almost all rain falls from November through April. Summer rainfall is normally restricted to widely scattered thundershowers near the coast, with slightly heavier shower activity in the east and over the mountains. The historical rainfall average for the project area is 16.37 inches per year (WRCC 2018).

Humidity

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

Wind

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

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

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

Inversions

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

Air Quality Regulations

The proposed project has the potential to release gaseous emissions of criteria pollutants and dust into the ambient air; therefore, it falls under the ambient air quality standards promulgated at the local, state, and federal levels. The project site is in the SoCAB and is subject to the rules and regulations imposed by the South Coast Air Quality Management District (SCAQMD). However, SCAQMD reports to California Air Resources board (CARB), and all criteria emissions are also governed by the California and national Ambient Air Quality Standards (AAQS). Federal, state, regional, and local laws, regulations, plans, or guidelines that are potentially applicable to the proposed project are summarized below.

AMBIENT AIR QUALITY STANDARDS

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

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

Both California and the federal government have established health-based AAQS for seven air pollutants. As shown in Table 1, *Ambient Air Quality Standards for Criteria Pollutants*, these pollutants include ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb). In addition, the state has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

Table 1 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard[1]	Federal Primary Standard[2]	Major Pollutant Sources
Ozone (O_3)[3]	1 hour	0.09 ppm	*	Motor vehicles, paints, coatings, and solvents.
	8 hours	0.070 ppm	0.070 ppm	
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm	
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm	0.053 ppm	Motor vehicles, petroleum-refining operations, industrial sources, aircraft, ships, and railroads.
	1 hour	0.18 ppm	0.100 ppm	
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	*	0.030 ppm	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1 hour	0.25 ppm	0.075 ppm	
	24 hours	0.04 ppm	0.14 ppm	
Respirable Coarse Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m^3	*	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	50 µg/m^3	150 µg/m^3	
Respirable Fine Particulate Matter ($PM_{2.5}$)[4]	Annual Arithmetic Mean	12 µg/m^3	12 µg/m^3	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	*	35 µg/m^3	

Table 1 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard[1]	Federal Primary Standard[2]	Major Pollutant Sources
Lead (Pb)	30-Day Average	1.5 µg/m^3	*	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Calendar Quarter	*	1.5 µg/m^3	
	Rolling 3-Month Average	*	0.15 µg/m^3	
Sulfates (SO_4)[5]	24 hours	25 µg/m^3	*	Industrial processes.
Visibility Reducing Particles	8 hours	ExCo =0.23/km visibility of 10≥ miles	No Federal Standard	Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt.
Hydrogen Sulfide	1 hour	0.03 ppm	No Federal Standard	Hydrogen sulfide (H_2S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas, and can be emitted as the result of geothermal energy exploitation.
Vinyl Chloride	24 hour	0.01 ppm	No Federal Standard	Vinyl chloride (chloroethene), a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.

Source: CARB 2016.
Notes: ppm: parts per million; µg/m^3: micrograms per cubic meter
* Standard has not been established for this pollutant/duration by this entity.
1 California standards for O_3, CO (except 8-hour Lake Tahoe), SO_2 (1 and 24 hour), NO_2, and particulate matter (PM_{10}, $PM_{2.5}$, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2 National standards (other than O_3, PM, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.
3 On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
4 On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m^3 to 12.0 µg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standard of 15 µg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m^3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
5 On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. The 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

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

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

CRITERIA AIR POLLUTANTS

The air pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state law. Air pollutants are categorized as primary or secondary pollutants. Primary air pollutants are those that are emitted directly from sources. Carbon monoxide (CO), volatile organic compounds (VOC), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb) are primary air pollutants. Of these, CO, SO_2, NO_2, PM_{10}, and $PM_{2.5}$ are "criteria air pollutants," which means that ambient air quality standards (AAQS) have been established for them. VOC and oxides of nitrogen (NO_x) are air pollutant precursors that form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O_3) and NO_2 are the principal secondary pollutants. A description of each of the primary and secondary criteria air pollutants and their known health effects is presented below.

Carbon Monoxide (CO) is a colorless, odorless, toxic gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. CO is a primary criteria air pollutant. CO concentrations tend to be the highest during winter mornings with little to no wind, when surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion, engines and motor vehicles operating at slow speeds are the primary source of CO in the SoCAB. The highest ambient CO concentrations are generally found near traffic-congested corridors and intersections. The primary adverse health effect associated with CO is interference with normal oxygen transfer to the blood, which may result in tissue oxygen deprivation (SCAQMD 2005; USEPA 2018a). The SoCAB is designated under the California and National AAQS as being in attainment of CO criteria levels (CARB 2017a).

Volatile Organic Compounds (VOC) are compounds composed primarily of atoms of hydrogen and carbon. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Other sources of VOCs include evaporative emissions associated with the use of paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. There are no ambient air quality standards established for VOCs. However, because they contribute to the formation of ozone (O_3), SCAQMD has established a significance threshold for this pollutant (SCAQMD 2005).

Nitrogen Oxides (NO_x) are a byproduct of fuel combustion and contribute to the formation of O_3, PM_{10}, and $PM_{2.5}$. The two major forms of NO_x are nitric oxide (NO) and nitrogen dioxide (NO_2). The principal form of NO_2 produced by combustion is NO, but NO reacts with oxygen to form NO_2, creating the mixture of NO and NO_2 commonly called NO_x. NO_2 acts as an acute irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, however, NO_2 is only potentially irritating. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis. Some increase in bronchitis in children (two and three years old) has also been observed at concentrations below 0.3 part per million (ppm). NO_2 absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure (SCAQMD 2005; USEPA 2018a). The SoCAB is designated as an attainment area for NO_2 under the National AAQS California AAQS (CARB 2017a).

Sulfur Dioxide (SO_2) is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. It enters the atmosphere as a result of burning high-sulfur-content fuel oils and coal and from chemical processes at chemical plants and refineries. Gasoline and natural gas have very low sulfur content and do not release significant quantities of SO_2 (SCAQMD 2005; USEPA 2018a). When sulfur dioxide forms sulfates (SO_4) in the atmosphere, together these pollutants are referred to as sulfur oxides (SO_X). Thus, SO_2 is both a primary and secondary criteria air pollutant. At sufficiently high concentrations, SO_2 may irritate the upper respiratory tract. At lower concentrations and when combined with particulates, SO_2 may do greater harm by injuring lung tissue. The SoCAB is designated as attainment under the California and National AAQS (CARB 2016a).

Suspended Particulate Matter (PM_{10} and $PM_{2.5}$) consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulates are now recognized and regulated. Inhalable coarse particles, or PM_{10}, include the particulate matter with an aerodynamic diameter of 10 microns (i.e., 10 millionths of a meter or 0.0004 inch) or less. Inhalable fine particles, or $PM_{2.5}$, have an aerodynamic diameter of 2.5 microns (i.e., 2.5 millionths of a meter or 0.0001 inch) or less. Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. However, wind action on arid landscapes also contributes substantially to local particulate loading (i.e., fugitive dust). Both PM_{10} and $PM_{2.5}$ may adversely affect the human respiratory system, especially in people who are naturally sensitive or susceptible to breathing problems (SCAQMD 2005).

The US Environmental Protection Agency's (EPA) scientific review concluded that $PM_{2.5}$, which penetrates deeply into the lungs, is more likely than PM_{10} to contribute to health effects and at concentrations that extend well below those allowed by the current PM_{10} standards. These health effects include premature death and increased hospital admissions and emergency room visits (primarily the elderly and individuals with cardiopulmonary disease); increased respiratory symptoms and disease (children and individuals with cardiopulmonary disease such as asthma); decreased lung functions (particularly in children and individuals with asthma); and alterations in lung tissue and structure and in respiratory tract defense mechanisms (SCAQMD 2005). There has been emerging evidence that even smaller particulates with an aerodynamic diameter of <0.1 microns or less (i.e., ≤ 0.1 millionths of a meter or <0.000004 inch), known as ultrafine particulates (UFPs), have human health implications, because UFPs toxic components may initiate or facilitate biological processes that may lead to adverse effects to the heart, lungs, and other organs (SCAQMD 2013). However, the EPA or CARB have yet to adopt AAQS to regulate these particulates. Diesel particulate matter (DPM) is classified by the CARB as a carcinogen (CARB 1998). Particulate matter can also cause environmental effects such as visibility impairment,[1] environmental damage,[2] and aesthetic damage[3]

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

(SCAQMD 2005; USEPA 2018a). The SoCAB is a nonattainment area for $PM_{2.5}$ under California and National AAQS and a nonattainment area for PM_{10} under the California AAQS (CARB 2017a).[4]

Ozone (O_3) is commonly referred to as "smog" and is a gas that is formed when VOCs and NO_x, both by-products of internal combustion engine exhaust, undergo photochemical reactions in the presence of sunlight. O_3 is a secondary criteria air pollutant. O_3 concentrations are generally highest during the summer months when direct sunlight, light winds, and warm temperatures create favorable conditions for the formation of this pollutant. O_3 poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. Breathing O_3 can trigger a variety of health problems, including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. Ground-level O_3 also can reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue. O_3 also affects sensitive vegetation and ecosystems, including forests, parks, wildlife refuges, and wilderness areas. In particular, O_3 harms sensitive vegetation during the growing season (SCAQMD 2005; USEPA 2018a). The SoCAB is designated as extreme nonattainment under the California AAQS (1-hour and 8-hour) and National AAQS (8-hour) (CARB 2017a).

Lead (Pb) is a metal found naturally in the environment as well as in manufactured products. Once taken into the body, lead distributes throughout the body in the blood and accumulates in the bones. Depending on the level of exposure, lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems, and the cardiovascular system. Lead exposure also affects the oxygen-carrying capacity of the blood. The effects of lead most commonly encountered in current populations are neurological effects in children and cardiovascular effects in adults (e.g., high blood pressure and heart disease). Infants and young children are especially sensitive to even low levels of lead, which may contribute to behavioral problems, learning deficits, and lowered IQ (SCAQMD 2005; USEPA 2018a). The major sources of lead emissions have historically been mobile and industrial sources. As a result of the EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector dramatically declined by 95 percent between 1980 and 1999, and levels of lead in the air decreased by 94 percent between 1980 and 1999. Today, the highest levels of lead in air are usually found near lead smelters. The major sources of lead emissions today are ore and metals processing and piston-engine aircraft operating on leaded aviation gasoline. However, in 2008 the EPA and CARB adopted stricter lead standards, and special monitoring sites immediately downwind of lead sources recorded very localized violations of the new state and federal standards.[5] As a result of these violations, the Los Angeles County portion of the SoCAB is designated nonattainment under the National AAQS for lead (SCAQMD 2012; CARB 2017a). Because emissions of

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

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

[4] CARB approved the SCAQMD's request to redesignate the SoCAB from serious nonattainment for PM_{10} to attainment for PM_{10} under the National AAQS on March 25, 2010, because the SoCAB has not violated federal 24-hour PM_{10} standards during the period from 2004 to 2007. In June 2013, the EPA approved the State of California's request to redesignate the PM_{10} nonattainment area to attainment of the PM_{10} National AAQS, effective on July 26, 2013.

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

lead are found only in projects that are permitted by SCAQMD, lead is not a pollutant of concern for the project.

TOXIC AIR CONTAMINANTS

The public's exposure to air pollutants classified as toxic air contaminants (TACs) is a significant environmental health issue in California. In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health. The California Health and Safety Code defines a TAC as "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health." A substance that is listed as a hazardous air pollutant (HAP) pursuant to Section 112(b) of the federal Clean Air Act (42 United States Code §7412[b]) is a toxic air contaminant. Under state law, the California Environmental Protection Agency (Cal/EPA), acting through CARB, is authorized to identify a substance as a TAC if it determines that the substance is an air pollutant that may cause or contribute to an increase in mortality or to an increase in serious illness, or may pose a present or potential hazard to human health.

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

Air toxics from stationary sources are also regulated in California under the Air Toxics "Hot Spot" Information and Assessment Act of 1987. Under AB 2588, toxic air contaminant emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High priority facilities are required to perform a health risk assessment and, if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings.

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

Diesel Particulate Matter

In 1998, CARB identified particulate emissions from diesel-fueled engines (diesel PM) as a TAC. Previously, the individual chemical compounds in diesel exhaust were considered TACs. Almost all diesel exhaust particle mass is 10 microns or less in diameter. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung.

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

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

Community Risk

In addition, to reduce exposure to TACs, CARB developed and approved the *Air Quality and Land Use Handbook: A Community Health Perspective* (2005) to provide guidance regarding the siting of sensitive land uses in the vicinity of freeways, distribution centers, rail yards, ports, refineries, chrome-plating facilities, dry cleaners, and gasoline-dispensing facilities. This guidance document was developed to assess compatibility and associated health risks when placing sensitive receptors near existing pollution sources. CARB's recommendations on the siting of new sensitive land uses were based on a compilation of recent studies that evaluated data on the adverse health effects from proximity to air pollution sources. The key observation in these studies is that proximity to air pollution sources substantially increases exposure and the potential for adverse health effects. There are three carcinogenic toxic air contaminants that constitute the majority of the known health risks from motor vehicle traffic, DPM from trucks, and benzene and 1,3 butadiene from passenger vehicles. CARB recommendations are based on data that show that localized air pollution exposures can be reduced by as much as 80 percent by following CARB minimum distance separations.

Multiple Airborne Toxics Exposure Study (MATES)

The Multiple Air Toxics Exposure Study (MATES) is a monitoring and evaluation study on ambient concentrations of TACs and estimated the potential health risks from air toxics in the SoCAB. In 2008, SCAQMD conducted its third update to the MATES study (MATES III). The results showed that the overall risk for excess cancer from a lifetime exposure to ambient levels of air toxics was about 1,200 in a million. The largest contributor to this risk was diesel exhaust, accounting for 84 percent of the cancer risk (SCAQMD 2008a).

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

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

Air Quality Management Planning

SCAQMD is the agency responsible for preparing the air quality management plan (AQMP) for the SoCAB in coordination with the Southern California Association of Governments (SCAG). Since 1979, a number of AQMPs have been prepared.

2016 AQMP

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

- 2008 National 8-hour ozone standard by 2031,
- 2012 National annual $PM_{2.5}$ standard by 2025[6],
- 2006 National 24-hour $PM_{2.5}$ standard by 2019,
- 1997 National 8-hour ozone standard by 2023, and the
- 1979 National 1-hour ozone standard by year 2022.

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

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

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

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

LEAD STATE IMPLEMENTATION PLAN

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

AREA DESIGNATIONS

The AQMP provides the framework for air quality basins to achieve attainment of the state and federal ambient air quality standards through the State Implementation Plan (SIP). Areas are classified as attainment or nonattainment areas for particular pollutants, depending on whether they meet ambient air quality standards. Severity classifications for ozone nonattainment range in magnitude from marginal, moderate, and serious to severe and extreme.

- **Unclassified:** a pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.

- **Attainment:** a pollutant is in attainment if the CAAQS for that pollutant was not violated at any site in the area during a three-year period.

- **Nonattainment:** a pollutant is in nonattainment if there was at least one violation of a state AAQS for that pollutant in the area.

- **Nonattainment/Transitional:** a subcategory of the nonattainment designation. An area is designated nonattainment/transitional to signify that the area is close to attaining the AAQS for that pollutant.

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

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

Pollutant	State	Federal
Ozone – 1-hour	Extreme Nonattainment	No Federal Standard
Ozone – 8-hour	Extreme Nonattainment	Extreme Nonattainment
PM_{10}	Serious Nonattainment	Attainment/Maintenance
$PM_{2.5}$	Nonattainment	Nonattainment[1]
CO	Attainment	Attainment
NO_2	Attainment	Attainment/Maintenance
SO_2	Attainment	Attainment
Lead	Attainment	Nonattainment (Los Angeles County only)[2]
All others	Attainment/Unclassified	Attainment/Unclassified

Source: CARB 2017a.
1 SCAQMD is seeking to reclassify the SoCAB from "moderate" to "serious" nonattainment under federal $PM_{2.5}$ standard.
2 In 2010, the Los Angeles portion of the SoCAB was designated nonattainment for lead under the new federal and existing state AAQS as a result of large industrial emitters. Remaining areas in the SoCAB are unclassified.

Existing Ambient Air Quality

Existing ambient air quality, historical trends, and projections in the vicinity of the project site are best documented by measurements made by SCAQMD. The project site is in Source Receptor Area (SRA) 7–Southwest Los Angeles County Coastal. The air quality monitoring station closest to the project site is the Pasadena – S Wilson Avenue Monitoring Station. This station monitors O_3, NO_2, CO, and $PM_{2.5}$. Additional data for PM_{10} is supplemented by the Los Angeles--North Main Street Monitoring Station, and data for SO_2 is from the Burbank Monitoring Station. The most current five years of data monitored at these stations are included in Table 5.2-3, *Ambient Air Quality Monitoring Summary*. The data show recurring violations of the federal $PM_{2.5}$ and standard. The federal and state 8-hr O_3 standard, and the state PM_{10} standard were also frequently exceeded in the last five years. The CO, NO_2, and SO_2 standards have not been violated in the last five years in the project vicinity.

Table 5.2-3 Ambient Air Quality Monitoring Summary

Pollutant/Standard	Number of Days Threshold Were Exceeded and Maximum Levels during Such Violations				
	2012	2013	2014	2015	2016
Ozone (O_3)					
State 1-Hour ≥ 0.09 ppm (days exceed threshold)	8	2	6	12	12
State 8-hour ≥ 0.07 ppm (days exceed threshold)	20	2	13	18	15
Federal 8-Hour > 0.070 ppm (days exceed threshold)	9	0	7	7	18
Max. 1-Hour Conc. (ppm)	0.111	0.099	0.124	0.111	0.126
Max. 8-Hour Conc. (ppm)	0.086	0.075	0.096	0.084	0.090
Carbon Monoxide (CO)					
State 8-Hour > 9.0 ppm (days exceed threshold)	0	*	*	*	*
Federal 8-Hour ≥ 9.0 ppm (days exceed threshold)	0	*	*	*	*
Max. 8-Hour Conc. (ppm)	1.58	*	*	*	*

Table 5.2-3 Ambient Air Quality Monitoring Summary

Pollutant/Standard	Number of Days Threshold Were Exceeded and Maximum Levels during Such Violations				
	2012	2013	2014	2015	2016
Nitrogen Dioxide (NO_2)					
State 1-Hour ≥ 0.18 ppm (days exceed threshold)	0	0	0	0	0
Federal 1-Hour ≥ 0.100 ppm (days exceed threshold)	0	0	0	0	0
Max. 1-Hour Conc. (ppb)	71.2	66.7	75.2	74.9	71.9
Sulfur Dioxide (SO_2)[1]					
State 24-Hour ≥ 0.04 ppm (days exceed threshold)	0	0	*	*	*
Federal 24-Hour ≥ 0.14 ppm (days exceed threshold)	0	0	*	*	*
Max 24-Hour Conc. (ppm)	0.002	0.002	*	*	*
Coarse Particulates (PM_{10})[2]					
State 24-Hour > 50 µg/m^3 (days exceed threshold)	43	20	18	30	21
Federal 24-Hour > 150 µg/m^3 (days exceed threshold)	0	0	0	0	0
Max. 24-Hour Conc. (µg/m^3)	90.9	74.5	86.8	88.5	74.6
Fine Particulates ($PM_{2.5}$)					
Federal 24-Hour > 35 µg/m^3 (days exceed threshold)	2	4	2	6	0
Max. 24-Hour Conc. (µg/m^3)	54.2	45.1	64.6	48.5	29.2

Source: CARB 2017. Data for O_3, NO_2, CO, and $PM_{2.5}$are from the Pasadena – S Wilson Avenue Monitoring Station.
Notes: ppm = parts per million; ppb = parts per billion, µg/m^3 = micrograms per cubic meter
* Data not available.
[1] Data from the Burbank Monitoring Station
[2] Data from the Los Angeles--North Main Street Monitoring Station

Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill, and the chronically ill, especially those with cardio-respiratory diseases.

Residential areas are also considered to be sensitive receptors to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Schools are also considered sensitive receptors, as children are present for extended durations and engage in regular outdoor activities. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial and commercial areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, as the majority of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the public. The nearest sensitive receptors include students and staff at the existing school site and the multifamily residences approximately 400 feet to the south.

Methodology

Projected construction-related air pollutant emissions are calculated using the California Emissions Estimator Model (CalEEMod), Version 2016.3.2. CalEEMod compiles an emissions inventory of construction (fugitive dust, off-gas emissions, on-road emissions, and off-road emissions), area sources, indirect emissions from energy use, mobile sources, indirect emissions from waste disposal (annual only), and indirect emissions from water/wastewater (annual only) use. The calculated emissions of the project are compared to thresholds of significance for individual projects using the SCAQMD's CEQA Air Quality Analysis Guidance Handbook.

Thresholds of Significance

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

REGIONAL SIGNIFICANCE THRESHOLDS

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

[7] SCAQMD's Air Quality Significance Thresholds are current as of March 2015 and can be found here: http://www.aqmd.gov/ceqa/hdbk.html.

Table 4 SCAQMD Significance Thresholds

Air Pollutant	Construction Phase	Operational Phase
Reactive Organic Gases (ROGs)/ Volatile Organic Compounds (VOCs)	75 lbs/day	55 lbs/day
Nitrogen Oxides (NO_X)	100 lbs/day	55 lbs/day
Carbon Monoxide (CO)	550 lbs/day	550 lbs/day
Sulfur Oxides (SO_X)	150 lbs/day	150 lbs/day
Particulates (PM_{10})	150 lbs/day	150 lbs/day
Particulates ($PM_{2.5}$)	55 lbs/day	55 lbs/day

Source: SCAQMD 2015b.

Projects that exceed the regional significance threshold contribute to the nonattainment designation of the SoCAB. The attainment designations are based on the AAQS, which are set at levels of exposure that are determined to not result in adverse health. Exposure to fine particulate pollution and ozone causes myriad health impacts, particularly to the respiratory and cardiovascular systems:

- Linked to increased cancer risk ($PM_{2.5}$, TACs)
- Aggravates respiratory disease (O_3, $PM_{2.5}$)
- Increases bronchitis (O_3, $PM_{2.5}$)
- Causes chest discomfort, throat irritation, and increased effort to take a deep breath (O_3)
- Reduces resistance to infections and increases fatigue (O_3)
- Reduces lung growth in children ($PM_{2.5}$)
- Contributes to heart disease and heart attacks ($PM_{2.5}$)
- Contributes to premature death (O_3, $PM_{2.5}$)
- Linked to lower birth weight in newborns ($PM_{2.5}$) (SCAQMD 2015c)

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

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

CO HOTSPOTS

Areas of vehicle congestion have the potential to create pockets of CO called hot spots. These pockets have the potential to exceed the state one-hour standard of 20 ppm or the eight-hour standard of 9 ppm. Because CO is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to ambient air quality standards is typically demonstrated through an analysis of localized CO concentrations. Hot spots are typically produced at intersections, where traffic congestion is highest because vehicles queue for longer periods and are subject to reduced speeds. With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations in the SoCAB and in the state have steadily declined.

In 2007, the SoCAB was designated in attainment for CO under both the California AAQS and National AAQS. The CO hot spot analysis conducted for the attainment by SCAQMD for busiest intersections in Los Angeles during the peak morning and afternoon periods plan did not predict a violation of CO standards. [8] As identified in SCAQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan), peak carbon monoxide concentrations in the SoCAB in previous years, prior to redesignation, were a result of unusual meteorological and topographical conditions and not a result of congestion at a particular intersection. Under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact (BAAQMD 2017).

LOCALIZED SIGNIFICANCE THRESHOLDS

SCAQMD developed LSTs for emissions of NO_2, CO, PM_{10}, and $PM_{2.5}$ generated at the project site (offsite mobile-source emissions are not included in the LST analysis). LSTs represent the maximum emissions at a project site that are not expected to cause or contribute to an exceedance of the most stringent federal or state AAQS and are shown in Table 5, *SCAQMD Localized Significance Thresholds*.

Table 5 SCAQMD Localized Significance Thresholds

Air Pollutant (Relevant AAQS)	Concentration
1-Hour CO Standard (CAAQS)	20 ppm
8-Hour CO Standard (CAAQS)	9.0 ppm
1-Hour NO_2 Standard (CAAQS)	0.18 ppm
Annual NO_2 Standard (CAAQS)	0.03 ppm
24-Hour PM_{10} Standard – Construction (SCAQMD)[1]	10.4 $\mu g/m^3$
24-Hour $PM_{2.5}$ Standard – Construction (SCAQMD)[1]	10.4 $\mu g/m^3$
24-Hour PM_{10} Standard – Operation (SCAQMD)[1]	2.5 $\mu g/m^3$
24-Hour $PM_{2.5}$ Standard – Operation (SCAQMD)[1]	2.5 $\mu g/m^3$

Source: SCAQMD 2015b.
ppm – parts per million; $\mu g/m^3$ – micrograms per cubic meter
[1] Threshold is based on SCAQMD Rule 403. Since the SoCAB is in nonattainment for PM_{10} and $PM_{2.5}$, the threshold is established as an allowable change in concentration. Therefore, background concentration is irrelevant.

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

To assist lead agencies, SCAQMD developed screening-level LSTs to back-calculate the mass amount (lbs. per day) of emissions generated onsite that would trigger the levels shown in Table 5 for projects under 5-acres. These "screening-level" LSTs tables are the localized significance thresholds for all projects of five acres and less; however, it can be used as screening criteria for larger projects to determine whether or not dispersion modeling may be required to compare concentrations of air pollutants generated by the project to the localized concentrations shown in Table 5.

LST analysis for construction is applicable to all projects of five acres and less; however, it can be used as screening criteria for larger projects to determine whether or not dispersion modeling may be required. In accordance with SCAQMD's LST methodology, the screening-level construction LSTs are based on the acreage disturbed per day based on equipment use. The screening-level construction LSTs for the project site in SRA 7 are shown in Table 6, *SCAQMD Screening-Level Construction Localized Significance Thresholds,* for receptors within 82 feet (25 meters).

Table 6 SCAQMD Screening-Level Construction Localized Significance Thresholds

Acreage Disturbed	Threshold (lbs/day)[1]			
	Nitrogen Oxides (NO_X)	Carbon Monoxide (CO)	Coarse Particulates (PM_{10})	Fine Particulates ($PM_{2.5}$)
≤1.00 Acre Disturbed Per Day	80	498	4.00	3.00
1.44 Acres Disturbed Per Day	95	624	5.31	3.44
2.00 Acres Disturbed Per Day	114	786	7.00	4.00

Source: SCAQMD 2008b; SCAQMD 2011, Based on receptors in SRA 33.
[1] LSTs are based on receptors within 82 feet (25 meters).

Because the project is not an industrial project that has the potential to emit substantial sources of stationary emissions, operational LSTs are not an air quality impact of concern associated with the project.

HEALTH RISK THRESHOLDS

Whenever a project would require use of chemical compounds that have been identified in SCAQMD Rule 1401, placed on CARB's air toxics list pursuant to AB 1807, or placed on the EPA's National Emissions Standards for Hazardous Air Pollutants, a health risk assessment is required by the SCAQMD. Table 7, *Toxic Air Contaminants Incremental Risk Thresholds*, lists the TAC incremental risk thresholds for operation of a project. The purpose of this environmental evaluation is to identify the significant effects of the proposed project on the environment, not the significant effects of the environment on the proposed project. (*California Building Industry Association v. Bay Area Air Quality Management District (2015) 62 Cal.4th 369 (Case No. S213478)*). CEQA does not require an analysis of the environmental effects of attracting development and people to an area. However, the environmental document must analyze the impacts of environmental hazards on future users, when a proposed project exacerbates an existing environmental hazard or condition. Residential, commercial, and office uses do not use substantial quantities of TACs and typically do not exacerbate existing hazards, so these thresholds are typically applied to new industrial projects.

Table 7 SCAQMD Toxic Air Contaminants Incremental Risk Thresholds

Maximum Incremental Cancer Risk	≥ 10 in 1 million
Hazard Index (project increment)	≥ 1.0
Cancer Burden in areas ≥ 1 in 1 million	> 0.5 excess cancer cases

Source: SCAQMD 2015b.

GREENHOUSE GAS EMISSIONS

Scientists have concluded that human activities are contributing to global climate change by adding large amounts of heat-trapping gases, known as GHG, to the atmosphere. Climate change is the variation of Earth's climate over time, whether due to natural variability or as a result of human activities. The primary source of these GHG is fossil fuel use. The Intergovernmental Panel on Climate Change (IPCC) has identified four major GHG—water vapor,[9] carbon (CO_2), methane (CH_4), and ozone (O_3)—that are the likely cause of an increase in global average temperatures observed within the 20th and 21st centuries. Other GHG identified by the IPCC that contribute to global warming to a lesser extent include nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons, perfluorocarbons, and chlorofluorocarbons (IPCC 2001).[10] The major GHG are briefly described below.

- **Carbon dioxide (CO_2)** enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and respiration, and also as a result of other chemical reactions (e.g. manufacture of cement). Carbon dioxide is removed from the atmosphere (sequestered) when it is absorbed by plants as part of the biological carbon cycle.

- **Methane (CH_4)** is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and from the decay of organic waste in municipal landfills and water treatment facilities.

- **Nitrous oxide (N_2O)** is emitted during agricultural and industrial activities as well as during combustion of fossil fuels and solid waste.

- **Fluorinated gases** are synthetic, strong GHGs that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances. These gases are typically emitted in smaller quantities, but because they are potent GHGs, they are sometimes referred to as high global-warming-potential (GWP) gases.

    - ***Chlorofluorocarbons (CFCs)*** are GHGs covered under the 1987 Montreal Protocol and used for refrigeration, air conditioning, packaging, insulation, solvents, or aerosol propellants. Since they are not destroyed in the lower atmosphere (troposphere, stratosphere), CFCs drift into the upper atmosphere where, given suitable conditions, they break down ozone. These gases are also ozone-

[9] Water vapor (H_2O) is the strongest GHG and the most variable in its phases (vapor, cloud droplets, ice crystals). However, water vapor is not considered a pollutant, but part of the feedback loop o rather than a primary cause of change.

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

depleting gases and are therefore being replaced by other compounds that are GHGs covered under the Kyoto Protocol.

- ***Perfluorocarbons (PFCs)*** are a group of human-made chemicals composed of carbon and fluorine only. These chemicals (predominantly perfluoromethane [CF_4] and perfluoroethane [C_2F_6]) were introduced as alternatives, along with HFCs, to the ozone-depleting substances. In addition, PFCs are emitted as by-products of industrial processes and are used in manufacturing. PFCs do not harm the stratospheric ozone layer, but they have a high global warming potential.

- ***Sulfur Hexafluoride (SF6)*** is a colorless gas soluble in alcohol and ether, slightly soluble in water. SF_6 is a strong GHG used primarily in electrical transmission and distribution systems as an insulator.

- ***Hydrochlorofluorocarbons (HCFCs)*** contain hydrogen, fluorine, chlorine, and carbon atoms. Although ozone-depleting substances, they are less potent at destroying stratospheric ozone than CFCs. They have been introduced as temporary replacements for CFCs and are also GHGs.

- ***Hydrofluorocarbons (HFCs)*** contain only hydrogen, fluorine, and carbon atoms. They were introduced as alternatives to ozone-depleting substances to serve many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are also used in manufacturing. They do not significantly deplete the stratospheric ozone layer, but they are strong GHGs (IPCC 2001; USEPA 2018b).

GHGs are dependent on the lifetime or persistence of the gas molecule in the atmosphere. Some GHGs have stronger greenhouse effects than others. These are referred to as high GWP gases. The GWP of GHG emissions are shown in Table 8, *GHG Emissions and Their Relative Global Warming Potential Compared to CO_2*. The GWP is used to convert GHGs to CO_2-equivalence (CO_2e) to show the relative potential that different GHGs have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. For example, under IPCC's Second Assessment Report GWP values for CH_4, a project that generates 10 metric tons (MT) of CH_4 would be equivalent to 210 MT of CO_2.[11]

[11] CO_2-equivalence is used to show the relative potential that different GHGs have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. The global warming potential of a GHG is also dependent on the lifetime, or persistence, of the gas molecule in the atmosphere.

Table 8 GHG Emissions and Their Relative Global Warming Potential Compared to CO_2

GHGs	Second Assessment Report Atmospheric Lifetime (Years)	Fourth Assessment Report Atmospheric Lifetime (Years)	Second Assessment Report Global Warming Potential Relative to CO_2[1]	Fourth Assessment Report Global Warming Potential Relative to CO_2[1]
Carbon Dioxide (CO_2)	50 to 200	50 to 200	1	1
Methane[2] (CH_4)	12 (±3)	12	21	25
Nitrous Oxide (N_2O)	120	114	310	298
Hydrofluorocarbons:				
HFC-23	264	270	11,700	14,800
HFC-32	5.6	4.9	650	675
HFC-125	32.6	29	2,800	3,500
HFC-134a	14.6	14	1,300	1,430
HFC-143a	48.3	52	3,800	4,470
HFC-152a	1.5	1.4	140	124
HFC-227ea	36.5	34.2	2,900	3,220
HFC-236fa	209	240	6,300	9,810
HFC-4310mee	17.1	15.9	1,300	1,030
Perfluoromethane: CF_4	50,000	50,000	6,500	7,390
Perfluoroethane: C_2F_6	10,000	10,000	9,200	12,200
Perfluorobutane: C_4F_{10}	2,600	NA	7,000	8,860
Perfluoro-2-methylpentane: C_6F_{14}	3,200	NA	7,400	9,300
Sulfur Hexafluoride (SF_6)	3,200	NA	23,900	22,800

Source: IPCC 1995; IPCC 2007.

Notes: The GWP values in the IPCC's Fifth Assessment Report (2013) reflect new information on atmospheric lifetimes of GHGs and an improved calculation of the radiative forcing of CO_2. However, SCAQMD uses the AR4 GWP values to maintain consistency in statewide GHG emissions modeling. In addition, the 2014 Scoping Plan Update was based on the AR4 GWP values.

1 Based on 100-year time horizon of the GWP of the air pollutant relative to CO_2.

2 The methane GWP includes direct effects and indirect effects due to the production of tropospheric ozone and stratospheric water vapor. The indirect effect due to the production of CO_2 is not included.

Regulatory Settings

REGULATION OF GHG EMISSIONS ON A NATIONAL LEVEL

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

To regulate GHGs from passenger vehicles, EPA was required to issue an endangerment finding. The finding identifies emissions of six key GHGs—CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and SF_6—that have been the subject of scrutiny and intense analysis for decades by scientists in the United States and around the world. The first three are applicable to the project's GHG emissions inventory because they constitute the majority of GHG emissions and, per South Coast Air Quality Management District guidance, are the GHG emissions that should be evaluated as part of a project's GHG emissions inventory.

US Mandatory Report Rule for GHGs (2009)

In response to the endangerment finding, the EPA issued the Mandatory Reporting of GHG Rule that requires substantial emitters of GHG emissions (large stationary sources, etc.) to report GHG emissions data. Facilities that emit 25,000 MT or more of CO_2 per year are required to submit an annual report.

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

The current Corporate Average Fuel Economy standards (for model years 2011 to 2016) incorporate stricter fuel economy requirements promulgated by the federal government and California into one uniform standard. Additionally, automakers are required to cut GHG emissions in new vehicles by roughly 25 percent by 2016 (resulting in a fleet average of 35.5 miles per gallon by 2016). Rulemaking to adopt these new standards was completed in 2010. California agreed to allow automakers who show compliance with the national program to also be deemed in compliance with state requirements. The federal government issued new standards in 2012 for model years 2017–2025 that will require a fleet average of 54.5 miles per gallon in 2025. However, the EPA is reexamining the 2017-2025 emissions standards.

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

Pursuant to its authority under the Clean Air Act, the EPA has been developing regulations for new stationary sources such as power plants, refineries, and other large sources of emissions. Pursuant to former President Obama's 2013 Climate Action Plan, the EPA was directed to develop regulations for existing stationary sources also. However, the EPA is reviewing the Clean Power Plan under President Trump's Energy Independence Executive Order.

REGULATION OF GHG EMISSIONS ON A STATE LEVEL

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in Executive Order S-3-05, Executive Order B-30-15, Assembly Bill 32, and Senate Bill 375.

Executive Order S-3-05

Executive Order S-3-05, signed June 1, 2005. Executive Order S-3-05 set the following GHG reduction targets for the State:

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

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

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

CARB 2008 Scoping Plan

The final Scoping Plan was adopted by CARB on December 11, 2008. The *2008 Scoping Plan* identified that GHG emissions in California are anticipated to be approximately 596 $MMTCO_2e$ in 2020. In December 2007, CARB approved a 2020 emissions limit of 427 $MMTCO_2e$ (471 million tons) for the state (CARB 2008). In order to effectively implement the emissions cap, AB 32 directed CARB to establish a mandatory reporting system to track and monitor GHG emissions levels for large stationary sources that generate more than 25,000 $MTCO_2e$ per year, prepare a plan demonstrating how the 2020 deadline can be met, and develop appropriate regulations and programs to implement the plan by 2012.

First Update to the Scoping Plan

CARB completed a five-year update to the 2008 Scoping Plan, as required by AB 32. The First Update to the Scoping Plan was adopted at the May 22, 2014, board hearing. The update highlights California's progress toward meeting the near-term 2020 GHG emission reduction goals defined in the original 2008 Scoping Plan. As part of the update, CARB recalculated the 1990 GHG emission levels with the updated AR4 GWPs, and the 427 $MMTCO_2e$ 1990 emissions level and 2020 GHG emissions limit, established in response to AB 32, is slightly higher at 431 $MMTCO_2e$ (CARB 2014).

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

Executive Order B-30-15

Executive Order B-30-15, signed April 29, 2015, sets a goal of reducing GHG emissions in the state to 40 percent of 1990 levels by year 2030. Executive Order B-30-15 also directs CARB to update the Scoping Plan to quantify the 2030 GHG reduction goal for the state and requires state agencies to implement measures to meet the interim 2030 goal as well as the long-term goal for 2050 in Executive Order S-03-05. It also requires the Natural Resources Agency to conduct triennial updates of the California adaption strategy, Safeguarding California, in order to ensure climate change is accounted for in state planning and investment decisions.

Senate Bill 32 and Assembly Bill 197

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

2017 Climate Change Scoping Plan Update

Executive Order B-30-15 and SB 32 required CARB to prepare another update to the Scoping Plan to address the 2030 target for the state. On December 24, 2017, CARB adopted the 2017 Climate Change Scoping Plan Update, which outlines potential regulations and programs, including strategies consistent with AB 197 requirements, to achieve the 2030 target. The 2017 Scoping Plan establishes a new emissions limit of 260 $MMTCO_2e$ for the year 2030, which corresponds to a 40 percent decrease in 1990 levels by 2030 (CARB 2017c).

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

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

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

In addition to the statewide strategies listed above, the 2017 Climate Change Scoping Plan also identified local governments as essential partners in achieving the State's long-term GHG reduction goals and identified local actions to reduce GHG emissions. As part of the recommended actions, CARB recommends statewide targets of no more than 6 $MTCO_2e$ or less per capita by 2030 and 2 $MTCO_2e$ or less per capita by 2050. CARB recommends that local governments evaluate and adopt robust and quantitative locally-appropriate goals that align with the statewide per capita targets and the State's sustainable development objectives and develop plans to achieve the local goals. The statewide per capita goals were developed by applying the percent reductions necessary to reach the 2030 and 2050 climate goals (i.e., 40 percent and 80 percent, respectively) to the State's 1990 emissions limit established under AB 32. For CEQA projects, CARB states that lead agencies have discretion to develop evidenced-based numeric thresholds (mass emissions, per capita, or per service population)—consistent with the Scoping Plan and the state's long-term GHG goals. To the degree a project relies on GHG mitigation measures, CARB recommends that lead agencies prioritize on-site design features that reduce emissions, especially from VMT, and direct investments in GHG reductions within the project's region that contribute potential air quality, health, and economic co-benefits. Where further project design or regional investments are infeasible or not proven to be effective, CARB recommends mitigating potential GHG impacts through purchasing and retiring carbon credits.

The Scoping Plan scenario is set against what is called the business-as-usual (BAU) yardstick—that is, what would the GHG emissions look like if the State did nothing at all beyond the existing policies that are required and already in place to achieve the 2020 limit, as shown in Table 9, *2017 Climate Change Scoping Plan Emissions Reductions Gap*. It includes the existing renewables requirements, advanced clean cars, the "10 percent" Low Carbon Fuel Standard (LCFS), and the SB 375 program for more vibrant communities, among others. However, it does not include a range of new policies or measures that have been developed or put into statute over the past two years. Also shown in the table, the known commitments are expected to result in emissions that are 60 $MMTCO_2e$ above the target in 2030. If the estimated GHG reductions from the known commitments are not realized due to delays in implementation or technology deployment, the post-2020 Cap-and-Trade Program would deliver the additional GHG reductions in the sectors it covers to ensure the 2030 target is achieved.

Table 9 2017 Climate Change Scoping Plan Emissions Reductions Gap

Modeling Scenario	2030 GHG Emissions $MMTCO_2e$
Reference Scenario (Business-as-Usual)	389
With Known Commitments	320
2030 GHG Target	260
Gap to 2030 Target	60

Source: CARB 2017c.

Table 10, *2017 Climate Change Scoping Plan Emissions Change by Sector*, provides estimated GHG emissions by sector, compared to 1990 levels, and the range of GHG emissions for each sector estimated for 2030.

Table 10 2017 Climate Change Scoping Plan Emissions Change by Sector

Scoping Plan Sector	1990 $MMTCO_2e$	2030 Proposed Plan Ranges $MMTCO_2e$	% Change from 1990
Agricultural	26	24-25	-8% to -4%
Residential and Commercial	44	38-40	-14% to -9%
Electric Power	108	30-53	-72% to -51%
High GWP	3	8-11	267% to 367%
Industrial	98	83-90	-15% to -8%
Recycling and Waste	7	8-9	14% to 29%
Transportation (including TCU)	152	103-111	-32% to -27%
Net Sink[1]	-7	TBD	TBD
Sub Total	431	294-339	-32% to -21%
Cap-and-Trade Program	NA	24-79	NA
Total	431	260	-40%

Source: CARB 2017c.
Notes: TCU = Transportation, Communications, and Utilities; TBD: To Be Determined.
[1] Work is underway through 2017 to estimate the range of potential sequestration benefits from the natural and working lands sector.

Senate Bill 1383

On September 19, 2016, the Governor signed SB 1383 to supplement the GHG reduction strategies in the Scoping Plan to consider short-lived climate pollutants, including black carbon and CH_4. Black carbon is the light-absorbing component of fine particulate matter produced during incomplete combustion of fuels. SB 1383 requires the state board, no later than January 1, 2018, to approve and begin implementing that comprehensive strategy to reduce emissions of short-lived climate pollutants to achieve a reduction in methane by 40 percent, hydrofluorocarbon gases by 40 percent, and anthropogenic black carbon by 50 percent below 2013 levels by 2030, as specified. The bill also establishes targets for reducing organic waste in landfill. On March 14, 2017, CARB adopted the "Final Proposed Short-Lived Climate Pollutant Reduction Strategy," which identifies the state's approach to reducing anthropogenic and biogenic sources of short-lived climate pollutants. Anthropogenic sources of black carbon include on- and off-road transportation, residential wood burning, fuel combustion (charbroiling), and industrial processes. According to CARB, ambient levels of black carbon in California are 90 percent lower than in the early 1960s despite the tripling of diesel fuel use (CARB 2017b). In-use on-road rules are expected to reduce black carbon emissions from on-road sources by 80 percent between 2000 and 2020. SCAQMD is one of the air districts that requires air pollution control technologies for chain-driven broilers, which reduces particulate emissions from these char broilers by over 80 percent (CARB 2017b). Additionally, SCAQMD Rule 445 limits installation of new fireplaces in the SoCAB.

Senate Bill 375

In 2008, SB 375, the Sustainable Communities and Climate Protection Act, was adopted to connect the GHG emissions reductions targets established in the 2008 Scoping Plan for the transportation sector to local land use decisions that affect travel behavior. Its intent is to reduce GHG emissions from light-duty trucks and automobiles (excludes emissions associated with goods movement) by aligning regional long-range transportation plans, investments, and housing allocations to local land use planning to reduce VMT and vehicle trips. Specifically, SB 375 required CARB to establish GHG emissions reduction targets for each of the 18 metropolitan planning organizations (MPOs). The Southern California Association of Governments (SCAG) is the MPO for the Southern California region, which includes the counties of Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial.

Pursuant to the recommendations of the Regional Transportation Advisory Committee, CARB adopted per capita reduction targets for each of the MPOs rather than a total magnitude reduction target. SCAG's targets are an 8 percent per capita reduction from 2005 GHG emission levels by 2020 and a 13 percent per capita reduction from 2005 GHG emission levels by 2035 (CARB 2010). The 2020 targets are smaller than the 2035 targets because a significant portion of the built environment in 2020 has been defined by decisions that have already been made. In general, the 2020 scenarios reflect that more time is needed for large land use and transportation infrastructure changes. Most of the reductions in the interim are anticipated to come from improving the efficiency of the region's transportation network. The targets would result in 3 $MMTCO_2e$ of reductions by 2020 and 15 $MMTCO_2e$ of reductions by 2035. Based on these reductions, the passenger vehicle target in CARB's Scoping Plan (for AB 32) would be met (CARB 2010).

2017 Update to the SB 375 Targets

CARB is required to update the targets for the MPOs every eight years. In June 2017, CARB released updated targets and technical methodology and recently released another update in February 2018. The updated targets consider the need to further reduce VMT, as identified in the 2017 Scoping Plan Update, while balancing the need for additional and more flexible revenue sources to incentivize positive planning and action toward sustainable communities. Like the 2010 targets, the updated SB 375 targets are in units of percent per capita reduction in GHG emissions from automobiles and light trucks relative to 2005. This excludes reductions anticipated from implementation of state technology and fuels strategies and any potential future state strategies such as statewide road user pricing. The proposed targets call for greater per capita GHG emission reductions from SB 375 than are currently in place, which for 2035, translate into proposed targets that either match or exceed the emission reduction levels in the MPOs' currently adopted SCSs. As proposed, CARB staff's proposed targets would result in an additional reduction of over 8 $MMTCO_2e$ in 2035 compared to the current targets. For the next round of SCS updates, CARB's updated targets for the SCAG region are an 8 percent per capita GHG reduction in 2020 from 2005 levels (unchanged from the 2010 target) and a 19 percent per capita GHG reduction in 2035 from 2005 levels (compared to the 2010 target of 13 percent) (CARB 2018b). CARB anticipates adoption of the updated targets and methodology in 2018 and subsequent SCSs adopted afterwards would be subject to these new targets.

SCAG's 2016-2040 RTP/SCS

SB 375 requires each MPO to prepare an SCS in their regional transportation plan. For the SCAG region, the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) was adopted on April 7, 2016, and is an update to the 2012 RTP/SCS (SCAG 2016). In general, the SCS outlines a development pattern for the region, which, when integrated with the transportation network and other transportation measures and policies, would reduce vehicle miles traveled from automobiles and light duty trucks and thereby reduce GHG emissions from these sources.

The 2016-2040 RTP/SCS projects that the SCAG region will meet or exceed the passenger per capita targets set in 2010 by CARB. It is projected that VMT per capita in the region for year 2040 would be reduced by 7.4 percent with implementation of the 2016-2040 RTP/SCS compared to a no-plan year 2040 scenario. Under the 2016-2040 RTP/SCS, SCAG anticipates lowering GHG emissions 8 percent below 2005 levels by 2020, 18 percent by 2035, and 21 percent by 2040. The 18 percent reduction by 2035 over 2005 levels represents a 2 percent increase in reduction compared to the 2012 RTP/SCS projection. Overall, the SCS is meant to provide growth strategies that will achieve the aforementioned regional GHG emissions reduction targets. Land use strategies to achieve the region's targets include planning for new growth around high quality transit areas and livable corridors, and creating neighborhood mobility areas to integrate land use and transportation and plan for more active lifestyles (SCAG 2016). However, the SCS does not require that local general plans, specific plans, or zoning be consistent with the SCS; instead, it provides incentives to governments and developers for consistency.

Assembly Bill 1493

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

Executive Order S-01-07

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

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

A major component of California's Renewable Energy Program is the RPS established under Senate Bills 1078 (Sher) and 107 (Simitian). Under the RPS, certain retail sellers of electricity were required to increase the amount of renewable energy each year by at least 1 percent in order to reach at least 20 percent by December 30, 2010. Executive Order S-14-08 was signed in November 2008, which expanded the state's Renewable Energy Standard to 33 percent renewable power by 2020. This standard was adopted by the legislature in 2011 (SB X1-2). Renewable sources of electricity include wind, small hydropower, solar, geothermal, biomass, and biogas. The increase in renewable sources for electricity production will decrease indirect GHG emissions from development projects, because electricity production from renewable sources is generally considered carbon neutral.

Senate Bill 350

Senate Bill 350 (de Leon), was signed into law in September 2015. SB 350 establishes tiered increases to the RPS of 40 percent by 2024, 45 percent by 2027, and 50 percent by 2030. SB 350 also set a new goal to double the energy efficiency savings in electricity and natural gas through energy efficiency and conservation measures.

Executive Order B-16-2012

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

California Building Code: Building Energy Efficiency Standards

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

The 2016 Standards continues to improve upon the previous 2013 Standards for new construction of, and additions and alterations to, residential and nonresidential buildings. Under the 2016 Standards, residential and nonresidential buildings are 28 and 5 percent more energy efficient than the 2013 Standards, respectively (CEC 2015a). Buildings that are constructed in accordance with the 2013 Building Energy Efficiency Standards are 25 percent (residential) to 30 percent (nonresidential) more energy efficient than the prior 2008 standards as a result of better windows, insulation, lighting, ventilation systems, and other features. While the 2016 standards do not achieve zero net energy, they do get very close to the state's goal and make important steps toward changing residential building practices in California. The 2019 standards will take the final step to achieve zero net energy for newly constructed residential buildings throughout California (CEC 2015b).

On May 9, 2018, the CEC adopted the 2019 Building Energy Efficiency Standards. The 2019 Standards focus on four key areas: smart residential photovoltaic systems, updated thermal envelope standards (preventing heat transfer from the interior to exterior and vice versa), residential and nonresidential ventilation requirements, and nonresidential lighting requirements. The ventilation measures improve indoor air quality, protecting homeowners from air pollution originating from outdoor and indoor sources. For the first time, the standards also establish requirements for newly constructed healthcare facilities. The 2019 Standard require solar photovoltaic systems on new residential development starting in 2020. Under the new standards, nonresidential buildings will use about 30 percent less energy due mainly to lighting upgrades (CEC 2018).

California Building Code: CALGreen

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (24 CCR, Part 11, known as "CALGreen") was adopted as part of the California Building Standards Code. CALGreen established planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants.[12] The mandatory provisions of CALGreen became effective January 1, 2011, and were last updated in 2016. The 2016 CALGreen became effective on January 1, 2017. The CEC adopted the 2019 CALGreen on May 9, 2018. The 2019 CALGreen standards become effective January 1, 2020.

2006 Appliance Efficiency Regulations

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

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

Solid Waste Regulations

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

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

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

Section 5.408 of the 2016 CALGreen also requires that at least 65 percent of the nonhazardous construction and demolition waste from nonresidential construction operations be recycled and/or salvaged for reuse.

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

Water Efficiency Regulations

The 20x2020 Water Conservation Plan was issued by the Department of Water Resources (DWR) in 2010 pursuant to Senate Bill 7, which was adopted during the 7th Extraordinary Session of 2009–2010 and therefore dubbed "SBX7-7." SBX7-7 mandated urban water conservation and authorized the DWR to prepare a plan implementing urban water conservation requirements (20x2020 Water Conservation Plan). In addition, it required agricultural water providers to prepare agricultural water management plans, measure water deliveries to customers, and implement other efficiency measures. SBX7-7 requires urban water providers to adopt a water conservation target of 20 percent reduction in urban per capita water use by 2020 compared to 2005 baseline use.

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

Thresholds of Significance

The CEQA Guidelines recommend that a lead agency consider the following when assessing the significance of impacts from GHG emissions on the environment:

1. The extent to which the project may increase (or reduce) GHG emissions as compared to the existing environmental setting;

2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project;

3. The extent to which the project complies with regulations or requirements adopted to implement an adopted statewide, regional, or local plan for the reduction or mitigation of GHG emissions.[13]

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

To provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents, SCAQMD has convened a GHG CEQA Significance Threshold Working Group (Working Group). Based on the last Working Group meeting (Meeting No. 15) held in September 2010, SCAQMD is proposing to adopt a tiered approach for evaluating GHG emissions for development projects where SCAQMD is not the lead agency (SCAQMD 2010):

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

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

- **Tier 3.** If GHG emissions are less than the screening-level threshold, project-level and cumulative GHG emissions are less than significant.

  For projects that are not exempt or where no qualifying GHG reduction plans are directly applicable, SCAQMD requires an assessment of GHG emissions. SCAQMD is proposing a screening-level threshold of 3,000 $MTCO_2e$ annually for all land use types or the following land-use-specific thresholds: 1,400 $MTCO_2e$ for commercial projects, 3,500 $MTCO_2e$ for residential projects, or 3,000 $MTCO_2e$ for mixed-use projects. These bright-line thresholds are based on a review of the Governor's Office of Planning and Research database of CEQA projects. Based on their review of 711 CEQA projects, 90 percent of CEQA projects would exceed the bright-line thresholds identified above. Therefore, projects

[13] The Governor's Office of Planning and Research recommendations include a requirement that such a plan must be adopted through a public review process and include specific requirements that reduce or mitigate the project's incremental contribution of GHG emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable, notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

that do not exceed the bright-line threshold would have a nominal, and therefore, less than cumulatively considerable impact on GHG emissions:

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

  The SCAQMD Working Group has identified an efficiency target for projects that exceed the screening threshold of 4.8 $MTCO_2e$ per year per service population ($MTCO_2e$/year/SP) for project-level analyses and 6.6 $MTCO_2e$/year/SP for plan level projects (e.g., program-level projects such as general plans) for the year 2020.[14] The per capita efficiency targets are based on the AB 32 GHG reduction target and 2020 GHG emissions inventory prepared for CARB's 2008 Scoping Plan.[15] If a proposed project's horizon year is beyond year 2020, the efficiency target would need to be adjusted based on the mid-term GHG reduction target of SB 32, which establishes a target of 40 percent below 1990 levels by 2030, and the long-term reduction goal of Executive Order S-03-05, which sets a goal of 80 percent below 1990 levels by 2050.

For the purpose of this project, as the proposed project is anticipated to be built by the end of 2018, SCAQMD's project-level thresholds of 3,000 $MTCO_2e$ and 4.8 $MTCO_2e$/year/SP are used. If projects exceed the bright line and per capita efficiency targets, GHG emissions would be considered potentially significant in the absence of mitigation measures.

[14] It should be noted that the Working Group also considered efficiency targets for 2035 for the first time in this Working Group meeting.

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

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CalEEMod Project Characteristics Inputs

Project Address:	120 East Cerritos Avenue, Glendale
Project Location:	Los Angeles-- South Coast
Climate Zone:	12
Land Use Setting:	Urban
Operational Year:	2018
Utility Company:	Glendale Water and Power
Air Basin:	South Coast Air Basin
Air District:	SCAQMD
SRA:	7

Total Project Site Acreage:	4.00	acres
Acreage to be distrubed:	1.60	acres

Existing Components	SQFT	Acres
Existing Field	28,314	0.65
Existing Basketball Courts	39,204	0.90
Existing Restroom	1,000	0.02
		1.57

New Construction	SQFT	Acres
New Athletic Field	37,762	0.87
New Play Courts	31,634	0.73
Restrooms & Storage Room*	300	0.01
	Total:	**1.60**

**Square footage based on aerial photograph of site*

CalEEMod Land Use Inputs

Land Use	Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	Square Feet
New Athletic Field	Recreational	City Park	0.87	acre	0.87	37,762
Restrooms & Storage Room*	Educational	Elementary School	0.30	1000 sqft	0.01	300
New Play Courts	Parking	Other Asphalt Surfaces	31.63	1000sqft	0.73	31,634
					1.60	acre

Soil Hauling

Construction Activity	Export Volume (CY)	Haul Truck Capacity (CY)*	Total Trip Ends	Total Days	Trip Ends/Day
Rough Grading	5,000	16	625	4	157

**CalEEMod Default*

Demo Haul

Construction Activity	Demolition Volume (ton)	Haul Truck Capacity (ton)*	Haul Distance (miles)*	Total Trip Ends	Total Days	Trip Ends/Day
Asphalt Demo Debris Haul	915	20	20	92	20	5
Restroom Building Debris Haul	46	20	20	5	20	1
	961			**97**		

**CalEEMod Default*

Architectural Coating

Non-Residential Architectural Coating

Percentage of Buildings' Interior Painted:	100%	
Percentage of Buildings' Exterior Painted:	100%	
SCAQMD Rule 1113		
Interior Paint VOC content:	50	grams per liter
Exterior Paint VOC content:	50	grams per liter

Nonresidential Structures	Land Use Square Feet	SCAQMD Factor	Total Paintable Surface Area[2]	Paintable Interior Area[1]	Paintable Exterior Area[1]
Parking and Asphalt Striping	31,634	0.06	1,898		1,898
Restrooms & Storage Building	300	2	600	450	150

1 CalEEMod methodology calculates the paintable interior and exterior areas by multiplying the total paintable surface area by 75 and 25 percent, respectively. Architectural coatings for the parking lot is based on CalEEMod methodology applied to a surface parking lot (i.e., striping), in which 6% of surface area is painted.

2 Applied CalEEMod Methodology in calculating total. The program assumes the total surface for painting equals 2.7 times the floor square footage for residential and 2 times that for nonresidential square footage defined by the user. The default values based on SCAQMD methods used in their coating rules are 75% for the interior surfaces and 25% for the exterior shell

Construction - Unmitigated Run

SCAQMD Rule 403			
Replace Ground Cover	PM10:	5	% Reduction
	PM25:	5	% Reduction
Water Exposed Area	Frequency:	2	per day
	PM10:	55	% Reduction
	PM25:	55	% Reduction
Unpaved Roads	Vehicle Speed:	15	mph
SCAQMD Rule 1186			
Clean Paved Road	9	% PM Reduction	

CalEEMod Construction Phase Inputs

5-Day Work Week/8 hours per day

Phase Name	Phase Type	Start Date	End Date	CalEEMod Total Days	Total Days
Demolition	Demolition	9/1/2018	9/28/2018	20	27
Demo Haul	*Demolition*	*9/1/2018*	*9/28/2018*	*20*	*27*
Site Preparation	Site Preparation	9/29/2018	10/2/2018	2	3
Grading	Grading	10/3/2018	10/8/2018	4	5
Grading Haul	*Haul*	*10/3/2018*	*10/8/2018*	*4*	*5*
Utility Trenching*	Utility Trenching	10/9/2018	10/22/2018	10	13
Asphalt Paving	Asphalt Paving	10/23/2018	11/5/2018	10	13
Architectural Coating	Architectural Coating	11/6/2018	11/19/2018	10	13
Landscaping/Field Lighting*	Bldg. Construction	11/20/2018	11/30/2018	9	10

Source: CalEEMod defaults

* Based on similar projects because CalEEMod defaults were not available

CalEEMod Construction Off-Road Equipment Inputs

Equipment Type	CalEEMod Equipment Type	Unit Amount	Hours/Day	HP	LF	Worker Trips	Vendor Trips
Demolition						13	
Concrete/Industrial Saws	Concrete/Industrial Saws	1	8	81	0.73		
Excavators	Rubber Tired Dozers	1	8	247	0.4		
Rubber Tired Dozers	Tractors/Loaders/Backhoes	3	8	97	0.37		
Water Truck							4
Site Preparation						8	
Graders	Graders	1	8	187	0.41		
Rubber Tired Dozers	Rubber Tired Dozers	1	7	247	0.4		
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	1	8	97	0.37		
Water Truck							4
Grading						8	
Graders	Graders	1	6	187	0.41		
Rubber Tired Dozers	Rubber Tired Dozers	1	6	247	0.4		
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	1	7	97	0.37		
Water Truck							4
Utility Trenching*						5	
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	2	8	97	0.37		
Water Truck							4
Landscaping/Field Lighting*						28	11
Rubber Tired Loaders	Rubber Tired Loaders	1	8	247	0.3953		
Cranes	Cranes	1	6	231	0.2881		
Forklifts	Forklifts	1	6	89	0.201		
Paving						13	
Cement and Mortar Mixers	Cement and Mortar Mixers	1	6	9	0.56		
Pavers	Pavers	1	6	130	0.42		
Paving Equipment	Paving Equipment	1	8	132	0.36		
Rollers	Rollers	1	7	80	0.38		
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	1	8	97	0.37		
Architectural Coating						6	
Air Compressors	Air Compressors	1	6	78	0.48		

Source: Equipment mix, Worker Trips, and Vendor Trips based on CalEEMod default
** Based on similar school field lighting projects*

Pavement Volume to Weight Conversion

Duration	Total SF of Parking Lot	Assumed Thickness (foot)[1]	Debris Volume (cu. ft)	Weight of Crushed Asphalt (lbs/cf)[2]	AC Mass (lbs)	AC Mass (tons)
Demolition	39,204	0.33	13068	140	1,829,520	914.76

[1] *Pavements and Surface Materials* . Nonpoint Education for Municipal Officials, Technical Paper Number 8. University of Conneticut Cooperative Extension System, 1999.

[2]http://www.reade.com/reade-resources/reference-educational/reade-reference-chart-particle-property-briefings/26-weight-per-cubic-foot-and-specific-gravity-metals-minerals-organics-inorganics-ceraqmics

Note: Resurfacing the hardcourts may not require export of demolition debris but the demolition debris was included to present a worst-case analysis of impacts.

Demo Haul Trip Calculation

*Conversion factors**

0.046	ton/SF
1.2641662	tons/cy
20	tons
15.820705	CY
0.7910352	CY/ton

*CalEEMod User's Guide Version 2011.1, Appendix A

CalEEMod Project Characteristics Inputs

Project Address:	120 East Cerritos Avenue, Glendale
Project Location:	Los Angeles-- South Coast
Climate Zone:	12
Land Use Setting:	Urban
Operational Year:	2018
Utility Company:	Glendale Water and Power
Air Basin:	South Coast Air Basin
Air District:	SCAQMD
SRA:	7

Total Project Site Acreage:	4.00	acres
Acreage to be distrubed:	1.60	acres

CalEEMod Land Use Inputs

Land Use	Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	Square Feet
New Athletic Field	Recreational	City Park	0.87	acre	0.87	37,762
Restrooms & Storage Room*	Educational	Elementary School	0.30	acre	0.01	300
New Play Courts	Parking	Other Asphalt Surfaces	31.63	1000sqft	0.73	31,634
					1.60	acre

Trip Generation

	Weekday	Weekends	
Trip Generation*	182	235	Average Daily Trips (ADT)
ITE Manual Highest Scenario Trip Rate	90.81	71.33	trips/field
Adjusted CalEEMod Trip Rate	**209.94**	**271.08**	trips/1000sqft

**Based on Traffic Impact Analysis for Cerritos Elementary School. PlaceWorks,March 2018.*

Trip rates based on ITE Trip Generation Manual 9th Edition Soccer Complex land use (code 488). Analysis uses most conservative "Highest Rate" trip generation scenario

Lighting (Electricity Use)*	Musco TLC-LED-1150	Musco TLC-BT-575	
Number of Fixtures	12	4	
Total Kilowatt	1.15	0.58	kW/h

	Hours Per Day	Days Per Year	Total kWh/yr
Lighting Use	5	365	29,419.00

	Default KWhr/size/yr	Kwh/year	KWhr/size/yr with Stadium
Lighting in CalEEMod	2.59	**777.00**	**34,832.31**

Calculation of GHGs from Field Lighting (City of Glendale)

CO_2**	CH_4**	N_2O**	CO_2e	CO_2e
lbs/Mwh	lbs/Mwh	lbs/Mwh	lbs/Mwh	MT/Kwh
383.88	0.095	0.012	389.95	0.000177
				MT/Year
			CO2 from Lighting	**5.20**

**Global Warming Potentials from the Climate Change 2007, IPCC Fourth Assessment Report (AR4).*
***City of Glendale Power Mix from California Department of Energy. Utility Annual Power Content Labels for 2016. 2016 City of Glendale Power Content Label.*
http://www.energy.ca.gov/pcl/labels/

Solid Waste

	Stadium	Restroom	
Solid Waste Generation:	0.07	0.39	TPY

**Based on CalEEMod default*

Water Use

Septic Tank	0%	
Aerobic	100%	
Facultative Lagoons	0%	
Indoor Water Use:	8,699	GPY
Outdoor Water Use:	0	GPY

** Default CalEEMod water usage based on additional restroom sqft*

Architectural Coating

Non-Residential Architectural Coating

Percentage of Buildings' Interior Painted:	100%	
Percentage of Buildings' Exterior Painted:	100%	
SCAQMD Rule 1113		
Interior Paint VOC content:	50	grams per liter
Exterior Paint VOC content:	50	grams per liter

Nonresidential Structures	Land Use Square Feet	SCAQMD Factor	Total Paintable Surface Area[2]	Paintable Interior Area[1]	Paintable Exterior Area[1]
Parking and Asphalt Striping	31634	0.06	1,898		1,898
Restrooms & Storage Building	300	2	600	450	150

1 CalEEMod methodology calculates the paintable interior and exterior areas by multiplying the total paintable surface area by 75 and 25 percent, respectively. Architectural coatings for the parking lot is based on CalEEMod methodology applied to a surface parking lot (i.e., striping), in which 6% of surface area is painted.

2 Applied CalEEMod Methodology in calculating total. The program assumes the total surface for painting equals 2.7 times the floor square footage for residential and 2 times that for nonresidential square footage defined by the user. The default values based on SCAQMD methods used in their coating rules are 75% for the interior surfaces and 25% for the exterior shell

Water Mitigation

Install Low Flow Bathroom Faucet	32	% Reduction in flow
Install Low Flow Kitchen Faucet	18	% Reduction in flow
Install Low Flow Toilet	20	% Reduction in flow
Install Low Flow Shower	20	% Reduction in flow
Use Water Efficiency Irrigation System	6.1	% Reduction in flow

Changes to the CalEEMod Defaults - Fleet Mix 2018 (Proposed)

Trips 182

Default	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH	
FleetMix (Model Default)	0.548	0.046127	0.19933	0.125604	0.017697	0.005953	0.01836	0.027618	0.002341	0.002583	0.004804	0.000667	0.000944	100%
Trips	100	8	36	23	3	1	3	5	0	0	1	0	0	182
Percent	80%			13%	8%									100%
without buses/MH	0.547972	0.046127	0.199330	0.125604	0.017697	0.005953	0.018360	0.027618	0	0	0.004804	0.000000	0	99%
Percent	80%			13%	7%									99%
Adjusted without buses/MH	0.547972	0.046127	0.199330	0.125604	0.019358	0.006512	0.020083	0.030210	0.000000	0.000000	0.005255	0.000000	0.000000	
Percent check	80%			13%	8%									100%
Assumed Mix	98.0%			1.00%	1.00%									100%
adjusted with Assumed	0.672372	0.056599	0.244582	0.010000	0.002542	0.000855	0.002637	0.003967	0.000000	0.000000	0.006448	0.000000	0.000000	100%
Trips	122	10	45	2	0	0	0	1	0	0	1	0	0	182
Check	*178*			*2*	*2*									

Source: Traffic Impact Analysis for Cerritos Elementary School. PlaceWorks, March 2018.

CITY OF GLENDALE POWER CONTENT

$MTCO_2e$

Source	Percent*	Adjusted percent	Emission factor (MTCO2e/KWH)**
Coal	5.00%	5.00%	0.000981684
Large hydro	10.00%	10.00%	0
Natural gas	29.00%	29.00%	0.000387842
Nuclear	7.00%	7.00%	0
Oil	0.00%	0.00%	0.00056559
Other/unspecified	1.00%	1.00%	0.000428
Biomass	12.00%	12.00%	7.41486E-05
Geothermal	2.00%	2.00%	0.000107172
Small hydro	8.00%	8.00%	0
Solar	0.00%	0.00%	5.7828E-06
Wind	26.00%	26.00%	0
	100.00%	100.00%	

Emission factor	**0.000176880**	MTCO2e/KWH
Calculation check	0.000176880	
		0.26

		CO_2	83.1
$MTCO_2e$/kWh	0.000428	CH_4	0.27
		N_2O	0.3
			83.67

**City of Glendale Power Mix from California Department of Energy. Utility Annual Power Content Labels for 2016. 2016 City of Glendale Power Content Label. http://www.energy.ca.gov/pcl/labels/*

***Global Warming Potentials from the Climate Change 2007, IPCC Fourth Assessment Report (AR4).*

CITY OF GLENDALE POWER CONTENT

$MTCO_2$

Source	**Percent***	**Adjusted percent**	**Emission factor (MTCO2/KWH)****
Coal	5.00%	5.00%	0.000974076
Large hydro	10.00%	10.00%	0
Natural gas	29.00%	29.00%	0.000387411
Nuclear	7.00%	7.00%	0
Oil	0.00%	0.00%	0.000563808
Other/unspecified	1.00%	1.00%	0.00042508
Biomass	12.00%	12.00%	5.5648E-05
Geothermal	2.00%	2.00%	0.000107172
Small hydro	8.00%	8.00%	0
Solar	0.00%	0.00%	5.77688E-06
Wind	26.00%	26.00%	0
	100.00%	100.00%	

Emission factor	**0.000174125**	MTCO2/KWH

	$MTCO_2e$		GWP
0.993187522	0.000425		1
0.003226963	0.000001		25
0.003585515	0.000002		298

**City of Glendale Power Mix from California Department of Energy. Utility Annual Power Content Labels for 2016. 2016 City of Glendale Power Content Label. http://www.energy.ca.gov/pcl/labels/*

***Global Warming Potentials from the Climate Change 2007, IPCC Fourth Assessment Report (AR4).*

CITY OF GLENDALE POWER CONTENT

$MTCH_4$

Source	**Percent***	**Adjusted percent**	**Emission factor (MTCH4/KWH)****
Coal	5.00%	5.00%	1.10044E-07
Large hydro	10.00%	10.00%	0
Natural gas	29.00%	29.00%	7.80947E-09
Nuclear	7.00%	7.00%	0
Oil	0.00%	0.00%	2.22183E-08
Other/unspecified	1.00%	1.00%	0.00000006
Biomass	12.00%	12.00%	2.88637E-07
Geothermal	2.00%	2.00%	0
Small hydro	8.00%	8.00%	0
Solar	0.00%	0.00%	1.08065E-10
Wind	26.00%	26.00%	0
	100.00%	100.00%	

Emission factor	**0.000000043**	MTCH4/KWH

MT/gas

0.00042508

0.00000006

0.00000001

**City of Glendale Power Mix from California Department of Energy. Utility Annual Power Content Labels for 2016. 2016 City of Glendale Power Content Label. http://www.energy.ca.gov/pcl/labels/*

***Global Warming Potentials from the Climate Change 2007, IPCC Fourth Assessment Report (AR4).*

CITY OF GLENDALE POWER CONTENT

MTN_2O

Source	**Percent***	**Adjusted percent**	**Emission factor (MTNO2/KWH)****
Coal	5.00%	5.00%	1.63004E-08
Large hydro	10.00%	10.00%	0
Natural gas	29.00%	29.00%	7.9203E-10
Nuclear	7.00%	7.00%	0
Oil	0.00%	0.00%	4.1182E-09
Other/unspecified	1.00%	1.00%	0.00
Biomass	12.00%	12.00%	3.78679E-08
Geothermal	2.00%	2.00%	0
Small hydro	8.00%	8.00%	0
Solar	0.00%	0.00%	1.08002E-11
Wind	26.00%	26.00%	0
	100.00%	100.00%	

Emission factor	**0.0000000056**	MTN2O/KWH

**City of Glendale Power Mix from California Department of Energy. Utility Annual Power Content Labels for 2016. 2016 Glendale Power Content Label. http://www.energy.ca.gov/pcl/labels/*

***Global Warming Potentials from the Climate Change 2007, IPCC Fourth Assessment Report (AR4).*

Cerritos Elementary School - Construction

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	0.30	1000sqft	0.01	300.00	0
Other Asphalt Surfaces	31.63	1000sqft	0.73	31,630.00	0
City Park	0.87	Acre	0.87	37,762.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2020
Utility Company	Glendale Water & Power				
CO2 Intensity (lb/MWhr)	383.88	**CH4 Intensity (lb/MWhr)**	0.095	**N2O Intensity (lb/MWhr)**	0.012

1.3 User Entered Comments & Non-Default Data

Project Characteristics - City of Glendale Power Mix from California Department of Energy. Utility Annual Power Content Labels for 2016. 2016 City of Glendale Power Content Label. http://www.energy.ca.gov/pol/labels/

Land Use - See CalEEMod Assumptions

Construction Phase - See CalEEMod Assumptions

Off-road Equipment -

Off-road Equipment - Haul phase

Off-road Equipment - Haul Phase

Off-road Equipment - See CalEEMod Assumptions

Off-road Equipment -

Off-road Equipment -

Trips and VMT - See CalEEMod Assumptions

Demolition -

Grading - CalEEMod Assumptions

Construction Off-road Equipment Mitigation - SCAQMD Rule 1186

Off-road Equipment -

Off-road Equipment -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	200.00	9.00
tblConstructionPhase	PhaseEndDate	10/26/2018	9/28/2018
tblConstructionPhase	PhaseEndDate	10/30/2018	10/2/2018
tblConstructionPhase	PhaseEndDate	11/5/2018	10/8/2018
tblConstructionPhase	PhaseEndDate	11/9/2018	10/8/2018
tblConstructionPhase	PhaseEndDate	8/30/2019	11/5/2018
tblConstructionPhase	PhaseEndDate	9/13/2019	11/19/2018
tblConstructionPhase	PhaseEndDate	8/16/2019	11/30/2018
tblConstructionPhase	PhaseStartDate	9/29/2018	9/1/2018
tblConstructionPhase	PhaseStartDate	10/27/2018	9/29/2018
tblConstructionPhase	PhaseStartDate	10/31/2018	10/3/2018
tblConstructionPhase	PhaseStartDate	11/6/2018	10/3/2018
tblConstructionPhase	PhaseStartDate	8/17/2019	10/23/2018
tblConstructionPhase	PhaseStartDate	8/31/2019	11/6/2018
tblConstructionPhase	PhaseStartDate	11/10/2018	11/20/2018
tblGrading	AcresOfGrading	0.00	1.50
tblGrading	MaterialExported	0.00	5,000.00
tblLandUse	LandUseSquareFeet	37,897.20	37,762.00
tblOffRoadEquipment	LoadFactor	0.40	0.40

tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.095
tblProjectCharacteristics	CO2IntensityFactor	1115.33	383.88
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.012
tblTripsAndVMT	HaulingTripNumber	95.00	97.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	3.1107	68.0690	17.7739	0.1428	8.3001	1.4472	9.2911	3.3698	1.3531	4.2887	0.0000	15,315.7051	15,315.7051	1.3955	0.0000	15,350.5923
Maximum	**3.1107**	**68.0690**	**17.7739**	**0.1428**	**8.3001**	**1.4472**	**9.2911**	**3.3698**	**1.3531**	**4.2887**	**0.0000**	**15,315.7051**	**15,315.7051**	**1.3955**	**0.0000**	**15,350.5923**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	3.1107	68.0690	17.7739	0.1428	4.9835	1.4472	5.9745	1.8393	1.3531	2.7582	0.0000	15,315.7051	15,315.7051	1.3955	0.0000	15,350.5923
Maximum	**3.1107**	**68.0690**	**17.7739**	**0.1428**	**4.9835**	**1.4472**	**5.9745**	**1.8393**	**1.3531**	**2.7582**	**0.0000**	**15,315.7051**	**15,315.7051**	**1.3955**	**0.0000**	**15,350.5923**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**39.96**	**0.00**	**35.70**	**45.42**	**0.00**	**35.69**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2018	9/28/2018	5	20	
2	Demo Haul	Demolition	9/1/2018	9/28/2018	5	20	
3	Site Preparation	Site Preparation	9/29/2018	10/2/2018	5	2	
4	Grading	Grading	10/3/2018	10/8/2018	5	4	
5	Grading Haul	Grading	10/3/2018	10/8/2018	5	4	
6	Landscaping/Field Lighting	Building Construction	11/20/2018	11/30/2018	5	9	
7	Paving	Paving	10/23/2018	11/5/2018	5	10	
8	Architectural Coating	Architectural Coating	11/6/2018	11/19/2018	5	10	
9	trenching	Trenching	10/9/2018	10/22/2018	5	10	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0.73

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 450; Non-Residential Outdoor: 150; Striped Parking Area: 1,898

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Landscaping/Field Lighting	Rubber Tired Dozers	1	8.00	247	0.40
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48
Landscaping/Field Lighting	Cranes	1	6.00	231	0.29
Landscaping/Field Lighting	Forklifts	1	6.00	89	0.20
Landscaping/Field Lighting	Generator Sets	0	8.00	84	0.74
trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Landscaping/Field Lighting	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Landscaping/Field Lighting	Welders	0	8.00	46	0.45
Demo Haul	Concrete/Industrial Saws	0	8.00	81	0.73
Demo Haul	Rubber Tired Dozers	0	8.00	247	0.40
Demo Haul	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading Haul	Graders	0	6.00	187	0.41
Grading Haul	Rubber Tired Dozers	0	6.00	247	0.40
Grading Haul	Tractors/Loaders/Backhoes	0	7.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
trenching	2	5.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	6.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Landscaping/Field Lighting	3	29.00	11.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demo Haul	0	0.00	0.00	97.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading Haul	0	0.00	0.00	625.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	2.4838	24.3641	15.1107	0.0241		1.4365	1.4365		1.3429	1.3429		2,391.1659	2,391.1659	0.6058		2,406.3105
Total	**2.4838**	**24.3641**	**15.1107**	**0.0241**	**0.0000**	**1.4365**	**1.4365**	**0.0000**	**1.3429**	**1.3429**		**2,391.1659**	**2,391.1659**	**0.6058**		**2,406.3105**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0184	0.4902	0.1340	1.0600e-003	0.0256	3.4500e-003	0.0291	7.3700e-003	3.3000e-003	0.0107		112.6718	112.6718	7.4200e-003		112.8572
Worker	0.0718	0.0542	0.7021	1.6400e-003	0.1453	1.3000e-003	0.1466	0.0385	1.1900e-003	0.0397		162.9797	162.9797	6.1100e-003		163.1325
Total	**0.0902**	**0.5444**	**0.8361**	**2.7000e-003**	**0.1709**	**4.7500e-003**	**0.1757**	**0.0459**	**4.4900e-003**	**0.0504**		**275.6515**	**275.6515**	**0.0135**		**275.9897**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	2.4838	24.3641	15.1107	0.0241		1.4365	1.4365		1.3429	1.3429	0.0000	2,391.1659	2,391.1659	0.6058		2,406.3105
Total	**2.4838**	**24.3641**	**15.1107**	**0.0241**	**0.0000**	**1.4365**	**1.4365**	**0.0000**	**1.3429**	**1.3429**	**0.0000**	**2,391.1659**	**2,391.1659**	**0.6058**		**2,406.3105**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0184	0.4902	0.1340	1.0600e-003	0.0240	3.4500e-003	0.0274	6.9700e-003	3.3000e-003	0.0103		112.6718	112.6718	7.4200e-003		112.8572
Worker	0.0718	0.0542	0.7021	1.6400e-003	0.1339	1.3000e-003	0.1352	0.0358	1.1900e-003	0.0369		162.9797	162.9797	6.1100e-003		163.1325
Total	**0.0902**	**0.5444**	**0.8361**	**2.7000e-003**	**0.1579**	**4.7500e-003**	**0.1627**	**0.0427**	**4.4900e-003**	**0.0472**		**275.6515**	**275.6515**	**0.0135**		**275.9897**

3.3 Demo Haul - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.0282	0.0000	1.0282	0.1557	0.0000	0.1557			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.0282**	**0.0000**	**1.0282**	**0.1557**	**0.0000**	**0.1557**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0481	1.5669	0.3242	3.9300e-003	0.0848	5.9600e-003	0.0908	0.0232	5.7000e-003	0.0290		424.6731	424.6731	0.0292		425.4039
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0481**	**1.5669**	**0.3242**	**3.9300e-003**	**0.0848**	**5.9600e-003**	**0.0908**	**0.0232**	**5.7000e-003**	**0.0290**		**424.6731**	**424.6731**	**0.0292**		**425.4039**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4396	0.0000	0.4396	0.0666	0.0000	0.0666			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.4396**	**0.0000**	**0.4396**	**0.0666**	**0.0000**	**0.0666**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0481	1.5669	0.3242	3.9300e-003	0.0790	5.9600e-003	0.0850	0.0218	5.7000e-003	0.0275		424.6731	424.6731	0.0292		425.4039
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0481**	**1.5669**	**0.3242**	**3.9300e-003**	**0.0790**	**5.9600e-003**	**0.0850**	**0.0218**	**5.7000e-003**	**0.0275**		**424.6731**	**424.6731**	**0.0292**		**425.4039**

3.4 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	1.8061	20.7472	8.0808	0.0172		0.9523	0.9523		0.8761	0.8761		1,735.3630	1,735.3630	0.5402		1,748.8690
Total	**1.8061**	**20.7472**	**8.0808**	**0.0172**	**5.7996**	**0.9523**	**6.7518**	**2.9537**	**0.8761**	**3.8298**		**1,735.3630**	**1,735.3630**	**0.5402**		**1,748.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0184	0.4902	0.1340	1.0600e-003	0.0256	3.4500e-003	0.0291	7.3700e-003	3.3000e-003	0.0107		112.6718	112.6718	7.4200e-003		112.8572
Worker	0.0442	0.0334	0.4321	1.0100e-003	0.0894	8.0000e-004	0.0902	0.0237	7.4000e-004	0.0245		100.2952	100.2952	3.7600e-003		100.3892
Total	**0.0626**	**0.5236**	**0.5661**	**2.0700e-003**	**0.1150**	**4.2500e-003**	**0.1193**	**0.0311**	**4.0400e-003**	**0.0351**		**212.9670**	**212.9670**	**0.0112**		**213.2465**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.4793	0.0000	2.4793	1.2627	0.0000	1.2627			0.0000			0.0000
Off-Road	1.8061	20.7472	8.0808	0.0172		0.9523	0.9523		0.8761	0.8761	0.0000	1,735.3630	1,735.3630	0.5402		1,748.8690
Total	**1.8061**	**20.7472**	**8.0808**	**0.0172**	**2.4793**	**0.9523**	**3.4316**	**1.2627**	**0.8761**	**2.1388**	**0.0000**	**1,735.3630**	**1,735.3630**	**0.5402**		**1,748.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0184	0.4902	0.1340	1.0600e-003	0.0240	3.4500e-003	0.0274	6.9700e-003	3.3000e-003	0.0103		112.6718	112.6718	7.4200e-003		112.8572
Worker	0.0442	0.0334	0.4321	1.0100e-003	0.0824	8.0000e-004	0.0832	0.0220	7.4000e-004	0.0227		100.2952	100.2952	3.7600e-003		100.3892
Total	**0.0626**	**0.5236**	**0.5661**	**2.0700e-003**	**0.1064**	**4.2500e-003**	**0.1106**	**0.0290**	**4.0400e-003**	**0.0330**		**212.9670**	**212.9670**	**0.0112**		**213.2465**

3.5 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	1.4972	17.0666	6.7630	0.0141		0.7947	0.7947		0.7311	0.7311		1,421.2605	1,421.2605	0.4425		1,432.3219
Total	**1.4972**	**17.0666**	**6.7630**	**0.0141**	**4.9143**	**0.7947**	**5.7090**	**2.5256**	**0.7311**	**3.2568**		**1,421.2605**	**1,421.2605**	**0.4425**		**1,432.3219**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0184	0.4902	0.1340	1.0600e-003	0.0256	3.4500e-003	0.0291	7.3700e-003	3.3000e-003	0.0107		112.6718	112.6718	7.4200e-003		112.8572
Worker	0.0442	0.0334	0.4321	1.0100e-003	0.0894	8.0000e-004	0.0902	0.0237	7.4000e-004	0.0245		100.2952	100.2952	3.7600e-003		100.3892
Total	**0.0626**	**0.5236**	**0.5661**	**2.0700e-003**	**0.1150**	**4.2500e-003**	**0.1193**	**0.0311**	**4.0400e-003**	**0.0351**		**212.9670**	**212.9670**	**0.0112**		**213.2465**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.1008	0.0000	2.1008	1.0797	0.0000	1.0797			0.0000			0.0000
Off-Road	1.4972	17.0666	6.7630	0.0141		0.7947	0.7947		0.7311	0.7311	0.0000	1,421.2605	1,421.2605	0.4425		1,432.3219
Total	**1.4972**	**17.0666**	**6.7630**	**0.0141**	**2.1008**	**0.7947**	**2.8956**	**1.0797**	**0.7311**	**1.8108**	**0.0000**	**1,421.2605**	**1,421.2605**	**0.4425**		**1,432.3219**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0184	0.4902	0.1340	1.0600e-003	0.0240	3.4500e-003	0.0274	6.9700e-003	3.3000e-003	0.0103		112.6718	112.6718	7.4200e-003		112.8572
Worker	0.0442	0.0334	0.4321	1.0100e-003	0.0824	8.0000e-004	0.0832	0.0220	7.4000e-004	0.0227		100.2952	100.2952	3.7600e-003		100.3892
Total	**0.0626**	**0.5236**	**0.5661**	**2.0700e-003**	**0.1064**	**4.2500e-003**	**0.1106**	**0.0290**	**4.0400e-003**	**0.0330**		**212.9670**	**212.9670**	**0.0112**		**213.2465**

3.6 Grading Haul - 2018

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Fugitive Dust					0.5391	0.0000	0.5391	0.0644	0.0000	0.0644			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.5391**	**0.0000**	**0.5391**	**0.0644**	**0.0000**	**0.0644**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	1.5509	50.4788	10.4448	0.1267	2.7318	0.1920	2.9238	0.7488	0.1837	0.9325		13,681.4776	13,681.4776	0.9419		13,705.0239
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.5509**	**50.4788**	**10.4448**	**0.1267**	**2.7318**	**0.1920**	**2.9238**	**0.7488**	**0.1837**	**0.9325**		**13,681.4776**	**13,681.4776**	**0.9419**		**13,705.0239**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2304	0.0000	0.2304	0.0275	0.0000	0.0275			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.2304**	**0.0000**	**0.2304**	**0.0275**	**0.0000**	**0.0275**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.5509	50.4788	10.4448	0.1267	2.5458	0.1920	2.7379	0.7032	0.1837	0.8869		13,681.4776	13,681.4776	0.9419		13,705.0239
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.5509**	**50.4788**	**10.4448**	**0.1267**	**2.5458**	**0.1920**	**2.7379**	**0.7032**	**0.1837**	**0.8869**		**13,681.4776**	**13,681.4776**	**0.9419**		**13,705.0239**

3.7 Landscaping/Field Lighting - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7141	18.7088	7.1249	0.0139		0.9191	0.9191		0.8455	0.8455		1,400.8554	1,400.8554	0.4361		1,411.7581
Total	**1.7141**	**18.7088**	**7.1249**	**0.0139**		**0.9191**	**0.9191**		**0.8455**	**0.8455**		**1,400.8554**	**1,400.8554**	**0.4361**		**1,411.7581**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0506	1.3482	0.3686	2.9100e-003	0.0704	9.5000e-003	0.0799	0.0203	9.0900e-003	0.0294		309.8474	309.8474	0.0204		310.3574
Worker	0.1602	0.1209	1.5662	3.6500e-003	0.3242	2.8900e-003	0.3270	0.0860	2.6600e-003	0.0886		363.5701	363.5701	0.0136		363.9110
Total	**0.2108**	**1.4691**	**1.9348**	**6.5600e-003**	**0.3946**	**0.0124**	**0.4070**	**0.1062**	**0.0118**	**0.1180**		**673.4174**	**673.4174**	**0.0340**		**674.2684**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7141	18.7088	7.1249	0.0139		0.9191	0.9191		0.8455	0.8455	0.0000	1,400.8554	1,400.8554	0.4361		1,411.7581
Total	**1.7141**	**18.7088**	**7.1249**	**0.0139**		**0.9191**	**0.9191**		**0.8455**	**0.8455**	**0.0000**	**1,400.8554**	**1,400.8554**	**0.4361**		**1,411.7581**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0506	1.3482	0.3686	2.9100e-003	0.0659	9.5000e-003	0.0754	0.0192	9.0900e-003	0.0283		309.8474	309.8474	0.0204		310.3574
Worker	0.1602	0.1209	1.5662	3.6500e-003	0.2988	2.8900e-003	0.3017	0.0797	2.6600e-003	0.0824		363.5701	363.5701	0.0136		363.9110
Total	**0.2108**	**1.4691**	**1.9348**	**6.5600e-003**	**0.3647**	**0.0124**	**0.3771**	**0.0989**	**0.0118**	**0.1107**		**673.4174**	**673.4174**	**0.0340**		**674.2684**

3.8 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0182	10.4525	8.9926	0.0135		0.6097	0.6097		0.5618	0.5618		1,346.4360	1,346.4360	0.4113		1,356.7186
Paving	0.1913					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2095**	**10.4525**	**8.9926**	**0.0135**		**0.6097**	**0.6097**		**0.5618**	**0.5618**		**1,346.4360**	**1,346.4360**	**0.4113**		**1,356.7186**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0718	0.0542	0.7021	1.6400e-003	0.1453	1.3000e-003	0.1466	0.0385	1.1900e-003	0.0397		162.9797	162.9797	6.1100e-003		163.1325
Total	**0.0718**	**0.0542**	**0.7021**	**1.6400e-003**	**0.1453**	**1.3000e-003**	**0.1466**	**0.0385**	**1.1900e-003**	**0.0397**		**162.9797**	**162.9797**	**6.1100e-003**		**163.1325**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0182	10.4525	8.9926	0.0135		0.6097	0.6097		0.5618	0.5618	0.0000	1,346.4360	1,346.4360	0.4113		1,356.7186
Paving	0.1913					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2095**	**10.4525**	**8.9926**	**0.0135**		**0.6097**	**0.6097**		**0.5618**	**0.5618**	**0.0000**	**1,346.4360**	**1,346.4360**	**0.4113**		**1,356.7186**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0718	0.0542	0.7021	1.6400e-003	0.1339	1.3000e-003	0.1352	0.0358	1.1900e-003	0.0369		162.9797	162.9797	6.1100e-003		163.1325
Total	**0.0718**	**0.0542**	**0.7021**	**1.6400e-003**	**0.1339**	**1.3000e-003**	**0.1352**	**0.0358**	**1.1900e-003**	**0.0369**		**162.9797**	**162.9797**	**6.1100e-003**		**163.1325**

3.9 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.1578					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506		281.4485	281.4485	0.0267		282.1171
Total	**1.4565**	**2.0058**	**1.8542**	**2.9700e-003**		**0.1506**	**0.1506**		**0.1506**	**0.1506**		**281.4485**	**281.4485**	**0.0267**		**282.1171**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0332	0.0250	0.3240	7.6000e-004	0.0671	6.0000e-004	0.0677	0.0178	5.5000e-004	0.0183		75.2214	75.2214	2.8200e-003		75.2919
Total	**0.0332**	**0.0250**	**0.3240**	**7.6000e-004**	**0.0671**	**6.0000e-004**	**0.0677**	**0.0178**	**5.5000e-004**	**0.0183**		**75.2214**	**75.2214**	**2.8200e-003**		**75.2919**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.1578					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506	0.0000	281.4485	281.4485	0.0267		282.1171
Total	**1.4565**	**2.0058**	**1.8542**	**2.9700e-003**		**0.1506**	**0.1506**		**0.1506**	**0.1506**	**0.0000**	**281.4485**	**281.4485**	**0.0267**		**282.1171**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0332	0.0250	0.3240	7.6000e-004	0.0618	6.0000e-004	0.0624	0.0165	5.5000e-004	0.0171		75.2214	75.2214	2.8200e-003		75.2919
Total	**0.0332**	**0.0250**	**0.3240**	**7.6000e-004**	**0.0618**	**6.0000e-004**	**0.0624**	**0.0165**	**5.5000e-004**	**0.0171**		**75.2214**	**75.2214**	**2.8200e-003**		**75.2919**

3.10 trenching - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5301	5.2381	4.6545	6.1900e-003		0.3711	0.3711		0.3414	0.3414		623.0159	623.0159	0.1940		627.8647
Total	**0.5301**	**5.2381**	**4.6545**	**6.1900e-003**		**0.3711**	**0.3711**		**0.3414**	**0.3414**		**623.0159**	**623.0159**	**0.1940**		**627.8647**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0184	0.4902	0.1340	1.0600e-003	0.0256	3.4500e-003	0.0291	7.3700e-003	3.3000e-003	0.0107		112.6718	112.6718	7.4200e-003		112.8572
Worker	0.0276	0.0209	0.2700	6.3000e-004	0.0559	5.0000e-004	0.0564	0.0148	4.6000e-004	0.0153		62.6845	62.6845	2.3500e-003		62.7433
Total	**0.0460**	**0.5111**	**0.4041**	**1.6900e-003**	**0.0815**	**3.9500e-003**	**0.0855**	**0.0222**	**3.7600e-003**	**0.0260**		**175.3563**	**175.3563**	**9.7700e-003**		**175.6005**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5301	5.2381	4.6545	6.1900e-003		0.3711	0.3711		0.3414	0.3414	0.0000	623.0159	623.0159	0.1940		627.8647
Total	**0.5301**	**5.2381**	**4.6545**	**6.1900e-003**		**0.3711**	**0.3711**		**0.3414**	**0.3414**	**0.0000**	**623.0159**	**623.0159**	**0.1940**		**627.8647**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0184	0.4902	0.1340	1.0600e-003	0.0240	3.4500e-003	0.0274	6.9700e-003	3.3000e-003	0.0103		112.6718	112.6718	7.4200e-003		112.8572
Worker	0.0276	0.0209	0.2700	6.3000e-004	0.0515	5.0000e-004	0.0520	0.0138	4.6000e-004	0.0142		62.6845	62.6845	2.3500e-003		62.7433
Total	**0.0460**	**0.5111**	**0.4041**	**1.6900e-003**	**0.0755**	**3.9500e-003**	**0.0794**	**0.0207**	**3.7600e-003**	**0.0245**		**175.3563**	**175.3563**	**9.7700e-003**		**175.6005**

Cerritos Elementary School - Construction

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	0.30	1000sqft	0.01	300.00	0
Other Asphalt Surfaces	31.63	1000sqft	0.73	31,630.00	0
City Park	0.87	Acre	0.87	37,762.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2020
Utility Company	Glendale Water & Power				
CO2 Intensity (lb/MWhr)	383.88	**CH4 Intensity (lb/MWhr)**	0.095	**N2O Intensity (lb/MWhr)**	0.012

1.3 User Entered Comments & Non-Default Data

Project Characteristics - City of Glendale Power Mix from California Department of Energy. Utility Annual Power Content Labels for 2016. 2016 City of Glendale Power Content Label. http://www.energy.ca.gov/pcl/labels/

Land Use - See CalEEMod Assumptions

Construction Phase - See CalEEMod Assumptions

Off-road Equipment -

Off-road Equipment - Haul phase

Off-road Equipment - Haul Phase

Off-road Equipment - See CalEEMod Assumptions

Off-road Equipment -

Off-road Equipment -

Trips and VMT - See CalEEMod Assumptions

Demolition -

Grading - CalEEMod Assumptions

Construction Off-road Equipment Mitigation - SCAQMD Rule 1186

Off-road Equipment -

Off-road Equipment -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	200.00	9.00
tblConstructionPhase	PhaseEndDate	10/26/2018	9/28/2018
tblConstructionPhase	PhaseEndDate	10/30/2018	10/2/2018
tblConstructionPhase	PhaseEndDate	11/5/2018	10/8/2018
tblConstructionPhase	PhaseEndDate	11/9/2018	10/8/2018
tblConstructionPhase	PhaseEndDate	8/30/2019	11/5/2018
tblConstructionPhase	PhaseEndDate	9/13/2019	11/19/2018
tblConstructionPhase	PhaseEndDate	8/16/2019	11/30/2018
tblConstructionPhase	PhaseStartDate	9/29/2018	9/1/2018
tblConstructionPhase	PhaseStartDate	10/27/2018	9/29/2018
tblConstructionPhase	PhaseStartDate	10/31/2018	10/3/2018
tblConstructionPhase	PhaseStartDate	11/6/2018	10/3/2018
tblConstructionPhase	PhaseStartDate	8/17/2019	10/23/2018
tblConstructionPhase	PhaseStartDate	8/31/2019	11/6/2018
tblConstructionPhase	PhaseStartDate	11/10/2018	11/20/2018
tblGrading	AcresOfGrading	0.00	1.50
tblGrading	MaterialExported	0.00	5,000.00
tblLandUse	LandUseSquareFeet	37,897.20	37,762.00
tblOffRoadEquipment	LoadFactor	0.40	0.40

tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.095
tblProjectCharacteristics	CO2IntensityFactor	1115.33	383.88
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.012
tblTripsAndVMT	HaulingTripNumber	95.00	97.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	3.1554	68.7650	18.4819	0.1406	8.3001	1.4473	9.2949	3.3698	1.3533	4.2924	0.0000	15,077.9159	15,077.9159	1.4325	0.0000	15,113.7292
Maximum	**3.1554**	**68.7650**	**18.4819**	**0.1406**	**8.3001**	**1.4473**	**9.2949**	**3.3698**	**1.3533**	**4.2924**	**0.0000**	**15,077.9159**	**15,077.9159**	**1.4325**	**0.0000**	**15,113.7292**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	3.1554	68.7650	18.4819	0.1406	4.9835	1.4473	5.9783	1.8393	1.3533	2.7618	0.0000	15,077.9159	15,077.9159	1.4325	0.0000	15,113.7292
Maximum	**3.1554**	**68.7650**	**18.4819**	**0.1406**	**4.9835**	**1.4473**	**5.9783**	**1.8393**	**1.3533**	**2.7618**	**0.0000**	**15,077.9159**	**15,077.9159**	**1.4325**	**0.0000**	**15,113.7292**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**39.96**	**0.00**	**35.68**	**45.42**	**0.00**	**35.66**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2018	9/28/2018	5	20	
2	Demo Haul	Demolition	9/1/2018	9/28/2018	5	20	
3	Site Preparation	Site Preparation	9/29/2018	10/2/2018	5	2	
4	Grading	Grading	10/3/2018	10/8/2018	5	4	
5	Grading Haul	Grading	10/3/2018	10/8/2018	5	4	
6	Landscaping/Field Lighting	Building Construction	11/20/2018	11/30/2018	5	9	
7	Paving	Paving	10/23/2018	11/5/2018	5	10	
8	Architectural Coating	Architectural Coating	11/6/2018	11/19/2018	5	10	
9	trenching	Trenching	10/9/2018	10/22/2018	5	10	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0.73

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 450; Non-Residential Outdoor: 150; Striped Parking Area: 1,898

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Landscaping/Field Lighting	Rubber Tired Dozers	1	8.00	247	0.40
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48
Landscaping/Field Lighting	Cranes	1	6.00	231	0.29
Landscaping/Field Lighting	Forklifts	1	6.00	89	0.20
Landscaping/Field Lighting	Generator Sets	0	8.00	84	0.74
trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Landscaping/Field Lighting	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Landscaping/Field Lighting	Welders	0	8.00	46	0.45
Demo Haul	Concrete/Industrial Saws	0	8.00	81	0.73
Demo Haul	Rubber Tired Dozers	0	8.00	247	0.40
Demo Haul	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading Haul	Graders	0	6.00	187	0.41
Grading Haul	Rubber Tired Dozers	0	6.00	247	0.40
Grading Haul	Tractors/Loaders/Backhoes	0	7.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
trenching	2	5.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	6.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Landscaping/Field Lighting	3	29.00	11.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demo Haul	0	0.00	0.00	97.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading Haul	0	0.00	0.00	625.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	2.4838	24.3641	15.1107	0.0241		1.4365	1.4365		1.3429	1.3429		2,391.1659	2,391.1659	0.6058		2,406.3105
Total	**2.4838**	**24.3641**	**15.1107**	**0.0241**	**0.0000**	**1.4365**	**1.4365**	**0.0000**	**1.3429**	**1.3429**		**2,391.1659**	**2,391.1659**	**0.6058**		**2,406.3105**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0192	0.4913	0.1473	1.0300e-003	0.0256	3.5100e-003	0.0291	7.3700e-003	3.3600e-003	0.0107		109.6599	109.6599	7.9100e-003		109.8578
Worker	0.0795	0.0600	0.6465	1.5400e-003	0.1453	1.3000e-003	0.1466	0.0385	1.1900e-003	0.0397		153.4749	153.4749	5.7800e-003		153.6193
Total	**0.0987**	**0.5514**	**0.7938**	**2.5700e-003**	**0.1709**	**4.8100e-003**	**0.1757**	**0.0459**	**4.5500e-003**	**0.0505**		**263.1348**	**263.1348**	**0.0137**		**263.4770**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	2.4838	24.3641	15.1107	0.0241		1.4365	1.4365		1.3429	1.3429	0.0000	2,391.1659	2,391.1659	0.6058		2,406.3105
Total	**2.4838**	**24.3641**	**15.1107**	**0.0241**	**0.0000**	**1.4365**	**1.4365**	**0.0000**	**1.3429**	**1.3429**	**0.0000**	**2,391.1659**	**2,391.1659**	**0.6058**		**2,406.3105**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0192	0.4913	0.1473	1.0300e-003	0.0240	3.5100e-003	0.0275	6.9700e-003	3.3600e-003	0.0103		109.6599	109.6599	7.9100e-003		109.8578
Worker	0.0795	0.0600	0.6465	1.5400e-003	0.1339	1.3000e-003	0.1352	0.0358	1.1900e-003	0.0369		153.4749	153.4749	5.7800e-003		153.6193
Total	**0.0987**	**0.5514**	**0.7938**	**2.5700e-003**	**0.1579**	**4.8100e-003**	**0.1627**	**0.0427**	**4.5500e-003**	**0.0473**		**263.1348**	**263.1348**	**0.0137**		**263.4770**

3.3 Demo Haul - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.0282	0.0000	1.0282	0.1557	0.0000	0.1557			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.0282**	**0.0000**	**1.0282**	**0.1557**	**0.0000**	**0.1557**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0494	1.5883	0.3468	3.8700e-003	0.0848	6.0800e-003	0.0909	0.0232	5.8100e-003	0.0291		417.5671	417.5671	0.0304		418.3265
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0494**	**1.5883**	**0.3468**	**3.8700e-003**	**0.0848**	**6.0800e-003**	**0.0909**	**0.0232**	**5.8100e-003**	**0.0291**		**417.5671**	**417.5671**	**0.0304**		**418.3265**

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Fugitive Dust					0.4396	0.0000	0.4396	0.0666	0.0000	0.0666			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.4396**	**0.0000**	**0.4396**	**0.0666**	**0.0000**	**0.0666**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0494	1.5883	0.3468	3.8700e-003	0.0790	6.0800e-003	0.0851	0.0218	5.8100e-003	0.0276		417.5671	417.5671	0.0304		418.3265
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0494**	**1.5883**	**0.3468**	**3.8700e-003**	**0.0790**	**6.0800e-003**	**0.0851**	**0.0218**	**5.8100e-003**	**0.0276**		**417.5671**	**417.5671**	**0.0304**		**418.3265**

3.4 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	1.8061	20.7472	8.0808	0.0172		0.9523	0.9523		0.8761	0.8761		1,735.3630	1,735.3630	0.5402		1,748.8690
Total	**1.8061**	**20.7472**	**8.0808**	**0.0172**	**5.7996**	**0.9523**	**6.7518**	**2.9537**	**0.8761**	**3.8298**		**1,735.3630**	**1,735.3630**	**0.5402**		**1,748.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0192	0.4913	0.1473	1.0300e-003	0.0256	3.5100e-003	0.0291	7.3700e-003	3.3600e-003	0.0107		109.6599	109.6599	7.9100e-003		109.8578
Worker	0.0489	0.0369	0.3978	9.5000e-004	0.0894	8.0000e-004	0.0902	0.0237	7.4000e-004	0.0245		94.4461	94.4461	3.5500e-003		94.5349
Total	**0.0681**	**0.5283**	**0.5452**	**1.9800e-003**	**0.1150**	**4.3100e-003**	**0.1193**	**0.0311**	**4.1000e-003**	**0.0352**		**204.1060**	**204.1060**	**0.0115**		**204.3927**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.4793	0.0000	2.4793	1.2627	0.0000	1.2627			0.0000			0.0000
Off-Road	1.8061	20.7472	8.0808	0.0172		0.9523	0.9523		0.8761	0.8761	0.0000	1,735.3630	1,735.3630	0.5402		1,748.8690
Total	**1.8061**	**20.7472**	**8.0808**	**0.0172**	**2.4793**	**0.9523**	**3.4316**	**1.2627**	**0.8761**	**2.1388**	**0.0000**	**1,735.3630**	**1,735.3630**	**0.5402**		**1,748.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0192	0.4913	0.1473	1.0300e-003	0.0240	3.5100e-003	0.0275	6.9700e-003	3.3600e-003	0.0103		109.6599	109.6599	7.9100e-003		109.8578
Worker	0.0489	0.0369	0.3978	9.5000e-004	0.0824	8.0000e-004	0.0832	0.0220	7.4000e-004	0.0227		94.4461	94.4461	3.5500e-003		94.5349
Total	**0.0681**	**0.5283**	**0.5452**	**1.9800e-003**	**0.1064**	**4.3100e-003**	**0.1107**	**0.0290**	**4.1000e-003**	**0.0331**		**204.1060**	**204.1060**	**0.0115**		**204.3927**

3.5 Grading - 2018

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Fugitive Dust					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	1.4972	17.0666	6.7630	0.0141		0.7947	0.7947		0.7311	0.7311		1,421.2605	1,421.2605	0.4425		1,432.3219
Total	**1.4972**	**17.0666**	**6.7630**	**0.0141**	**4.9143**	**0.7947**	**5.7090**	**2.5256**	**0.7311**	**3.2568**		**1,421.2605**	**1,421.2605**	**0.4425**		**1,432.3219**

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0192	0.4913	0.1473	1.0300e-003	0.0256	3.5100e-003	0.0291	7.3700e-003	3.3600e-003	0.0107		109.6599	109.6599	7.9100e-003		109.8578
Worker	0.0489	0.0369	0.3978	9.5000e-004	0.0894	8.0000e-004	0.0902	0.0237	7.4000e-004	0.0245		94.4461	94.4461	3.5500e-003		94.5349
Total	**0.0681**	**0.5283**	**0.5452**	**1.9800e-003**	**0.1150**	**4.3100e-003**	**0.1193**	**0.0311**	**4.1000e-003**	**0.0352**		**204.1060**	**204.1060**	**0.0115**		**204.3927**

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Fugitive Dust					2.1008	0.0000	2.1008	1.0797	0.0000	1.0797			0.0000			0.0000
Off-Road	1.4972	17.0666	6.7630	0.0141		0.7947	0.7947		0.7311	0.7311	0.0000	1,421.2605	1,421.2605	0.4425		1,432.3219
Total	**1.4972**	**17.0666**	**6.7630**	**0.0141**	**2.1008**	**0.7947**	**2.8956**	**1.0797**	**0.7311**	**1.8108**	**0.0000**	**1,421.2605**	**1,421.2605**	**0.4425**		**1,432.3219**

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0192	0.4913	0.1473	1.0300e-003	0.0240	3.5100e-003	0.0275	6.9700e-003	3.3600e-003	0.0103		109.6599	109.6599	7.9100e-003		109.8578
Worker	0.0489	0.0369	0.3978	9.5000e-004	0.0824	8.0000e-004	0.0832	0.0220	7.4000e-004	0.0227		94.4461	94.4461	3.5500e-003		94.5349
Total	**0.0681**	**0.5283**	**0.5452**	**1.9800e-003**	**0.1064**	**4.3100e-003**	**0.1107**	**0.0290**	**4.1000e-003**	**0.0331**		**204.1060**	**204.1060**	**0.0115**		**204.3927**

3.6 Grading Haul - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5391	0.0000	0.5391	0.0644	0.0000	0.0644			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.5391**	**0.0000**	**0.5391**	**0.0644**	**0.0000**	**0.0644**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.5901	51.1701	11.1738	0.1245	2.7318	0.1958	2.9275	0.7488	0.1873	0.9361		13,452.5494	13,452.5494	0.9786		13,477.0146
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.5901**	**51.1701**	**11.1738**	**0.1245**	**2.7318**	**0.1958**	**2.9275**	**0.7488**	**0.1873**	**0.9361**		**13,452.5494**	**13,452.5494**	**0.9786**		**13,477.0146**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2304	0.0000	0.2304	0.0275	0.0000	0.0275			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.2304**	**0.0000**	**0.2304**	**0.0275**	**0.0000**	**0.0275**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.5901	51.1701	11.1738	0.1245	2.5458	0.1958	2.7416	0.7032	0.1873	0.8904		13,452.5494	13,452.5494	0.9786		13,477.0146
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.5901**	**51.1701**	**11.1738**	**0.1245**	**2.5458**	**0.1958**	**2.7416**	**0.7032**	**0.1873**	**0.8904**		**13,452.5494**	**13,452.5494**	**0.9786**		**13,477.0146**

3.7 Landscaping/Field Lighting - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7141	18.7088	7.1249	0.0139		0.9191	0.9191		0.8455	0.8455		1,400.8554	1,400.8554	0.4361		1,411.7581
Total	**1.7141**	**18.7088**	**7.1249**	**0.0139**		**0.9191**	**0.9191**		**0.8455**	**0.8455**		**1,400.8554**	**1,400.8554**	**0.4361**		**1,411.7581**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0527	1.3512	0.4052	2.8300e-003	0.0704	9.6500e-003	0.0801	0.0203	9.2300e-003	0.0295		301.5648	301.5648	0.0218		302.1088
Worker	0.1773	0.1339	1.4421	3.4400e-003	0.3242	2.8900e-003	0.3270	0.0860	2.6600e-003	0.0886		342.3670	342.3670	0.0129		342.6892
Total	**0.2301**	**1.4851**	**1.8473**	**6.2700e-003**	**0.3946**	**0.0125**	**0.4071**	**0.1062**	**0.0119**	**0.1181**		**643.9319**	**643.9319**	**0.0346**		**644.7980**

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Off-Road	1.7141	18.7088	7.1249	0.0139		0.9191	0.9191		0.8455	0.8455	0.0000	1,400.8554	1,400.8554	0.4361		1,411.7581
Total	**1.7141**	**18.7088**	**7.1249**	**0.0139**		**0.9191**	**0.9191**		**0.8455**	**0.8455**	**0.0000**	**1,400.8554**	**1,400.8554**	**0.4361**		**1,411.7581**

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0527	1.3512	0.4052	2.8300e-003	0.0659	9.6500e-003	0.0756	0.0192	9.2300e-003	0.0284		301.5648	301.5648	0.0218		302.1088
Worker	0.1773	0.1339	1.4421	3.4400e-003	0.2988	2.8900e-003	0.3017	0.0797	2.6600e-003	0.0824		342.3670	342.3670	0.0129		342.6892
Total	**0.2301**	**1.4851**	**1.8473**	**6.2700e-003**	**0.3647**	**0.0125**	**0.3772**	**0.0989**	**0.0119**	**0.1108**		**643.9319**	**643.9319**	**0.0346**		**644.7980**

3.8 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0182	10.4525	8.9926	0.0135		0.6097	0.6097		0.5618	0.5618		1,346.4360	1,346.4360	0.4113		1,356.7186
Paving	0.1913					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2095**	**10.4525**	**8.9926**	**0.0135**		**0.6097**	**0.6097**		**0.5618**	**0.5618**		**1,346.4360**	**1,346.4360**	**0.4113**		**1,356.7186**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0795	0.0600	0.6465	1.5400e-003	0.1453	1.3000e-003	0.1466	0.0385	1.1900e-003	0.0397		153.4749	153.4749	5.7800e-003		153.6193
Total	**0.0795**	**0.0600**	**0.6465**	**1.5400e-003**	**0.1453**	**1.3000e-003**	**0.1466**	**0.0385**	**1.1900e-003**	**0.0397**		**153.4749**	**153.4749**	**5.7800e-003**		**153.6193**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0182	10.4525	8.9926	0.0135		0.6097	0.6097		0.5618	0.5618	0.0000	1,346.4360	1,346.4360	0.4113		1,356.7186
Paving	0.1913					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2095**	**10.4525**	**8.9926**	**0.0135**		**0.6097**	**0.6097**		**0.5618**	**0.5618**	**0.0000**	**1,346.4360**	**1,346.4360**	**0.4113**		**1,356.7186**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0795	0.0600	0.6465	1.5400e-003	0.1339	1.3000e-003	0.1352	0.0358	1.1900e-003	0.0369		153.4749	153.4749	5.7800e-003		153.6193
Total	**0.0795**	**0.0600**	**0.6465**	**1.5400e-003**	**0.1339**	**1.3000e-003**	**0.1352**	**0.0358**	**1.1900e-003**	**0.0369**		**153.4749**	**153.4749**	**5.7800e-003**		**153.6193**

3.9 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.1578					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506		281.4485	281.4485	0.0267		282.1171
Total	**1.4565**	**2.0058**	**1.8542**	**2.9700e-003**		**0.1506**	**0.1506**		**0.1506**	**0.1506**		**281.4485**	**281.4485**	**0.0267**		**282.1171**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0367	0.0277	0.2984	7.1000e-004	0.0671	6.0000e-004	0.0677	0.0178	5.5000e-004	0.0183		70.8346	70.8346	2.6700e-003		70.9012
Total	**0.0367**	**0.0277**	**0.2984**	**7.1000e-004**	**0.0671**	**6.0000e-004**	**0.0677**	**0.0178**	**5.5000e-004**	**0.0183**		**70.8346**	**70.8346**	**2.6700e-003**		**70.9012**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.1578					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506	0.0000	281.4485	281.4485	0.0267		282.1171
Total	**1.4565**	**2.0058**	**1.8542**	**2.9700e-003**		**0.1506**	**0.1506**		**0.1506**	**0.1506**	**0.0000**	**281.4485**	**281.4485**	**0.0267**		**282.1171**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0367	0.0277	0.2984	7.1000e-004	0.0618	6.0000e-004	0.0624	0.0165	5.5000e-004	0.0171		70.8346	70.8346	2.6700e-003		70.9012
Total	**0.0367**	**0.0277**	**0.2984**	**7.1000e-004**	**0.0618**	**6.0000e-004**	**0.0624**	**0.0165**	**5.5000e-004**	**0.0171**		**70.8346**	**70.8346**	**2.6700e-003**		**70.9012**

3.10 trenching - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5301	5.2381	4.6545	6.1900e-003		0.3711	0.3711		0.3414	0.3414		623.0159	623.0159	0.1940		627.8647
Total	**0.5301**	**5.2381**	**4.6545**	**6.1900e-003**		**0.3711**	**0.3711**		**0.3414**	**0.3414**		**623.0159**	**623.0159**	**0.1940**		**627.8647**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0192	0.4913	0.1473	1.0300e-003	0.0256	3.5100e-003	0.0291	7.3700e-003	3.3600e-003	0.0107		109.6599	109.6599	7.9100e-003		109.8578
Worker	0.0306	0.0231	0.2486	5.9000e-004	0.0559	5.0000e-004	0.0564	0.0148	4.6000e-004	0.0153		59.0288	59.0288	2.2200e-003		59.0843
Total	**0.0498**	**0.5144**	**0.3960**	**1.6200e-003**	**0.0815**	**4.0100e-003**	**0.0855**	**0.0222**	**3.8200e-003**	**0.0260**		**168.6887**	**168.6887**	**0.0101**		**168.9421**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5301	5.2381	4.6545	6.1900e-003		0.3711	0.3711		0.3414	0.3414	0.0000	623.0159	623.0159	0.1940		627.8647
Total	**0.5301**	**5.2381**	**4.6545**	**6.1900e-003**		**0.3711**	**0.3711**		**0.3414**	**0.3414**	**0.0000**	**623.0159**	**623.0159**	**0.1940**		**627.8647**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0192	0.4913	0.1473	1.0300e-003	0.0240	3.5100e-003	0.0275	6.9700e-003	3.3600e-003	0.0103		109.6599	109.6599	7.9100e-003		109.8578
Worker	0.0306	0.0231	0.2486	5.9000e-004	0.0515	5.0000e-004	0.0520	0.0138	4.6000e-004	0.0142		59.0288	59.0288	2.2200e-003		59.0843
Total	**0.0498**	**0.5144**	**0.3960**	**1.6200e-003**	**0.0755**	**4.0100e-003**	**0.0795**	**0.0207**	**3.8200e-003**	**0.0245**		**168.6887**	**168.6887**	**0.0101**		**168.9421**

Regional Construction Emissions Worksheet

Demolition Summer

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2018**						
	Fugitive Dust						0	0
	Off-Road		2.4838	24.3641	15.1107	0.0241	1.4365	1.3429
	Total		**2.4838**	**24.3641**	**15.1107**	**0.0241**	**1.4365**	**1.3429**
Offsite								
	Hauling		0	0	0	0.00E+00	0	0
	Vendor		0.0184	0.4902	0.134	1.06E-03	0.0274	0.0103
	Worker		0.0718	0.0542	0.7021	1.64E-03	0.1352	0.0369
	Total		**0.0902**	**0.5444**	**0.8361**	**2.70E-03**	**0.1627**	**0.0472**
TOTAL			***2.5740***	***24.9085***	***15.9468***	***0.0268***	***1.5992***	***1.3901***

Demolition Winter

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2018**						
	Fugitive Dust						0	0
	Off-Road		2.4838	24.3641	15.1107	0.0241	1.4365	1.3429
	Total		**2.4838**	**24.3641**	**15.1107**	**0.0241**	**1.4365**	**1.3429**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0.0192	0.4913	0.1473	1.03E-03	0.0275	0.0103
	Worker		0.0795	0.06	0.6465	1.54E-03	0.1352	0.0369
	Total		**0.0987**	**0.5514**	**0.7938**	**2.57E-03**	**0.1627**	**0.0473**
TOTAL			***2.5825***	***24.9155***	***15.9045***	***0.0267***	***1.5992***	***1.3902***

Demolition Haul Summer

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2018**						
	Fugitive Dust						4.40E-01	6.66E-02
	Off-Road		0	0	0	0	0	0
	Total		**0**	**0**	**0**	**0**	**4.40E-01**	**6.66E-02**
Offsite								
	Hauling		0.0481	1.5669	0.3242	3.93E-03	0.085	2.75E-02
	Vendor		0	0	0	0	0	0
	Worker		0	0	0	0.00E+00	0	0
	Total		**0.0481**	**1.5669**	**0.3242**	**3.93E-03**	**0.085**	**2.75E-02**
TOTAL			***0.0481***	***1.5669***	***0.3242***	***0.0039***	***0.5246***	***0.0941***
Summer Demolition + Haul			***2.6221***	***26.4754***	***16.2710***	***0.0307***	***2.1238***	***1.4842***

Demolition Haul Winter

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2018**						
	Fugitive Dust						4.40E-01	6.66E-02
	Off-Road		0	0	0	0	0	0
	Total		**0**	**0**	**0**	**0**	**4.40E-01**	**6.66E-02**
Offsite								
	Hauling		0.0494	1.5883	0.3468	3.87E-03	0.0851	2.76E-02
	Vendor		0	0	0	0	0	0
	Worker		0	0	0	0	0	0
	Total		**0.0494**	**1.5883**	**0.3468**	**3.87E-03**	**0.0851**	**2.76E-02**
TOTAL			***0.0494***	***1.5883***	***0.3468***	***0.0039***	***0.5247***	***0.0942***
Winter Demolition Haul			***2.6319***	***26.5038***	***16.2513***	***0.0305***	***2.1239***	***1.4844***

Site Preparation Summer

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2018**						
	Fugitive Dust						2.4793	1.2627
	Off-Road		1.8061	20.7472	8.0808	0.0172	0.9523	0.8761
	Total		**1.8061**	**20.7472**	**8.0808**	**0.0172**	**3.4316**	**2.1388**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0.0184	0.4902	0.134	1.06E-03	0.0274	0.0103
	Worker		0.0442	0.0334	0.4321	1.01E-03	0.0832	0.0227
	Total		**0.0626**	**0.5236**	**0.5661**	**2.07E-03**	**0.1106**	**0.033**
TOTAL			***1.8687***	***21.2708***	***8.6469***	***0.0193***	***3.5422***	***2.1718***

Site Preparation Winter

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2018**						
	Fugitive Dust						2.4793	1.2627
	Off-Road		1.8061	20.7472	8.0808	0.0172	0.9523	0.8761
	Total		**1.8061**	**20.7472**	**8.0808**	**0.0172**	**3.4316**	**2.1388**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0.0192	0.4913	0.1473	1.03E-03	0.0275	0.0103
	Worker		0.0489	0.0369	0.3978	9.50E-04	0.0832	0.0227
	Total		**0.0681**	**0.5283**	**0.5452**	**1.98E-03**	**0.1107**	**0.0331**
TOTAL			***1.8742***	***21.2755***	***8.6260***	***0.0192***	***3.5423***	***2.1719***

Grading Summer

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2018**						
	Fugitive Dust						2.1008	1.0797
	Off-Road		1.4972	17.0666	6.763	0.0141	0.7947	0.7311
	Total		**1.4972**	**17.0666**	**6.763**	**0.0141**	**2.8956**	**1.8108**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0.0184	0.4902	0.134	1.06E-03	0.0274	0.0103
	Worker		0.0442	0.0334	0.4321	1.01E-03	0.0832	0.0227
	Total		**0.0626**	**0.5236**	**0.5661**	**2.07E-03**	**0.1106**	**0.033**
TOTAL			***1.5598***	***17.5902***	***7.3291***	***0.0162***	***3.0062***	***1.8438***

Grading Winter

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2018**						
	Fugitive Dust						2.1008	1.0797
	Off-Road		1.4972	17.0666	6.763	0.0141	0.7947	0.7311
	Total		**1.4972**	**17.0666**	**6.763**	**0.0141**	**2.8956**	**1.8108**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0.0192	0.4913	0.1473	1.03E-03	0.0275	0.0103
	Worker		0.0489	0.0369	0.3978	9.50E-04	0.0832	0.0227
	Total		**0.0681**	**0.5283**	**0.5452**	**1.98E-03**	**0.1107**	**0.0331**
TOTAL			***1.5653***	***17.5949***	***7.3082***	***0.0161***	***3.0063***	***1.8439***

Grading Soil Haul Summer

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2018**						
	Fugitive Dust						0.2304	2.75E-02
	Off-Road		0	0	0	0	0	0
	Total		**0**	**0**	**0**	**0**	**0.2304**	**2.75E-02**
Offsite								
	Hauling		1.5509	50.4788	10.4448	0.1267	2.7379	0.8869
	Vendor		0	0	0	0	0	0
	Worker		0	0	0	0	0	0
	Total		**1.5509**	**50.4788**	**10.4448**	**0.1267**	**2.7379**	**0.8869**
TOTAL			***1.5509***	***50.4788***	***10.4448***	***0.1267***	***2.9683***	***0.9144***
Grading + Haul			***3.1107***	***68.0690***	***17.7739***	***0.1429***	***5.9745***	***2.7582***

Grading Haul Winter

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2018**						
	Fugitive Dust						0.2304	2.75E-02
	Off-Road		0	0	0	0	0	0
	Total		**0**	**0**	**0**	**0**	**0.2304**	**2.75E-02**
Offsite								
	Hauling		1.5901	51.1701	11.1738	0.1245	2.7416	0.8904
	Vendor		0	0	0	0.00E+00	0	0
	Worker		0	0	0	0.00E+00	0	0
	Total		**1.5901**	**51.1701**	**11.1738**	**1.25E-01**	**2.7416**	**0.8904**
TOTAL			***1.5901***	***51.1701***	***11.1738***	***0.1245***	***2.9720***	***0.9179***
Grading + Haul			***3.1554***	***68.7650***	***18.4820***	***0.1406***	***5.9783***	***2.7618***

Utility Trenching Summer								
			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2018**						
	Off-Road		0.5301	5.2381	4.6545	6.19E-03	0.3711	0.3414
	Total		**0.5301**	**5.2381**	**4.6545**	**6.19E-03**	**0.3711**	**0.3414**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0.0184	0.4902	0.134	1.06E-03	0.0274	0.0103
	Worker		0.0276	0.0209	0.27	6.30E-04	0.052	0.0142
	Total		**0.046**	**0.5111**	**0.4041**	**1.69E-03**	**0.0794**	**0.0245**
TOTAL			***0.5761***	***5.7492***	***5.0586***	***0.0079***	***0.4505***	***0.3659***

Utility Trenching Winter								
			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2018**						
	Off-Road		0.5301	5.2381	4.6545	6.19E-03	0.3711	0.3414
	Total		**0.5301**	**5.2381**	**4.6545**	**6.19E-03**	**0.3711**	**0.3414**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0.0192	0.4913	0.1473	1.03E-03	0.0275	0.0103
	Worker		0.0306	0.0231	0.2486	5.90E-04	0.052	0.0142
	Total		**0.0498**	**0.5144**	**0.396**	**1.62E-03**	**0.0795**	**0.0245**
TOTAL			***0.5799***	***5.7525***	***5.0505***	***0.0078***	***0.4506***	***0.3659***

Landscaping + Field Lighting Summer								
			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2018**						
	Off-Road		1.7141	18.7088	7.1249	0.0139	0.9191	0.8455
	Total		**1.7141**	**18.7088**	**7.1249**	**0.0139**	**0.9191**	**0.8455**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0.0506	1.3482	0.3686	2.91E-03	0.0754	0.0283
	Worker		0.1602	0.1209	1.5662	3.65E-03	0.3017	0.0824
	Total		**0.2108**	**1.4691**	**1.9348**	**6.56E-03**	**0.3771**	**0.1107**
TOTAL			***1.9249***	***20.1779***	***9.0597***	***0.0205***	***1.2962***	***0.9562***

Landscaping + Field Lighting Winter								
			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2018**						
	Off-Road		1.7141	18.7088	7.1249	0.0139	0.9191	0.8455
	Total		**1.7141**	**18.7088**	**7.1249**	**0.0139**	**0.9191**	**0.8455**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0.0527	1.3512	0.4052	2.83E-03	0.0756	0.0284
	Worker		0.1773	0.1339	1.4421	3.44E-03	0.3017	0.0824
	Total		**0.2301**	**1.4851**	**1.8473**	**6.27E-03**	**0.3772**	**0.1108**
TOTAL			***1.9442***	***20.1939***	***8.9722***	***0.0202***	***1.2963***	***0.9563***

Asphalt Paving Summer								
			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2018**						
	Off-Road		1.0182	10.4525	8.9926	0.0135	0.6097	0.5618
	Paving		0.1913				0	0
	Total		**1.2095**	**10.4525**	**8.9926**	**0.0135**	**0.6097**	**0.5618**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0	0	0	0.00E+00	0	0
	Worker		0.0718	0.0542	0.7021	1.64E-03	0.1352	0.0369
	Total		**0.0718**	**0.0542**	**0.7021**	**1.64E-03**	**0.1352**	**0.0369**
TOTAL			***1.2813***	***10.5067***	***9.6947***	***0.0151***	***0.7449***	***0.5987***

Asphalt Paving Winter

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2018**						
	Off-Road		1.0182	10.4525	8.9926	0.0135	0.6097	0.5618
	Paving		0.1913				0	0
	Total		**1.2095**	**10.4525**	**8.9926**	**0.0135**	**0.6097**	**0.5618**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0	0	0	0.00E+00	0	0
	Worker		0.0795	0.06	0.6465	1.54E-03	0.1352	0.0369
	Total		**0.0795**	**0.06**	**0.6465**	**1.54E-03**	**0.1352**	**0.0369**
TOTAL			***1.2890***	***10.5125***	***9.6391***	***0.0150***	***0.7449***	***0.5987***

Architectural Coating Summer

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2018**						
	Archit. Coating		1.1578				0	0
	Off-Road		0.2986	2.0058	1.8542	2.97E-03	0.1506	0.1506
	Total		**1.4565**	**2.0058**	**1.8542**	**2.97E-03**	**0.1506**	**0.1506**
Offsite								
	Hauling		0.00E+00	0	0	0.00E+00	0.00E+00	0.00E+00
	Vendor		0	0	0	0.00E+00	0	0
	Worker		0.0332	0.025	0.324	7.60E-04	0.0624	0.0171
	Total		**0.0332**	**0.025**	**0.324**	**7.60E-04**	**0.0624**	**0.0171**
TOTAL			***1.4897***	***2.0308***	***2.1782***	***0.0037***	***0.2130***	***0.1677***

Architectural Coating Winter

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2018**						
	Archit. Coating		1.1578				0	0
	Off-Road		0.2986	2.0058	1.8542	2.97E-03	0.1506	0.1506
	Total		**1.4565**	**2.0058**	**1.8542**	**2.97E-03**	**0.1506**	**0.1506**
Offsite								
	Hauling		0.00E+00	0	0	0.00E+00	0.00E+00	0.00E+00
	Vendor		0	0	0	0.00E+00	0	0
	Worker		0.0367	0.0277	0.2984	7.10E-04	0.0624	0.0171
	Total		**0.0367**	**0.0277**	**0.2984**	**7.10E-04**	**0.0624**	**0.0171**
TOTAL			***1.4932***	***2.0335***	***2.1526***	***0.0037***	***0.2130***	***0.1677***

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
MAX DAILY	**3.16**	**68.77**	**18.48**	**0.14**	**5.98**	**2.76**
Regional Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
Exceeds Thresholds?	No	No	No	No	No	No

Localized Construction Emissions Worksheet

Demolition

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2019**				
	Fugitive Dust		0	0	0	0
	Off-Road		24.3641	15.1107	1.4365	1.3429
	Total		24.3641	15.1107	1.4365	1.3429

Demo Haul

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2019**				
	Fugitive Dust		0	0	0.4396	0.0666
	Off-Road		0	0	0	0
	Total		0	0	0.4396	0.0666
Demo + Haul			***24.3641***	***15.1107***	***1.8761***	***1.4095***
1.6 Acre LSTs			100	671	5.80	3.60
Exceed Thresholds?			No	No	No	No

Site Preparation

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2019**				
	Fugitive Dust		0	0	2.4793	1.2627
	Off-Road		20.7472	8.0808	0.9523	0.8761
	Total		20.7472	8.0808	3.4316	2.1388
1.44-Acre LSTs			95	624	5.31	3.44
Exceed Thresholds?			No	No	No	No

Grading

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2019**				
	Fugitive Dust		0	0	2.1008	1.0797
	Off-Road		17.0666	6.763	0.7947	0.7311
	Total		17.0666	6.763	2.8956	1.8108

Grading Haul

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2019**				
	Fugitive Dust		0	0	0.2304	0.0275
	Off-Road		0	0	0	0
	Total		0	0	0.2304	0.0275
Grading + Haul			***17.0666***	***6.7630***	***3.1260***	***1.8383***
1.19-Acre LSTs			86	552	4.56	3.19
Exceed Thresholds?			No	No	No	No

Utility Trenching

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2019**				
	Off-Road		5.2381	4.6545	0.3711	0.3414
	Total		5.2381	4.6545	0.3711	0.3414
1-Acre LSTs			80	498	4.00	3.00
Exceed Thresholds?			No	No	No	No

Asphalt Paving

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2020**				
	Off-Road		10.4525	8.9926	0.6097	0.5618
	Paving		0	0	0	0
	Total		10.4525	8.9926	0.6097	0.5618
1-Acre LSTs			80	498	4.00	3.00
Exceed Thresholds?			No	No	No	No

Lighting Installation

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2019**				
	Off-Road		18.7088	7.1249	0.9191	0.8455
	Total		18.7088	7.1249	0.9191	0.8455
1-Acre LSTs			80	498	4.00	3.00
Exceed Thresholds?			No	No	No	No

Architectural Coating

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2020**				
	Archit. Coating		0	0	0	0
	Off-Road		2.0058	1.8542	0.1506	0.1506
	Total		2.0058	1.8542	0.1506	0.1506
1-Acre LSTs			80	498	4.00	3.00
Exceed Thresholds?			No	No	No	No

Regional Operational Emissions Worksheet

Summer	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Area	0.0226	3.00E-05	3.40E-03	0.00E+00	1.00E-05	1.00E-05
Energy	9.00E-05	8.40E-04	7.00E-04	1.00E-05	6.00E-05	6.00E-05
Mobile	0.4914	0.7119	6.3906	1.60E-02	1.431	3.88E-01
Total	**0.5141**	**0.7128**	**6.3947**	**1.60E-02**	**1.4311**	**3.88E-01**

Winter	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Area	0.0226	3.00E-05	3.40E-03	0.00E+00	1.00E-05	1.00E-05
Energy	9.00E-05	8.40E-04	7.00E-04	1.00E-05	6.00E-05	6.00E-05
Mobile	0.4757	0.7626	6.0604	1.51E-02	1.431	3.88E-01
Total	**0.4984**	**0.7635**	**6.0645**	**1.51E-02**	**1.4311**	**3.88E-01**

Max Daily	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Area	0.023	0.000	0.003	0.000	0.000	0.000
Energy	0.000	0.001	0.001	0.000	0.000	0.000
Mobile	0.491	0.763	6.391	0.016	1.431	0.388
Total	**0.514**	**0.764**	**6.395**	**0.016**	**1.431**	**0.388**
Regional Thresholds	**55**	**55**	**550**	**150**	**150**	**550**
Exceeds Thresholds?	No	No	No	No	No	No

Localized Operational Emissions Worksheet

Max Daily	NOx	CO	PM10 Total	PM2.5 Total
Area	0.000	0.003	0.000	0.000
Energy	0.001	0.001	0.000	0.000
Total	**0.001**	**0.004**	**0.000**	**0.000**
LSTs	**172**	**1,434**	**4.00**	**2.00**
Exceeds Thresholds?	No	No	No	No

GHG Emissions Worksheet

	MTons Total
2019 Construction	**78**
Amoritized Emissions	**3**

Source	MTons/Year	Percent of Total
Area	0.001	0.000%
Energy	0	0%
Stadium Lighting	*5*	*2%*
Mobile	212	96%
Waste	0	0
Water	0.0	0.000
Amortized Construction Emissions*	3	1%
Total All Sectors	221	100%

Operation Localized Significance Thresholds

SRA No.	Acres	Source Receptor Distance (meters)	Source Receptor Distance (Feet)
7	1.60	25	82

Source Receptor	**East San Fernando Valley**
Distance (meters)	25
NOx	**100**
CO	**671**
PM10	**1.60**
PM2.5	**1.00**

	Acres	**25**	**50**	**100**	**200**	**500**
NOx	1	80	81	94	122	191
	2	114	111	121	144	204
		100	99	110	135	199
CO	1	498	732	1158	2227	7267
	2	786	1068	1594	2786	7947
		671	934	1420	2562	7675
PM10	1	1	3	7	13	33
	2	2	5	9	15	35
		2	4	8	14	34
PM2.5	1	1	1	2	5	17
	2	1	2	3	5	18
		1	1	3	5	17

East San Fernando Valley

1.60 Acres

	25	**50**	**100**	**200**	**500**
NOx	100	99	110	135	199
CO	671	934	1420	2562	7675
PM10	2	4	8	14	34
PM2.5	1	2	3	5	18

Acre Below		**Acre Above**	
SRA No.	Acres	SRA No.	Acres
7	1	7	2
Distance Increment Below			
25			
Distance Increment Above			
25			

Updated: 10/21/2010 - Table C-1. 2006 – 2008

Appendix C. Greenhouse Gas Emissions Modeling

Appendices

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Cerritos Elementary School - Operation

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	0.30	1000sqft	0.01	300.00	0
Other Asphalt Surfaces	31.63	1000sqft	0.73	31,630.00	0
City Park	0.87	Acre	0.87	37,762.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2018
Utility Company	Glendale Water & Power				
CO2 Intensity (lb/MWhr)	383.88	**CH4 Intensity (lb/MWhr)**	0.095	**N2O Intensity (lb/MWhr)**	0.012

1.3 User Entered Comments & Non-Default Data

Project Characteristics - City of Glendale Power Mix from California Department of Energy. Utility Annual Power Content Labels for 2016. 2016 City of Glendale Power Content Label. http://www.energy.ca.gov/pcl/labels/

Land Use - See CalEEMod Assumptions

Construction Phase - See CalEEMod Assumptions

Off-road Equipment -

Off-road Equipment - See CalEEMod Assumptions

Off-road Equipment -

Off-road Equipment -

Trips and VMT - See CalEEMod Assumptions

Demolition -

Grading -

Vehicle Trips - See CalEEMod Assumptions

Energy Use -

Water And Wastewater - See CalEEMod Assumptions

Construction Off-road Equipment Mitigation - SCAQMD Rule 1186

Water Mitigation -

Fleet Mix - See CalEEMod Assumptions

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblFleetMix	HHD	0.03	3.9670e-003
tblFleetMix	LDA	0.55	0.67
tblFleetMix	LDT1	0.05	0.06
tblFleetMix	LDT2	0.20	0.24
tblFleetMix	LHD1	0.02	2.5420e-003
tblFleetMix	LHD2	5.9530e-003	8.5500e-004
tblFleetMix	MCY	4.8040e-003	6.4480e-003
tblFleetMix	MDV	0.13	0.01
tblFleetMix	MH	9.4400e-004	0.00
tblFleetMix	MHD	0.02	2.6370e-003
tblFleetMix	OBUS	2.3410e-003	0.00
tblFleetMix	SBUS	6.6700e-004	0.00
tblFleetMix	UBUS	2.5830e-003	0.00
tblLandUse	LandUseSquareFeet	37,897.20	37,762.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.095
tblProjectCharacteristics	CO2IntensityFactor	1115.33	383.88
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.012
tblTripsAndVMT	HaulingTripNumber	36.00	37.00

tblTripsAndVMT	HaulingTripNumber	0.00	625.00
tblVehicleTrips	ST_TR	22.75	271.08
tblVehicleTrips	SU_TR	16.74	271.08
tblVehicleTrips	WD_TR	1.89	209.94
tblVehicleTrips	WD_TR	15.43	0.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	OutdoorWaterUseRate	1,036,588.77	0.00
tblWater	OutdoorWaterUseRate	22,369.05	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.1000e-003	0.0000	4.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	8.1000e-004	8.1000e-004	0.0000	0.0000	8.7000e-004
Energy	2.0000e-005	1.5000e-004	1.3000e-004	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.4757	0.4757	8.0000e-005	1.0000e-005	0.4815
Mobile	0.0705	0.1189	0.9408	2.3400e-003	0.2123	1.9600e-003	0.2142	0.0564	1.8200e-003	0.0582	0.0000	211.9702	211.9702	8.9100e-003	0.0000	212.1929
Waste						0.0000	0.0000		0.0000	0.0000	0.0934	0.0000	0.0934	5.5200e-003	0.0000	0.2313
Water						0.0000	0.0000		0.0000	0.0000	3.0800e-003	0.0197	0.0228	2.0000e-005	1.0000e-005	0.0254
Total	**0.0746**	**0.1191**	**0.9414**	**2.3400e-003**	**0.2123**	**1.9700e-003**	**0.2142**	**0.0564**	**1.8300e-003**	**0.0582**	**0.0965**	**212.4665**	**212.5630**	**0.0145**	**2.0000e-005**	**212.9320**

Mitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Area	4.1000e-003	0.0000	4.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	8.1000e-004	8.1000e-004	0.0000	0.0000	8.7000e-004
Energy	2.0000e-005	1.5000e-004	1.3000e-004	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.4757	0.4757	8.0000e-005	1.0000e-005	0.4815
Mobile	0.0705	0.1189	0.9408	2.3400e-003	0.2123	1.9600e-003	0.2142	0.0564	1.8200e-003	0.0582	0.0000	211.9702	211.9702	8.9100e-003	0.0000	212.1929
Waste						0.0000	0.0000		0.0000	0.0000	0.0934	0.0000	0.0934	5.5200e-003	0.0000	0.2313
Water						0.0000	0.0000		0.0000	0.0000	2.4600e-003	0.0158	0.0182	1.0000e-005	1.0000e-005	0.0203
Total	**0.0746**	**0.1191**	**0.9414**	**2.3400e-003**	**0.2123**	**1.9700e-003**	**0.2142**	**0.0564**	**1.8300e-003**	**0.0582**	**0.0958**	**212.4626**	**212.5584**	**0.0145**	**2.0000e-005**	**212.9269**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.64**	**0.00**	**0.00**	**0.07**	**0.00**	**0.00**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0705	0.1189	0.9408	2.3400e-003	0.2123	1.9600e-003	0.2142	0.0564	1.8200e-003	0.0582	0.0000	211.9702	211.9702	8.9100e-003	0.0000	212.1929
Unmitigated	0.0705	0.1189	0.9408	2.3400e-003	0.2123	1.9600e-003	0.2142	0.0564	1.8200e-003	0.0582	0.0000	211.9702	211.9702	8.9100e-003	0.0000	212.1929

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	182.65	235.84	235.84	569,308	569,308
Elementary School	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	182.65	235.84	235.84	569,308	569,308

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	16.60	8.40	6.90	33.00	48.00	19.00	66	28	6
Elementary School	16.60	8.40	6.90	65.00	30.00	5.00	63	25	12
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.672372	0.056599	0.244582	0.010000	0.002542	0.000855	0.002637	0.003967	0.000000	0.000000	0.006448	0.000000	0.000000
Elementary School	0.547972	0.046127	0.199330	0.125604	0.017697	0.005953	0.018360	0.027618	0.002341	0.002583	0.004804	0.000667	0.000944
Other Asphalt Surfaces	0.547972	0.046127	0.199330	0.125604	0.017697	0.005953	0.018360	0.027618	0.002341	0.002583	0.004804	0.000667	0.000944

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.3093	0.3093	8.0000e-005	1.0000e-005	0.3140
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.3093	0.3093	8.0000e-005	1.0000e-005	0.3140
NaturalGas Mitigated	2.0000e-005	1.5000e-004	1.3000e-004	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.1665	0.1665	0.0000	0.0000	0.1675
NaturalGas Unmitigated	2.0000e-005	1.5000e-004	1.3000e-004	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.1665	0.1665	0.0000	0.0000	0.1675

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	3120	2.0000e-005	1.5000e-004	1.3000e-004	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.1665	0.1665	0.0000	0.0000	0.1675
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**2.0000e-005**	**1.5000e-004**	**1.3000e-004**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.1665**	**0.1665**	**0.0000**	**0.0000**	**0.1675**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	3120	2.0000e-005	1.5000e-004	1.3000e-004	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.1665	0.1665	0.0000	0.0000	0.1675
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**2.0000e-005**	**1.5000e-004**	**1.3000e-004**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.1665**	**0.1665**	**0.0000**	**0.0000**	**0.1675**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Elementary School	1776	0.3093	8.0000e-005	1.0000e-005	0.3140
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.3093**	**8.0000e-005**	**1.0000e-005**	**0.3140**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Elementary School	1776	0.3093	8.0000e-005	1.0000e-005	0.3140
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.3093**	**8.0000e-005**	**1.0000e-005**	**0.3140**

6.0 Area Detail

6.1 Mitigation Measures Area

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Mitigated	4.1000e-003	0.0000	4.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	8.1000e-004	8.1000e-004	0.0000	0.0000	8.7000e-004
Unmitigated	4.1000e-003	0.0000	4.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	8.1000e-004	8.1000e-004	0.0000	0.0000	8.7000e-004

6.2 Area by SubCategory

Unmitigated

SubCategory	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Architectural Coating	5.8000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.4800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-005	0.0000	4.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	8.1000e-004	8.1000e-004	0.0000	0.0000	8.7000e-004
Total	**4.1000e-003**	**0.0000**	**4.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**8.1000e-004**	**8.1000e-004**	**0.0000**	**0.0000**	**8.7000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	5.8000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.4800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-005	0.0000	4.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	8.1000e-004	8.1000e-004	0.0000	0.0000	8.7000e-004
Total	**4.1000e-003**	**0.0000**	**4.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**8.1000e-004**	**8.1000e-004**	**0.0000**	**0.0000**	**8.7000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0182	1.0000e-005	1.0000e-005	0.0203
Unmitigated	0.0228	2.0000e-005	1.0000e-005	0.0254

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Elementary School	0.00869908 / 0	0.0228	2.0000e-005	1.0000e-005	0.0254
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0228**	**2.0000e-005**	**1.0000e-005**	**0.0254**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Elementary School	0.00695926 / 0	0.0182	1.0000e-005	1.0000e-005	0.0203
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0182**	**1.0000e-005**	**1.0000e-005**	**0.0203**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0934	5.5200e-003	0.0000	0.2313
Unmitigated	0.0934	5.5200e-003	0.0000	0.2313

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.07	0.0142	8.4000e-004	0.0000	0.0352
Elementary School	0.39	0.0792	4.6800e-003	0.0000	0.1961
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0934**	**5.5200e-003**	**0.0000**	**0.2313**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.07	0.0142	8.4000e-004	0.0000	0.0352
Elementary School	0.39	0.0792	4.6800e-003	0.0000	0.1961
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0934**	**5.5200e-003**	**0.0000**	**0.2313**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Cerritos Elementary School - Operation

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	0.30	1000sqft	0.01	300.00	0
Other Asphalt Surfaces	31.63	1000sqft	0.73	31,630.00	0
City Park	0.87	Acre	0.87	37,762.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2018
Utility Company	Glendale Water & Power				
CO2 Intensity (lb/MWhr)	383.88	**CH4 Intensity (lb/MWhr)**	0.095	**N2O Intensity (lb/MWhr)**	0.012

1.3 User Entered Comments & Non-Default Data

Project Characteristics - City of Glendale Power Mix from California Department of Energy. Utility Annual Power Content Labels for 2016. 2016 City of Glendale Power Content Label. http://www.energy.ca.gov/pcl/labels/

Land Use - See CalEEMod Assumptions

Construction Phase - See CalEEMod Assumptions

Off-road Equipment -

Off-road Equipment - See CalEEMod Assumptions

Off-road Equipment -

Off-road Equipment -

Trips and VMT - See CalEEMod Assumptions

Demolition -

Grading -

Vehicle Trips - See CalEEMod Assumptions

Energy Use -

Water And Wastewater - See CalEEMod Assumptions

Construction Off-road Equipment Mitigation - SCAQMD Rule 1186

Water Mitigation -

Fleet Mix - See CalEEMod Assumptions

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblFleetMix	HHD	0.03	3.9670e-003
tblFleetMix	LDA	0.55	0.67
tblFleetMix	LDT1	0.05	0.06
tblFleetMix	LDT2	0.20	0.24
tblFleetMix	LHD1	0.02	2.5420e-003
tblFleetMix	LHD2	5.9530e-003	8.5500e-004
tblFleetMix	MCY	4.8040e-003	6.4480e-003
tblFleetMix	MDV	0.13	0.01
tblFleetMix	MH	9.4400e-004	0.00
tblFleetMix	MHD	0.02	2.6370e-003
tblFleetMix	OBUS	2.3410e-003	0.00
tblFleetMix	SBUS	6.6700e-004	0.00
tblFleetMix	UBUS	2.5830e-003	0.00
tblLandUse	LandUseSquareFeet	37,897.20	37,762.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.095
tblProjectCharacteristics	CO2IntensityFactor	1115.33	383.88
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.012
tblTripsAndVMT	HaulingTripNumber	36.00	37.00

tblTripsAndVMT	HaulingTripNumber	0.00	625.00
tblVehicleTrips	ST_TR	22.75	271.08
tblVehicleTrips	SU_TR	16.74	271.08
tblVehicleTrips	WD_TR	1.89	209.94
tblVehicleTrips	WD_TR	15.43	0.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	OutdoorWaterUseRate	1,036,588.77	0.00
tblWater	OutdoorWaterUseRate	22,369.05	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0226	3.0000e-005	3.4000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.1800e-003	7.1800e-003	2.0000e-005		7.6700e-003
Energy	9.0000e-005	8.4000e-004	7.0000e-004	1.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		1.0056	1.0056	2.0000e-005	2.0000e-005	1.0116
Mobile	0.4914	0.7119	6.3906	0.0160	1.4182	0.0129	1.4310	0.3762	0.0119	0.3881		1,598.3187	1,598.3187	0.0656		1,599.9575
Total	**0.5141**	**0.7128**	**6.3947**	**0.0160**	**1.4182**	**0.0129**	**1.4311**	**0.3762**	**0.0120**	**0.3881**		**1,599.3315**	**1,599.3315**	**0.0656**	**2.0000e-005**	**1,600.9768**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0226	3.0000e-005	3.4000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.1800e-003	7.1800e-003	2.0000e-005		7.6700e-003
Energy	9.0000e-005	8.4000e-004	7.0000e-004	1.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		1.0056	1.0056	2.0000e-005	2.0000e-005	1.0116
Mobile	0.4914	0.7119	6.3906	0.0160	1.4182	0.0129	1.4310	0.3762	0.0119	0.3881		1,598.3187	1,598.3187	0.0656		1,599.9575
Total	**0.5141**	**0.7128**	**6.3947**	**0.0160**	**1.4182**	**0.0129**	**1.4311**	**0.3762**	**0.0120**	**0.3881**		**1,599.3315**	**1,599.3315**	**0.0656**	**2.0000e-005**	**1,600.9768**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**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**	**0.00**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.4914	0.7119	6.3906	0.0160	1.4182	0.0129	1.4310	0.3762	0.0119	0.3881		1,598.3187	1,598.3187	0.0656		1,599.9575
Unmitigated	0.4914	0.7119	6.3906	0.0160	1.4182	0.0129	1.4310	0.3762	0.0119	0.3881		1,598.3187	1,598.3187	0.0656		1,599.9575

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	182.65	235.84	235.84	569,308	569,308
Elementary School	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	182.65	235.84	235.84	569,308	569,308

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	16.60	8.40	6.90	33.00	48.00	19.00	66	28	6
Elementary School	16.60	8.40	6.90	65.00	30.00	5.00	63	25	12
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.672372	0.056599	0.244582	0.010000	0.002542	0.000855	0.002637	0.003967	0.000000	0.000000	0.006448	0.000000	0.000000
Elementary School	0.547972	0.046127	0.199330	0.125604	0.017697	0.005953	0.018360	0.027618	0.002341	0.002583	0.004804	0.000667	0.000944
Other Asphalt Surfaces	0.547972	0.046127	0.199330	0.125604	0.017697	0.005953	0.018360	0.027618	0.002341	0.002583	0.004804	0.000667	0.000944

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	9.0000e-005	8.4000e-004	7.0000e-004	1.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		1.0056	1.0056	2.0000e-005	2.0000e-005	1.0116
NaturalGas Unmitigated	9.0000e-005	8.4000e-004	7.0000e-004	1.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		1.0056	1.0056	2.0000e-005	2.0000e-005	1.0116

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	8.54795	9.0000e-005	8.4000e-004	7.0000e-004	1.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		1.0056	1.0056	2.0000e-005	2.0000e-005	1.0116
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**9.0000e-005**	**8.4000e-004**	**7.0000e-004**	**1.0000e-005**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**		**1.0056**	**1.0056**	**2.0000e-005**	**2.0000e-005**	**1.0116**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	0.00854795	9.0000e-005	8.4000e-004	7.0000e-004	1.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		1.0056	1.0056	2.0000e-005	2.0000e-005	1.0116
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**9.0000e-005**	**8.4000e-004**	**7.0000e-004**	**1.0000e-005**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**		**1.0056**	**1.0056**	**2.0000e-005**	**2.0000e-005**	**1.0116**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0226	3.0000e-005	3.4000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.1800e-003	7.1800e-003	2.0000e-005		7.6700e-003
Unmitigated	0.0226	3.0000e-005	3.4000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.1800e-003	7.1800e-003	2.0000e-005		7.6700e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	3.1700e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0191					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.2000e-004	3.0000e-005	3.4000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.1800e-003	7.1800e-003	2.0000e-005		7.6700e-003
Total	**0.0226**	**3.0000e-005**	**3.4000e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**7.1800e-003**	**7.1800e-003**	**2.0000e-005**		**7.6700e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	3.1700e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0191					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.2000e-004	3.0000e-005	3.4000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.1800e-003	7.1800e-003	2.0000e-005		7.6700e-003
Total	**0.0226**	**3.0000e-005**	**3.4000e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**7.1800e-003**	**7.1800e-003**	**2.0000e-005**		**7.6700e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Cerritos Elementary School - Operation

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	0.30	1000sqft	0.01	300.00	0
Other Asphalt Surfaces	31.63	1000sqft	0.73	31,630.00	0
City Park	0.87	Acre	0.87	37,762.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2018
Utility Company	Glendale Water & Power				
CO2 Intensity (lb/MWhr)	383.88	**CH4 Intensity (lb/MWhr)**	0.095	**N2O Intensity (lb/MWhr)**	0.012

1.3 User Entered Comments & Non-Default Data

Project Characteristics - City of Glendale Power Mix from California Department of Energy. Utility Annual Power Content Labels for 2016. 2016 City of Glendale Power Content Label. http://www.energy.ca.gov/pcl/labels/

Land Use - See CalEEMod Assumptions

Construction Phase - See CalEEMod Assumptions

Off-road Equipment -

Off-road Equipment - See CalEEMod Assumptions

Off-road Equipment -

Off-road Equipment -

Trips and VMT - See CalEEMod Assumptions

Demolition -

Grading -

Vehicle Trips - See CalEEMod Assumptions

Energy Use -

Water And Wastewater - See CalEEMod Assumptions

Construction Off-road Equipment Mitigation - SCAQMD Rule 1186

Water Mitigation -

Fleet Mix - See CalEEMod Assumptions

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblFleetMix	HHD	0.03	3.9670e-003
tblFleetMix	LDA	0.55	0.67
tblFleetMix	LDT1	0.05	0.06
tblFleetMix	LDT2	0.20	0.24
tblFleetMix	LHD1	0.02	2.5420e-003
tblFleetMix	LHD2	5.9530e-003	8.5500e-004
tblFleetMix	MCY	4.8040e-003	6.4480e-003
tblFleetMix	MDV	0.13	0.01
tblFleetMix	MH	9.4400e-004	0.00
tblFleetMix	MHD	0.02	2.6370e-003
tblFleetMix	OBUS	2.3410e-003	0.00
tblFleetMix	SBUS	6.6700e-004	0.00
tblFleetMix	UBUS	2.5830e-003	0.00
tblLandUse	LandUseSquareFeet	37,897.20	37,762.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.095
tblProjectCharacteristics	CO2IntensityFactor	1115.33	383.88
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.012
tblTripsAndVMT	HaulingTripNumber	36.00	37.00

tblTripsAndVMT	HaulingTripNumber	0.00	625.00
tblVehicleTrips	ST_TR	22.75	271.08
tblVehicleTrips	SU_TR	16.74	271.08
tblVehicleTrips	WD_TR	1.89	209.94
tblVehicleTrips	WD_TR	15.43	0.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	OutdoorWaterUseRate	1,036,588.77	0.00
tblWater	OutdoorWaterUseRate	22,369.05	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0226	3.0000e-005	3.4000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.1800e-003	7.1800e-003	2.0000e-005		7.6700e-003
Energy	9.0000e-005	8.4000e-004	7.0000e-004	1.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		1.0056	1.0056	2.0000e-005	2.0000e-005	1.0116
Mobile	0.4757	0.7626	6.0604	0.0151	1.4182	0.0129	1.4310	0.3762	0.0119	0.3881		1,507.3716	1,507.3716	0.0639		1,508.9700
Total	**0.4984**	**0.7635**	**6.0645**	**0.0151**	**1.4182**	**0.0129**	**1.4311**	**0.3762**	**0.0120**	**0.3882**		**1,508.3844**	**1,508.3844**	**0.0640**	**2.0000e-005**	**1,509.9893**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0226	3.0000e-005	3.4000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.1800e-003	7.1800e-003	2.0000e-005		7.6700e-003
Energy	9.0000e-005	8.4000e-004	7.0000e-004	1.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		1.0056	1.0056	2.0000e-005	2.0000e-005	1.0116
Mobile	0.4757	0.7626	6.0604	0.0151	1.4182	0.0129	1.4310	0.3762	0.0119	0.3881		1,507.3716	1,507.3716	0.0639		1,508.9700
Total	**0.4984**	**0.7635**	**6.0645**	**0.0151**	**1.4182**	**0.0129**	**1.4311**	**0.3762**	**0.0120**	**0.3882**		**1,508.3844**	**1,508.3844**	**0.0640**	**2.0000e-005**	**1,509.9893**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**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**	**0.00**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.4757	0.7626	6.0604	0.0151	1.4182	0.0129	1.4310	0.3762	0.0119	0.3881		1,507.3716	1,507.3716	0.0639		1,508.9700
Unmitigated	0.4757	0.7626	6.0604	0.0151	1.4182	0.0129	1.4310	0.3762	0.0119	0.3881		1,507.3716	1,507.3716	0.0639		1,508.9700

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	182.65	235.84	235.84	569,308	569,308
Elementary School	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	182.65	235.84	235.84	569,308	569,308

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	16.60	8.40	6.90	33.00	48.00	19.00	66	28	6
Elementary School	16.60	8.40	6.90	65.00	30.00	5.00	63	25	12
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.672372	0.056599	0.244582	0.010000	0.002542	0.000855	0.002637	0.003967	0.000000	0.000000	0.006448	0.000000	0.000000
Elementary School	0.547972	0.046127	0.199330	0.125604	0.017697	0.005953	0.018360	0.027618	0.002341	0.002583	0.004804	0.000667	0.000944
Other Asphalt Surfaces	0.547972	0.046127	0.199330	0.125604	0.017697	0.005953	0.018360	0.027618	0.002341	0.002583	0.004804	0.000667	0.000944

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	9.0000e-005	8.4000e-004	7.0000e-004	1.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		1.0056	1.0056	2.0000e-005	2.0000e-005	1.0116
NaturalGas Unmitigated	9.0000e-005	8.4000e-004	7.0000e-004	1.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		1.0056	1.0056	2.0000e-005	2.0000e-005	1.0116

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	8.54795	9.0000e-005	8.4000e-004	7.0000e-004	1.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		1.0056	1.0056	2.0000e-005	2.0000e-005	1.0116
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**9.0000e-005**	**8.4000e-004**	**7.0000e-004**	**1.0000e-005**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**		**1.0056**	**1.0056**	**2.0000e-005**	**2.0000e-005**	**1.0116**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	0.00854795	9.0000e-005	8.4000e-004	7.0000e-004	1.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		1.0056	1.0056	2.0000e-005	2.0000e-005	1.0116
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**9.0000e-005**	**8.4000e-004**	**7.0000e-004**	**1.0000e-005**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**		**1.0056**	**1.0056**	**2.0000e-005**	**2.0000e-005**	**1.0116**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0226	3.0000e-005	3.4000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.1800e-003	7.1800e-003	2.0000e-005		7.6700e-003
Unmitigated	0.0226	3.0000e-005	3.4000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.1800e-003	7.1800e-003	2.0000e-005		7.6700e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	3.1700e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0191					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.2000e-004	3.0000e-005	3.4000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.1800e-003	7.1800e-003	2.0000e-005		7.6700e-003
Total	**0.0226**	**3.0000e-005**	**3.4000e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**7.1800e-003**	**7.1800e-003**	**2.0000e-005**		**7.6700e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	3.1700e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0191					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.2000e-004	3.0000e-005	3.4000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.1800e-003	7.1800e-003	2.0000e-005		7.6700e-003
Total	**0.0226**	**3.0000e-005**	**3.4000e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**7.1800e-003**	**7.1800e-003**	**2.0000e-005**		**7.6700e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix D. Traffic Impact Assessment

Appendices

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April 2018 | Technical Report

CERRITOS ELEMENTARY SCHOOL MULTIPURPOSE FIELD TRAFFIC IMPACT ANALYSIS

Prepared for:

City of Glendale
Contact: Peter Vierheilig, Project Manager
613 East Broadway
Glendale, California 91206
818.548.2000

Prepared by:

PlaceWorks
Contact: Fernando Sotelo, PE, PTP, Senior Associate
3 MacArthur Place, Suite 1100
Santa Ana, California 92707
714.966.9220
info@placeworks.com
www.placeworks.com

GLN-03

PLACEWORKS

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1. Introduction

1.1 PROJECT OVERVIEW

The City of Glendale Community Services and Parks Department (City or Glendale) has partnered with the Glendale Unified School District (GUSD) to develop a multipurpose field with sports field lighting on the campus of Cerritos Elementary School located at 120 E. Cerritos Avenue in the south part of Glendale. Figure 1, *Local Vicinity,* and Figure 2, *Aerial Photograph,* depict the area surrounding the school.

Figure 3, *Site Plan,* shows the proposed project improvements. The proposed field is located on the southern edge of the property abutting a community park use. The proposed project would result in the redevelopment of the existing grass field and paved play area with a joint use multi-purpose field with soccer markings for one large field overlaid with two smaller perpendicular fields, surrounding rubberized surface jogging track, perimeter security fence with privacy screening, seating, storage/maintenance building(s), walkways, landscaping, irrigation, re-grading of the existing paved play area, and sports field lighting. The restroom building at the adjacent Cerritos Park would be demolished and rebuilt larger to accommodate upgraded restrooms and a storage room for sports equipment. The facility will make use of existing street parking and on-site parking. No change in parking would occur. A new fire access driveway would be constructed along S Glendale Avenue and a pedestrian gate would be installed to allow access from Cerritos Park to the project site. The City's use of the proposed field would be from 6:00 p.m. to 10:00 p.m. Monday through Friday, and 8:00 a.m. to 10:00 p.m. on Saturday, Sunday, and holidays. The proposed field lighting is necessary for evening use on both weeknights and weekends.

The Cerritos ES Multi-Purpose Field Project (proposed project) would disturb approximately 1.6 acres – consisting of the existing athletic field – along the southern portion of the Cerritos ES campus. The proposed project would not impact other areas of the campus. The 1.6 acres will be referred to as the "project site." The Cerritos ES campus is rectangularly shaped and bordered by E Cerritos Avenue to the north, San Fernando Road to the south, S Glendale Avenue to the east, and S Brand Boulevard to the west. The project site is currently used by Cerritos ES for physical education purposes and school sports programs. In addition to Cerritos ES uses, outside sporting groups have been individually permitted by Glendale Unified School District (GUSD) to use the practice field on weekends generally between the hours of 8:30 AM and 6:00 p.m. on Saturdays and 8:00 a.m. and 6:00 p.m. on Sundays. The proposed project would not introduce new uses to the project site; rather, the proposed project would allow for the extended use of the project site by outside sporting groups during nighttime hours.

The proposed project would not expand the school's enrollment capacity, but is expected to increase traffic and parking demand around the project site due to new public use and city programming on weekday evenings and weekends. Regional access to the Cerritos ES campus is Interstate 5, approximately 1 mile to the west. Main vehicular access to the Cerritos ES campus is provided along Cerritos Avenue, including the student drop-off/pick-up zone and faculty/visitor parking located along Cerritos Avenue. Limited parking is provided along the perimeter of the campus. Street parking is available on Cerritos Avenue, Brand Boulevard and Glendale Avenue. The proposed project would make use of existing street and on-site parking, and no change in site access or parking would occur.

1.2 METHODOLOGY

This study was prepared in conformance with the Los Angeles County Congestion Management Plan (CMP) Transportation Impact Analysis Guidelines, City of Glendale's General Plan Circulation Element LOS standards, and based on the anticipated level of traffic from full-capacity athletic events at the project site. A memorandum of understanding (MOU or scoping agreement) was submitted to the City of Glendale Public Works Department on May 16, 2017. The MOU included the methodologies that would be used in the project traffic impact analysis, including trip generation estimates, trip distribution, a list of study area intersections to be evaluated, identification of an ambient growth rate and scenarios to be evaluated, criteria to evaluate levels of service, and thresholds of significance. The City of Glendale traffic engineer reviewed the memorandum of understanding and provided comments on November 8, 2017 (see Appendix A). This traffic impact analysis is consistent with the methodologies and assumptions in the MOU.

1.2.1 Intersection LOS

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

The Intersection Capacity Utilization (ICU) method is used to calculate levels of service (LOS) for signalized intersections in the City of Glendale. The ICU signalized intersection methodology presents LOS in terms of volume to capacity ratio.

For unsignalized intersections, the Highway Capacity Manual (HCM) 2010 methodology is used to calculate LOS. The HCM 2010 unsignalized intersection methodology presents LOS in terms of control delay (in seconds per vehicle). Vistro software was used to determine the LOS at the study area intersections.

The intersection LOS analysis uses traffic volumes observed during the peak hour conditions. The peak hours selected for the analysis are the highest volumes that occur in four consecutive 15-minute periods from 4:00 PM to 6:00 PM on weekday evenings, and midday Saturday from 11:00 AM to 2:00 PM.

Table 1 Intersection Level of Service Descriptions

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

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

1.2.2 Parking Analysis

A parking analysis was prepared to review the parking conditions in the vicinity of the school and to estimate the parking impacts from the project. Parking counts were taken at the Cerritos Park parking lot, school parking lot, and along 6 roadway segments on a weekday evening and on a Saturday.

Parking demand was based on published parking generation rates for a soccer complex. To calculate the expected project-related parking demand, the ITE Parking Generation rates for soccer complexes were multiplied by the anticipated number of fields. Further details are provided in the Parking Analysis included in Section 5 of this report.

1.2.3 Thresholds of Significance

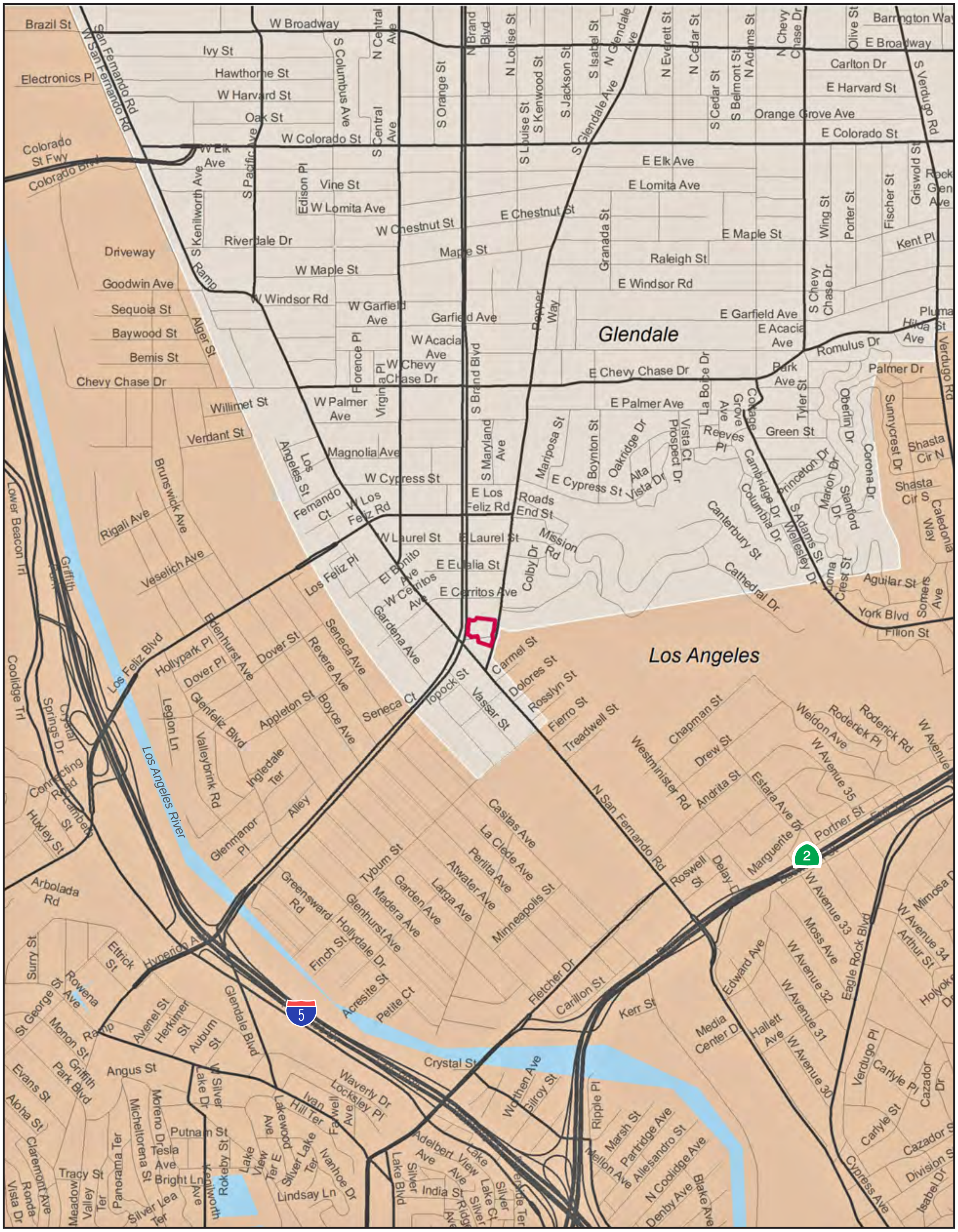
The study area includes intersections under the jurisdictions of the City of Glendale, and the California Department of Transportation (Caltrans).

City of Glendale Intersections

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

In the City of Glendale, impacts at signalized intersections are considered significant if the project-related increase in the volume-to-capacity (V/C) ratio equals or exceeds 0.02 at intersections that have LOS D or worse. For unsignalized intersections, the impact is considered significant if the project-related increase in the delay equals or exceeds 3 seconds at intersections that have LOS D, or worse. For the purpose of this analysis, the same target LOS and thresholds are utilized to evaluate impacts at study intersections for the Saturday midday peak hour.

Figure 1 - Local Vicinity Map



Project Boundary

0 2,000
Scale (Feet)

Source: ESRI, 2018

1. Introduction

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Figure 2 - Aerial Photograph

Project Boundary

0 200
Scale (Feet)

Source: ESRI, 2018

1. Introduction

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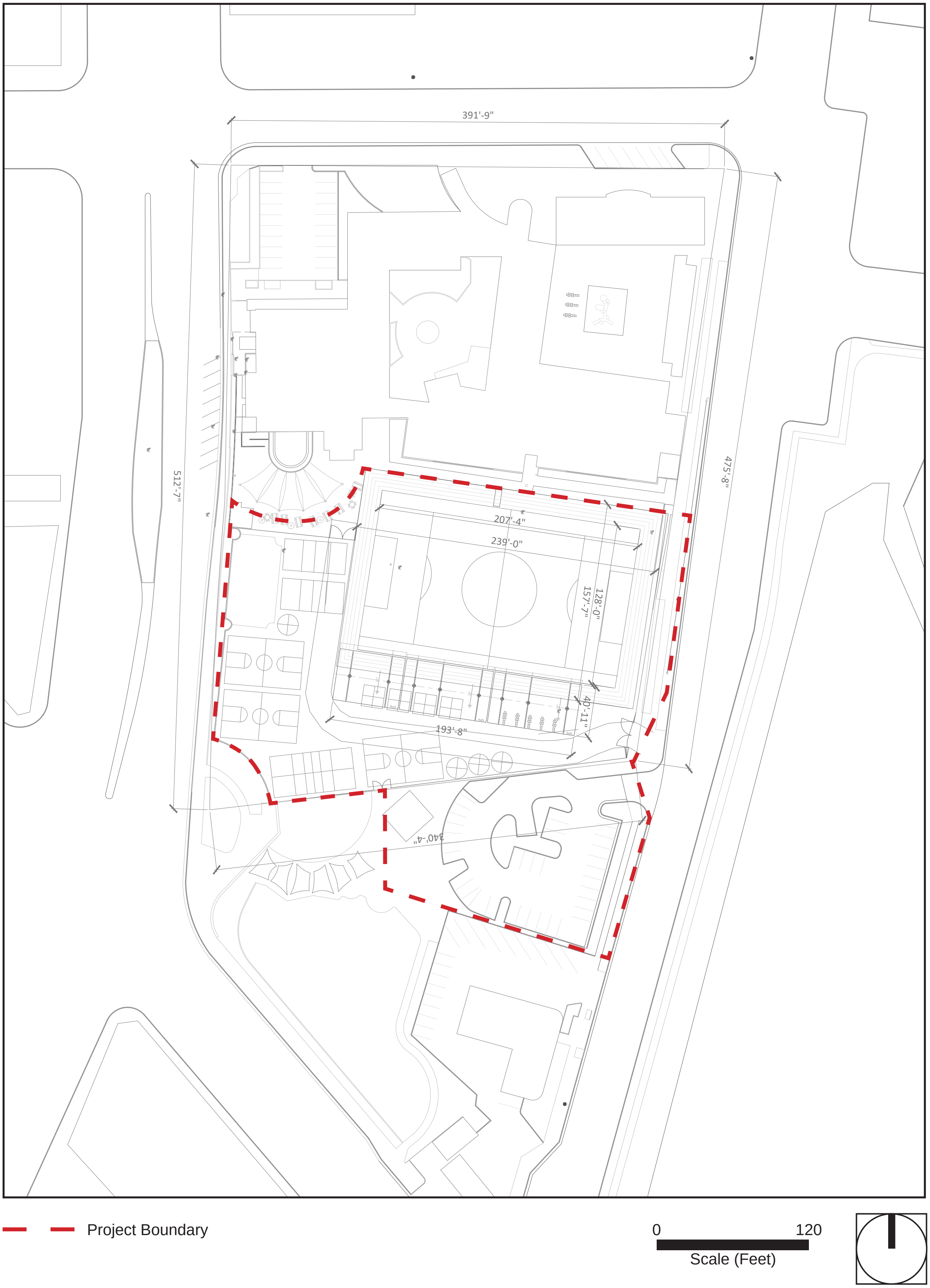
Figure 3 - Site Plan



1. Introduction

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2. Existing Conditions

2.1 STUDY AREA ROADWAY NETWORK

The study-area roadways discussed below are based on the City of Glendale General Plan Circulation Element (1998). Exhibit 2-2 of the Circulation Plan, Street Classifications and Characteristics*,* shows the roadways and classifications in the city. The following describes the surrounding street system based on field observations and according to the roadway functional classifications in the City of Glendale General Plan Circulation Element, shown on Figure 4, *City of Glendale Street Classification Map*.

2.1.1 Surrounding Street System

State Route 134 (SR-134). SR-134, also known as Ventura Freeway is a ten-lane east-west freeway that provides regional access to the project site via the on/off ramps at Monterrey Avenue and Glendale Avenue. SR-134 is a part of the Congestion Management Program (CMP) highway network.

Cerritos Avenue. This east-west roadway has two lanes and borders the project to the north. It is classified as a Minor Arterial roadway in the City's General Plan Circulation Element.

Glendale Avenue. This north-south roadway is a four-lane roadway classified as a Major Arterial. It borders the project to the east.

Brand Boulevard. This is a north-south divided roadway with four lanes north of San Fernando Road and six lanes south of San Fernando Road. It borders the project to the west and is classified as a Major Arterial roadway.

San Fernando Road. This north-south roadway has four lanes in the study area. It is classified as a Major Arterial Roadway that borders the project to the south.

2.1.2 Study Area Intersections

The study area was defined based on the calculated project trip generation and distribution and in consultation with City of Glendale Transportation Engineering Division staff. The following five intersections presented in Figure 5, *Study Area Intersections* are analyzed in this study:

1. Glendale Avenue at San Fernando Road
2. Brand Boulevard at San Fernando Road
3. San Fernando Road at Cerritos Avenue
4. Brand Boulevard at Cerritos Avenue
5. Glendale Avenue at Cerritos Avenue

Figure 5, *Study Area Intersections,* shows the study area intersections and the number of through lanes for roadways for the study area.

2.1.3 Study Area Parking Locations

In addition to the on-site parking lot off Glendale Avenue and the school parking lot off Cerritos Avenue, off-site parking is available on public streets in the vicinity of the school. The parking demand along the following 6 roadway segments are analyzed in this study:

1. San Fernando Road from Brand Boulevard to Glendale Avenue
2. Brand Boulevard from E Eulalia Street to San Fernando Road
3. W Cerritos Avenue from San Fernando Road to Brand Boulevard
4. E Cerritos Avenue from Brand Boulevard to Glendale Avenue
5. S Glendale Avenue from E Eulalia Street to San Fernando Road
6. Carmel Street east of San Fernando Road

Figure 6, *Off-Site Parking Locations,* shows the study area parking locations evaluated in this study.

2.2 EXISTING OPERATIONS

Turn movement volumes for weekday PM peak hour were collected at all the study area intersections. These counts were obtained on Thursday, December 7, 2017. In addition, turn movement volumes for Saturday midday peak hour were collected at all the study area intersections. These counts were obtained on Saturday, December 9, 2017. The turn movement volumes for the study area intersections are provided in Appendix B. Additionally, parking counts were analyzed at the Cerritos Park parking lot, school parking lot, and along all off-site parking locations. Parking counts were taken in 30-minute intervals on Thursday, December 7, from 6 PM to 10 PM, and on Saturday, December 9, between 8 AM to 10 PM. All counts occurred on typical weekdays while the school was in session and outside holidays and major events.

2.2.1 Existing Conditions Intersection Analysis

The weekday PM peak hour intersection operations analysis results for all study area intersections are summarized in Table 2. The Saturday Midday peak hour intersection operations analysis results for all study area intersections are summarized in Table 3. Intersection turn movement volumes and LOS worksheets for existing conditions are included in Appendix C.

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

Intersection	Intersection Control	Acceptable LOS	Weekday PM Peak Hour	
			ICU (V/C) or Average Delay (sec/veh)	LOS
1. Glendale Avenue at San Fernando Road	Signal	E	0.698	B
2. Brand Boulevard at San Fernando Road	Signal	E	0.839	D
3. San Fernando Road at Cerritos Avenue	Signal	E	0.0.507	A
4. Brand Boulevard at Cerritos Avenue	Signal	E	0.552	A
5. Glendale Avenue at Cerritos Avenue	CCS	E	17.8 sec	C

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

Table 3 Existing Intersection Levels of Service, Saturday Midday Peak Hour

Intersection	Intersection Control	Acceptable LOS	Weekday PM Peak Hour	
			ICU (V/C) or Average Delay (sec/veh)	LOS
1. Glendale Avenue at San Fernando Road	Signal	E	0.706	C
2. Brand Boulevard at San Fernando Road	Signal	E	0.880	D
3. San Fernando Road at Cerritos Avenue	Signal	E	0.453	A
4. Brand Boulevard at Cerritos Avenue	Signal	E	0.487	A
5. Glendale Avenue at Cerritos Avenue	CCS	E	18.2 sec	C

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

For all study intersections along major arterials (San Fernando Road, Brand Boulevard, Glendale Avenue), a minimum desired level of service is "E" during afternoon peak hours is acceptable. As shown on Tables 2 and 3, all study intersections currently operate at acceptable LOS during the Weekday PM Peak hour and the Saturday Midday peak hour.

2.2.2 Existing Parking Options Serving the Project Site

Parking supply was determined by reviewing the linear feet of curb at each road assuming 25 feet per vehicle. Driveways and areas where parking is prohibited such as red curbs were not included as parking supply. Parking counts were taken on weekday evenings from 5 to 10 PM in 30-minute intervals and between 8 AM to 10 PM on Saturdays. The parking counts were taken at the on-site parking lot, school parking lot, and along both sides of the previously mentioned off-site parking locations, as shown in Figure 6. The parking survey results are included in Appendix D. The parking counts were adjusted to include expected vehicles for potential American Youth Soccer Organization games that could take place at one or both fields. This analysis distributed 40 parked vehicles throughout the study area at the roadway segments closest to the fields.

Table 4 shows the curbside on-street parking occupancy on weekday and on Saturdays at the hours of lowest occupancy and highest occupancy, while excluding the off-street parking lots at the Cerritos Park and at the

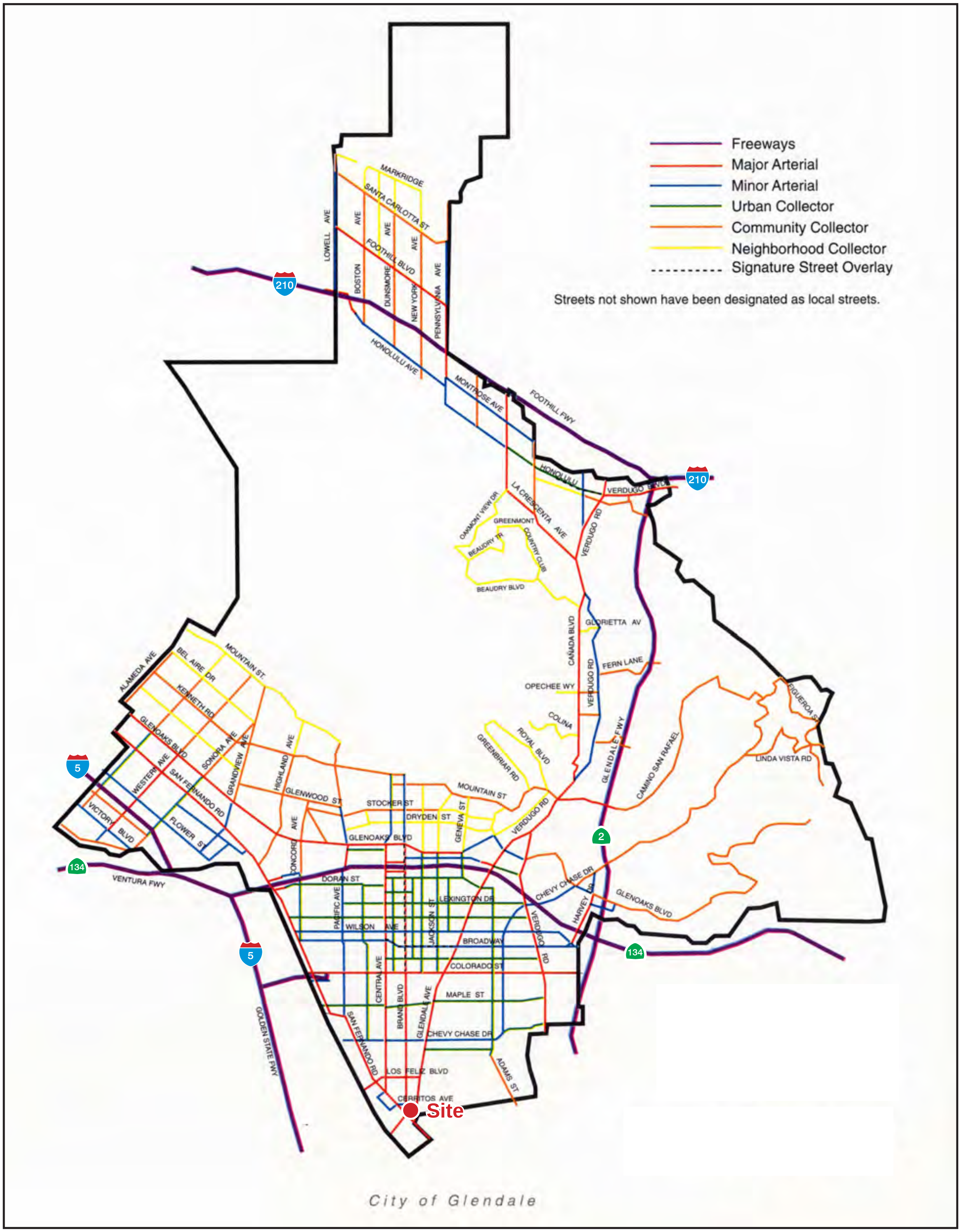
2. Existing Conditions

Cerritos School . On weekdays, the period in which the highest overall occupancy was observed started at 6 PM, and the lowest occupancy period started at 10PM. On a Saturday, the period in which the highest overall occupancy was observed started at 3 PM, and the lowest occupancy period started at 8 AM. As shown on Table 4, the overall on-street parking occupancy ranges from 29 percent to 100 percent. The school lot has plenty of parking available on weekdays after 5PM and on weekends. In addition, there is unused parking available in several public streets in the vicinity of the school.

Table 4 Existing Curbside On-Street Parking Occupancy

			Weekday		Saturday	
	Parking Locations	Parking Supply (spaces)	Highest Occupancy (6 PM)	Lowest Occupancy (10 PM)	Highest Occupancy (3 PM)	Lowest Occupancy (8 AM)
1	San Fernando Rd from Brand Blvd to Glendale Av	9	56%	67%	44%	56%
2	Brand Blvd from E Eulalia St to San Fernando Rd	60	48%	20%	63%	22%
3	W Cerritos Av from San Fernando Rd to Brand Blvd	17	53%	24%	71%	53%
4	E Cerritos Av from Brand Boulevard to Glendale Av	29	24%	14%	66%	10%
5	S Glendale Av from E Eulalia St to San Fernando Rd	22	9%	0%	23%	0%
6	Carmel St east of San Fernando Rd	23	74%	91%	100%	70%
		Overall Occupancy	43%	29%	66%	29%

Figure 4 - City of Glendale Street Classification Map



0 1
Scale (Mile)

Source: City of Glendale Planning & Public Works Divisions

2. Existing Conditions

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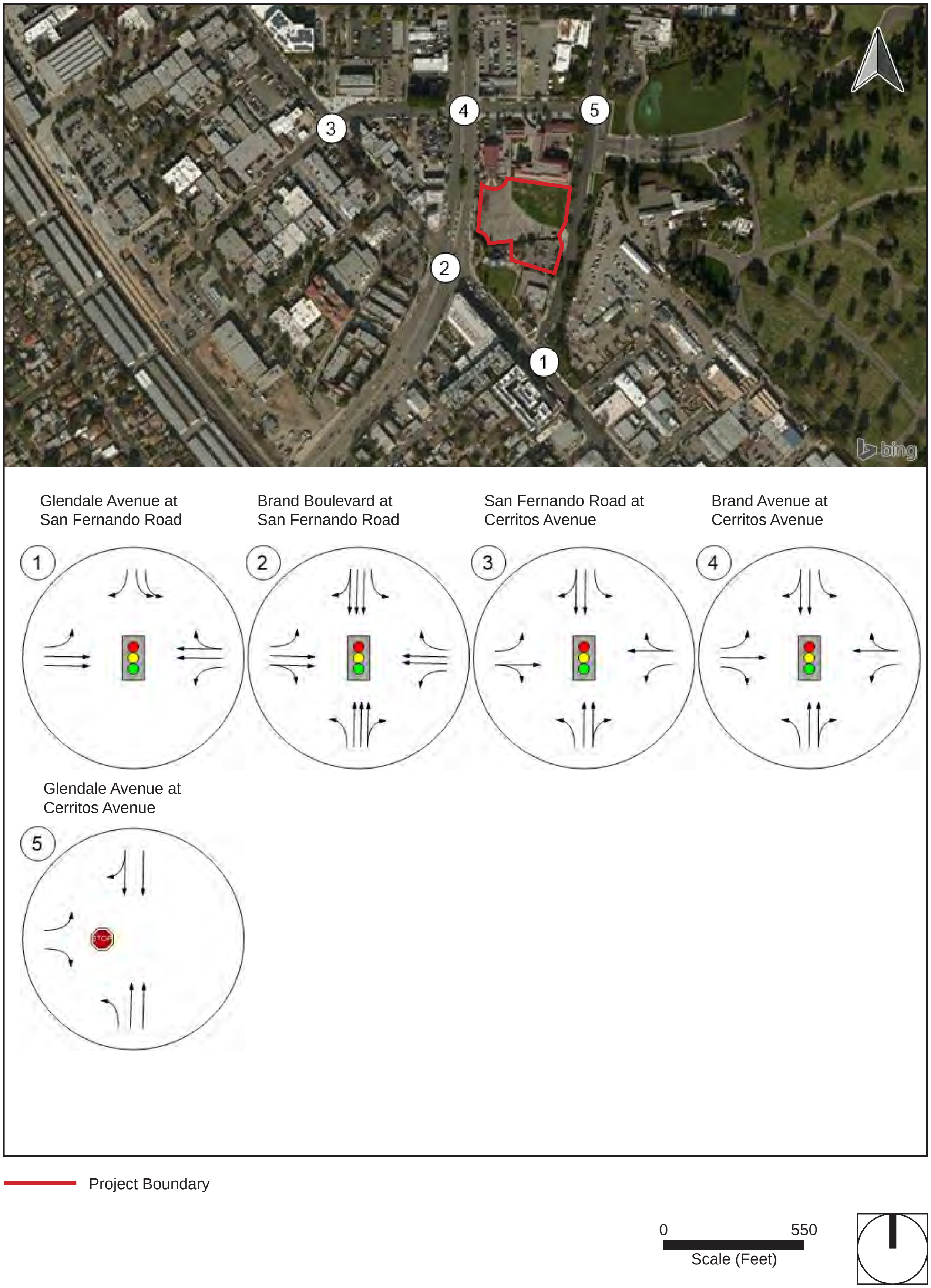
Figure 5 - Study Area Roadway Network and Intersections



2. Existing Conditions

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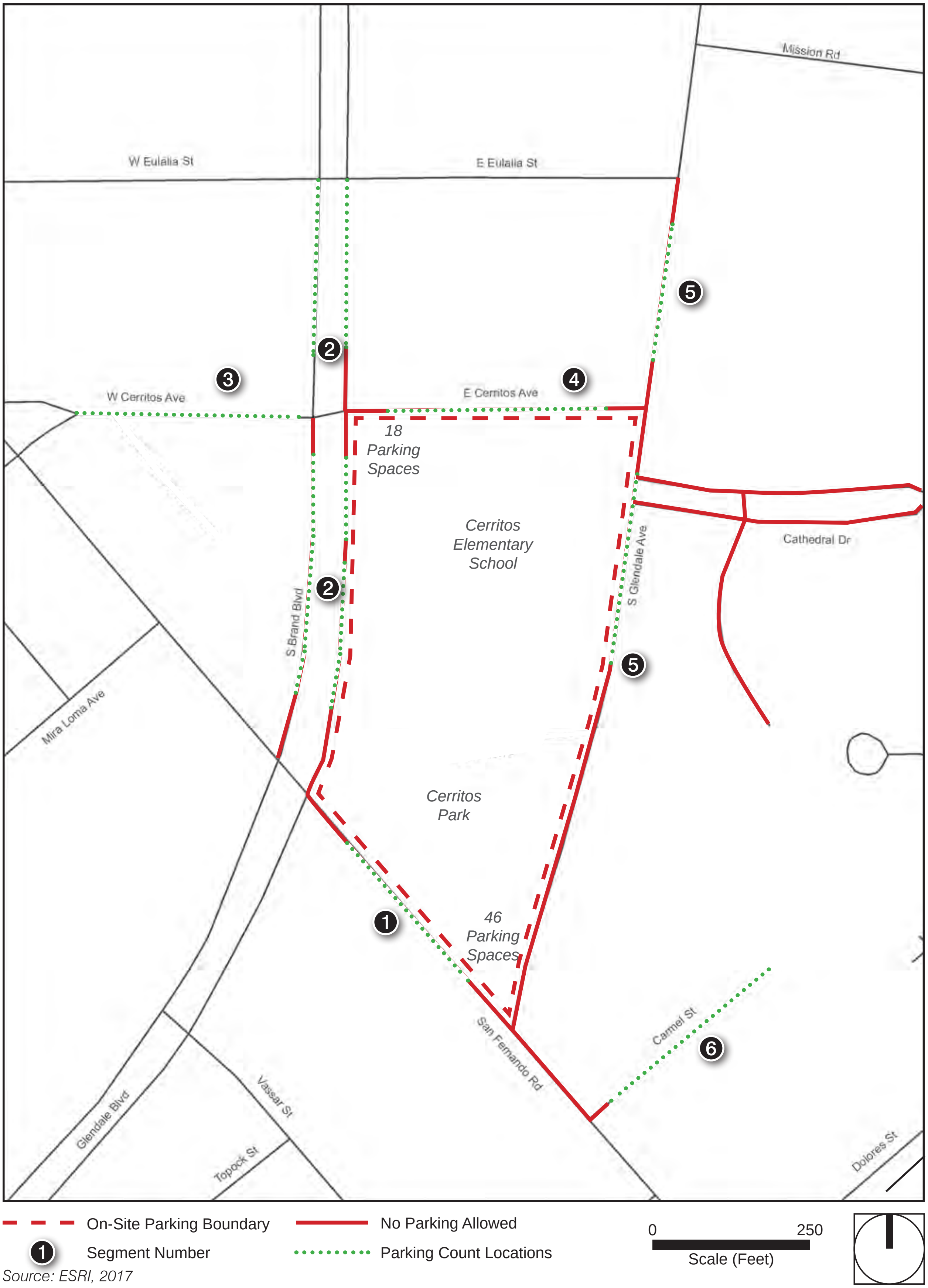
Figure 6 - Off-Site Parking Locations



Source: ESRI, 2017

2. Existing Conditions

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3. Multipurpose Field Traffic Analysis

An analysis of potential traffic impacts are provided for these scenarios:

- Existing
- Existing With Project
- Opening Year Without Project
- Opening Year With Project

The following presents the trip generation and trip distribution from the project, and presents the results of the impact analysis to study intersections and roadway segments.

3.1 TRIP GENERATION

The proposed project would not expand the school's enrollment capacity, but is expected to increase traffic and parking demand around the project site due to new public use and city programming on weekday evenings and weekends. The trip generation rates for soccer fields were obtained from the Institute of Transportation Engineers' (ITE) Trip Generation manual. The ITE Trip Generation manual is the most widely recognized resource for estimating the number of trips generated by a land use or project type. The manual provides peak hour and daily rates on weekdays and weekends under land use code 488, Soccer Complex. Table 5 summarizes the trip generation rates from the ITE manual and presents both the average rates and the high end of the statistical sample for each period.

Table 5 ITE Trip Generation Rates for Soccer Complex

	Weekday							Saturday			
		AM Peak Hour			PM Peak Hour				Peak Hour		
Rate Type	Daily	In	Out	Total	In	Out	Total	Daily	In	Out	Total
Average Rate	71.33	0.64	0.48	1.12	11.86	5.84	17.70	117.43	14.56	15.78	30.34
Highest Rate	90.81	1.07	0.81	1.88	16.67	8.20	24.88	117.43	16.42	17.78	34.20

Notes: Trip Generation rates per field.
Trip generation rates are based on the ITE Trip Generation Manual (9th edition) for the Soccer Complex Land Use (ITE Code 488).
Peak hour of the generator is not defined in the ITE Manual. For the purpose of this analysis it is assumed to overlap with the traffic peak hour on weekends during midday.

To calculate the expected project-related trip generation, the rates shown above are multiplied by the anticipated number of fields. The proposed project includes development of two fields, and estimated project-related trips are shown in Table 6. Using the average rates, the project would generate 2 trips in the AM peak hour, 36 trips in the PM peak hour, and 61 trips in on weekend peak hours. Using the highest rates,

3. Multipurpose Field Traffic Analysis

the project would generate 4 trips in the AM peak hour, 49 trips in the PM peak hour, and 69 trips in on weekend peak hours. The weekend peak hour normally occurs between 11 AM to 2 PM. As shown in Table 6, the project would generate a negligible number of trips in the weekday AM peak hour. In addition, public use of the fields would not be allowed on weekdays in the AM peak hour. Therefore, the AM peak hour traffic will not be further evaluated in this analysis.

Table 6 ITE Trip Generation Estimates for Soccer Complex

	Weekday							Saturday			
		AM Peak Hour			PM Peak Hour				Peak Hour of Generator		
Rate Type	Daily	In	Out	Total	In	Out	Total	Daily	In	Out	Total
Average Rate	143	1	1	2	24	12	36	235	29	32	61
Highest Rate	182	2	2	4	33	16	49	235	33	36	69

Trip generation rates for peak hour of adjacent streets, based on Soccer Complex Land Use (ITE Code 488) per the ITE Trip Generation Manual, 9th edition.

The sample size to support these rates is relatively small—less than 10 samples. Therefore, PlaceWorks also reviewed the proposed use of the fields to calculate vehicular trips based on estimates for players, spectators, and supporting personnel (coaches, referees, etc.). PlaceWorks consulted with the City of Glendale Parks and Recreation Department to obtain anticipated usage estimates. To verify the trip generation based on ITE trip rates, trip generation was also calculated based on usage estimates assuming a number of players, coaches, and referees at the soccer fields for adult soccer and youth soccer. The estimates were provided for both adult and youth because of different ridership characteristics and because they have different team sizes. Table 7 shows the trip generation rates per player/coach/referee, and Table 8 shows the estimated project trip generation for the proposed 2 fields based on usage estimates. It should be noted that under the usage estimate methodology a 20 percent trip reduction was applied to account for carpool and walk/bike/transit modes. The project trip generation based on usage estimates is highest for youth games. As shown on Table 8, the highest trip generation would occur at 2 youth games occurring concurrently. This would result in 40 peak hour trips in the weekday PM peak hour and 78 peak hour trips in the weekend.

Table 7 Trip Generation Rates Based on Usage Estimates

		PM Peak Hour			Weekend Peak Hour		
Land Use	Variable type	In	Out	Total	In	Out	Total
Youth Game	Youth Players	1	0.5	1.5	1.5	1.5	3
	Coach/Referee	1	0	1	1	1	2
Adult Game	Players	1	0	1	1	1	2
	Coach/Referee	1	0	1	1	1	2

1 Assumes 50% of parents drop off children and leave the soccer fields.
2 Assumes all adults driving own cars and parking.

Table 8 Project Trip Generation Based on Usage Estimates

				Trip Generation					
				PM Peak Hour			Weekend Peak Hour		
Land Use	Variable type	Players/ Referee/ Coaches	Fields	In	Out	Total	In	Out	Total
Youth Game	Youth Players	16	2	26	13	39	38	38	76
	Referee	1	1	1	0	1	1	1	2
	TOTAL	17	3	27	13	40	39	39	78
Adult Game	Players	22	2	35	0	35	35	35	70
	Referees	3	1	2	0	2	2	2	4
	TOTAL	25	3	37	0	37	37	37	74

1 For Youth Games it is assumed that each team has 8 players. Each coach is also a parent that has a child in the team.
2 For Adult Games it is assumed that each team has 11 players.
3 Referees are needed only in one field, as one of the fields is for practices only.

In conclusion, the ITE Trip Rates using the high range provide a reasonable and technically defensible estimate to calculate trip generation for the project. Therefore, **for the purpose of this analysis, the project would generate 4 trips in the AM peak hour, 49 trips in the PM peak hour, and 69 trips in weekend peak hours.**

3.2 TRIP DISTRIBUTION AND ASSIGNMENT

Traffic distribution determines the directional orientation of project traffic. The trip distribution map are presented in Figure 7. Trip distribution patterns are influenced by the location of the project, type and intensity of proposed land uses, the circulation network, and location of employment and commercial centers. Traffic assignment is the determination of specific trip routes given the previously developed traffic distribution pattern. The project's trip distribution is based on a review of the study area arterial roadways and freeways, a review of land uses in the area, the traffic patterns, locations of residences, and traffic counts taken in the project area.

The trip distribution percentages are applied to the project trip generation to determine the traffic volumes forecast to be added at each intersection (i.e., trip assignment).

3.3 EXISTING WITH PROJECT TRAFFIC CONDITIONS

3.3.1 Intersection Level of Service

To assess Existing Year With Project traffic conditions, project traffic is added to the existing traffic levels. LOS for these conditions are summarized in Tables 9 and 10.

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

Intersection	Intersection Control	Acceptable LOS	Weekday PM Peak Hour	
			ICU (V/C) or Average Delay (sec/veh)	LOS
1. Glendale Avenue at San Fernando Road	Signal	E	0.709	C
2. Brand Boulevard at San Fernando Road	Signal	E	0.843	D
3. San Fernando Road at Cerritos Avenue	Signal	E	0.508	A
4. Brand Boulevard at Cerritos Avenue	Signal	E	0.553	A
5. Glendale Avenue at Cerritos Avenue	CCS	E	18.2 sec	C

Notes: CSS = Cross-Street Stop.
Bold show intersections operating at unacceptable LOS.
Intersection volumes, Delay and LOS worksheets are included in Appendix E.

Table 10 Existing With Project Intersection LOS, Saturday Midday Peak Hour

Intersection	Intersection Control	Acceptable LOS	Saturday Midday Peak Hour	
			ICU (V/C) or Average Delay (sec/veh)	LOS
1. Glendale Avenue at San Fernando Road	Signal	E	0.718	C
2. Brand Boulevard at San Fernando Road	Signal	E	0.887	D
3. San Fernando Road at Cerritos Avenue	Signal	E	0.456	A
4. Brand Boulevard at Cerritos Avenue	Signal	E	0.488	A
5. Glendale Avenue at Cerritos Avenue	CCS	E	18.7sec	C

Notes: CSS = Cross-Street Stop.
Bold show intersections operating at unacceptable LOS.
Intersection volumes, Delay and LOS worksheets are included in Appendix E.

As shown in Tables 9and 10, all study intersections operate at acceptable LOS during the Weekday PM Peak hour and the Saturday Midday peak hour for the Existing With Project traffic conditions.

3.4 FUTURE TRAFFIC CONDITIONS

The Los Angeles County Guidelines for CMP Transportation Impact Analysis includes ambient growth rates for the City of Glendale in 5-year increments. To estimate future traffic conditions, opening year scenarios are based on the year 2020 traffic growth factor of 1.027 percent over a 5-year period. To conservatively estimate future year buildout conditions, this analysis used a total ambient growth of 3 percent over the 3-year period from 2017 to 2020.

Cumulative traffic is the traffic generated by the development of future projects that have been approved but not yet built and/or for which development applications have been filed and are under consideration by the City. Five cumulative projects in the vicinity of the school were provided in the City of Glendale's Current Projects Map online tool (Glendale, CA Planning Division, 2017) and were approved by the City of Glendale Planning Department. The list of cumulative projects and their associated trip generation are included in Appendix F. For these cumulative projects, trip generation values were extracted from the ITE Trip Generation Manual. Based on a review of the circulation system, the trip generation, location, and land use type, the cumulative projects shown on Figure 8, *Cumulative Developments Location Map,* would have the potential for directly adding measurable traffic to the study area street system. The cumulative development projects assumed in this traffic analysis are estimated to generate 613 average daily trips (ADT) on weekdays and 588 ADT on weekends, 57 trips during the weekday PM peak hour, and 50 trips during the midday weekend peak hour.

This traffic impact analysis assumes that all of the cumulative projects are developed and operational at the buildout of the proposed project. This is the most conservative, worst-case approach, since it is possible that not all of these projects will be operational when the proposed project begins operations. In addition, impacts for these cumulative projects would likely be subject to mitigation measures, which could reduce potential impacts. Under this analysis, however, those future mitigation measures are not considered.

3.4.1 Opening Year Without Project Traffic Conditions

Intersection Level of Service

To assess Opening Year No Project traffic conditions, existing traffic is combined with ambient growth and cumulative traffic. The intersection operations for the No Project traffic conditions are shown in Tables 11 and 12 Intersection volumes, Delay, and LOS worksheets are included in Appendix G. All intersections are forecast to operate at acceptable LOS under Opening Year Without Project conditions on Weekday PM and Saturday Midday peak hours.

Table 11 Opening Year Without Project Intersection LOS, Weekday PM Peak Hour

Intersection	Intersection Control	Acceptable LOS	Weekday PM Peak Hour ICU (V/C) or Average Delay (sec/veh)	Weekday PM Peak Hour LOS
1. Glendale Avenue at San Fernando Road	Signal	E	0.718	C
2. Brand Boulevard at San Fernando Road	Signal	E	0.867	D
3. San Fernando Road at Cerritos Avenue	Signal	E	0.520	A
4. Brand Boulevard at Cerritos Avenue	Signal	E	0.572	A
5. Glendale Avenue at Cerritos Avenue	CCS	E	19.3 sec	D

Notes: CSS = Cross-Street Stop.
Bold show intersections operating at unacceptable LOS.
Intersection volumes, Delay and LOS worksheets are included in Appendix G.

Table 12 Opening Year Without Project Intersection LOS, Saturday Midday Peak Hour

Intersection	Intersection Control	Acceptable LOS	Saturday Midday Peak Hour ICU (V/C) or Average Delay (sec/veh)	Saturday Midday Peak Hour LOS
1. Glendale Avenue at San Fernando Road	Signal	E	0.726	C
2. Brand Boulevard at San Fernando Road	Signal	E	0.907	E
3. San Fernando Road at Cerritos Avenue	Signal	E	0.465	A
4. Brand Boulevard at Cerritos Avenue	Signal	E	0.501	A
5. Glendale Avenue at Cerritos Avenue	CCS	E	19.8 sec	D

Notes: CSS = Cross-Street Stop.
Bold show intersections operating at unacceptable LOS.
Intersection volumes, Delay and LOS worksheets are included in Appendix G.

3.4.2 Opening Year With Project Traffic Conditions

To assess Opening Year With Project traffic conditions, existing traffic is combined with ambient growth, cumulative, and project traffic.

Intersection Level of Service

The intersection operations for the With Project traffic conditions are shown in Tables 13 and 14. Under With Project conditions, all intersections would operate at acceptable LOS.

Table 13 Opening Year With Project Intersection LOS, Weekday PM Peak Hour

Intersection	Intersection Control	Acceptable LOS	Weekday PM Peak Hour	
			ICU (V/C) or Average Delay (sec/veh)	LOS
1. Glendale Avenue at San Fernando Road	Signal	E	0.728	C
2. Brand Boulevard at San Fernando Road	Signal	E	0.871	D
3. San Fernando Road at Cerritos Avenue	Signal	E	0.521	A
4. Brand Boulevard at Cerritos Avenue	Signal	E	0.573	A
5. Glendale Avenue at Cerritos Avenue	CCS	E	19.8 sec	C

Notes: CSS = Cross-Street Stop.
Bold show intersections operating at unacceptable LOS.
Intersection volumes, Delay and LOS worksheets are included in Appendix H.

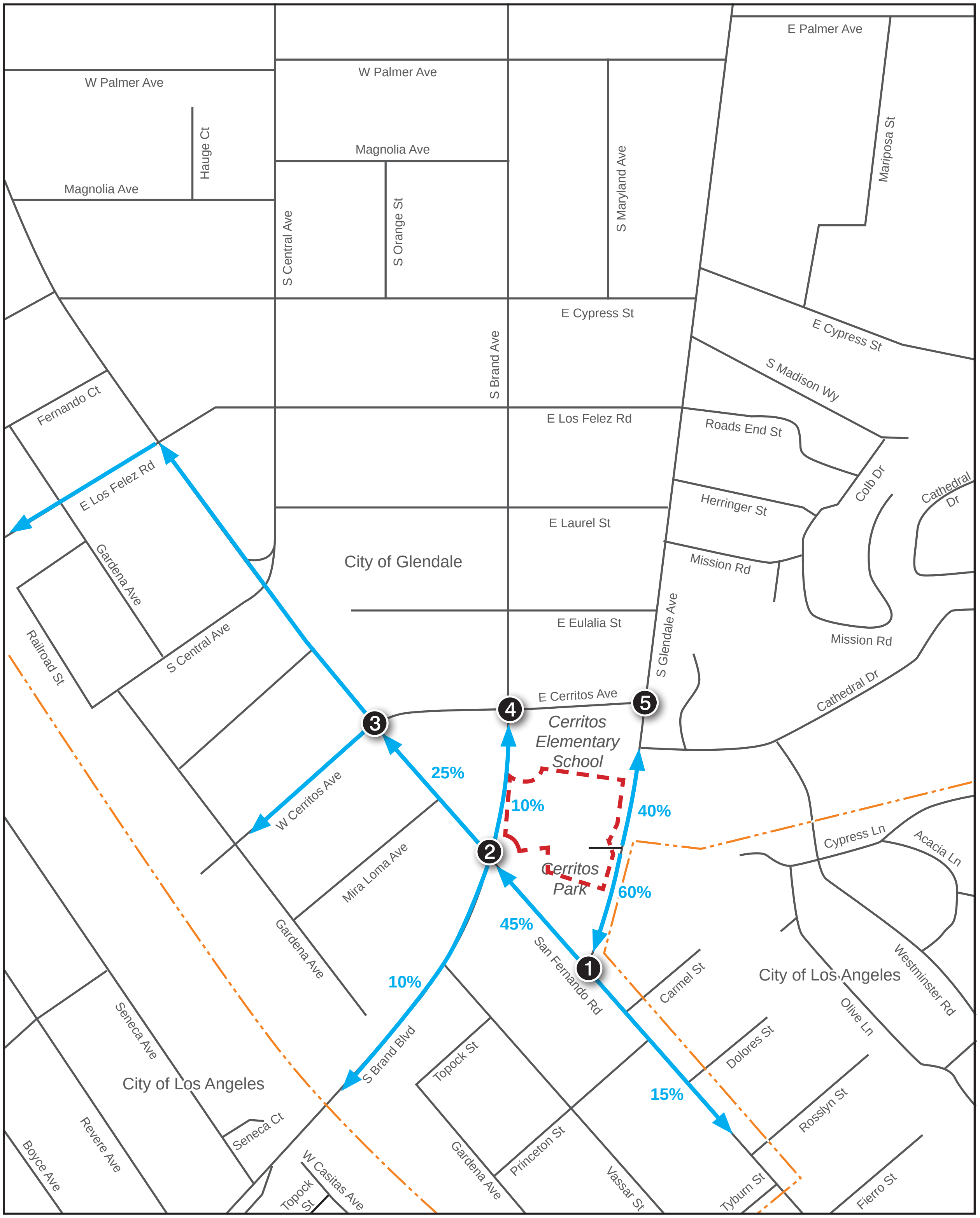
Table 14 Opening Year With Project Intersection LOS, Saturday Midday Peak Hour

Intersection	Intersection Control	Acceptable LOS	Saturday Midday Peak Hour	
			ICU (V/C) or Average Delay (sec/veh)	LOS
1. Glendale Avenue at San Fernando Road	Signal	E	0.738	C
2. Brand Boulevard at San Fernando Road	Signal	E	0.914	E
3. San Fernando Road at Cerritos Avenue	Signal	E	0.468	A
4. Brand Boulevard at Cerritos Avenue	Signal	E	0.502	A
5. Glendale Avenue at Cerritos Avenue	CCS	E	20.4 sec	C

Notes: CSS = Cross-Street Stop.
Bold show intersections operating at unacceptable LOS.
Intersection volumes, Delay and LOS worksheets are included in Appendix H.

In summary, under the proposed project, traffic related to stadium events would not cause any intersections to deteriorate to an unacceptable LOS during the Weekday PM peak hour or the Saturday midday peak hour.

Figure 7 - Project Trip Distribution



Project Boundary
City Boundary
Study Intersections (5)
Route from Project
XX% % from Project

0 500
Scale (Feet)

Source: ESRI, 2018

3. Multipurpose Field Traffic Analysis

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Figure 8 - Cumulative Developments Location Map

Project Boundary

1. 1821 S. Brand Ave
2. 712 S. Louise St
3. 611 E. Acacia Ave
4. 722 E. Acacia Ave
5. 913 S. Adams St

0 1,000
Scale (Feet)

Source: ESRI, 2018

3. Multipurpose Field Traffic Analysis

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4. Nonmotorized Travel

There are no market bicycle lanes in the study area. All roads in the vicinity of the school have paved sidewalks on both sides of the street. In addition, yellow crosswalks are painted on all major intersections in the study area including Brand Avenue at Cerritos Avenue, Brand Avenue at San Fernando Road, Glendale Avenue at Cerritos Avenue. Signalized intersections include actuated pedestrian signal heads. The existing sidewalk and crosswalks would provide adequate pedestrian travel in the area for accessing the site on foot or parking on public streets and walking to the school.

Bus stops are located on Glendale Avenue, Brand Avenue, and on San Fernando Road. The bus stops are served by Metro's routes 90, 91, 92, 94, 603 and 794.

4. Nonmotorized Travel

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5. Parking Analysis

5.1 PARKING GENERATION

Parking demand for the proposed project is based on ITE's Parking Generation manual for a "soccer complex" (ITE land use code 488), as shown in Table 15.

Table 15 Parking Demand Rates for Soccer Complex

Weekday Peak Hour	Saturday Peak Hour
38.3	58.8

Parking Demand rates based on the ITE Parking Generation Manual 4th Edition for Soccer Complex Land Use (ITE Code 488) per.

To calculate the expected project-related parking demand, the rates shown above are multiplied by the anticipated number of fields, which is two. The peak parking demand for the proposed two fields would be 77 during the weekday and 118 on Saturday.

5.2 PROJECT-RELATED PARKING IMPACTS

The proposed project will increase parking demand around the project vicinity during use of the multipurpose field for nonschool use on weekdays after 5PM and on weekends. There are parking spots available at the Cerritos Park parking lot and school parking lot, as well as off-site along the public streets. Table 16 shows the anticipated parking demand during the weekday PM peak hour and the Saturday peak hour. Parking counts were conducted along the roadways mentioned in Section 2.2.4.

Table 16 presents a worst-case scenario for a weekday and a weekend, where the peak parking demand for the project would coincide with the least amount of parking supply that was observed at any time during the field surveys at the school lot and along public streets. As shown in Table 16, on weekdays there is expected to be approximately 49 available spaces at the school lot and an additional 91 curbside spaces on public streets. The available supply of 140 spaces in the study area will be able to absorb the anticipated parking demand of 77 spaces. On weekends, there is expected to be approximately 55 available spaces at the school lot and an additional 54 curbside spaces on public streets. The available supply of 109 spaces in the study area will be able to absorb the anticipated parking demand of 108 spaces.

Therefore, the parking demand from the project can be absorbed by the available parking supply at the school lot and on public streets and will not cause an impact to the area from a parking standpoint.

5. Parking Analysis

Table 16 Parking Demand in Terms of Available Parking

	Weekday Peak Hour	Saturday Peak Hour
Parking Demand Estimate	77	108
Available On-site Parking	49	55
Available Off-site Parking	91	54
Total Available Parking	140	109
Available minus Demand	63	1

6. Conclusion

6.1 TRAFFIC IMPACTS

The City's General Plan Circulation Element has LOS policies to maintain acceptable operations during weekday peak hours. On all analyzed study area intersection and study area roadway segments, the proposed project traffic would not degrade the operation of the circulation system on weekdays during the weekday PM or Saturday midday peak hours. The City's LOS policies try to maintain the continuous performance of the circulation system and to work toward the mobility goals in the general plan. The level of congestion that is anticipated to occur prior to a full-capacity event at the proposed field would not affect the typical weekday commuter peak hours or weekend traffic. Opening Year With Project traffic conditions will operate well within the designed capacity for all analyzed study area intersection and study area roadway segments. All intersections would continue to operate at acceptable LOS without, and with the project, no substantial increases in delay would occur. The proposed project will not degrade existing traffic conditions, and is therefore impacts are considered less than significant.

6.2 PARKING IMPACTS

The proposed project will increase parking demand around the project vicinity during use of the multipurpose field for non-school use on weekdays after 5 PM and on weekends. There are parking spots available at the school parking lot off Monterey Road and off-site along the public streets. On weekdays, the available supply of 140 spaces in the study area will be able to absorb the anticipated parking demand of 77 spaces. On weekends, there is expected to be approximately 55 available spaces at the school lot and an additional 54 curbside spaces on public streets. The available supply of 109 spaces in the study area will be able to absorb the anticipated parking demand of 108 spaces. The parking demand from the project can be absorbed by the available parking supply at the school lot and on public streets, and impacts would be less than significant.

6. Conclusion

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7. References

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7. References

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Appendix A. Memorandum of Understanding

Appendices

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May 16, 2017

City of Glendale Public Works Department
Pastor Casanova
613 East Broadway, Room 120
Glendale, CA 91206
pcasanova@glendaleca.gov

Subject: Memorandum of Understanding (MOU) for the Traffic Impact Analysis for the Multi-Purpose Field Development at Cerritos Elementary School

Dear Mr. Casanova:

PlaceWorks is preparing a traffic study and processing CEQA environmental documents for the development of a multi-purpose field with sports field lighting on the campus of Cerritos Elementary School, at 120 E. Cerritos Avenue in the City of Glendale. The City has determined that a Mitigated Negative Declaration (MND) will be required to analyze project impacts on the physical environment, including a Traffic and Parking Study. This memorandum of understanding (MOU) describes the project and outlines the proposed methodologies and basic assumptions for the traffic and parking impact analysis for the project. This has been prepared for The City of Glendale for review and comment to ensure that the study uses appropriate assumptions to evaluate potential traffic and parking impacts from the project. The MOU includes a description of the project, trip generation estimates for the project, trip distribution, a list of study area intersections to be evaluated, and identification of an ambient growth rate, scenarios to be evaluated, criteria to evaluate levels of service and to determine thresholds of significance. In addition, the proposed parking survey and parking study area are included in this memo.

Project Description

The project includes the development of an artificial turf multi-purpose field on the campus of Wilson Middle School. The field will include soccer markings for one large field, as well as markings for two perpendicular smaller fields. In addition to the development of the field, proposed amenities include a surrounding rubberized surface jogging track, sports field lighting, a security fence, seating, storage/maintenance building(s), walkways, re-grading of the existing play yard surface, and an expansion of the existing restroom at Cerritos Park. The school playing field areas would remain "open" for public use and for city programming. Cerritos Elementary School would access the field during school hours, and the city would access the field during the hours of 6 p.m. to 10 p.m. Monday through Friday, and 8 a.m. to 10 p.m. Saturday and Sunday.

The Cerritos Elementary School is bordered to the east by Glendale Avenue, to the north by Cerritos Avenue, to the west by Brand Boulevard and to the south by Cerritos Park. The facility will make use of existing street and on-site parking. Primary site access would be the main school parking lot on the northwest corner of the school site; curbside parking is allowed on the roadways in the vicinity of the school including Cerritos Avenue, Glendale Avenue and Brand Boulevard.

Trip Generation and Distribution

The proposed project would not expand the school's enrollment capacity, but is expected to increase traffic and parking demand around the project site due to new public use and city programming on weekday evenings and weekends.

The trip generation rates for soccer fields were obtained from ITE's Trip Generation Manual. The manual provides peak hour and daily rates on weekdays and weekends under land use code 488, Soccer Complex.

Table 1 summarizes the trip generation rates obtained from the ITE Trip Generation Manual, and presents both the average rates and the high end of the statistical sample for each period.

Table 1 ITE Trip Generation Rates For Soccer Complex

Rate Type	Weekday							Saturday			
	Daily	AM Peak Hour			PM Peak Hour			Daily	Peak Hour		
		In	Out	Total	In	Out	Total		In	Out	Total
Average Rate	71.33	0.64	0.48	1.12	11.86	5.84	17.70	117.43	14.56	15.78	30.34
Highest Rate	90.81	1.10	0.81	1.88	16.67	8.20	24.88	117.43	16.42	17.78	34.20

1 Trip Generation rates per field.
2 Trip generation rates are based on the ITE Trip Generation Manual 9th Edition for the Soccer Complex Land Use (ITE Code 488).
3 Peak hour of the generator is not defined in the ITE Manual. For the purpose of this analysis it is assumed to overlap with the traffic peak hour on weekends during midday.

To calculate the expected project-related trip generation, the rates shown above are to be multiplied by the anticipated number of fields. The proposed project includes the development of two fields; estimated project-related trips are shown in Table 2. Utilizing the average rates, the project would generate 2 trips in the weekday AM peak hour, 36 trips in the weekday PM peak hour, and 61 trips in on weekend peak hours. As shown on Table 2, based on ITE's Trip Generation Manual rates using the highest rates, the project would generate 4 trips in the weekday AM peak hour, 49 trips in the weekday PM peak hour and 69 trips in on weekend peak hours. The weekend peak hour normally occurs between 11 AM to 2 PM. As shown in Table 2, the project would generate negligible trips in the weekday AM peak hour. In addition, public use of the fields would not be allowed on weekdays in the AM peak hour. Therefore, AM peak hour traffic will not be further evaluated in this analysis.

Table 2 Project Trip Generation, ITE Rates

Rate Type	Weekday							Saturday			
	Daily	AM Peak Hour			PM Peak Hour			Daily	Peak Hour of Generator		
		In	Out	Total	In	Out	Total		In	Out	Total
Average Rate	143	1	1	2	24	12	36	235	29	32	61
Highest Rate	182	2	2	4	33	16	49	235	33	36	69

Trip generation rates for peak hour of adjacent streets, based on Soccer Complex Land Use (ITE Code 488) per the ITE Trip Generation Manual 9th Edition.

The sample size to support these rates is relatively small with less than 10 samples. To verify the trip generation based on ITE trip rates, we will also review the proposed use of the fields to calculate vehicular trips based on estimates for players, spectators and supporting personnel (coaches, referees, etc.). PlaceWorks consulted with the City of Glendale Parks and Recreation Department to obtain anticipated usage estimates. The estimates were provided for both adult and youth because of different ridership characteristics and different team sizes. Table 3 shows the trip generation rates per player/coach/referee and Table 4 shows the project trip generation for the proposed 2 fields based on usage estimates. It shall be noted that a 20% trip reduction was applied to account for carpool and walk/bike/transit modes. The project trip generation based on usage estimates is highest for youth games. As shown on Table 4, the highest trip generation would occur at 2 youth games occurring concurrently. This would result in 40 peak hour trips in the weekday PM peak hour and 78 peak hour trips in the weekend.

Table 3 Trip Generation Rates Based on Usage Estimates

Land Use	Variable type	PM Peak Hour			Weekend Peak Hour		
		In	Out	Total	In	Out	Total
Youth Game	Youth Players	1	0.5	1.5	1.5	1.5	3
	Coach/Referee	1	0	1	1	1	2
Adult Game	Players	1	0	1	1	1	2
	Coach/Referee	1	0	1	1	1	2

1 Assumes 50% of parents drop-off children and leave the soccer fields.

2 Assumes all adults driving own cars and parking.

Table 4 Project Trip Generation Based on Usage Estimates

Land Use	Variable type	Players/ Referee/ Coaches	Fields	Trip Generation					
				PM Peak Hour			Weekend Peak Hour		
				In	Out	Total	In	Out	Total
Youth Game	Youth Players	16	2	26	13	39	38	38	76
	Referee	1	1	1	0	1	1	1	2
	TOTAL	17	3	27	13	40	39	39	78
Adult Game	Players	22	2	35	0	35	35	35	70
	Referees	3	1	2	0	2	2	2	4
	TOTAL	25	3	37	0	37	37	37	74

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

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

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

In conclusion, the ITE Trip Rates using the high range provide a reasonable and technically defensible estimate to calculate trip generation for the project. Therefore, for the purpose of this analysis, the project would generate 4 trips in the AM peak hour, 49 trips in the PM peak hour and 69 trips in on weekend peak hours.

Study Area Intersections, Roadways and Scenarios

Based on the calculated project trip generation and distribution, the following intersections will be analyzed during weekday PM peak hours and Saturday midday (11 AM to 2 PM):

1. Glendale Avenue at San Fernando Road
2. Brand Boulevard at San Fernando Road
3. Brand Boulevard at Cerritos Avenue
4. San Fernando Road at Cerritos Avenue

Figure 1 shows the estimated trip distribution around the project study area and the intersection study locations. The trip distribution is based on a review of the study area circulation network, city boundaries, the existing sports fields utilized for the City's Park and Recreation Programs, and a review of residential land uses in the area.

Traffic Study Scenarios

The traffic study will analyze multiple scenarios based on the anticipated project buildout. The following analysis scenarios will be provided:

- Existing Conditions
- Existing Conditions with Project
- Opening Year with Cumulative Developments without Project
- Opening Year with Cumulative Developments with Project

The Los Angeles County Guidelines for CMP Transportation Impact Analysis includes ambient growth rates for the City of Glendale in 5-year increments. To estimate future traffic conditions, opening year scenarios will use the year 2020 traffic growth rate factor of 1.027%. A list of cumulative projects to be fully operational by project opening year, as provided by the city, will also be included to the background traffic conditions. Trip generation and trip distribution for the cumulative developments will be estimated for inclusion in the background traffic conditions at project opening year.

LOS Criteria and Threshold of Significance

The 2010 Congestion Management Plan (CMP) for Los Angeles County requires use of the Intersection Capacity Utilization (ICU) method to calculate levels of service (LOS) for signalized intersections. The Highway Capacity Manual (HCM) 2010 methodology will be used to calculate LOS at unsignalized intersections.

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

Parking

A parking analysis will be prepared to estimate the project-related parking impacts in the vicinity of the school. Parking counts will be taken on a weekday evening from 6 to 10 PM in 30 minute intervals and between 10 AM to 12PM on a Saturday. Many of the roadways surrounding the project site do not allow street parking, as shown in Figure 2 (highlighted in yellow). Many of the roadways around the project site that do allow street parking are time-restricted. Appropriate parking locations around the project site will be documented in the parking analysis, based on the associated parking demand estimates shown below.

Parking demand will be based on ITE's Parking Generation manual for a "soccer complex" (ITE land use code 488), as shown in Table 5.

Table 5 Parking Demand Rates for Soccer Complex

Weekday Peak Hour	Saturday Peak Hour
38.3	58.8

Parking Demand based on the average rates for the Soccer Complex Land Use (ITE Code 488) per the ITE Parking Generation Manual 4th Edition.

To calculate the expected project-related parking demand, the rates shown above are to be multiplied by the anticipated number of fields. The calculated parking demand is summarized in Table 6.

Table 6 Parking Demand Estimates for Soccer Complex

Weekday Peak Hour	Saturday Peak Hour
77	118
Parking Demand based on the average rates Soccer Complex Land Use (ITE Code 488) per the ITE Parking Generation Manual 4th Edition.	

Please review the following assumptions and let us know if we can schedule traffic and parking counts as proposed in this MOU. Or feel free to call if you have any questions or would like to discuss.

Respectfully submitted,

FERNANDO SOTELO, PE, PTP
Senior Associate

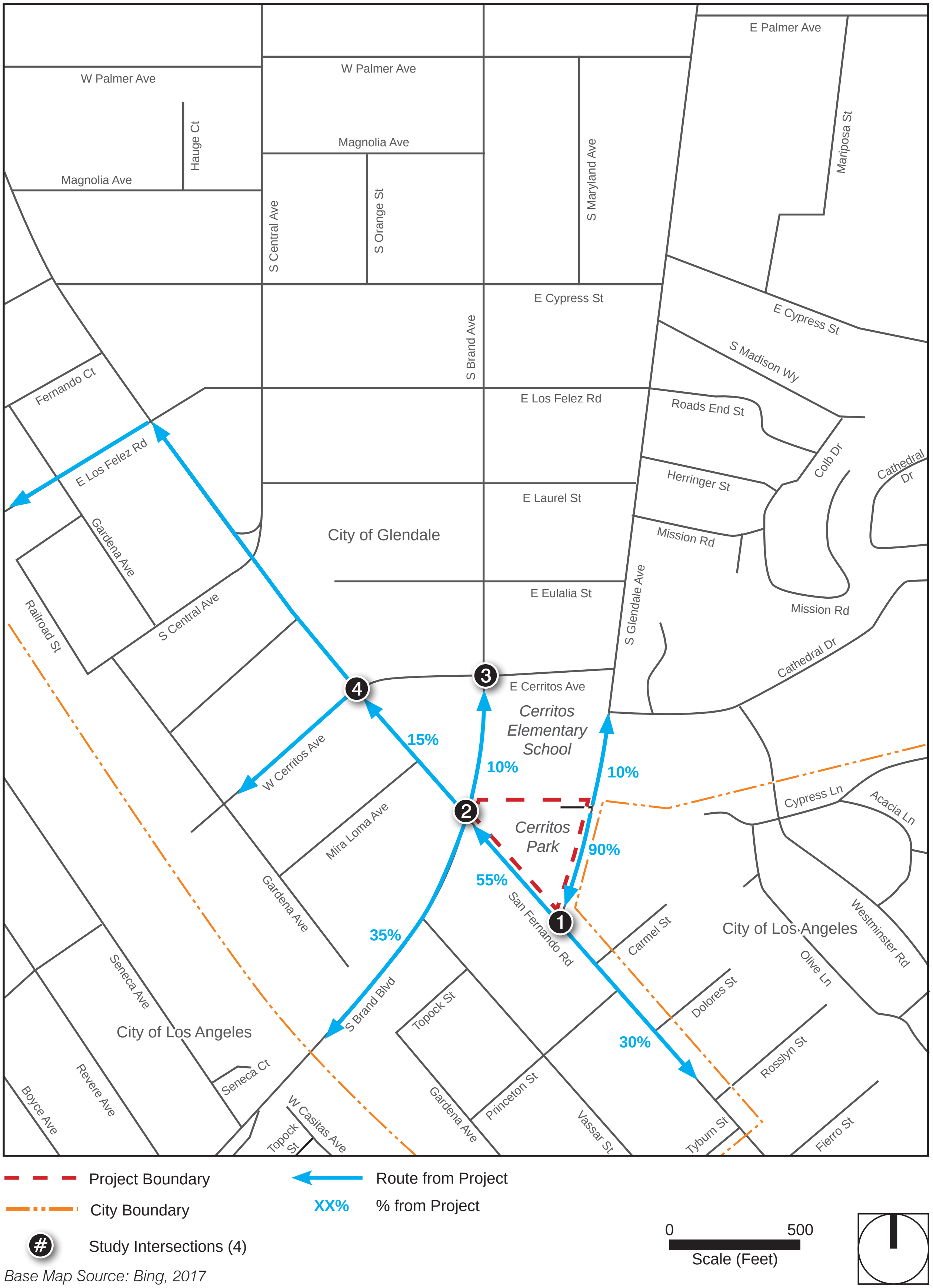
PLACEWORKS

3 MacArthur Place, Suite 1100 | Santa Ana, California 92707
714.966.9220 | fsotelo@placeworks.com | placeworks.com

Attachment A.

- Proposed Trip Distribution Map and Intersection Study Locations
- Parking Counts Locations
- Proposed Site Plan

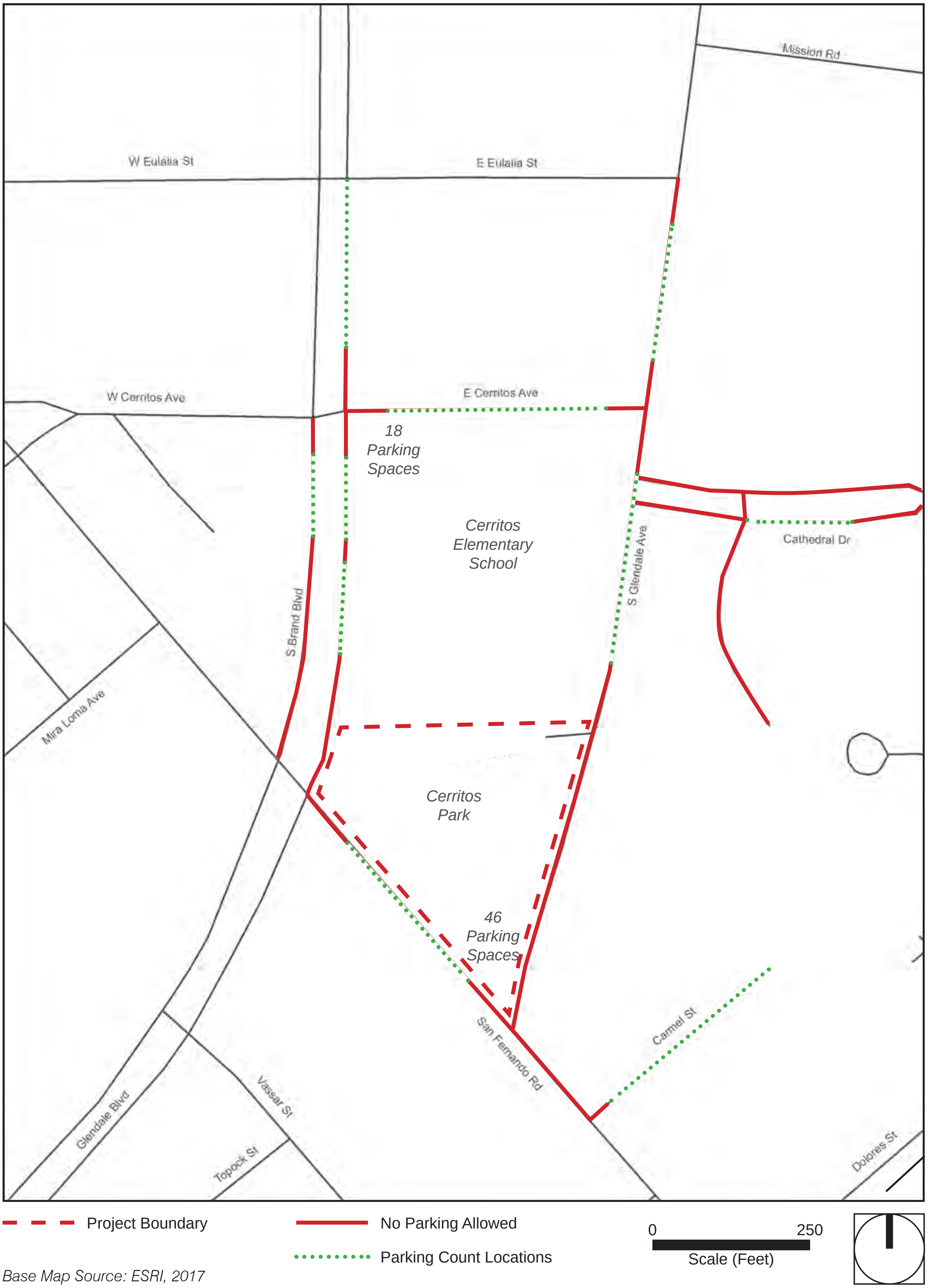
Figure 1 - Project Trip Distribution



Base Map Source: Bing, 2017

PlaceWorks

Figure 2 - Off-Site Parking Count Locations



Base Map Source: ESRI, 2017

PlaceWorks

Exhibit B

Multi-Purpose Field Layout Study - U-12
Cerritos Elementary School
February 7, 2017
Not to Scale
S Glendale Ave
S Glendale Ave
Storage Container
Emergency Supplies
New Fire Access
Basketball
U-12
210 X 135
and runout perimeter area
Handball
Cerritos Park
Foursquare
Hopscotch
Volleyball
Existing Tot Lot
Tetherball
Glendale City Entry
Monument Plaza
S Brand Blvd
S Brand Blvd
Services

glendale california

Public Works Department
Engineering Division

633 E. Broadway, Room 205
Glendale, CA 91206-4388
(818) 548-3945 Fax (818) 242-7087
www.ci.glendale.ca.us

TRAFFIC SECTION

Cerritos Elementary School
MOU
Multi-Purpose Field Developments
Applicant: PLACEWORKS

Comments By: Pastor Casanova (Traffic Engineer II), Eduardo Martin (Traffic Engineering Assistant)
Date: 11/08/17

Comments:

1. Add the intersection of Cerritos and Glendale to the planned study areas.
2. Provide justification for proposed 20% carpool and walk/bike/transit mode trip reduction.
3. Comments in regards to parking will be provided by Parking Section.
4. Revise trip distribution per comments. Comments developed considering intended park users.

PLACEWORKS

May 16, 2017

City of Glendale Public Works Department
Pastor Casanova
613 East Broadway, Room 120
Glendale, CA 91206
pcasanova@glendaleca.gov

Subject: Memorandum of Understanding (MOU) for the Traffic Impact Analysis for the Multi-Purpose Field Development at Cerritos Elementary School

Dear Mr. Casanova:

PlaceWorks is preparing a traffic study and processing CEQA environmental documents for the development of a multi-purpose field with sports field lighting on the campus of Cerritos Elementary School, at 120 E. Cerritos Avenue in the City of Glendale. The City has determined that a Mitigated Negative Declaration (MND) will be required to analyze project impacts on the physical environment, including a Traffic and Parking Study. + This memorandum of understanding (MOU) describes the project and outlines the proposed methodologies and basic assumptions for the traffic and parking impact analysis for the project. This has been prepared for The City of Glendale for review and comment to ensure that the study uses appropriate assumptions to evaluate potential traffic and parking impacts from the project. The MOU includes a description of the project, trip generation estimates for the project, trip distribution, a list of study area intersections to be evaluated, and identification of an ambient growth rate, scenarios to be evaluated, criteria to evaluate levels of service and to determine thresholds of significance. In addition, the proposed parking survey and parking study area are included in this memo.

Project Description

The project includes the development of an artificial turf multi-purpose field on the campus of ~~Wilson Middle School~~ Cerritos Elementary School. The field will include soccer markings for one large field, as well as markings for two perpendicular smaller fields. In addition to the development of the field, proposed amenities include a surrounding rubberized surface jogging track, sports field lighting, a security fence, seating, storage/maintenance building(s), walkways, re-grading of the existing play yard surface, and an expansion of the existing restroom at Cerritos Park. The school playing field areas would remain "open" for public use and for city programming. Cerritos Elementary School would access the field during school hours, and the city would access the field during the hours of 6 p.m. to 10 p.m. Monday through Friday, and 8 a.m. to 10 p.m. Saturday and Sunday.

The Cerritos Elementary School is bordered to the east by Glendale Avenue, to the north by Cerritos Avenue, to the west by Brand Boulevard and to the south by Cerritos Park. The facility will make use of existing street and on-site parking. Primary site access would be the main school parking lot on the northwest corner of the school site; curbside parking is allowed on the roadways in the vicinity of the school including Cerritos Avenue, Glendale Avenue and Brand Boulevard.

Trip Generation and Distribution

The proposed project would not expand the school's enrollment capacity, but is expected to increase traffic and parking demand around the project site due to new public use and city programming on weekday evenings and weekends.

The trip generation rates for soccer fields were obtained from ITE's Trip Generation Manual. The manual provides peak hour and daily rates on weekdays and weekends under land use code 488, Soccer Complex.

Table 1 summarizes the trip generation rates obtained from the ITE Trip Generation Manual, and presents both the average rates and the high end of the statistical sample for each period.

Table 1 ITE Trip Generation Rates For Soccer Complex

Rate Type	Weekday							Saturday			
	Daily	AM Peak Hour			PM Peak Hour			Daily	Peak Hour		
		In	Out	Total	In	Out	Total		In	Out	Total
Average Rate	71.33	0.64	0.48	1.12	11.86	5.84	17.70	117.43	14.56	15.78	30.34
Highest Rate	90.81	1.10	0.81	1.88	16.67	8.20	24.88	117.43	16.42	17.78	34.20

1 Trip Generation rates per field.
2 Trip generation rates are based on the ITE Trip Generation Manual 9th Edition for the Soccer Complex Land Use (ITE Code 488).
3 Peak hour of the generator is not defined in the ITE Manual. For the purpose of this analysis it is assumed to overlap with the traffic peak hour on weekends during midday.

To calculate the expected project-related trip generation, the rates shown above are to be multiplied by the anticipated number of fields. The proposed project includes the development of two fields; estimated project-related trips are shown in Table 2. Utilizing the average rates, the project would generate 2 trips in the weekday AM peak hour, 36 trips in the weekday PM peak hour, and 61 trips in on weekend peak hours. As shown on Table 2, based on ITE's Trip Generation Manual rates using the highest rates, the project would generate 4 trips in the weekday AM peak hour, 49 trips in the weekday PM peak hour and 69 trips in on weekend peak hours. The weekend peak hour normally occurs between 11 AM to 2 PM. As shown in Table 2, the project would generate negligible trips in the weekday AM peak hour. In addition, public use of the fields would not be allowed on weekdays in the AM peak hour. Therefore, AM peak hour traffic will not be further evaluated in this analysis.

Table 2 Project Trip Generation, ITE Rates

Rate Type	Weekday							Saturday			
	Daily	AM Peak Hour			PM Peak Hour			Daily	Peak Hour of Generator		
		In	Out	Total	In	Out	Total		In	Out	Total
Average Rate	143	1	1	2	24	12	36	235	29	32	61
Highest Rate	182	2	2	4	33	16	49	235	33	36	69

Trip generation rates for peak hour of adjacent streets, based on Soccer Complex Land Use (ITE Code 488) per the ITE Trip Generation Manual 9th Edition.

The sample size to support these rates is relatively small with less than 10 samples. To verify the trip generation based on ITE trip rates, we will also review the proposed use of the fields to calculate vehicular trips based on estimates for players, spectators and supporting personnel (coaches, referees, etc.). PlaceWorks consulted with the City of Glendale Parks and Recreation Department to obtain anticipated usage estimates. The estimates were provided for both adult and youth because of different ridership characteristics and different team sizes. Table 3 shows the trip generation rates per player/coach/referee and Table 4 shows the project trip generation for the proposed 2 fields based on usage estimates. It shall be noted that a 20% trip reduction was applied to account for carpool and walk/bike/transit modes. The project trip generation based on usage estimates is highest for youth games. As shown on Table 4, the highest trip generation would occur at 2 youth games occurring concurrently. This would result in 40 peak hour trips in the weekday PM peak hour and 78 peak hour trips in the weekend.

See Comment #2

Table 3 Trip Generation Rates Based on Usage Estimates

Land Use	Variable type	PM Peak Hour			Weekend Peak Hour		
		In	Out	Total	In	Out	Total
Youth Game	Youth Players	1	0.5	1.5	1.5	1.5	3
	Coach/Referee	1	0	1	1	1	2
Adult Game	Players	1	0	1	1	1	2
	Coach/Referee	1	0	1	1	1	2

1 Assumes 50% of parents drop-off children and leave the soccer fields.

2 Assumes all adults driving own cars and parking.

Table 4 Project Trip Generation Based on Usage Estimates

Land Use	Variable type	Players/ Referee/ Coaches	Fields	Trip Generation					
				PM Peak Hour			Weekend Peak Hour		
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Youth Game	Youth Players	16	2	26	13	39	38	38	76
	Referee	1	1	1	0	1	1	1	2
	TOTAL	**17**	**3**	**27**	**13**	**40**	**39**	**39**	**78**
Adult Game	Players	22	2	35	0	35	35	35	70
	Referees	3	1	2	0	2	2	2	4
	TOTAL	**25**	**3**	**37**	**0**	**37**	**37**	**37**	**74**

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Study Area Intersections, Roadways and Scenarios

Based on the calculated project trip generation and distribution, the following intersections will be analyzed during weekday PM peak hours and Saturday midday (11 AM to 2 PM):

1. Glendale Avenue at San Fernando Road
2. Brand Boulevard at San Fernando Road
3. Brand Boulevard at Cerritos Avenue
4. San Fernando Road at Cerritos Avenue
5. Cerritos Ave and Glendale Ave

See Comment #1

Figure 1 shows the estimated trip distribution around the project study area and the intersection study locations. The trip distribution is based on a review of the study area circulation network, city boundaries, the existing sports fields utilized for the City's Park and Recreation Programs, and a review of residential land uses in the area.

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Respectfully submitted,

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Senior Associate

PLACEWORKS

3 MacArthur Place, Suite 1100 | Santa Ana, California 92707
714.966.9220 | fsotelo@placeworks.com | placeworks.com

Attachment A.

- Proposed Trip Distribution Map and Intersection Study Locations
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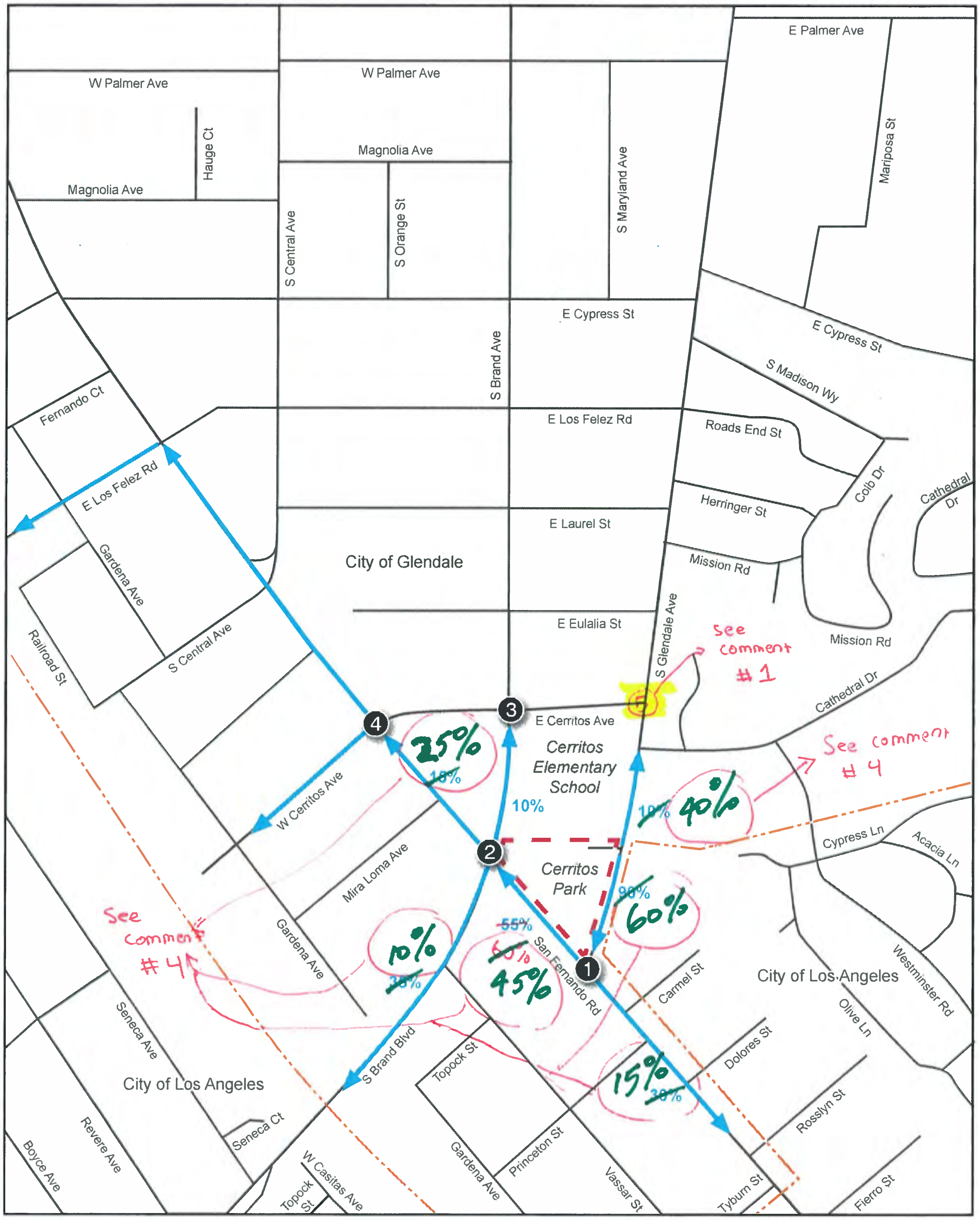
Figure 1 - Project Trip Distribution



Project Boundary

City Boundary

Study Intersections ~~(4)~~ 5

Route from Project

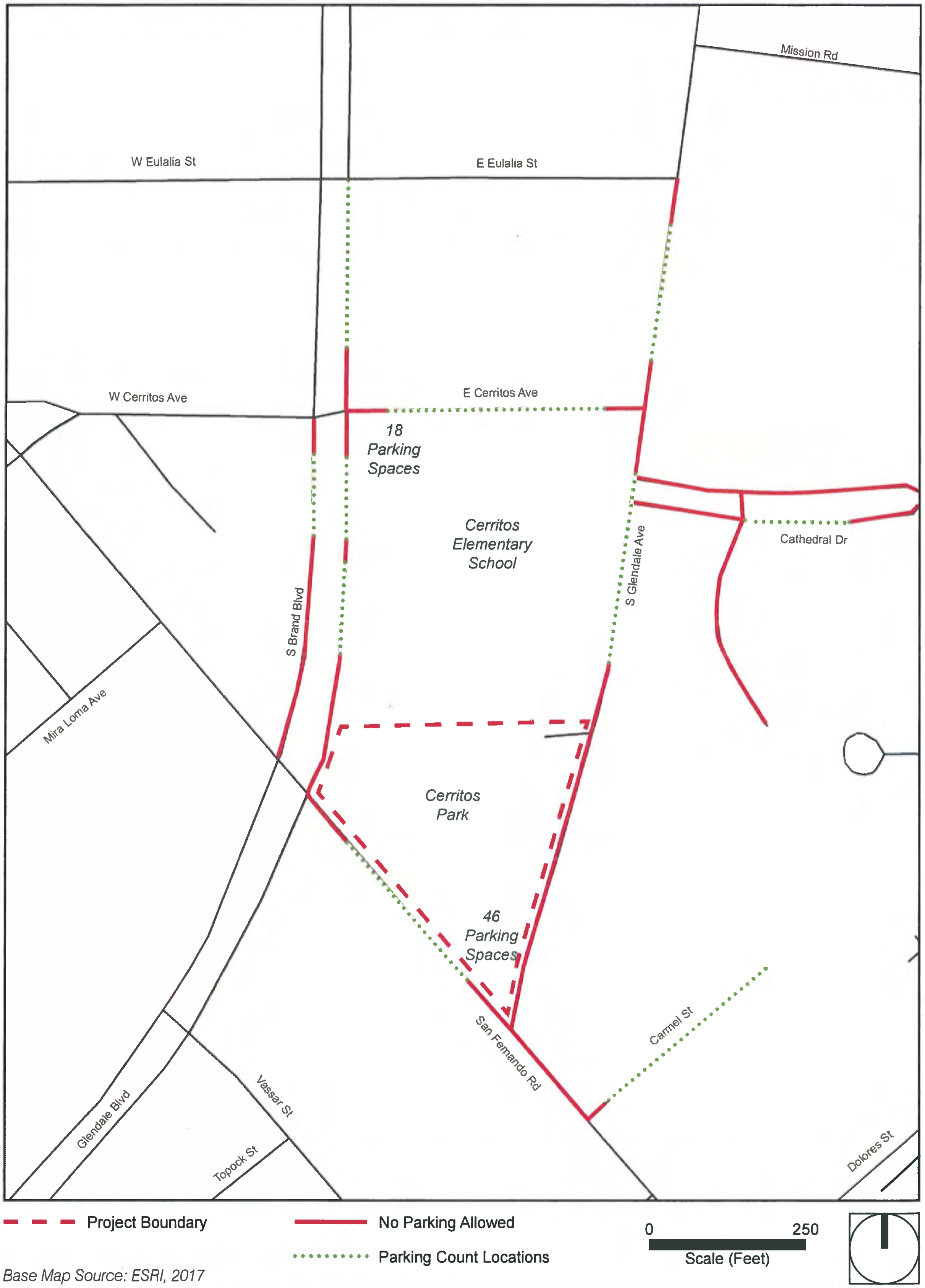
XX% % from Project

0 500 Scale (Feet)

Base Map Source: Bing, 2017

PlaceWorks

Figure 2 - Off-Site Parking Count Locations



Base Map Source: ESRI, 2017

PlaceWorks

Exhibit B

Multi-Purpose Field Layout Study - U-12
Cerritos Elementary School
February 7, 2017
Not to Scale
U-12
210 x135
and runout perimeter area
Storage Container
Emergency Supplies
New Fire Access
Basketball
Handball
Cerritos Park
Foursquare
Hopscotch
Volleyball
Tetherball
Existing Tot Lot
Glendale City Entry
Monument Plaza
S Glendale Ave
S Brand Blvd
Services

November 15, 2017

City of Glendale Public Works Department
Pastor Casanova
613 East Broadway, Room 120
Glendale, CA 91206
pcasanova@glendaleca.gov

Subject: Memorandum of Understanding (MOU) for the Traffic Impact Analysis for the Multi-Purpose Field Development at Cerritos Elementary School

Dear Mr. Casanova:

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Project Description

The project includes the development of an artificial turf multi-purpose field on the campus of Cerritos Elementary School. The field will include soccer markings for one large field, as well as markings for two perpendicular smaller fields. In addition to the development of the field, proposed amenities include a surrounding rubberized surface jogging track, sports field lighting, a security fence, seating, storage/maintenance building(s), walkways, re-grading of the existing play yard surface, and an expansion of the existing restroom at Cerritos Park. The school playing field areas would remain "open" for public use and for city programming. Cerritos Elementary School would access the field during school hours, and the city would access the field during the hours of 6 p.m. to 10 p.m. Monday through Friday, and 8 a.m. to 10 p.m. Saturday and Sunday.

The Cerritos Elementary School is bordered to the east by Glendale Avenue, to the north by Cerritos Avenue, to the west by Brand Boulevard and to the south by Cerritos Park. The facility will make use of existing street and on-site parking. Primary site access would be the main school parking lot on the northwest corner of the school site; curbside parking is allowed on the roadways in the vicinity of the school including Cerritos Avenue, Glendale Avenue and Brand Boulevard.

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The trip generation rates for soccer fields were obtained from ITE's Trip Generation Manual. The manual provides peak hour and daily rates on weekdays and weekends under land use code 488, Soccer Complex.

Table 1 summarizes the trip generation rates obtained from the ITE Trip Generation Manual, and presents both the average rates and the high end of the statistical sample for each period.

Table 1 ITE Trip Generation Rates For Soccer Complex

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	Daily	AM Peak Hour			PM Peak Hour			Daily	Peak Hour		
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Average Rate	71.33	0.64	0.48	1.12	11.86	5.84	17.70	117.43	14.56	15.78	30.34
Highest Rate	90.81	1.10	0.81	1.88	16.67	8.20	24.88	117.43	16.42	17.78	34.20

1 Trip Generation rates per field.
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To calculate the expected project-related trip generation, the rates shown above are to be multiplied by the anticipated number of fields. The proposed project includes the development of two fields; estimated project-related trips are shown in Table 2. Utilizing the average rates, the project would generate 2 trips in the weekday AM peak hour, 36 trips in the weekday PM peak hour, and 61 trips in on weekend peak hours. As shown on Table 2, based on ITE's Trip Generation Manual rates using the highest rates, the project would generate 4 trips in the weekday AM peak hour, 49 trips in the weekday PM peak hour and 69 trips in on weekend peak hours. The weekend peak hour normally occurs between 11 AM to 2 PM. As shown in Table 2, the project would generate negligible trips in the weekday AM peak hour. In addition, public use of the fields would not be allowed on weekdays in the AM peak hour. Therefore, AM peak hour traffic will not be further evaluated in this analysis.

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Rate Type	Weekday							Saturday			
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Highest Rate	182	2	2	4	33	16	49	235	33	36	69

Trip generation rates for peak hour of adjacent streets, based on Soccer Complex Land Use (ITE Code 488) per the ITE Trip Generation Manual 9th Edition.

The sample size to support these rates is relatively small with less than 10 samples. To verify the trip generation based on ITE trip rates, we will also review the proposed use of the fields to calculate vehicular trips based on estimates for players, spectators and supporting personnel (coaches, referees, etc.). PlaceWorks consulted with the City of Glendale Parks and Recreation Department to obtain anticipated usage estimates. The estimates were provided for both adult and youth because of different ridership characteristics and different team sizes. Table 3 shows the trip generation rates per player/coach/referee and Table 4 shows the project trip generation for the proposed 2 fields based on usage estimates. It shall be noted that a 20% trip reduction was applied to account for carpool and walk/bike/transit modes. This reduction is based on travel mode data from the American Community Survey from the US Census, the location of the project in a dense urban part of the City with several commercial, offices, and residential buildings in walking distance to the project, and the availability of transit. Alternative modes of travel in the vicinity of the project are provided by multiple bus lines that run adjacent to the site, with bus stops on

Brand Boulevard, San Fernando Road, and Glendale Avenue. In addition, the Glendale multimodal transit center is located less than ¼ mile south of the site providing commuter rail service and bus service. Based on our experice with AYSO, parents, youth players and spectatiors tend to carpool to games and practices.

The project trip generation based on usage estimates is highest for youth games. As shown on Table 4, the highest trip generation would occur at 2 youth games occurring concurrently. This would result in 40 peak hour trips in the weekday PM peak hour and 78 peak hour trips in the weekend.

Table 3 Trip Generation Rates Based on Usage Estimates

		PM Peak Hour			Weekend Peak Hour		
Land Use	Variable type	In	Out	Total	In	Out	Total
Youth Game	Youth Players	1	0.5	1.5	1.5	1.5	3
	Coach/Referee	1	0	1	1	1	2
Adult Game	Players	1	0	1	1	1	2
	Coach/Referee	1	0	1	1	1	2

1 Assumes 50% of parents drop-off children and leave the soccer fields.

2 Assumes all adults driving own cars and parking.

Table 4 Project Trip Generation Based on Usage Estimates

				Trip Generation					
				PM Peak Hour			Weekend Peak Hour		
Land Use	Variable type	Players/ Referee/ Coaches	Fields	In	Out	Total	In	Out	Total
Youth Game	Youth Players	16	2	26	13	39	38	38	76
	Referee	1	1	1	0	1	1	1	2
	TOTAL	**17**	**3**	**27**	**13**	**40**	**39**	**39**	**78**
Adult Game	Players	22	2	35	0	35	35	35	70
	Referees	3	1	2	0	2	2	2	4
	TOTAL	**25**	**3**	**37**	**0**	**37**	**37**	**37**	**74**

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

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

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

In conclusion, the ITE Trip Rates using the high range provide a reasonable and technically defensible estimate to calculate trip generation for the project. Therefore, for the purpose of this analysis, the project would generate 4 trips in the AM peak hour, 49 trips in the PM peak hour and 69 trips in on weekend peak hours.

Study Area Intersections, Roadways and Scenarios

Based on the calculated project trip generation and distribution, the following intersections will be analyzed during weekday PM peak hours and Saturday midday (11 AM to 2 PM):

1. Glendale Avenue at San Fernando Road
2. Brand Boulevard at San Fernando Road
3. San Fernando Road at Cerritos Avenue
4. Brand Boulevard at Cerritos Avenue
5. Glendale Avenue at Cerritos Avenue

Figure 1 shows the estimated trip distribution around the project study area and the intersection study locations. The trip distribution is based on a review of the study area circulation network, city boundaries, the existing sports fields utilized for the City's Park and Recreation Programs, and a review of residential land uses in the area.

Traffic Study Scenarios

The traffic study will analyze multiple scenarios based on the anticipated project buildout. The following analysis scenarios will be provided:

- Existing Conditions
- Existing Conditions with Project
- Opening Year with Cumulative Developments without Project
- Opening Year with Cumulative Developments with Project

The Los Angeles County Guidelines for CMP Transportation Impact Analysis includes ambient growth rates for the City of Glendale in 5-year increments. To estimate future traffic conditions, opening year scenarios will use the year 2020 traffic growth rate factor of 1.027%. A list of cumulative projects to be fully operational by project opening year, as provided by the city, will also be included to the background traffic conditions. Trip generation and trip distribution for the cumulative developments will be estimated for inclusion in the background traffic conditions at project opening year.

LOS Criteria and Threshold of Significance

The 2010 Congestion Management Plan (CMP) for Los Angeles County requires use of the Intersection Capacity Utilization (ICU) method to calculate levels of service (LOS) for signalized intersections. The Highway Capacity Manual (HCM) 2010 methodology will be used to calculate LOS at unsignalized intersections.

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

Parking

A parking analysis will be prepared to estimate the project-related parking impacts in the vicinity of the school. Parking counts will be taken on a weekday evening from 6 to 10 PM in 30 minute intervals and between 8 AM to 10PM on a Saturday. The parking counts will be taken at the following segments:

1. San Fernando Road from Brand Blvd to Glendale Ave
2. Brand Boulevard from E Eulalia St to San Fernando Rd
3. W Cerritos Avenue from Brand Blvd to Glendale Ave
4. E Cerritos Avenue from Brand Blvd to Glendale Ave
5. S Glendale Avenue from E Eulalia St to San Fernando Rd
6. Carmel Street east of San Fernando Rd

Appropriate parking locations around the project site will be documented in the parking analysis, based on the associated parking demand estimates shown below.

Parking demand will be based on ITE's Parking Generation manual for a "soccer complex" (ITE land use code 488), as shown in Table 5.

Table 5 Parking Demand Rates for Soccer Complex

Weekday Peak Hour	Saturday Peak Hour
38.3	58.8

Parking Demand based on the average rates for the Soccer Complex Land Use (ITE Code 488) per the ITE Parking Generation Manual 4th Edition.

To calculate the expected project-related parking demand, the rates shown above are to be multiplied by the anticipated number of fields. The calculated parking demand is summarized in Table 6.

Table 6 Parking Demand Estimates for Soccer Complex

Weekday Peak Hour	Saturday Peak Hour
77	118

Parking Demand based on the average rates Soccer Complex Land Use (ITE Code 488) per the ITE Parking Generation Manual 4th Edition.

Please review the following assumptions and let us know if we can schedule traffic and parking counts as proposed in this MOU. Or feel free to call if you have any questions or would like to discuss.

Respectfully submitted,

FERNANDO SOTELO, PE, PTP
Senior Associate

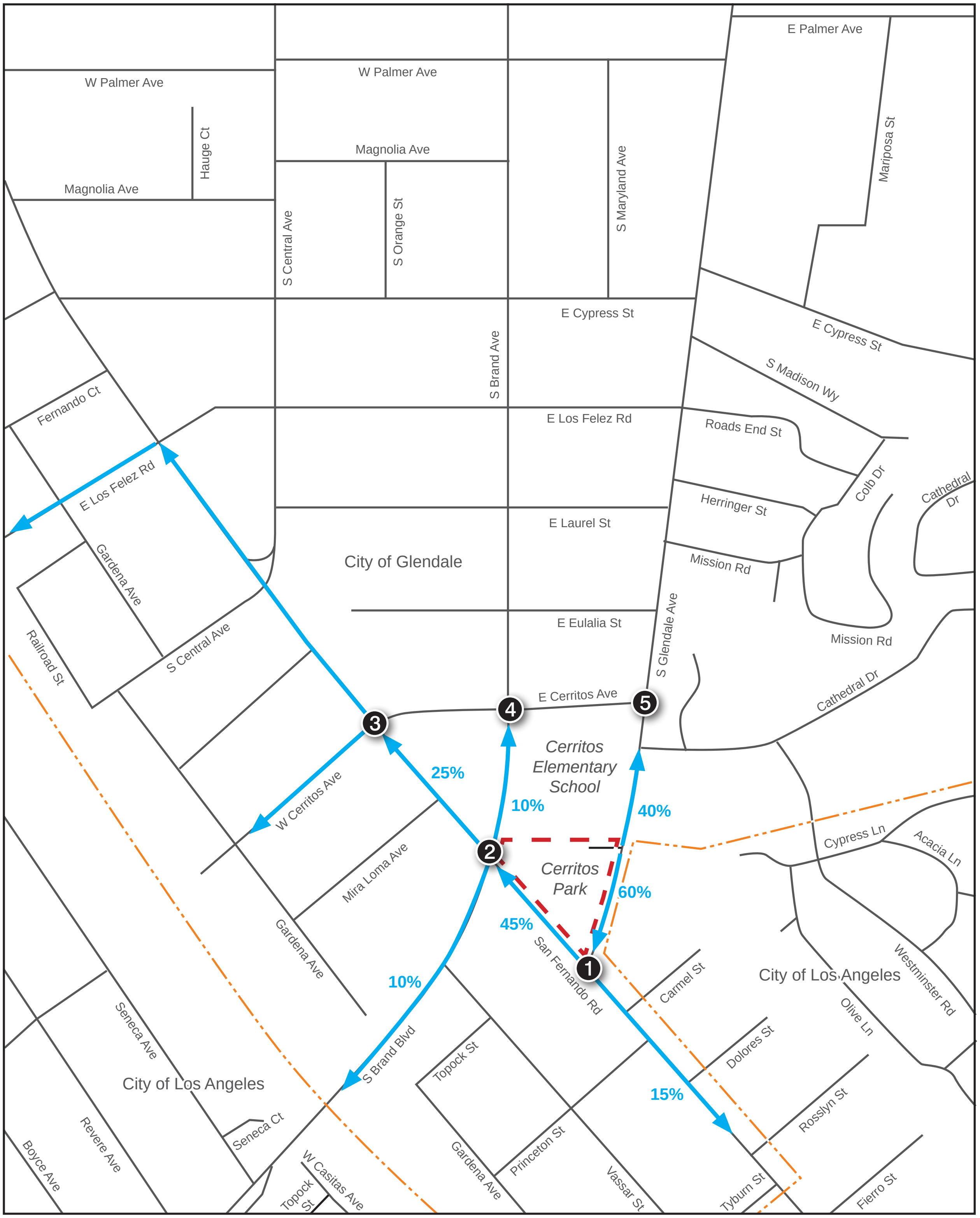
PLACEWORKS

3 MacArthur Place, Suite 1100 | Santa Ana, California 92707
714.966.9220 | fsotelo@placeworks.com | placeworks.com

Attachment A.

- Proposed Trip Distribution Map and Intersection Study Locations
- Parking Counts Locations
- Proposed Site Plan

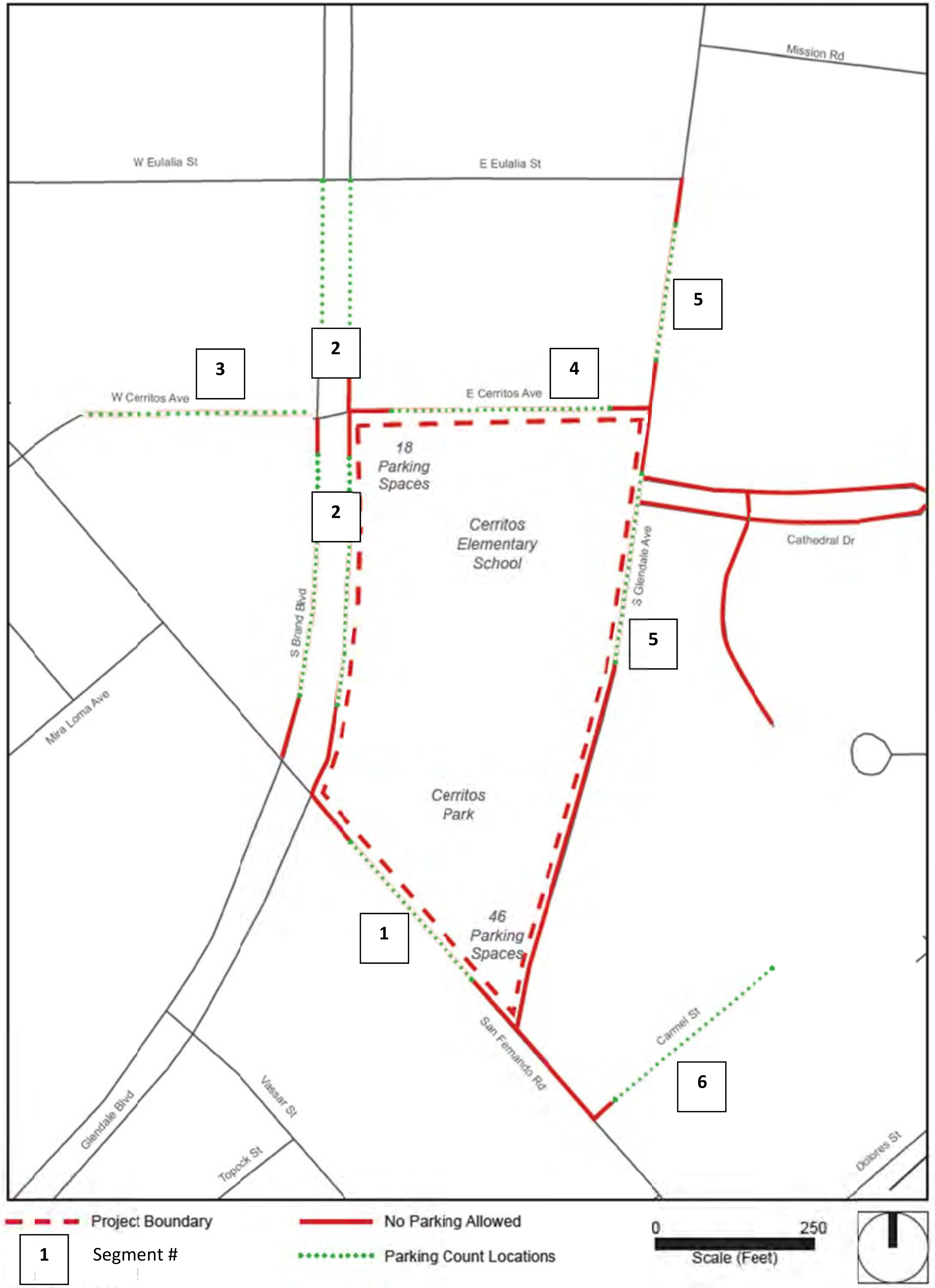
Figure 1 - Project Trip Distribution



Project Boundary
City Boundary
Study Intersections (5)
Route from Project
XX% % from Project
0 500
Scale (Feet)

Base Map Source: Bing, 2017

PlaceWorks



Mission Rd
W Eulalia St
E Eulalia St
5
2
3
4
W Cerritos Ave
E Cerritos Ave
18 Parking Spaces
2
Cerritos Elementary School
Cathedral Dr
S Glendale Ave
S Brand Blvd
5
Mira Loma Ave
Cerritos Park
46 Parking Spaces
1
San Fernando Rd
Carmel St
6
Vassar St
Glendale Blvd
Topock St
Dolores St
Project Boundary
No Parking Allowed
1 Segment #
Parking Count Locations
0
250
Scale (Feet)

Exhibit B

Multi-Purpose Field Layout Study - U-12
Cerritos Elementary School
February 7, 2017
Not to Scale
S Glendale Ave
S Brand Blvd
Storage Container
Emergency Supplies
New Fire Access
Basketball
U-12
210 X 135
and runout perimeter area
Handball
Cerritos Park
Foursquare
Hopscotch
Volleyball
Existing Tot Lot
Tetherball
Glendale City Entry
Monument Plaza
Services

Appendix B. Traffic Counts

Appendices

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City of Glendale
N/S: Glendale Avenue
E/W: San Fernando Road
Weather: Clear

File Name : 01GDEGLSFPM
Site Code : 22117808
Start Date : 12/7/2017
Page No : 1

Groups Printed- Total Volume

	Glendale Avenue Southbound			San Fernando Road Westbound			San Fernando Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
04:00 PM	104	31	135	200	84	284	23	195	218	637
04:15 PM	101	41	142	224	113	337	30	182	212	691
04:30 PM	108	37	145	221	99	320	29	218	247	712
04:45 PM	96	23	119	225	106	331	23	190	213	663
Total	409	132	541	870	402	1272	105	785	890	2703
05:00 PM	111	38	149	203	98	301	22	193	215	665
05:15 PM	100	33	133	229	85	314	23	177	200	647
05:30 PM	92	25	117	253	110	363	19	192	211	691
05:45 PM	100	33	133	247	93	340	19	140	159	632
Total	403	129	532	932	386	1318	83	702	785	2635
Grand Total	812	261	1073	1802	788	2590	188	1487	1675	5338
Apprch %	75.7	24.3		69.6	30.4		11.2	88.8		
Total %	15.2	4.9	20.1	33.8	14.8	48.5	3.5	27.9	31.4	

	Glendale Avenue Southbound			San Fernando Road Westbound			San Fernando Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:15 PM										
04:15 PM	101	**41**	142	224	**113**	**337**	**30**	182	212	691
04:30 PM	108	37	145	221	99	320	29	**218**	**247**	**712**
04:45 PM	96	23	119	**225**	106	331	23	190	213	663
05:00 PM	**111**	38	**149**	203	98	301	22	193	215	665
Total Volume	416	139	555	873	416	1289	104	783	887	2731
% App. Total	75	25		67.7	32.3		11.7	88.3		
PHF	.937	.848	.931	.970	.920	.956	.867	.898	.898	.959

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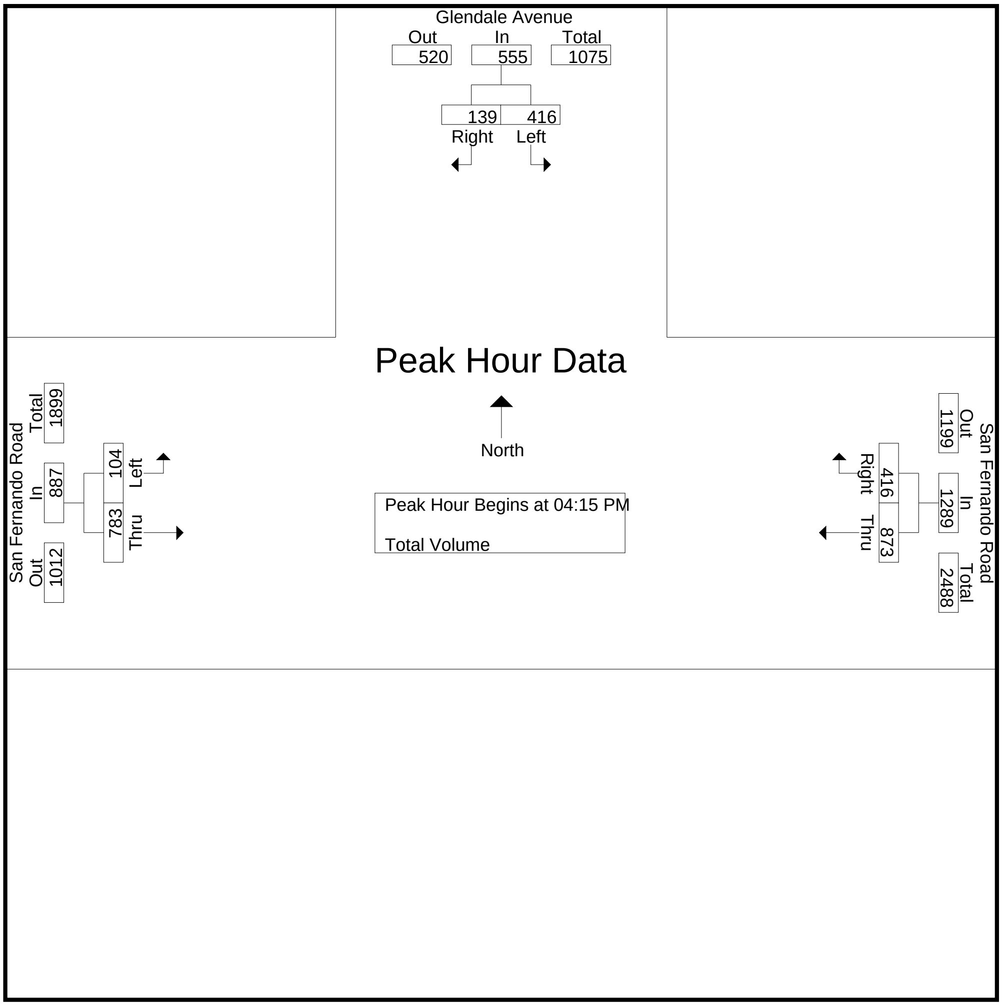

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM			05:00 PM			04:00 PM		
+0 mins.	101	**41**	142	203	98	301	23	195	218
+15 mins.	108	37	145	229	85	314	**30**	182	212
+30 mins.	96	23	119	**253**	**110**	**363**	29	**218**	**247**
+45 mins.	**111**	38	**149**	247	93	340	23	190	213
Total Volume	416	139	555	932	386	1318	105	785	890
% App. Total	75	25		70.7	29.3		11.8	88.2	
PHF	.937	.848	.931	.921	.877	.908	.875	.900	.901

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Page No : 1

Groups Printed- Total Volume

	Glendale Avenue Southbound			San Fernando Road Westbound			San Fernando Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
11:00 AM	96	40	136	226	87	313	25	216	241	690
11:15 AM	120	27	147	227	96	323	26	219	245	715
11:30 AM	109	28	137	226	98	324	22	233	255	716
11:45 AM	107	35	142	261	103	364	12	267	279	785
Total	432	130	562	940	384	1324	85	935	1020	2906
12:00 PM	109	35	144	224	104	328	21	213	234	706
12:15 PM	119	45	164	234	103	337	19	252	271	772
12:30 PM	139	36	175	205	100	305	13	226	239	719
12:45 PM	142	39	181	220	109	329	31	223	254	764
Total	509	155	664	883	416	1299	84	914	998	2961
01:00 PM	121	38	159	220	98	318	19	216	235	712
01:15 PM	103	31	134	249	122	371	20	233	253	758
01:30 PM	124	36	160	219	92	311	26	242	268	739
01:45 PM	100	39	139	216	111	327	25	245	270	736
Total	448	144	592	904	423	1327	90	936	1026	2945
Grand Total	1389	429	1818	2727	1223	3950	259	2785	3044	8812
Apprch %	76.4	23.6		69	31		8.5	91.5		
Total %	15.8	4.9	20.6	30.9	13.9	44.8	2.9	31.6	34.5	

	Glendale Avenue Southbound			San Fernando Road Westbound			San Fernando Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 11:45 AM										
11:45 AM	107	35	142	**261**	103	**364**	12	**267**	**279**	**785**
12:00 PM	109	35	144	224	**104**	328	**21**	213	234	706
12:15 PM	119	**45**	164	234	103	337	19	252	271	772
12:30 PM	**139**	36	**175**	205	100	305	13	226	239	719
Total Volume	474	151	625	924	410	1334	65	958	1023	2982
% App. Total	75.8	24.2		69.3	30.7		6.4	93.6		
PHF	.853	.839	.893	.885	.986	.916	.774	.897	.917	.950

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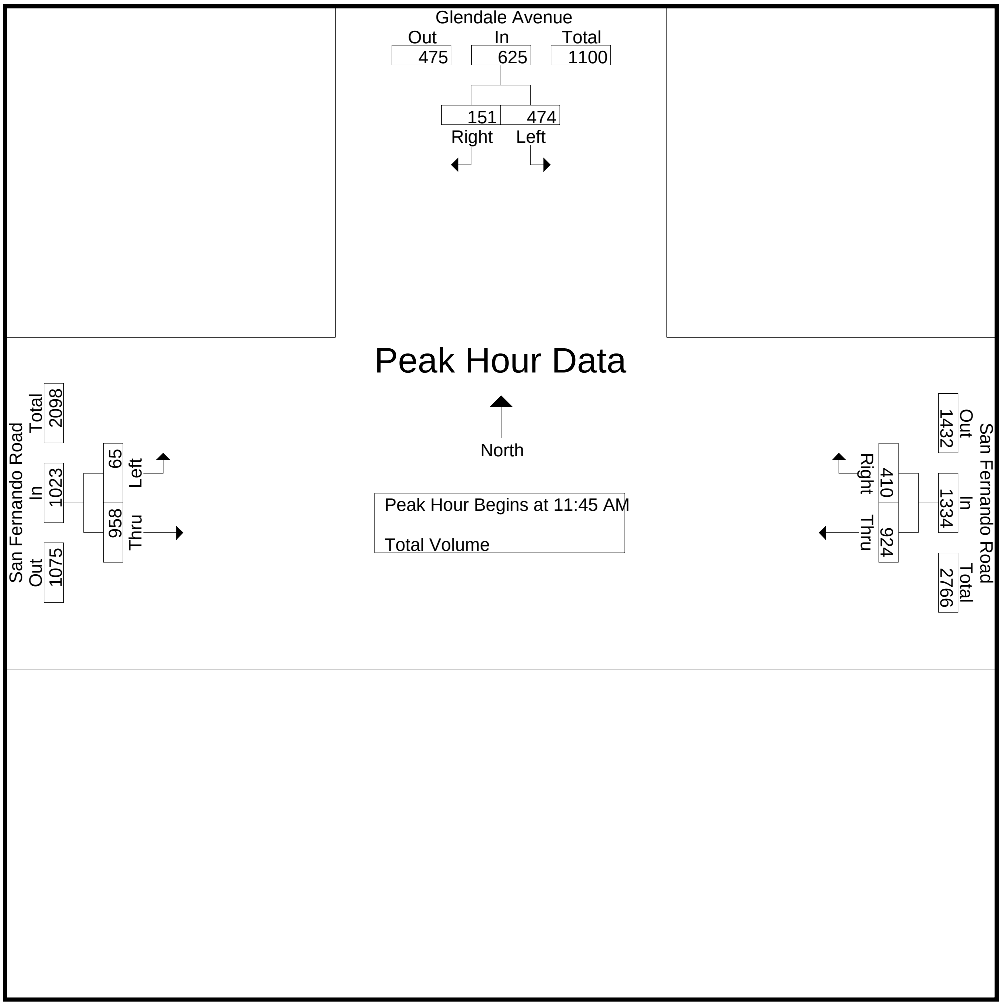

Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	12:15 PM			11:30 AM			11:30 AM		
+0 mins.	119	**45**	164	226	98	324	**22**	233	255
+15 mins.	139	36	175	**261**	103	**364**	12	**267**	**279**
+30 mins.	**142**	39	**181**	224	**104**	328	21	213	234
+45 mins.	121	38	159	234	103	337	19	252	271
Total Volume	521	158	679	945	408	1353	74	965	1039
% App. Total	76.7	23.3		69.8	30.2		7.1	92.9	
PHF	.917	.878	.938	.905	.981	.929	.841	.904	.931

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Site Code : 22117808
Start Date : 12/7/2017
Page No : 1

Groups Printed- Total Volume

	Brand Boulevard Southbound				San Fernando Road Westbound				Glendale Boulevard Northbound				San Fernando Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	37	173	8	218	63	120	35	218	82	243	43	368	6	109	58	173	977
04:15 PM	31	177	6	214	82	161	41	284	59	192	59	310	4	118	48	170	978
04:30 PM	34	157	6	197	55	144	40	239	71	221	52	344	2	150	63	215	995
04:45 PM	27	207	5	239	53	138	54	245	68	245	73	386	4	113	53	170	1040
Total	129	714	25	868	253	563	170	986	280	901	227	1408	16	490	222	728	3990
05:00 PM	25	163	16	204	64	138	38	240	53	223	59	335	2	133	92	227	1006
05:15 PM	29	208	13	250	69	152	46	267	77	246	62	385	5	120	57	182	1084
05:30 PM	38	192	19	249	75	141	51	267	76	216	49	341	5	111	68	184	1041
05:45 PM	35	216	6	257	72	171	39	282	63	254	55	372	1	75	35	111	1022
Total	127	779	54	960	280	602	174	1056	269	939	225	1433	13	439	252	704	4153
Grand Total	256	1493	79	1828	533	1165	344	2042	549	1840	452	2841	29	929	474	1432	8143
Apprch %	14	81.7	4.3		26.1	57.1	16.8		19.3	64.8	15.9		2	64.9	33.1		
Total %	3.1	18.3	1	22.4	6.5	14.3	4.2	25.1	6.7	22.6	5.6	34.9	0.4	11.4	5.8	17.6	

	Brand Boulevard Southbound				San Fernando Road Westbound				Glendale Boulevard Northbound				San Fernando Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	27	207	5	239	53	138	**54**	245	68	245	**73**	**386**	4	113	53	170	1040
05:00 PM	25	163	16	204	64	138	38	240	53	223	59	335	2	**133**	**92**	**227**	1006
05:15 PM	29	**208**	13	**250**	69	**152**	46	**267**	**77**	**246**	62	385	**5**	120	57	182	**1084**
05:30 PM	**38**	192	**19**	249	**75**	141	51	267	76	216	49	341	5	111	68	184	1041
Total Volume	119	770	53	942	261	569	189	1019	274	930	243	1447	16	477	270	763	4171
% App. Total	12.6	81.7	5.6		25.6	55.8	18.5		18.9	64.3	16.8		2.1	62.5	35.4		
PHF	.783	.925	.697	.942	.870	.936	.875	.954	.890	.945	.832	.937	.800	.897	.734	.840	.962

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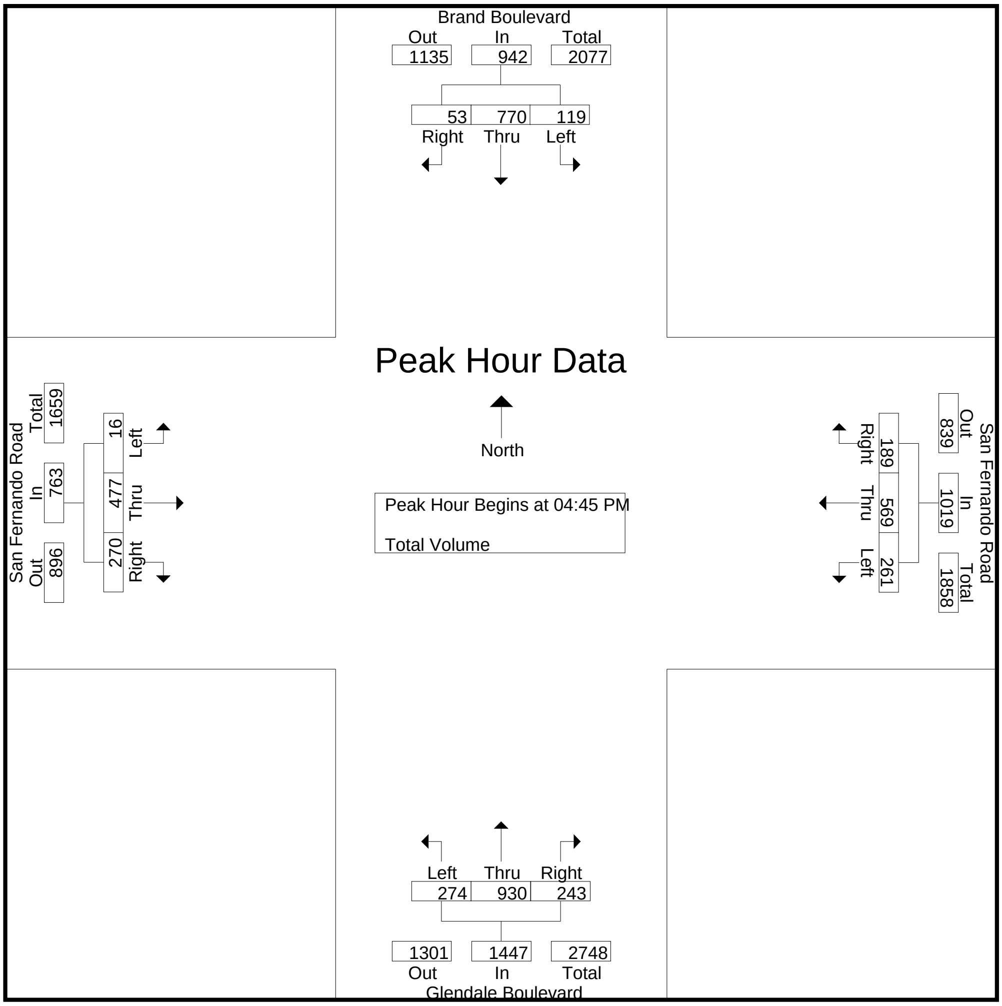

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				04:30 PM				04:30 PM			
+0 mins.	25	163	16	204	64	138	38	240	71	221	52	344	2	**150**	63	215
+15 mins.	29	208	13	250	69	152	46	267	68	245	**73**	**386**	4	113	53	170
+30 mins.	**38**	192	**19**	249	**75**	141	**51**	267	53	223	59	335	2	133	**92**	**227**
+45 mins.	35	**216**	6	**257**	72	**171**	39	**282**	**77**	**246**	62	385	**5**	120	57	182
Total Volume	127	779	54	960	280	602	174	1056	269	935	246	1450	13	516	265	794
% App. Total	13.2	81.1	5.6		26.5	57	16.5		18.6	64.5	17		1.6	65	33.4	
PHF	.836	.902	.711	.934	.933	.880	.853	.936	.873	.950	.842	.939	.650	.860	.720	.874

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Page No : 1

Groups Printed- Total Volume

	Brand Boulevard Southbound				San Fernando Road Westbound				Glendale Boulevard Northbound				San Fernando Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:00 AM	28	116	11	155	54	146	45	245	67	183	56	306	7	131	75	213	919
11:15 AM	39	119	13	171	60	151	53	264	44	164	63	271	5	153	47	205	911
11:30 AM	33	112	7	152	63	139	50	252	16	236	62	314	6	155	54	215	933
11:45 AM	40	121	10	171	75	165	57	297	59	194	78	331	5	140	70	215	1014
Total	140	468	41	649	252	601	205	1058	186	777	259	1222	23	579	246	848	3777
12:00 PM	44	118	9	171	72	127	44	243	71	169	54	294	4	136	59	199	907
12:15 PM	34	126	7	167	76	160	56	292	48	220	77	345	5	153	57	215	1019
12:30 PM	43	143	10	196	74	121	41	236	63	180	74	317	0	132	68	200	949
12:45 PM	33	148	14	195	59	153	54	266	55	224	86	365	4	147	61	212	1038
Total	154	535	40	729	281	561	195	1037	237	793	291	1321	13	568	245	826	3913
01:00 PM	34	127	13	174	75	142	50	267	38	197	60	295	4	127	72	203	939
01:15 PM	35	178	4	217	68	144	65	277	38	209	88	335	4	131	75	210	1039
01:30 PM	43	128	13	184	64	147	47	258	35	256	99	390	6	137	51	194	1026
01:45 PM	43	135	13	191	74	152	59	285	62	227	83	372	3	137	80	220	1068
Total	155	568	43	766	281	585	221	1087	173	889	330	1392	17	532	278	827	4072
Grand Total	449	1571	124	2144	814	1747	621	3182	596	2459	880	3935	53	1679	769	2501	11762
Apprch %	20.9	73.3	5.8		25.6	54.9	19.5		15.1	62.5	22.4		2.1	67.1	30.7		
Total %	3.8	13.4	1.1	18.2	6.9	14.9	5.3	27.1	5.1	20.9	7.5	33.5	0.5	14.3	6.5	21.3	

	Brand Boulevard Southbound				San Fernando Road Westbound				Glendale Boulevard Northbound				San Fernando Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	34	127	**13**	174	**75**	142	50	267	38	197	60	295	4	127	72	203	939
01:15 PM	35	**178**	4	**217**	68	144	**65**	277	38	209	88	335	4	131	75	210	1039
01:30 PM	**43**	128	13	184	64	147	47	258	35	**256**	**99**	**390**	**6**	**137**	51	194	1026
01:45 PM	43	135	13	191	74	**152**	59	**285**	**62**	227	83	372	3	137	**80**	**220**	**1068**
Total Volume	155	568	43	766	281	585	221	1087	173	889	330	1392	17	532	278	827	4072
% App. Total	20.2	74.2	5.6		25.9	53.8	20.3		12.4	63.9	23.7		2.1	64.3	33.6		
PHF	.901	.798	.827	.882	.937	.962	.850	.954	.698	.868	.833	.892	.708	.971	.869	.940	.953

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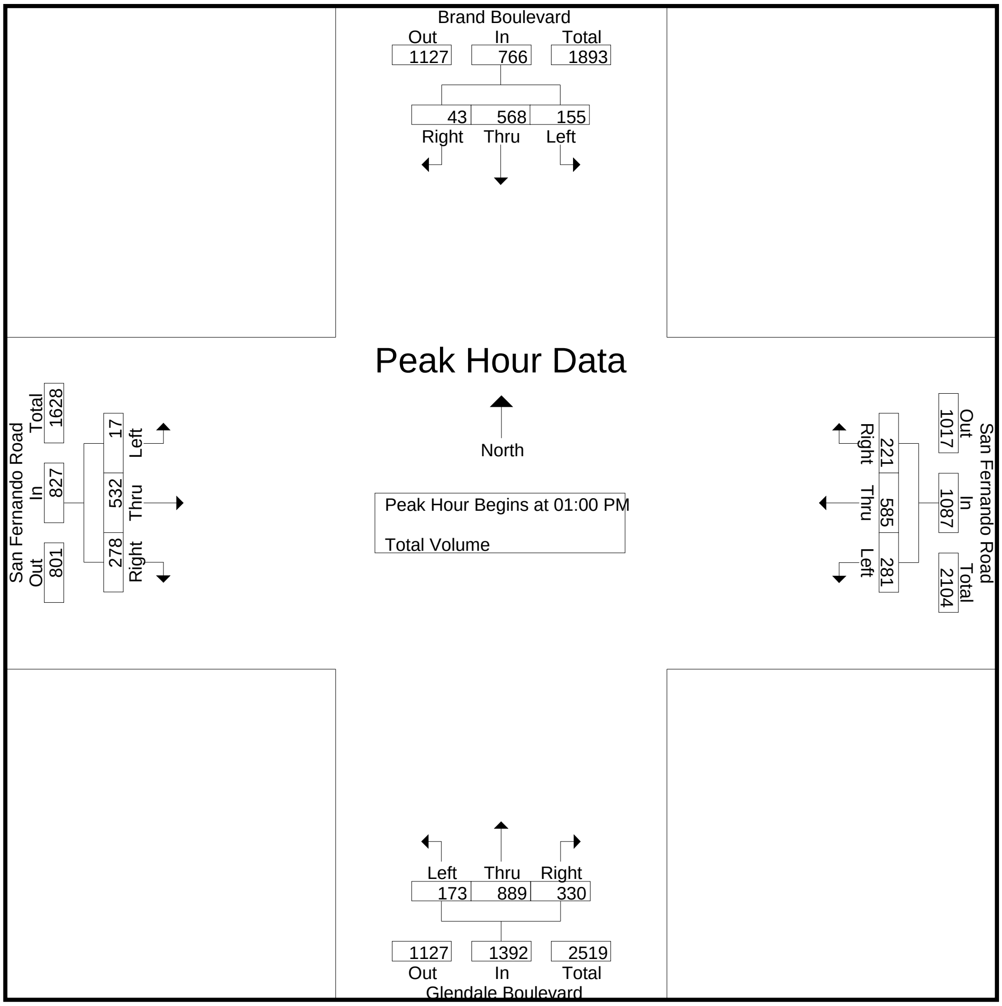
Corona, CA 92878
(951) 268-6268

City of Glendale
N/S: Brand Boulevard/Glendale Boulevard
E/W: San Fernando Road
Weather: Clear

File Name : 02GDEBRSFSAT
Site Code : 22117808
Start Date : 12/9/2017
Page No : 2



Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	12:30 PM				01:00 PM				01:00 PM				11:00 AM			
+0 mins.	**43**	143	10	196	**75**	142	50	267	38	197	60	295	**7**	131	**75**	213
+15 mins.	33	148	**14**	195	68	144	**65**	277	38	209	88	335	5	153	47	205
+30 mins.	34	127	13	174	64	147	47	258	35	**256**	**99**	**390**	6	**155**	54	**215**
+45 mins.	35	**178**	4	**217**	74	**152**	59	**285**	**62**	227	83	372	5	140	70	215
Total Volume	145	596	41	782	281	585	221	1087	173	889	330	1392	23	579	246	848
% App. Total	18.5	76.2	5.2		25.9	53.8	20.3		12.4	63.9	23.7		2.7	68.3	29	
PHF	.843	.837	.732	.901	.937	.962	.850	.954	.698	.868	.833	.892	.821	.934	.820	.986

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City of Glendale
N/S: San Fernando Road
E/W: Cerritos Avenue
Weather: Clear

File Name : 03GDESFCEPM
Site Code : 22117808
Start Date : 12/7/2017
Page No : 1

Groups Printed- Total Volume

	San Fernando Road Southbound				Cerritos Avenue Westbound				San Fernando Road Northbound				Cerritos Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	19	171	9	199	2	9	28	39	7	197	11	215	5	13	8	26	479
04:15 PM	20	179	7	206	4	7	24	35	7	200	8	215	6	9	6	21	477
04:30 PM	22	173	8	203	3	10	21	34	4	207	8	219	5	10	10	25	481
04:45 PM	12	179	4	195	2	5	22	29	6	200	7	213	8	18	10	36	473
Total	73	702	28	803	11	31	95	137	24	804	34	862	24	50	34	108	1910
05:00 PM	14	171	11	196	0	9	30	39	9	178	9	196	7	24	12	43	474
05:15 PM	20	192	7	219	3	6	29	38	5	207	11	223	6	19	5	30	510
05:30 PM	21	175	7	203	7	8	24	39	10	215	12	237	11	10	12	33	512
05:45 PM	34	126	14	174	0	10	20	30	4	216	12	232	5	15	8	28	464
Total	89	664	39	792	10	33	103	146	28	816	44	888	29	68	37	134	1960
Grand Total	162	1366	67	1595	21	64	198	283	52	1620	78	1750	53	118	71	242	3870
Apprch %	10.2	85.6	4.2		7.4	22.6	70		3	92.6	4.5		21.9	48.8	29.3		
Total %	4.2	35.3	1.7	41.2	0.5	1.7	5.1	7.3	1.3	41.9	2	45.2	1.4	3	1.8	6.3	

	San Fernando Road Southbound				Cerritos Avenue Westbound				San Fernando Road Northbound				Cerritos Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	12	179	4	195	2	5	22	29	6	200	7	213	8	18	10	36	473
05:00 PM	14	171	**11**	196	0	**9**	**30**	**39**	9	178	9	196	7	**24**	**12**	**43**	474
05:15 PM	20	**192**	7	**219**	3	6	29	38	5	207	11	223	6	19	5	30	510
05:30 PM	**21**	175	7	203	**7**	8	24	39	**10**	**215**	**12**	**237**	**11**	10	12	33	**512**
Total Volume	67	717	29	813	12	28	105	145	30	800	39	869	32	71	39	142	1969
% App. Total	8.2	88.2	3.6		8.3	19.3	72.4		3.5	92.1	4.5		22.5	50	27.5		
PHF	.798	.934	.659	.928	.429	.778	.875	.929	.750	.930	.813	.917	.727	.740	.813	.826	.961

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File Name : 03GDESFCEPM
Site Code : 22117808
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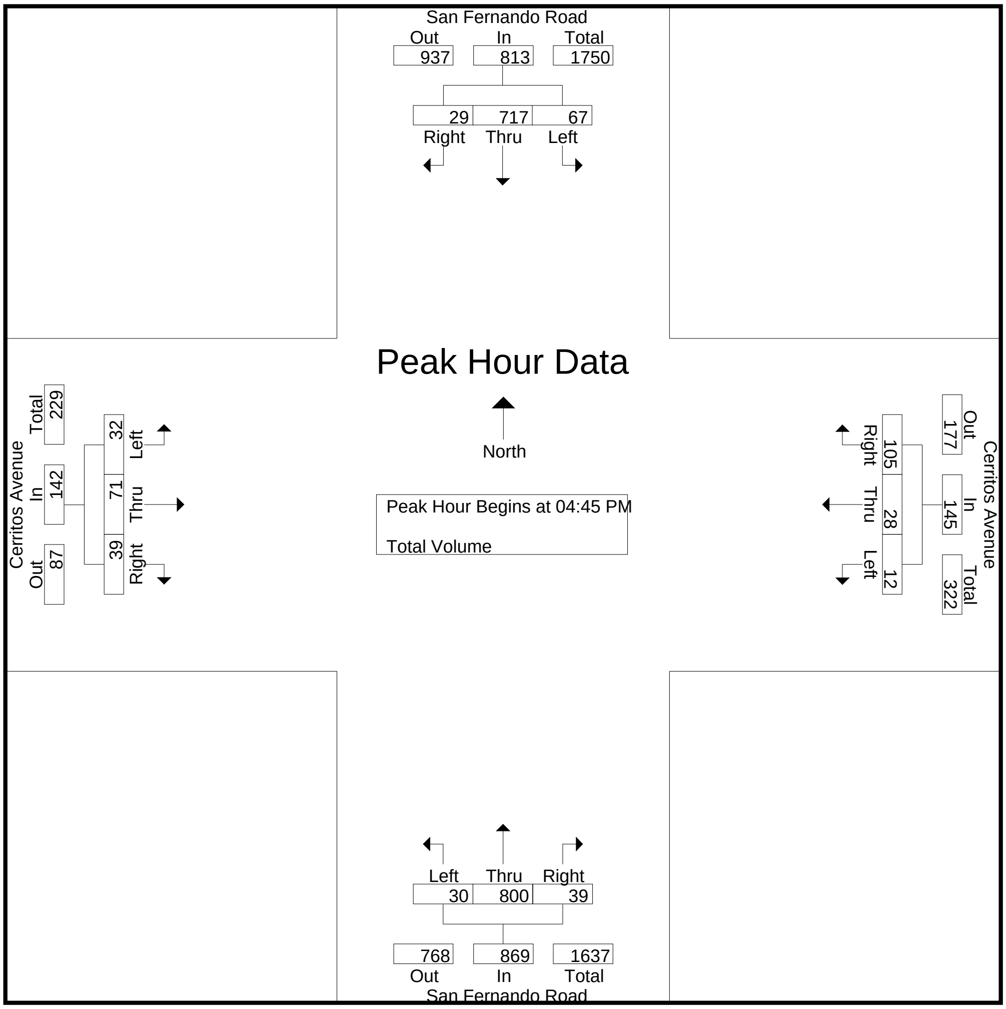

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				05:00 PM				05:00 PM				04:45 PM			
+0 mins.	**22**	173	8	203	0	9	**30**	**39**	9	178	9	196	8	18	10	36
+15 mins.	12	179	4	195	3	6	29	38	5	207	11	223	7	**24**	**12**	**43**
+30 mins.	14	171	**11**	196	**7**	8	24	39	**10**	215	**12**	**237**	6	19	5	30
+45 mins.	20	**192**	7	**219**	0	**10**	20	30	4	**216**	12	232	**11**	10	12	33
Total Volume	68	715	30	813	10	33	103	146	28	816	44	888	32	71	39	142
% App. Total	8.4	87.9	3.7		6.8	22.6	70.5		3.2	91.9	5		22.5	50	27.5	
PHF	.773	.931	.682	.928	.357	.825	.858	.936	.700	.944	.917	.937	.727	.740	.813	.826

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City of Glendale
N/S: San Fernando Road
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File Name : 03GDESFCESAT
Site Code : 22117808
Start Date : 12/9/2017
Page No : 1

Groups Printed- Total Volume

	San Fernando Road Southbound				Cerritos Avenue Westbound				San Fernando Road Northbound				Cerritos Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:00 AM	16	198	2	216	2	2	17	21	6	197	14	217	5	3	6	14	468
11:15 AM	22	195	3	220	5	1	30	36	7	183	18	208	0	6	5	11	475
11:30 AM	13	203	2	218	3	1	21	25	3	150	5	158	6	3	9	18	419
11:45 AM	13	192	5	210	4	4	16	24	4	187	15	206	2	2	6	10	450
Total	64	788	12	864	14	8	84	106	20	717	52	789	13	14	26	53	1812
12:00 PM	13	200	2	215	2	4	19	25	4	191	19	214	7	5	4	16	470
12:15 PM	17	229	7	253	4	1	17	22	2	190	19	211	3	3	3	9	495
12:30 PM	18	191	4	213	2	1	12	15	5	167	10	182	6	2	1	9	419
12:45 PM	13	192	6	211	4	1	22	27	6	197	12	215	9	7	7	23	476
Total	61	812	19	892	12	7	70	89	17	745	60	822	25	17	15	57	1860
01:00 PM	11	192	5	208	7	3	23	33	7	165	15	187	7	1	11	19	447
01:15 PM	16	206	4	226	4	6	14	24	2	180	12	194	1	9	8	18	462
01:30 PM	13	202	3	218	5	2	22	29	0	187	8	195	7	4	6	17	459
01:45 PM	22	203	6	231	4	3	34	41	5	183	12	200	0	6	2	8	480
Total	62	803	18	883	20	14	93	127	14	715	47	776	15	20	27	62	1848
Grand Total	187	2403	49	2639	46	29	247	322	51	2177	159	2387	53	51	68	172	5520
Apprch %	7.1	91.1	1.9		14.3	9	76.7		2.1	91.2	6.7		30.8	29.7	39.5		
Total %	3.4	43.5	0.9	47.8	0.8	0.5	4.5	5.8	0.9	39.4	2.9	43.2	1	0.9	1.2	3.1	

	San Fernando Road Southbound				Cerritos Avenue Westbound				San Fernando Road Northbound				Cerritos Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:00 PM																	
12:00 PM	13	200	2	215	2	**4**	19	25	4	191	**19**	214	7	5	4	16	470
12:15 PM	17	**229**	**7**	**253**	**4**	1	17	22	2	190	19	211	3	3	3	9	**495**
12:30 PM	**18**	191	4	213	2	1	12	15	5	167	10	182	6	2	1	9	419
12:45 PM	13	192	6	211	4	1	**22**	**27**	**6**	**197**	12	**215**	**9**	**7**	**7**	**23**	476
Total Volume	61	812	19	892	12	7	70	89	17	745	60	822	25	17	15	57	1860
% App. Total	6.8	91	2.1		13.5	7.9	78.7		2.1	90.6	7.3		43.9	29.8	26.3		
PHF	.847	.886	.679	.881	.750	.438	.795	.824	.708	.945	.789	.956	.694	.607	.536	.620	.939

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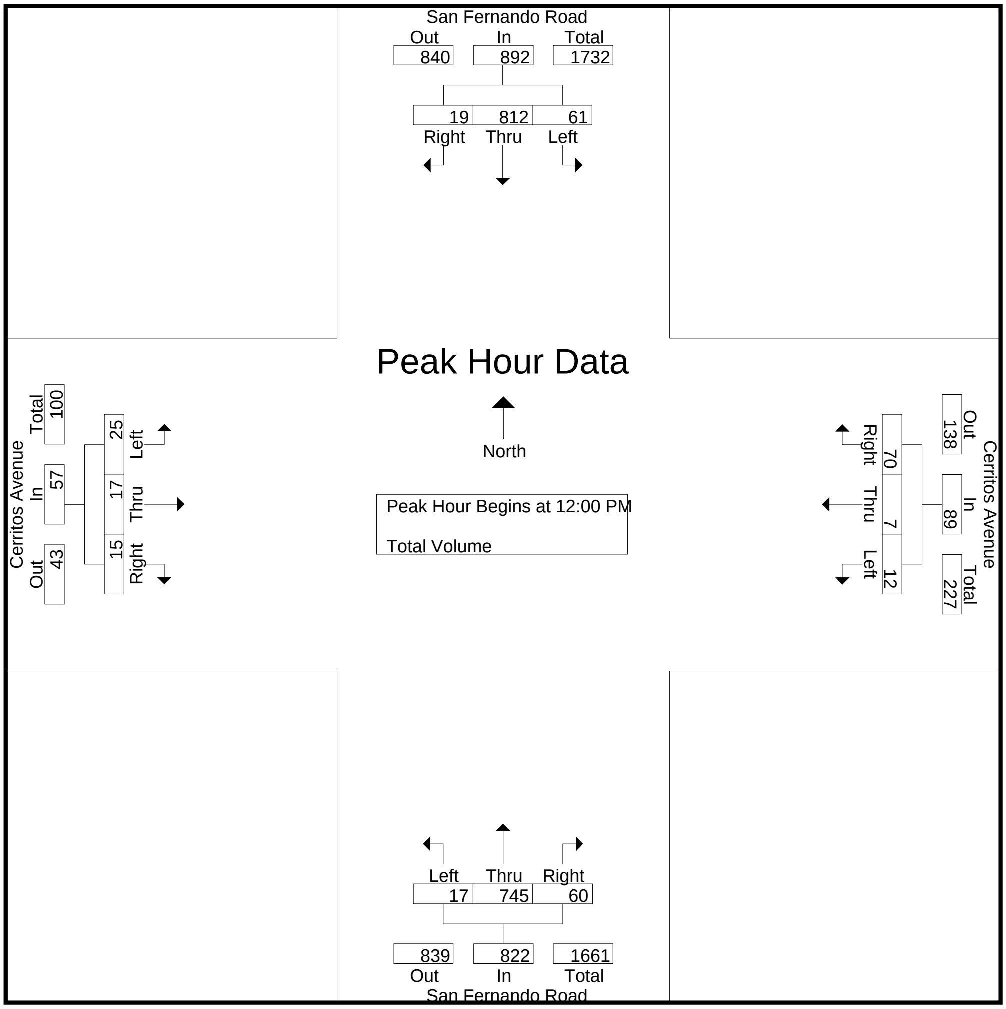
File Name : 03GDESFCESAT
Site Code : 22117808
Start Date : 12/9/2017
Page No : 2



Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:30 AM				01:00 PM				12:00 PM				12:45 PM			
+0 mins.	13	203	2	218	**7**	3	23	33	4	191	**19**	214	**9**	7	7	**23**
+15 mins.	13	192	5	210	4	**6**	14	24	2	190	19	211	7	1	**11**	19
+30 mins.	13	200	2	215	5	2	22	29	5	167	10	182	1	**9**	8	18
+45 mins.	**17**	**229**	**7**	**253**	4	3	**34**	**41**	**6**	**197**	12	**215**	7	4	6	17
Total Volume	56	824	16	896	20	14	93	127	17	745	60	822	24	21	32	77
% App. Total	6.2	92	1.8		15.7	11	73.2		2.1	90.6	7.3		31.2	27.3	41.6	
PHF	.824	.900	.571	.885	.714	.583	.684	.774	.708	.945	.789	.956	.667	.583	.727	.837

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City of Glendale
N/S: Brand Boulevard
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Weather: Clear

File Name : 04GDEBRCEPM
Site Code : 22117808
Start Date : 12/7/2017
Page No : 1

Groups Printed- Total Volume

	Brand Boulevard Southbound				Cerritos Avenue Westbound				Brand Boulevard Northbound				Cerritos Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	18	184	22	224	7	8	2	17	17	239	24	280	9	17	5	31	552
04:15 PM	11	205	24	240	5	9	9	23	8	235	10	253	11	15	2	28	544
04:30 PM	12	199	16	227	4	6	3	13	18	224	17	259	11	17	8	36	535
04:45 PM	16	204	18	238	9	8	4	21	4	275	24	303	11	15	8	34	596
Total	57	792	80	929	25	31	18	74	47	973	75	1095	42	64	23	129	2227
05:00 PM	17	203	29	249	9	7	4	20	6	262	18	286	11	19	5	35	590
05:15 PM	16	233	26	275	7	9	3	19	16	261	26	303	15	20	10	45	642
05:30 PM	13	215	18	246	1	11	2	14	14	242	17	273	11	25	10	46	579
05:45 PM	18	244	18	280	1	10	8	19	8	263	21	292	9	22	20	51	642
Total	64	895	91	1050	18	37	17	72	44	1028	82	1154	46	86	45	177	2453
Grand Total	121	1687	171	1979	43	68	35	146	91	2001	157	2249	88	150	68	306	4680
Apprch %	6.1	85.2	8.6		29.5	46.6	24		4	89	7		28.8	49	22.2		
Total %	2.6	36	3.7	42.3	0.9	1.5	0.7	3.1	1.9	42.8	3.4	48.1	1.9	3.2	1.5	6.5	

	Brand Boulevard Southbound				Cerritos Avenue Westbound				Brand Boulevard Northbound				Cerritos Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	17	203	**29**	249	**9**	7	4	**20**	6	262	18	286	11	19	5	35	590
05:15 PM	16	233	26	275	7	9	3	19	**16**	261	**26**	**303**	**15**	20	10	45	**642**
05:30 PM	13	215	18	246	1	**11**	2	14	14	242	17	273	11	**25**	10	46	579
05:45 PM	**18**	**244**	18	**280**	1	10	**8**	19	8	**263**	21	292	9	22	**20**	**51**	642
Total Volume	64	895	91	1050	18	37	17	72	44	1028	82	1154	46	86	45	177	2453
% App. Total	6.1	85.2	8.7		25	51.4	23.6		3.8	89.1	7.1		26	48.6	25.4		
PHF	.889	.917	.784	.938	.500	.841	.531	.900	.688	.977	.788	.952	.767	.860	.563	.868	.955

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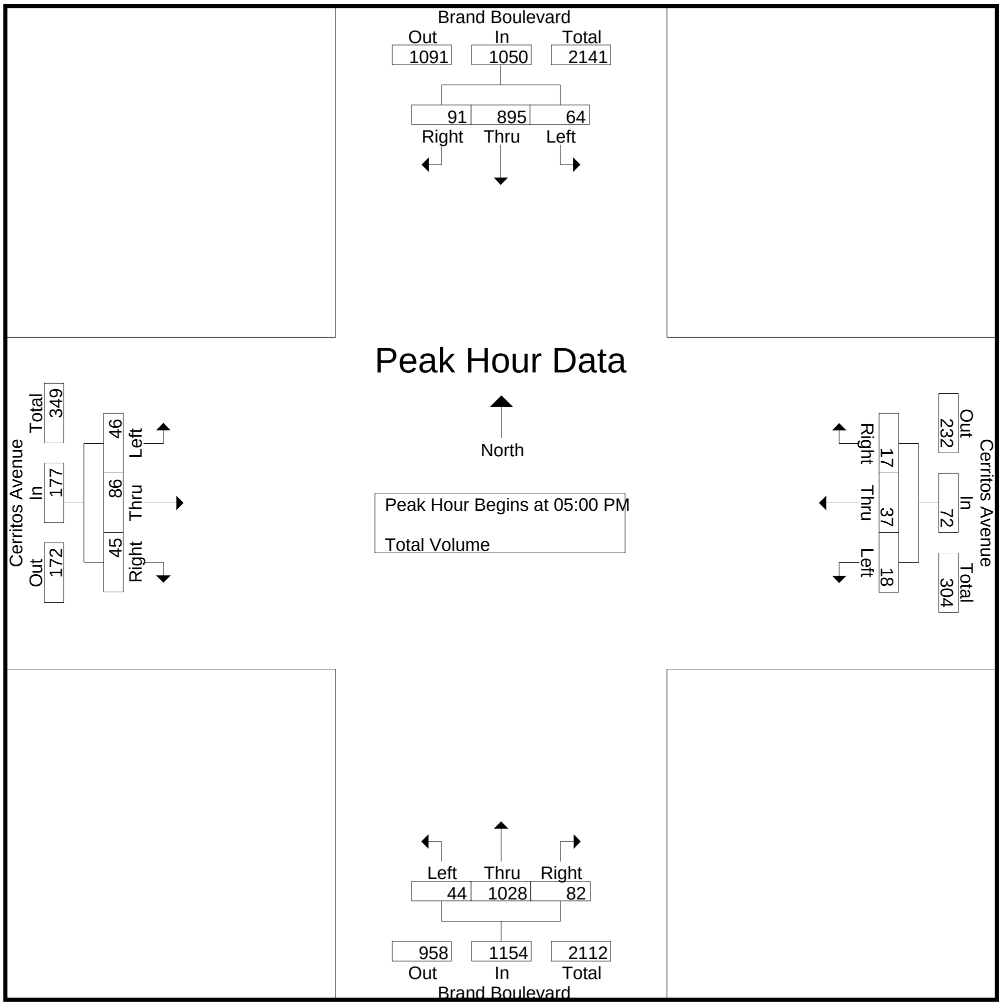
File Name : 04GDEBRCEPM
Site Code : 22117808
Start Date : 12/7/2017
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				04:15 PM				04:45 PM				05:00 PM			
+0 mins.	17	203	**29**	249	5	**9**	**9**	**23**	4	**275**	24	**303**	11	19	5	35
+15 mins.	16	233	26	275	4	6	3	13	6	262	18	286	**15**	20	10	45
+30 mins.	13	215	18	246	**9**	8	4	21	**16**	261	**26**	303	11	**25**	10	46
+45 mins.	**18**	**244**	18	**280**	9	7	4	20	14	242	17	273	9	22	**20**	**51**
Total Volume	64	895	91	1050	27	30	20	77	40	1040	85	1165	46	86	45	177
% App. Total	6.1	85.2	8.7		35.1	39	26		3.4	89.3	7.3		26	48.6	25.4	
PHF	.889	.917	.784	.938	.750	.833	.556	.837	.625	.945	.817	.961	.767	.860	.563	.868

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City of Glendale
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File Name : 04GDEBRCESAT
Site Code : 22117808
Start Date : 12/9/2017
Page No : 1

Groups Printed- Total Volume

	Brand Boulevard Southbound				Cerritos Avenue Westbound				Brand Boulevard Northbound				Cerritos Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:00 AM	3	143	20	166	3	5	0	8	13	194	11	218	10	4	6	20	412
11:15 AM	7	159	19	185	3	4	2	9	16	208	10	234	8	5	8	21	449
11:30 AM	5	145	7	157	4	6	2	12	29	254	13	296	6	6	4	16	481
11:45 AM	5	145	24	174	3	8	3	14	16	228	10	254	7	4	10	21	463
Total	20	592	70	682	13	23	7	43	74	884	44	1002	31	19	28	78	1805
12:00 PM	6	162	18	186	6	6	2	14	10	203	9	222	9	8	5	22	444
12:15 PM	4	162	17	183	4	6	2	12	14	244	23	281	8	13	7	28	504
12:30 PM	6	178	20	204	8	7	2	17	12	199	15	226	5	16	12	33	480
12:45 PM	7	164	17	188	5	6	2	13	13	228	18	259	10	7	7	24	484
Total	23	666	72	761	23	25	8	56	49	874	65	988	32	44	31	107	1912
01:00 PM	7	176	33	216	2	6	4	12	16	213	17	246	8	10	6	24	498
01:15 PM	4	190	17	211	4	4	2	10	20	242	12	274	17	6	9	32	527
01:30 PM	6	170	18	194	2	3	1	6	23	265	21	309	6	6	13	25	534
01:45 PM	8	188	23	219	7	6	2	15	23	263	20	306	9	8	16	33	573
Total	25	724	91	840	15	19	9	43	82	983	70	1135	40	30	44	114	2132
Grand Total	68	1982	233	2283	51	67	24	142	205	2741	179	3125	103	93	103	299	5849
Apprch %	3	86.8	10.2		35.9	47.2	16.9		6.6	87.7	5.7		34.4	31.1	34.4		
Total %	1.2	33.9	4	39	0.9	1.1	0.4	2.4	3.5	46.9	3.1	53.4	1.8	1.6	1.8	5.1	

	Brand Boulevard Southbound				Cerritos Avenue Westbound				Brand Boulevard Northbound				Cerritos Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	7	176	**33**	216	2	**6**	**4**	12	16	213	17	246	8	**10**	6	24	498
01:15 PM	4	**190**	17	211	4	4	2	10	20	242	12	274	**17**	6	9	32	527
01:30 PM	6	170	18	194	2	3	1	6	**23**	**265**	**21**	**309**	6	6	13	25	534
01:45 PM	**8**	188	23	**219**	**7**	6	2	**15**	23	263	20	306	9	8	**16**	**33**	**573**
Total Volume	25	724	91	840	15	19	9	43	82	983	70	1135	40	30	44	114	2132
% App. Total	3	86.2	10.8		34.9	44.2	20.9		7.2	86.6	6.2		35.1	26.3	38.6		
PHF	.781	.953	.689	.959	.536	.792	.563	.717	.891	.927	.833	.918	.588	.750	.688	.864	.930

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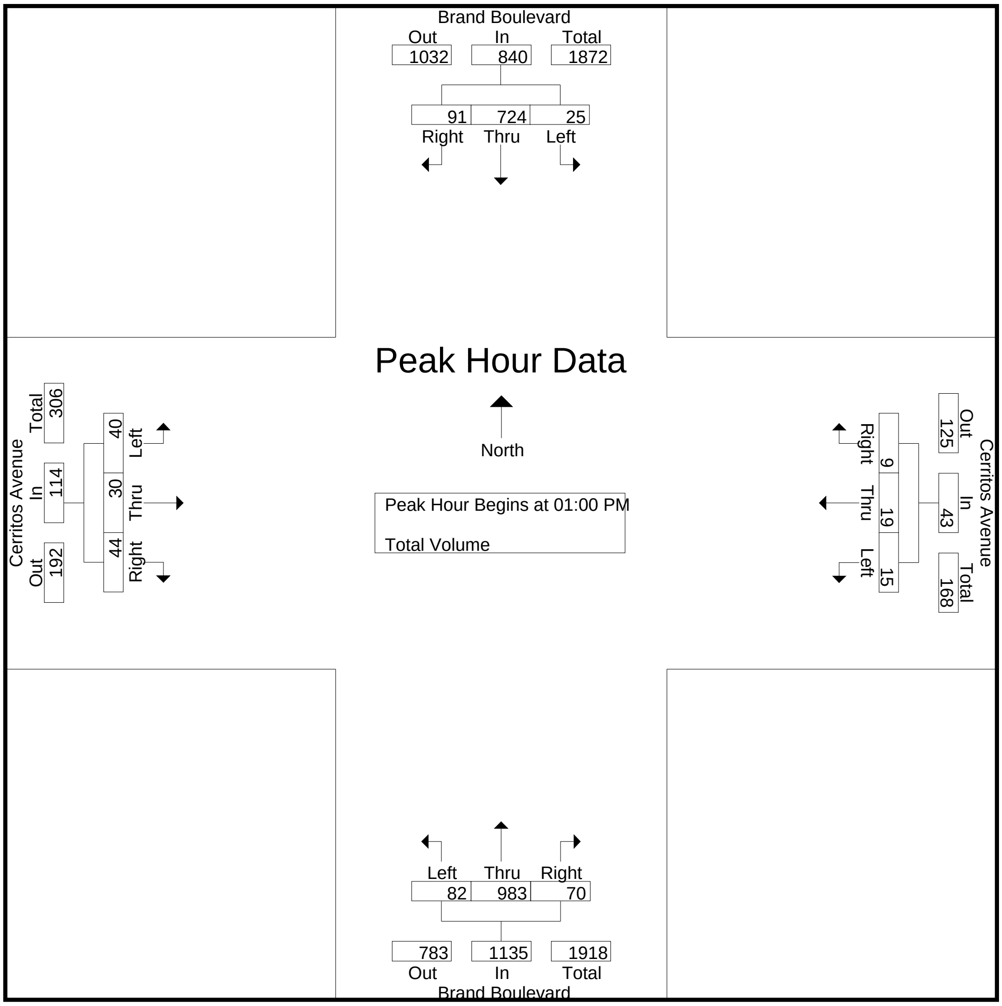

Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	01:00 PM				11:45 AM				01:00 PM				01:00 PM			
+0 mins.	7	176	**33**	216	3	**8**	**3**	14	16	213	17	246	8	**10**	6	24
+15 mins.	4	**190**	17	211	6	6	2	14	20	242	12	274	**17**	6	9	32
+30 mins.	6	170	18	194	4	6	2	12	**23**	**265**	**21**	**309**	6	6	13	25
+45 mins.	**8**	188	23	**219**	**8**	7	2	**17**	23	263	20	306	9	8	**16**	**33**
Total Volume	25	724	91	840	21	27	9	57	82	983	70	1135	40	30	44	114
% App. Total	3	86.2	10.8		36.8	47.4	15.8		7.2	86.6	6.2		35.1	26.3	38.6	
PHF	.781	.953	.689	.959	.656	.844	.750	.838	.891	.927	.833	.918	.588	.750	.688	.864

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City of Glendale
N/S: Glendale Avenue
E/W: Cerritos Avenue
Weather: Clear

File Name : 05GDEGLCEPM
Site Code : 22117808
Start Date : 12/7/2017
Page No : 1

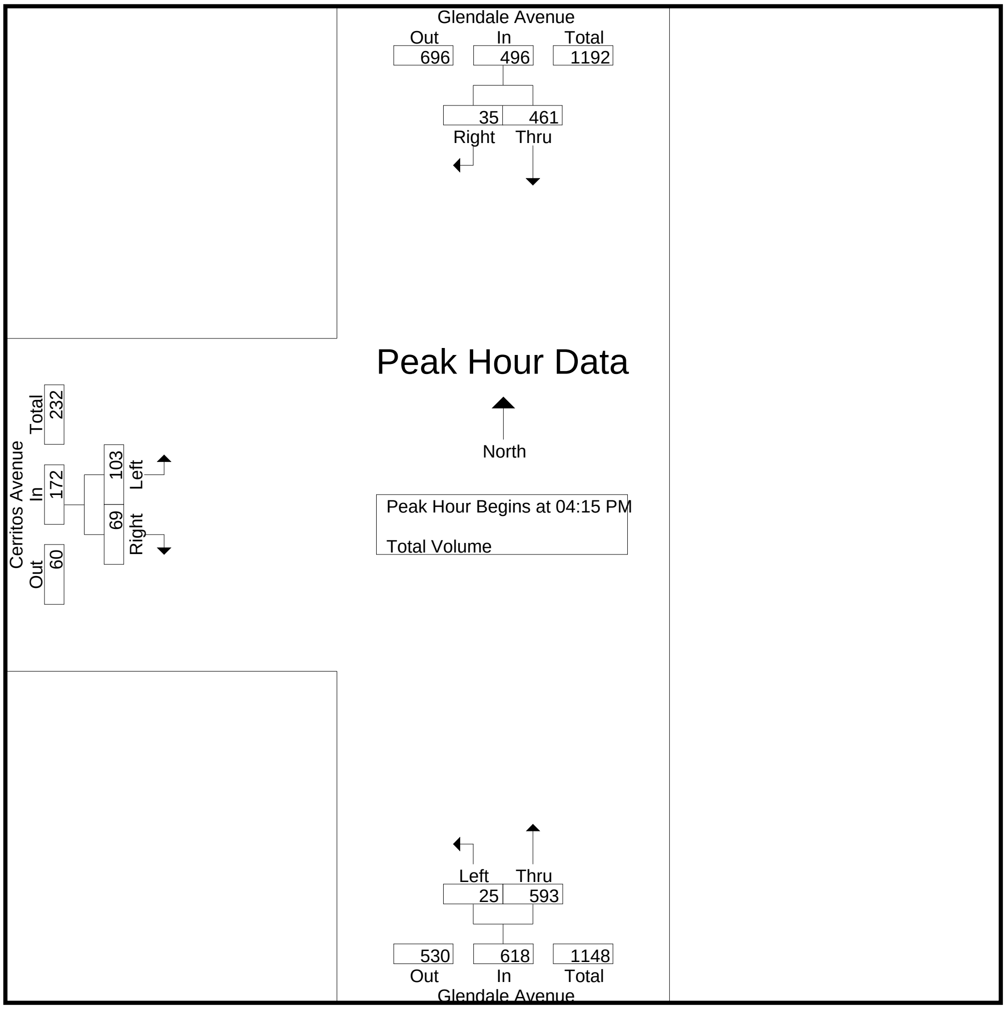
Groups Printed- Total Volume

	Glendale Avenue Southbound			Glendale Avenue Northbound			Cerritos Avenue Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
04:00 PM	121	11	132	4	116	120	36	32	68	320
04:15 PM	125	11	136	9	156	165	18	14	32	333
04:30 PM	117	6	123	3	147	150	26	19	45	318
04:45 PM	91	7	98	6	139	145	32	18	50	293
Total	454	35	489	22	558	580	112	83	195	1264
05:00 PM	128	11	139	7	151	158	27	18	45	342
05:15 PM	101	10	111	3	132	135	43	21	64	310
05:30 PM	95	7	102	5	131	136	30	20	50	288
05:45 PM	106	8	114	4	114	118	30	28	58	290
Total	430	36	466	19	528	547	130	87	217	1230
Grand Total	884	71	955	41	1086	1127	242	170	412	2494
Apprch %	92.6	7.4		3.6	96.4		58.7	41.3		
Total %	35.4	2.8	38.3	1.6	43.5	45.2	9.7	6.8	16.5	

	Glendale Avenue Southbound			Glendale Avenue Northbound			Cerritos Avenue Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:15 PM										
04:15 PM	125	**11**	136	**9**	**156**	**165**	18	14	32	333
04:30 PM	117	6	123	3	147	150	26	**19**	45	318
04:45 PM	91	7	98	6	139	145	**32**	18	**50**	293
05:00 PM	**128**	11	**139**	7	151	158	27	18	45	**342**
Total Volume	461	35	496	25	593	618	103	69	172	1286
% App. Total	92.9	7.1		4	96		59.9	40.1		
PHF	.900	.795	.892	.694	.950	.936	.805	.908	.860	.940

City of Glendale
N/S: Glendale Avenue
E/W: Cerritos Avenue
Weather: Clear

File Name : 05GDEGLCEPM
Site Code : 22117808
Start Date : 12/7/2017
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM			04:15 PM			05:00 PM		
+0 mins.	125	**11**	136	**9**	**156**	**165**	27	18	45
+15 mins.	117	6	123	3	147	150	**43**	21	**64**
+30 mins.	91	7	98	6	139	145	30	20	50
+45 mins.	**128**	11	**139**	7	151	158	30	**28**	58
Total Volume	461	35	496	25	593	618	130	87	217
% App. Total	92.9	7.1		4	96		59.9	40.1	
PHF	.900	.795	.892	.694	.950	.936	.756	.777	.848

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City of Glendale
N/S: Glendale Avenue
E/W: Cerritos Avenue
Weather: Clear

File Name : 05GDEGLCESAT
Site Code : 22117808
Start Date : 12/9/2017
Page No : 1

Groups Printed- Total Volume

	Glendale Avenue Southbound			Glendale Avenue Northbound			Cerritos Avenue Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
11:00 AM	114	5	119	5	89	94	10	11	21	234
11:15 AM	140	5	145	5	119	124	11	12	23	292
11:30 AM	125	7	132	6	103	109	11	14	25	266
11:45 AM	130	6	136	10	122	132	7	12	19	287
Total	509	23	532	26	433	459	39	49	88	1079
12:00 PM	135	6	141	13	110	123	12	12	24	288
12:15 PM	129	4	133	7	153	160	28	13	41	334
12:30 PM	153	6	159	8	154	162	20	19	39	360
12:45 PM	160	8	168	7	138	145	15	16	31	344
Total	577	24	601	35	555	590	75	60	135	1326
01:00 PM	145	6	151	6	105	111	14	20	34	296
01:15 PM	132	5	137	6	119	125	13	9	22	284
01:30 PM	133	7	140	5	111	116	19	16	35	291
01:45 PM	133	5	138	6	122	128	18	14	32	298
Total	543	23	566	23	457	480	64	59	123	1169
Grand Total	1629	70	1699	84	1445	1529	178	168	346	3574
Apprch %	95.9	4.1		5.5	94.5		51.4	48.6		
Total %	45.6	2	47.5	2.4	40.4	42.8	5	4.7	9.7	

	Glendale Avenue Southbound			Glendale Avenue Northbound			Cerritos Avenue Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 12:15 PM										
12:15 PM	129	4	133	7	153	160	**28**	13	**41**	334
12:30 PM	153	6	159	**8**	**154**	**162**	20	19	39	**360**
12:45 PM	**160**	**8**	**168**	7	138	145	15	16	31	344
01:00 PM	145	6	151	6	105	111	14	**20**	34	296
Total Volume	587	24	611	28	550	578	77	68	145	1334
% App. Total	96.1	3.9		4.8	95.2		53.1	46.9		
PHF	.917	.750	.909	.875	.893	.892	.688	.850	.884	.926

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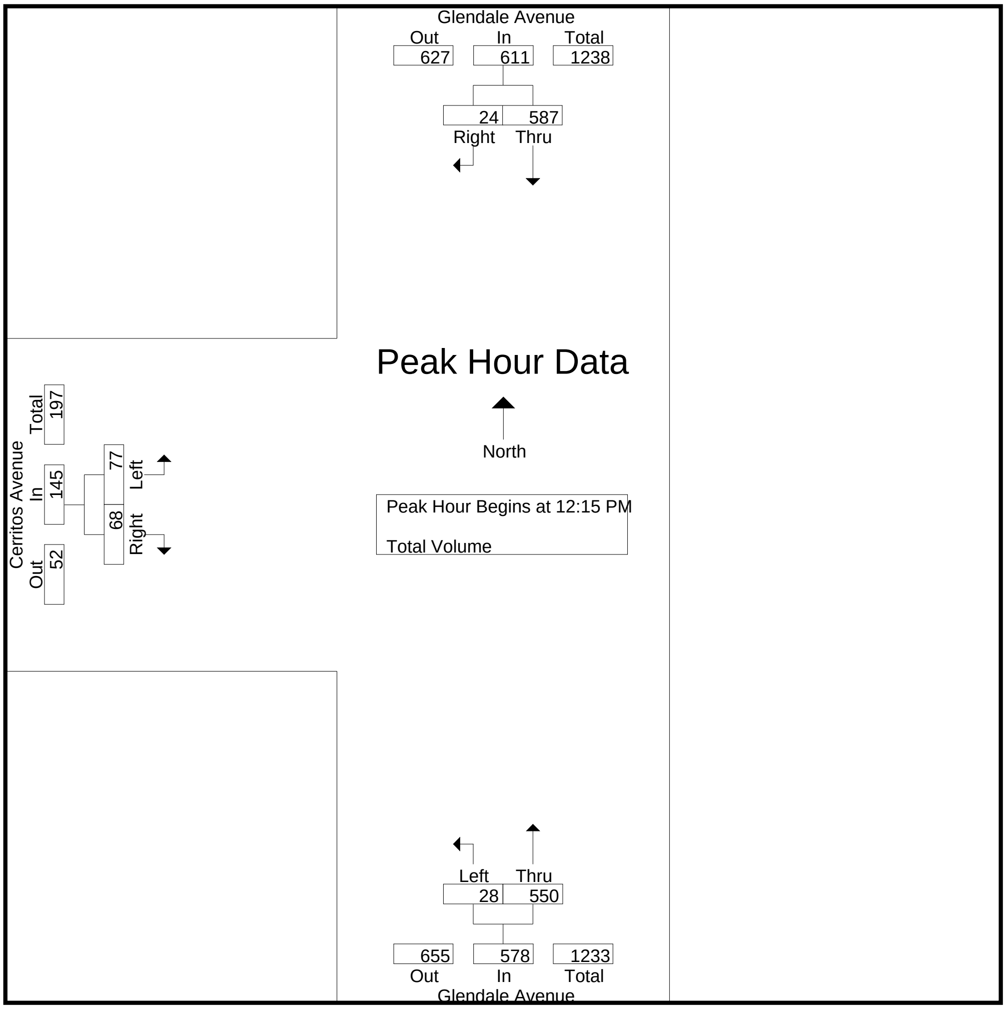

Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	12:30 PM			12:00 PM			12:15 PM		
+0 mins.	153	6	159	**13**	110	123	**28**	13	**41**
+15 mins.	**160**	**8**	**168**	7	153	160	20	19	39
+30 mins.	145	6	151	8	**154**	**162**	15	16	31
+45 mins.	132	5	137	7	138	145	14	**20**	34
Total Volume	590	25	615	35	555	590	77	68	145
% App. Total	95.9	4.1		5.9	94.1		53.1	46.9	
PHF	.922	.781	.915	.673	.901	.910	.688	.850	.884

Appendix C. Intersection Turn Movement Volumes and LOS Worksheets, Existing Conditions

Appendices

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Cerritos Elementary School

Vistro File: P:\...\Cerritos ES_working.vistro
Report File: P:\...\EX Weekday PM-Revised.pdf

Scenario 1 Existing Weekday PM
4/19/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Glendale Avenue at San Fernando Road	Signalized	ICU 1	WB Thru	0.698	-	B
2	Brand Boulevard at San Fernando Road	Signalized	ICU 1	NB Thru	0.839	-	D
3	San Fernando Road at Cerritos Avenue	Signalized	ICU 1	NB Thru	0.507	-	A
4	Brand Boulevard at Cerritos Avenue	Signalized	ICU 1	NB Thru	0.552	-	A
5	Glendale Avenue at Cerritos Avenue	Two-way stop	HCM 2010	EB Left	0.339	22.8	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Glendale Avenue at San Fernando Road

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.698

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	100.00	50.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	416	0	139	104	783	0	0	873	416
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	416	0	139	104	783	0	0	873	416
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	104	0	35	26	196	0	0	218	104
Total Analysis Volume [veh/h]	0	0	0	416	0	139	104	783	0	0	873	416
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	0	0	1	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.13	0.00	0.09	0.07	0.24	0.00	0.00	0.40	0.40
Intersection LOS	B											
Intersection V/C	0.698											

Intersection Level Of Service Report
Intersection 2: Brand Boulevard at San Fernando Road

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.839

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			25.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	274	930	243	119	770	53	16	477	270	261	569	189
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	274	930	243	119	770	53	16	477	270	261	569	189
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	69	233	61	30	193	13	4	119	68	65	142	47
Total Analysis Volume [veh/h]	274	930	243	119	770	53	16	477	270	261	569	189
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.17	0.24	0.24	0.07	0.17	0.17	0.01	0.23	0.23	0.16	0.18	0.12
Intersection LOS	D											
Intersection V/C	0.839											

Intersection Level Of Service Report
Intersection 3: San Fernando Road at Cerritos Avenue

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.507

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	150.00	100.00	100.00	200.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	30	800	39	67	717	29	32	71	39	12	28	105
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	30	800	39	67	717	29	32	71	39	12	28	105
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	200	10	17	179	7	8	18	10	3	7	26
Total Analysis Volume [veh/h]	30	800	39	67	717	29	32	71	39	12	28	105
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.26	0.26	0.04	0.23	0.23	0.02	0.07	0.07	0.01	0.08	0.08
Intersection LOS	A											
Intersection V/C	0.507											

Intersection Level Of Service Report
Intersection 4: Brand Boulevard at Cerritos Avenue

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.552

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	44	1028	82	64	895	91	46	86	45	18	37	17
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	44	1028	82	64	895	91	46	86	45	18	37	17
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	257	21	16	224	23	12	22	11	5	9	4
Total Analysis Volume [veh/h]	44	1028	82	64	895	91	46	86	45	18	37	17
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.35	0.35	0.04	0.31	0.31	0.03	0.05	0.03	0.01	0.03	0.03
Intersection LOS	A											
Intersection V/C	0.552											

Intersection Level Of Service Report
Intersection 5: Glendale Avenue at Cerritos Avenue

Control Type:	Two-way stop	Delay (sec / veh):	22.8
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.339

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	25	593	461	35	103	69
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	593	461	35	103	69
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	148	115	9	26	17
Total Analysis Volume [veh/h]	25	593	461	35	103	69
Pedestrian Volume [ped/h]	0		0		0	

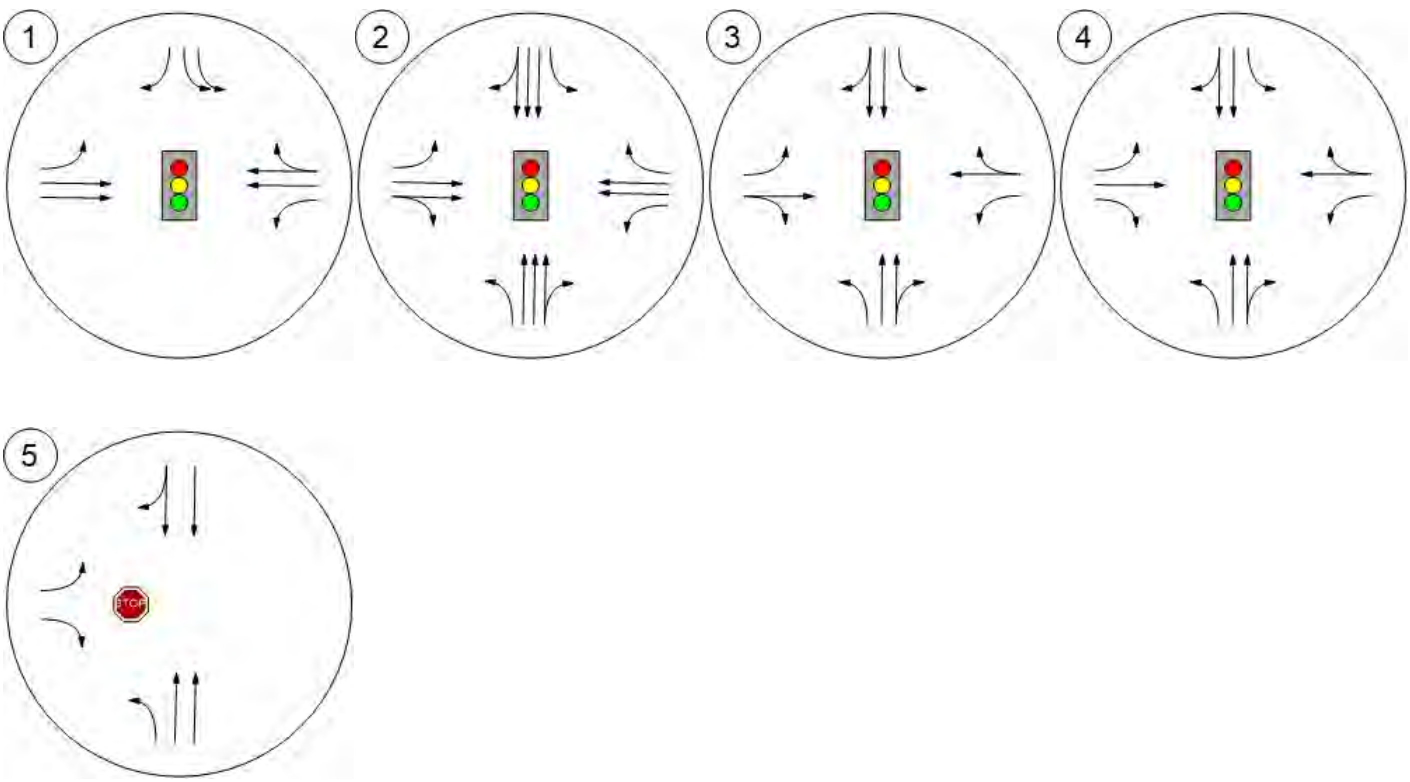
Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

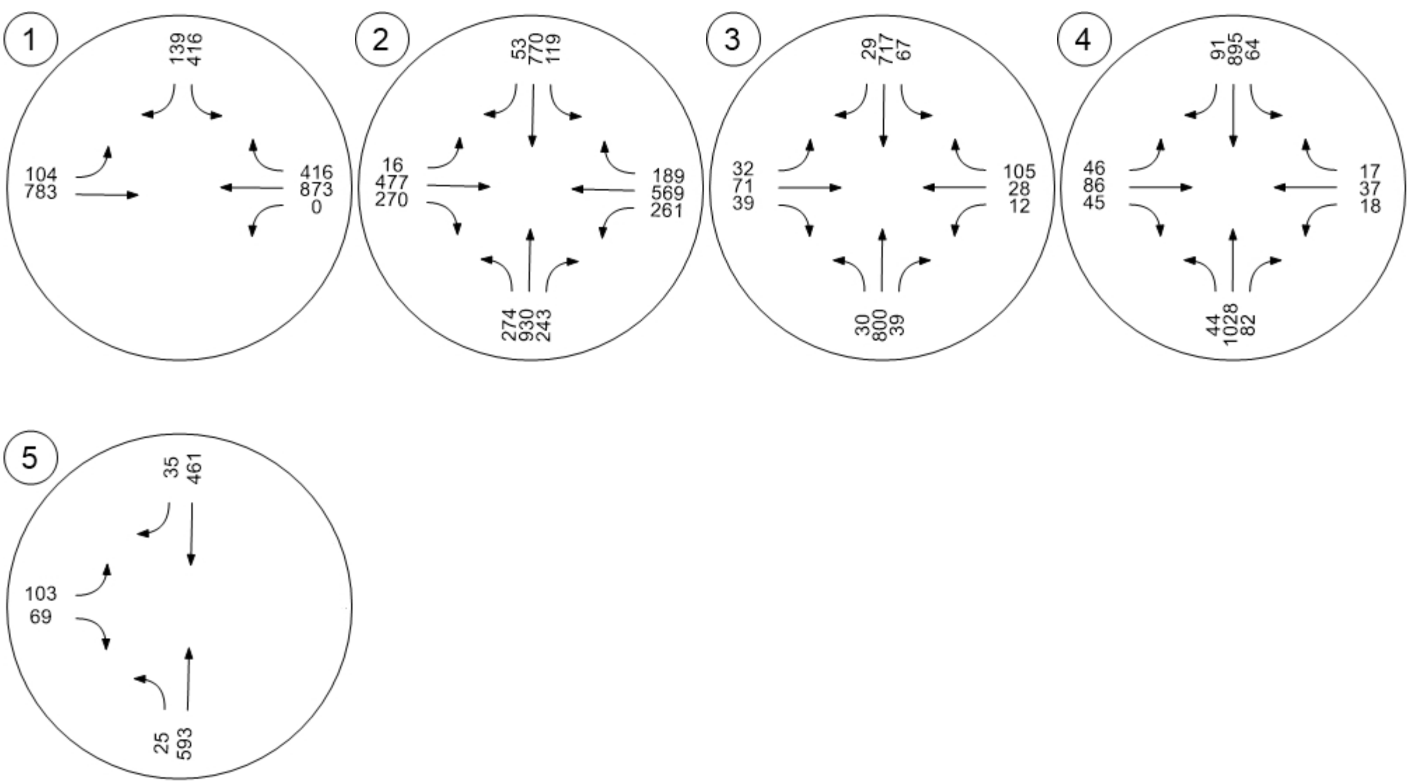
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.01	0.00	0.00	0.34	0.09
d_M, Delay for Movement [s/veh]	8.46	0.00	0.00	0.00	22.84	10.27
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.07	0.00	0.00	0.00	1.46	0.30
95th-Percentile Queue Length [ft/ln]	1.80	0.00	0.00	0.00	36.42	7.55
d_A, Approach Delay [s/veh]	0.34		0.00		17.80	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	2.54					
Intersection LOS	C					

Lane Configuration and Traffic Control



Traffic Volume - Future Total Volume



Cerritos Elementary School

Vistro File: P:\...\Cerritos ES_working.vistro | Scenario 2 Existing Saturday Midday
Report File: P:\...\EX Saturday Midday-Revised.pdf | 4/19/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Glendale Avenue at San Fernando Road	Signalized	ICU 1	WB Right	0.706	-	C
2	Brand Boulevard at San Fernando Road	Signalized	ICU 1	NB Thru	0.880	-	D
3	San Fernando Road at Cerritos Avenue	Signalized	ICU 1	SB Right	0.453	-	A
4	Brand Boulevard at Cerritos Avenue	Signalized	ICU 1	NB Thru	0.487	-	A
5	Glendale Avenue at Cerritos Avenue	Two-way stop	HCM 2010	EB Left	0.298	24.7	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: Glendale Avenue at San Fernando Road

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.706

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	100.00	50.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	474	0	151	65	958	0	0	924	410
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	474	0	151	65	958	0	0	924	410
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	119	0	38	16	240	0	0	231	103
Total Analysis Volume [veh/h]	0	0	0	474	0	151	65	958	0	0	924	410
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	0	0	1	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.15	0.00	0.09	0.04	0.30	0.00	0.00	0.42	0.42
Intersection LOS	C											
Intersection V/C	0.706											

Intersection Level Of Service Report
Intersection 2: Brand Boulevard at San Fernando Road

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.880

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			25.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	173	889	330	155	568	43	17	532	278	281	585	221
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	173	889	330	155	568	43	17	532	278	281	585	221
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	43	222	83	39	142	11	4	133	70	70	146	55
Total Analysis Volume [veh/h]	173	889	330	155	568	43	17	532	278	281	585	221
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.25	0.25	0.10	0.13	0.13	0.01	0.25	0.25	0.18	0.18	0.14
Intersection LOS	D											
Intersection V/C	0.880											

Intersection Level Of Service Report
Intersection 3: San Fernando Road at Cerritos Avenue

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.453

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	150.00	100.00	100.00	200.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	17	745	60	61	812	19	25	17	15	12	7	70
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	745	60	61	812	19	25	17	15	12	7	70
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	186	15	15	203	5	6	4	4	3	2	18
Total Analysis Volume [veh/h]	17	745	60	61	812	19	25	17	15	12	7	70
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.25	0.25	0.04	0.26	0.26	0.02	0.02	0.02	0.01	0.05	0.05
Intersection LOS	A											
Intersection V/C	0.453											

Intersection Level Of Service Report

Intersection 4: Brand Boulevard at Cerritos Avenue

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.487

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	82	983	70	25	724	91	40	30	44	15	19	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	82	983	70	25	724	91	40	30	44	15	19	9
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	246	18	6	181	23	10	8	11	4	5	2
Total Analysis Volume [veh/h]	82	983	70	25	724	91	40	30	44	15	19	9
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.33	0.33	0.02	0.25	0.25	0.03	0.02	0.03	0.01	0.02	0.02
Intersection LOS	A											
Intersection V/C	0.487											

Intersection Level Of Service Report

Intersection 5: Glendale Avenue at Cerritos Avenue

Control Type:	Two-way stop	Delay (sec / veh):	24.7
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.298

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	28	550	587	24	77	68
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	28	550	587	24	77	68
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	138	147	6	19	17
Total Analysis Volume [veh/h]	28	550	587	24	77	68
Pedestrian Volume [ped/h]	0		0		0	

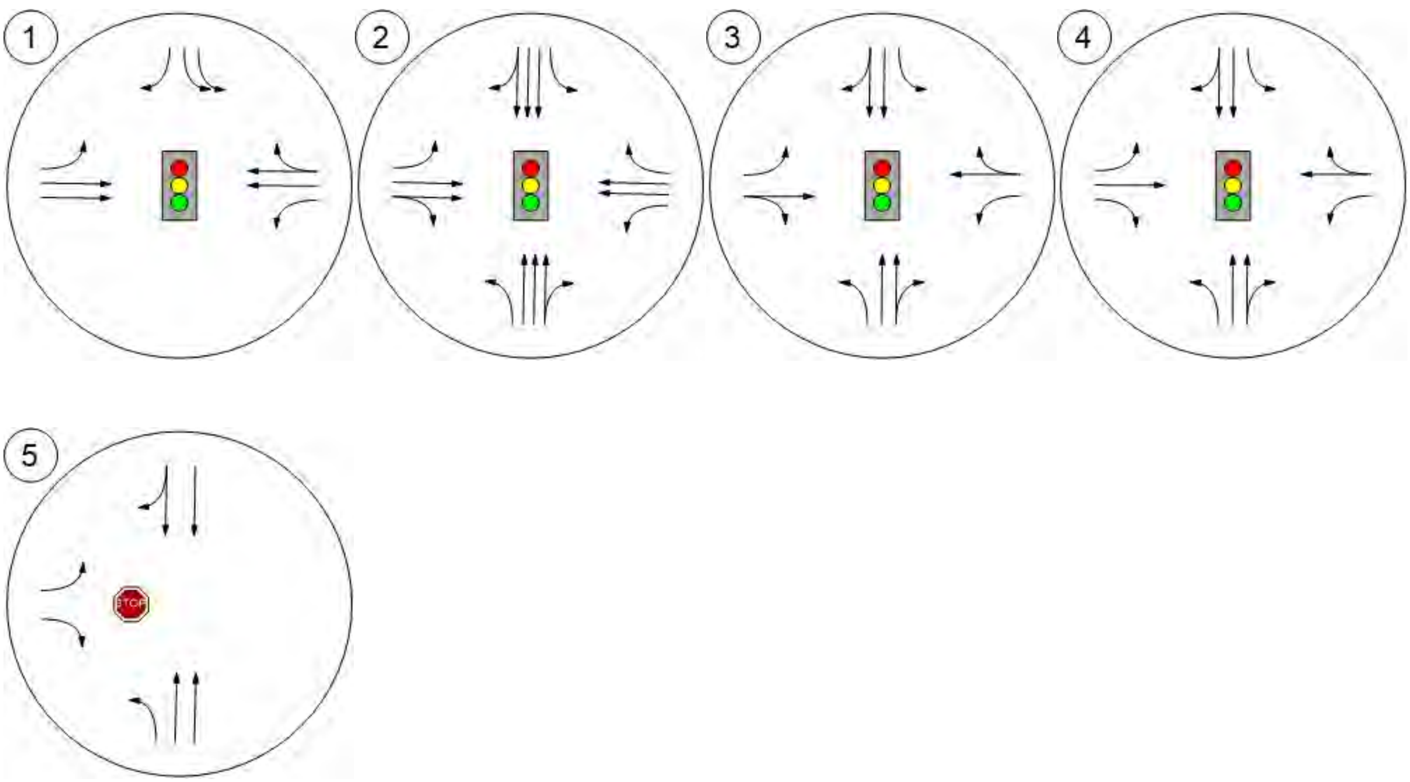
Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

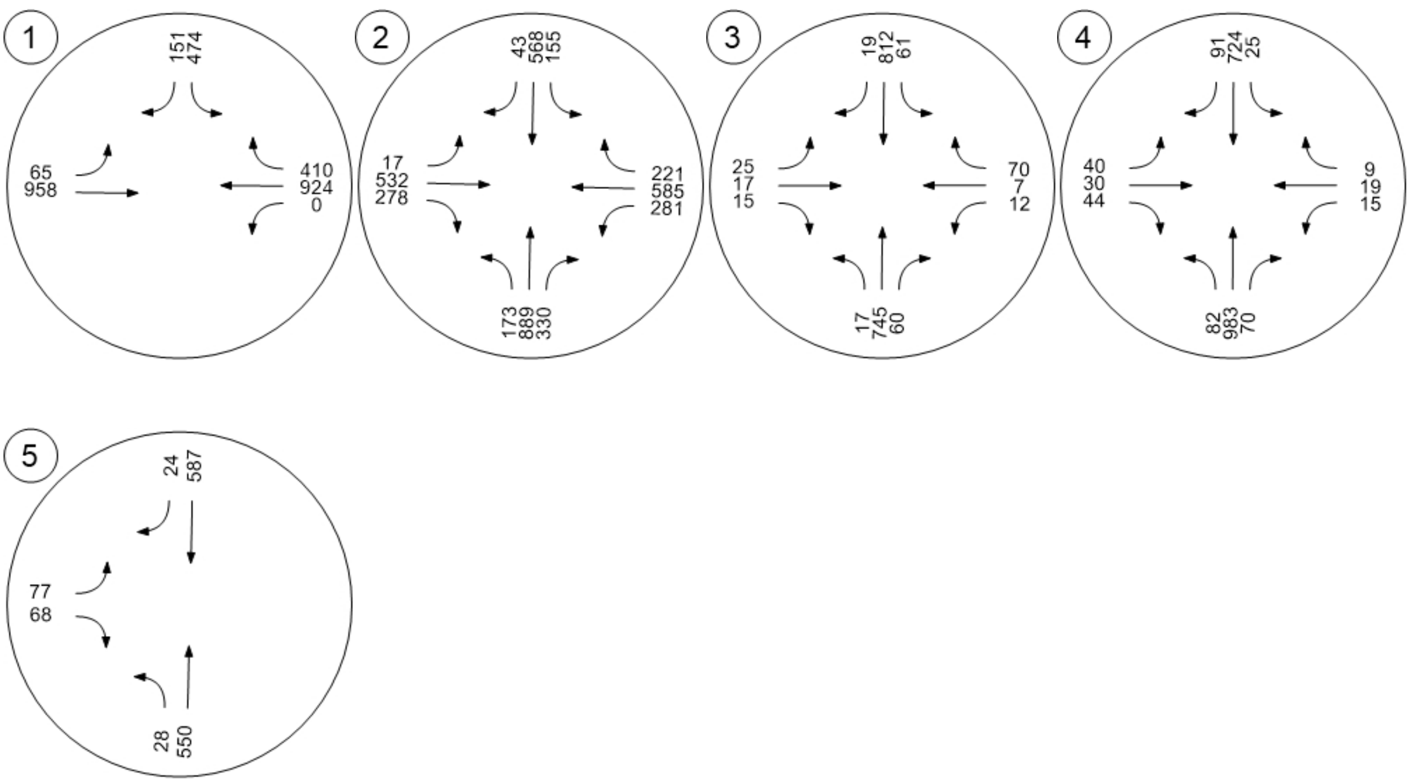
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.01	0.01	0.00	0.30	0.10
d_M, Delay for Movement [s/veh]	8.85	0.00	0.00	0.00	24.75	10.78
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.09	0.00	0.00	0.00	1.21	0.33
95th-Percentile Queue Length [ft/ln]	2.24	0.00	0.00	0.00	30.24	8.16
d_A, Approach Delay [s/veh]	0.43		0.00		18.20	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	2.16					
Intersection LOS	C					

Lane Configuration and Traffic Control



Traffic Volume - Future Total Volume



Appendix D. Parking Counts and Worksheets

Appendices

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Parking Occupancy Survey
Cerritos Elementary School
Glendale, CA
12/7/2017

Parking Areas

			Inv.	18:00	18:30	19:00	19:30	20:00	20:30	21:00	21:30	22:00
1	San Fernando Rd from Brand Blvd to Glendale Ave	North	**3**	1	0	0	0	0	0	0	0	0
		South	**6**	4	4	5	6	6	6	6	6	6
2	Brand Blvd from E Eulaila St to San Fernando Rd	East	**40**	13	8	9	6	5	6	7	4	4
		West	**20**	16	15	16	12	10	15	12	8	8
3	W Cerritos Ave from Brand Blvd to Glendale Ave	North	**9**	5	2	2	4	0	0	0	0	0
		South	**8**	4	3	3	0	6	6	5	4	4
4	E Cerritos Ave from Bran Blvd to Glendale Ave	North	**14**	6	5	3	5	5	4	4	4	4
		South	**15**	1	0	0	0	0	0	0	0	0
5	S Glendale Ave from E Eulaila St to San Fernando Rd	East	**0**	0	0	0	0	0	0	0	0	0
		West	**22**	2	1	1	0	0	0	0	0	0
6	Carmel St east of San Fernando Rd	East	**11**	9	7	7	8	10	10	11	11	11
		West	**12**	8	6	7	7	10	10	10	10	10
7	Cerritos Park Parking Lot	-	**46**	9	8	4	3	2	0	0	0	0
8	Cerritos School Parking Lots	-	**18**	6	2	1	2	2	2	2	2	2
TOTAL			**224**	**84**	**61**	**58**	**53**	**56**	**59**	**57**	**49**	**49**
			-	*38%*	*27%*	*26%*	*24%*	*25%*	*26%*	*25%*	*22%*	*22%*

Counts Unlimited, Inc.
P.O. Box 1178
Corona, CA 92878
951-268-6268

Parking Occupancy Survey
Cerritos Elementary School
Glendale, CA
12/9/2017

Parking Areas

			Inv.	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	13:00	13:30	14:00	14:30	15:00	15:30
1	San Fernando Rd from Brand Blvd to Glendale Ave	North	**3**	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		South	**6**	5	4	4	5	4	4	3	4	2	3	2	3	3	4	4	3
2	Brand Blvd from E Eulaila St to San Fernando Rd	East	**40**	7	7	8	10	11	17	19	21	22	19	19	21	27	27	26	27
		West	**20**	6	9	15	16	15	16	14	15	15	20	18	20	10	11	12	10
3	W Cerritos Ave from Brand Blvd to Glendale Ave	North	**9**	4	3	4	5	4	5	5	6	5	3	4	6	5	4	5	3
		South	**8**	5	5	6	6	6	6	3	6	5	5	5	7	5	6	7	5
4	E Cerritos Ave from Bran Blvd to Glendale Ave	North	**14**	3	3	3	5	6	12	9	9	12	8	11	12	11	8	11	13
		South	**15**	0	0	0	0	0	3	5	1	4	3	4	4	7	5	8	11
5	S Glendale Ave from E Eulaila St to San Fernando Rd	East	**0**	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		West	**22**	0	0	0	0	0	0	0	0	0	0	0	0	1	2	5	3
6	Carmel St east of San Fernando Rd	East	**11**	8	9	10	10	16	14	12	13	12	12	12	15	14	14	13	13
		West	**12**	8	9	12	11	12	16	14	14	13	12	14	13	14	13	15	13
7	Cerritos Park Parking Lot	-	**46**	2	1	0	3	7	6	12	12	10	6	6	7	6	7	7	9
8	Cerritos School Parking Lots	-	**18**	0	3	3	0	0	0	0	0	0	0	0	0	0	0	2	0
TOTAL			**224**	**48**	**54**	**65**	**71**	**81**	**99**	**96**	**101**	**100**	**91**	**95**	**108**	**104**	**101**	**115**	**110**
			-	*21%*	*24%*	*29%*	*32%*	*36%*	*44%*	*43%*	*45%*	*45%*	*41%*	*42%*	*48%*	*46%*	*45%*	*51%*	*49%*

Parking Areas

			Inv.	16:00	16:30	17:00	17:30	18:00	18:30	19:00	19:30	20:00	20:30	21:00	21:30	22:00
1	San Fernando Rd from Brand Blvd to Glendale Ave	North	**3**	0	0	0	0	0	0	0	1	0	1	1	1	1
		South	**6**	5	6	6	5	6	6	5	6	7	5	5	5	5
2	Brand Blvd from E Eulaila St to San Fernando Rd	East	**40**	25	22	22	20	18	14	14	15	12	12	12	12	12
		West	**20**	10	12	11	10	11	7	8	6	6	7	5	3	3
3	W Cerritos Ave from Brand Blvd to Glendale Ave	North	**9**	2	2	1	1	2	2	1	1	2	3	2	2	1
		South	**8**	5	5	4	5	5	2	3	5	6	6	5	4	4
4	E Cerritos Ave from Bran Blvd to Glendale Ave	North	**14**	12	10	9	6	3	4	2	2	2	3	3	2	2
		South	**15**	9	3	3	1	0	1	2	2	0	0	0	0	0
5	S Glendale Ave from E Eulaila St to San Fernando Rd	East	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
		West	**22**	2	0	0	0	0	0	0	0	0	0	0	0	0
6	Carmel St east of San Fernando Rd	East	**11**	13	12	14	9	11	11	13	14	11	11	11	13	13
		West	**12**	14	15	10	9	9	8	9	10	10	10	10	11	11
7	Cerritos Park Parking Lot	-	**46**	12	6	5	4	3	4	4	3	0	0	0	0	0
8	Cerritos School Parking Lots	-	**18**	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL			**224**	**109**	**93**	**85**	**70**	**68**	**59**	**61**	**65**	**56**	**58**	**54**	**53**	**52**
			-	*49%*	*42%*	*38%*	*31%*	*30%*	*26%*	*27%*	*29%*	*25%*	*26%*	*24%*	*24%*	*23%*

Appendix E. Intersection Turn Movement Volumes and LOS Worksheets, Existing With Project Conditions

Appendices

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Cerritos Elementary School

Vistro File: P:\...\Cerritos ES_working.vistro

Scenario 3 E+P Weekday PM

Report File: P:\...\E+P Weekday PM-Revised.pdf

4/19/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Glendale Avenue at San Fernando Road	Signalized	ICU 1	WB Thru	0.709	-	C
2	Brand Boulevard at San Fernando Road	Signalized	ICU 1	NB Thru	0.843	-	D
3	San Fernando Road at Cerritos Avenue	Signalized	ICU 1	NB Thru	0.508	-	A
4	Brand Boulevard at Cerritos Avenue	Signalized	ICU 1	NB Thru	0.553	-	A
5	Glendale Avenue at Cerritos Avenue	Two-way stop	HCM 2010	EB Left	0.348	23.5	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Glendale Avenue at San Fernando Road

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.709

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	100.00	50.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	416	0	139	104	783	0	0	873	416
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	2	0	8	14	0	0	0	0	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	418	0	147	118	783	0	0	873	421
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	105	0	37	30	196	0	0	218	105
Total Analysis Volume [veh/h]	0	0	0	418	0	147	118	783	0	0	873	421
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	0	0	1	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.13	0.00	0.09	0.07	0.24	0.00	0.00	0.40	0.40
Intersection LOS	C											
Intersection V/C	0.709											

Intersection Level Of Service Report
Intersection 2: Brand Boulevard at San Fernando Road

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.843

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			25.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	274	930	243	119	770	53	16	477	270	261	569	189
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	3	3	0	0	0	8	0	2	4	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	274	930	246	122	770	53	16	485	270	263	573	191
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	69	233	62	31	193	13	4	121	68	66	143	48
Total Analysis Volume [veh/h]	274	930	246	122	770	53	16	485	270	263	573	191
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.17	0.25	0.25	0.08	0.17	0.17	0.01	0.24	0.24	0.16	0.18	0.12
Intersection LOS	D											
Intersection V/C	0.843											

Intersection Level Of Service Report
Intersection 3: San Fernando Road at Cerritos Avenue

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.508

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	150.00	100.00	100.00	200.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	30	800	39	67	717	29	32	71	39	12	28	105
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	4	0	0	8	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	30	804	39	67	725	29	32	71	39	12	28	105
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	201	10	17	181	7	8	18	10	3	7	26
Total Analysis Volume [veh/h]	30	804	39	67	725	29	32	71	39	12	28	105
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.26	0.26	0.04	0.24	0.24	0.02	0.07	0.07	0.01	0.08	0.08
Intersection LOS	A											
Intersection V/C	0.508											

Intersection Level Of Service Report
Intersection 4: Brand Boulevard at Cerritos Avenue

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.553

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	44	1028	82	64	895	91	46	86	45	18	37	17
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	0	0	3	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	44	1030	82	64	898	91	46	86	45	18	37	17
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	258	21	16	225	23	12	22	11	5	9	4
Total Analysis Volume [veh/h]	44	1030	82	64	898	91	46	86	45	18	37	17
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.35	0.35	0.04	0.31	0.31	0.03	0.05	0.03	0.01	0.03	0.03
Intersection LOS	A											
Intersection V/C	0.553											

Intersection Level Of Service Report
Intersection 5: Glendale Avenue at Cerritos Avenue

Control Type:	Two-way stop	Delay (sec / veh):	23.5
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.348

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	25	593	461	35	103	69
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	6	13	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	599	474	35	103	69
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	150	119	9	26	17
Total Analysis Volume [veh/h]	25	599	474	35	103	69
Pedestrian Volume [ped/h]	0		0		0	

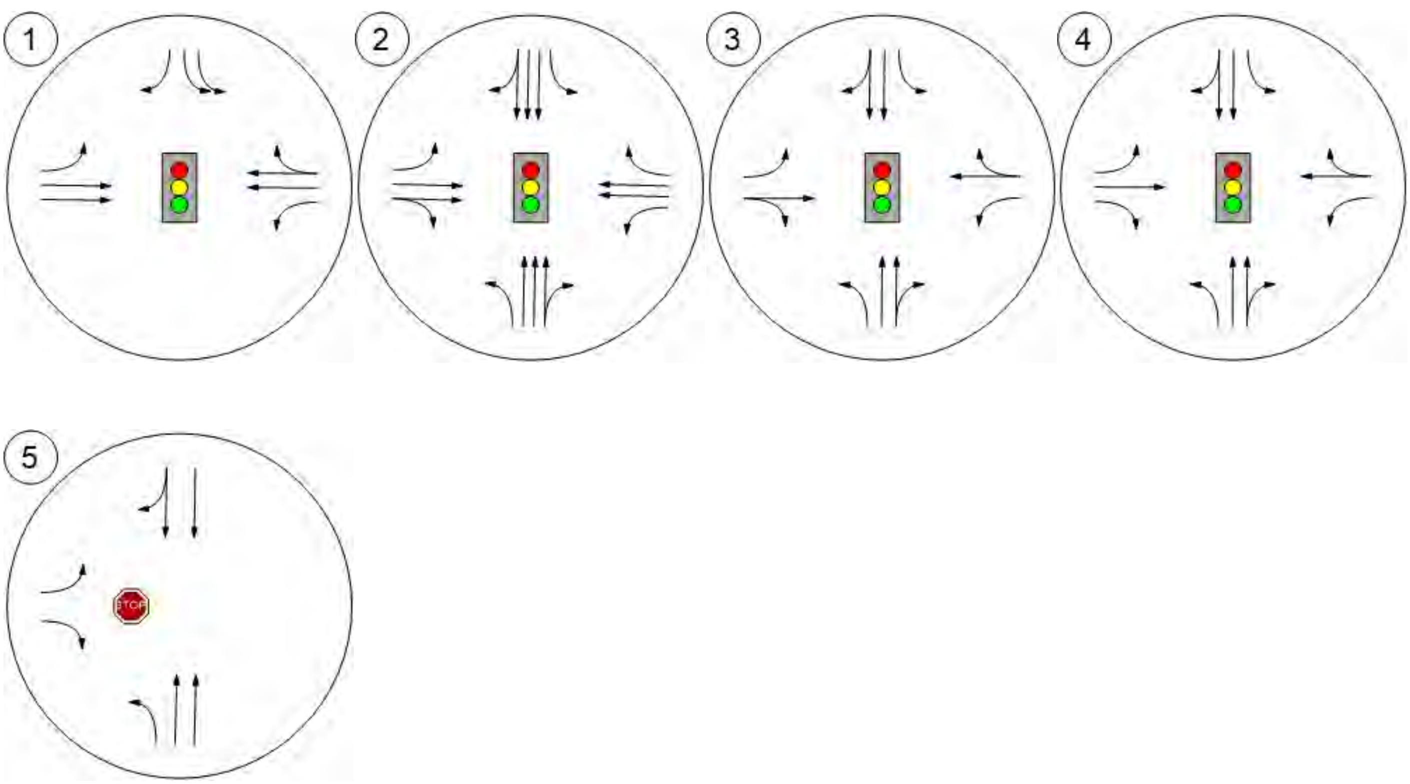
Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

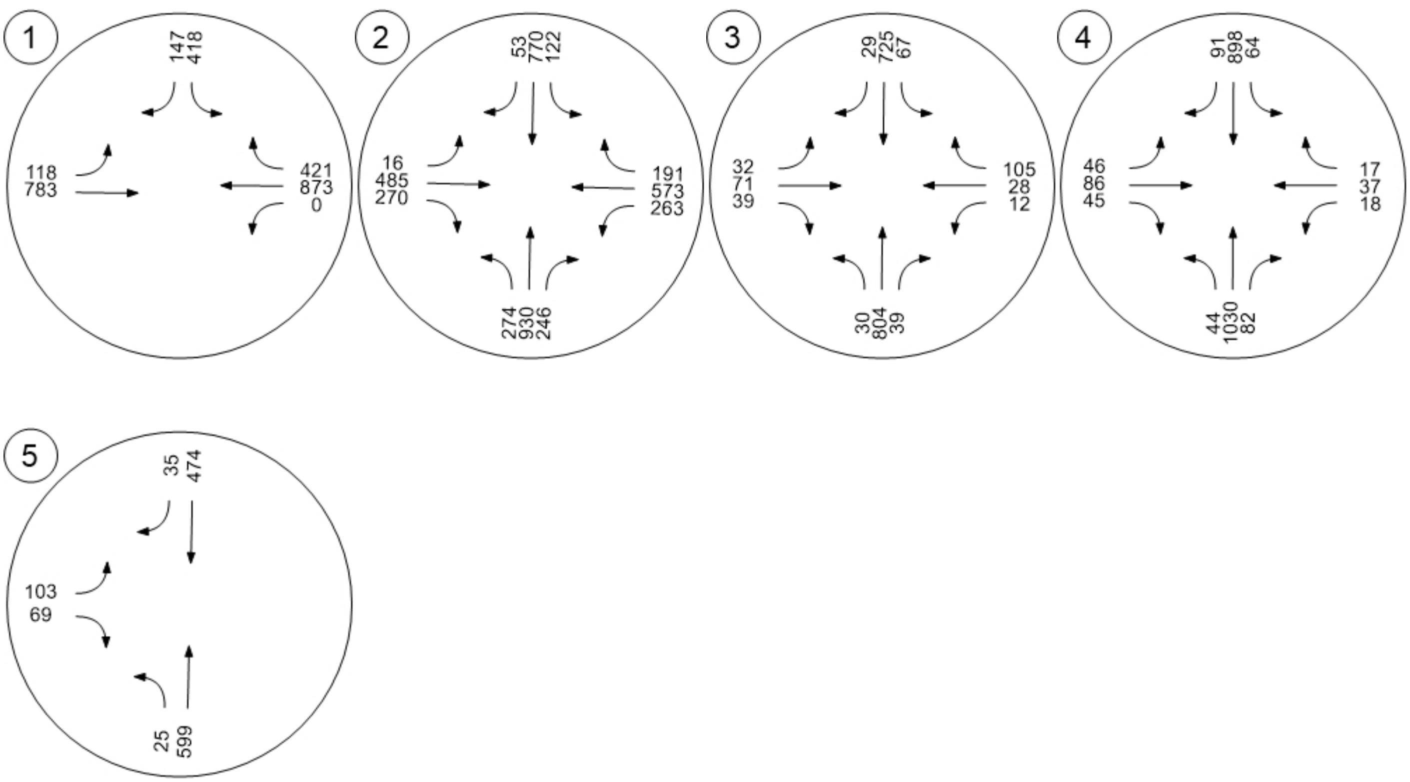
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.01	0.00	0.00	0.35	0.09
d_M, Delay for Movement [s/veh]	8.50	0.00	0.00	0.00	23.49	10.33
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.07	0.00	0.00	0.00	1.50	0.31
95th-Percentile Queue Length [ft/ln]	1.82	0.00	0.00	0.00	37.62	7.63
d_A, Approach Delay [s/veh]	0.34		0.00		18.21	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	2.56					
Intersection LOS	C					

Lane Configuration and Traffic Control



Traffic Volume - Future Total Volume



Cerritos Elementary School

Vistro File: P:\...\Cerritos ES_working.vistro
Scenario 4 E+P Saturday Midday

Report File: P:\...\E+P Saturday Midday-Revised.pdf
4/19/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Glendale Avenue at San Fernando Road	Signalized	ICU 1	WB Thru	0.718	-	C
2	Brand Boulevard at San Fernando Road	Signalized	ICU 1	EB Thru	0.887	-	D
3	San Fernando Road at Cerritos Avenue	Signalized	ICU 1	SB Right	0.456	-	A
4	Brand Boulevard at Cerritos Avenue	Signalized	ICU 1	NB Thru	0.488	-	A
5	Glendale Avenue at Cerritos Avenue	Two-way stop	HCM 2010	EB Left	0.307	25.6	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Glendale Avenue at San Fernando Road

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.718

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	100.00	50.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	474	0	151	65	958	0	0	924	410
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	5	0	17	14	0	0	0	0	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	479	0	168	79	958	0	0	924	415
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	120	0	42	20	240	0	0	231	104
Total Analysis Volume [veh/h]	0	0	0	479	0	168	79	958	0	0	924	415
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	0	0	1	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.15	0.00	0.11	0.05	0.30	0.00	0.00	0.42	0.42
Intersection LOS	C											
Intersection V/C	0.718											

Intersection Level Of Service Report
Intersection 2: Brand Boulevard at San Fernando Road

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.887

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			25.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	173	889	330	155	568	43	17	532	278	281	585	221
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	3	3	0	0	0	8	0	4	9	4
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	173	889	333	158	568	43	17	540	278	285	594	225
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	43	222	83	40	142	11	4	135	70	71	149	56
Total Analysis Volume [veh/h]	173	889	333	158	568	43	17	540	278	285	594	225
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.25	0.25	0.10	0.13	0.13	0.01	0.26	0.26	0.18	0.19	0.14
Intersection LOS	D											
Intersection V/C	0.887											

Intersection Level Of Service Report
Intersection 3: San Fernando Road at Cerritos Avenue

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.456

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	150.00	100.00	100.00	200.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	17	745	60	61	812	19	25	17	15	12	7	70
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	0	0	8	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	754	60	61	820	19	25	17	15	12	7	70
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	189	15	15	205	5	6	4	4	3	2	18
Total Analysis Volume [veh/h]	17	754	60	61	820	19	25	17	15	12	7	70
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.25	0.25	0.04	0.26	0.26	0.02	0.02	0.02	0.01	0.05	0.05
Intersection LOS	A											
Intersection V/C	0.456											

Intersection Level Of Service Report
Intersection 4: Brand Boulevard at Cerritos Avenue

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.488

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	82	983	70	25	724	91	40	30	44	15	19	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	4	0	0	3	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	82	987	70	25	727	91	40	30	44	15	19	9
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	247	18	6	182	23	10	8	11	4	5	2
Total Analysis Volume [veh/h]	82	987	70	25	727	91	40	30	44	15	19	9
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.33	0.33	0.02	0.26	0.26	0.03	0.02	0.03	0.01	0.02	0.02
Intersection LOS	A											
Intersection V/C	0.488											

Intersection Level Of Service Report
Intersection 5: Glendale Avenue at Cerritos Avenue

Control Type:	Two-way stop	Delay (sec / veh):	25.6
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.307

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	28	550	587	24	77	68
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	14	13	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	28	564	600	24	77	68
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	141	150	6	19	17
Total Analysis Volume [veh/h]	28	564	600	24	77	68
Pedestrian Volume [ped/h]	0		0		0	

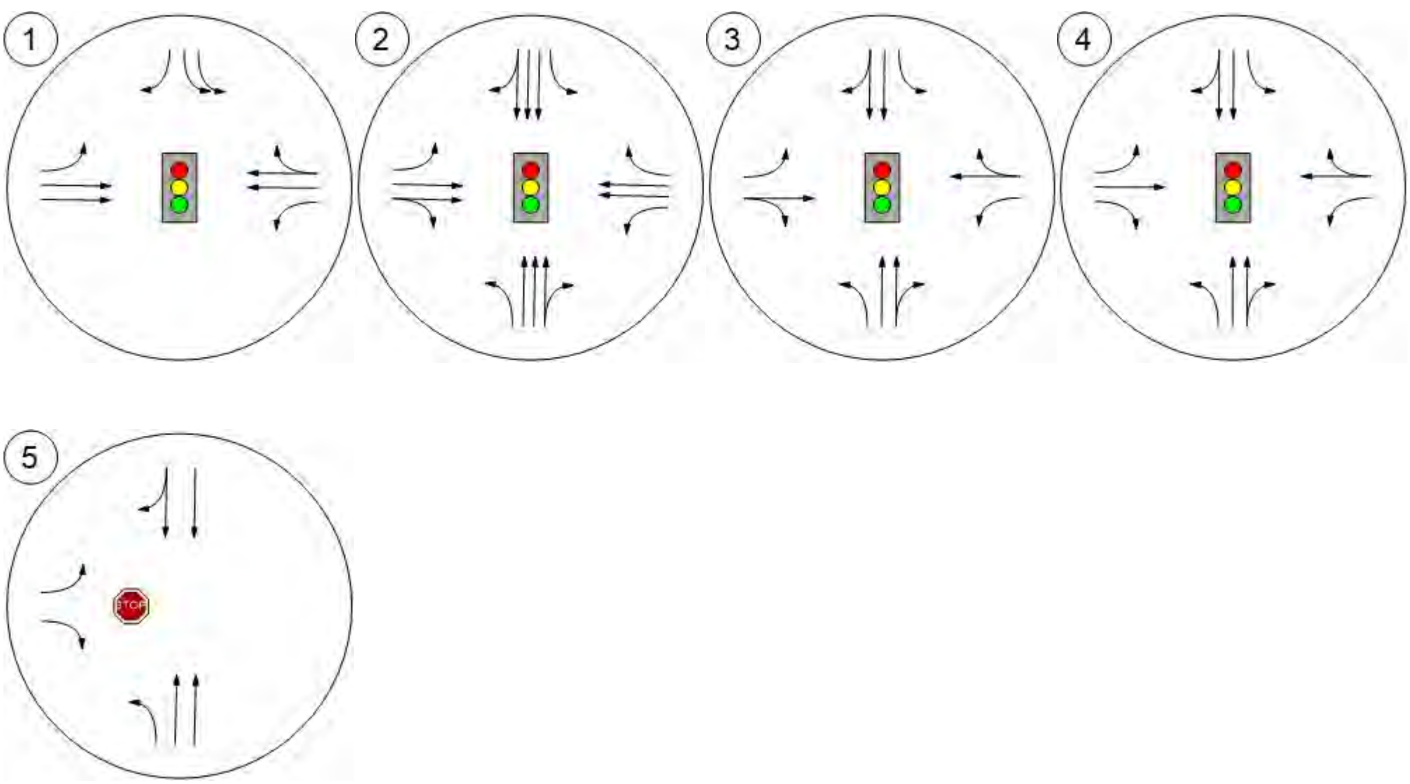
Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

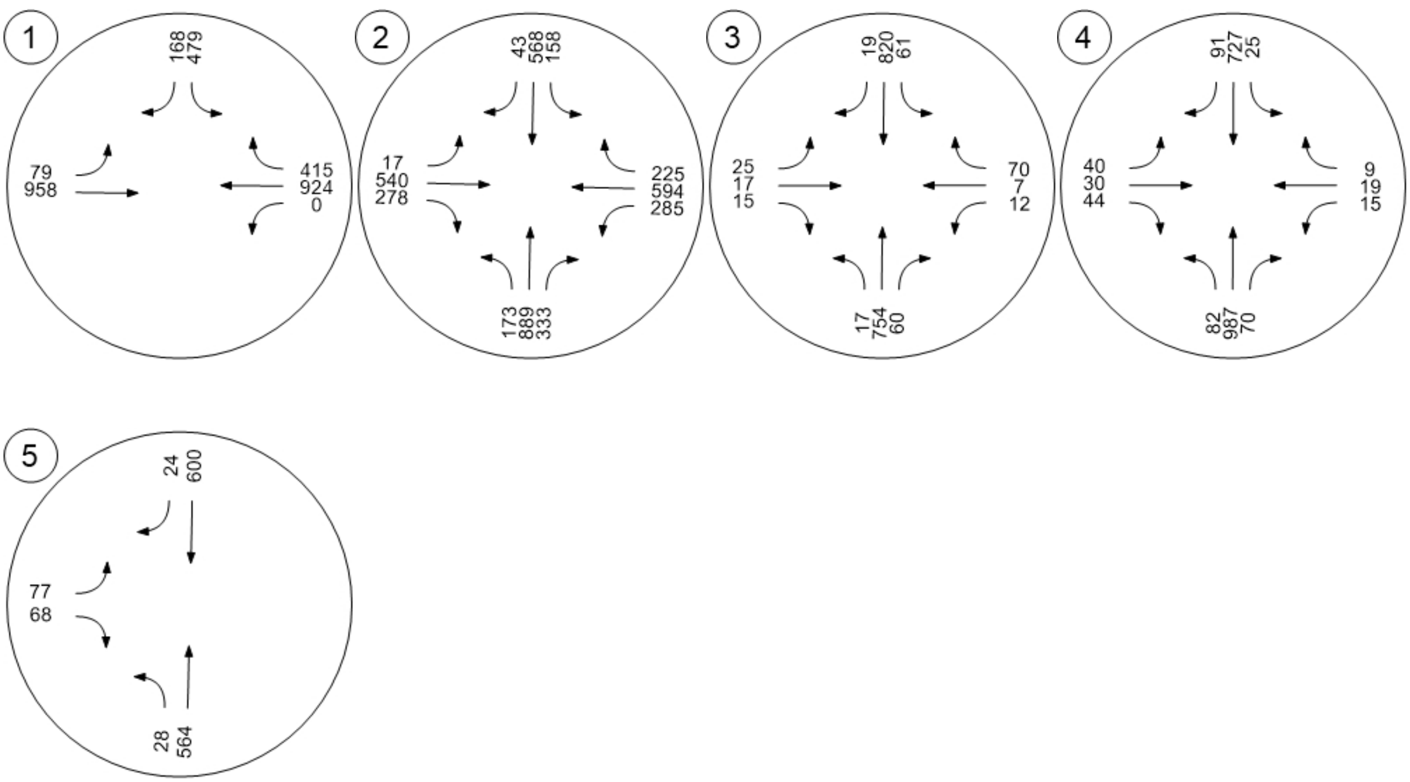
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.01	0.01	0.00	0.31	0.10
d_M, Delay for Movement [s/veh]	8.89	0.00	0.00	0.00	25.60	10.85
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	0.09	0.00	0.00	0.00	1.26	0.33
95th-Percentile Queue Length [ft/ln]	2.27	0.00	0.00	0.00	31.43	8.25
d_A, Approach Delay [s/veh]	0.42		0.00		18.68	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	2.17					
Intersection LOS	D					

Lane Configuration and Traffic Control



Traffic Volume - Future Total Volume



Appendix F. Cumulative Projects Trip Generation and Volume Development

Appendices

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Cumulative Project Trip Generation

Table 1 Trip Generation Rates

Land Use	ITE Code	Unit	Trip Generation							
				PM Peak Hour[1]				Peak Hour of Generator[2]		
			Weekday Daily	In	Out	Total	Weekend Daily	In	Out	Total
Apartment	220	Dwelling Units	6.65	0.40	0.22	0.62	6.39	0.26	0.26	0.52

[1] Trip generation rates for peak hour of adjacent streets, per the ITE Trip Generation Manual 9th Edition.

[2] 50/50 split used due to lack of directional distribution for weekends

Table 2 Trip Generations

ID	Address	Land Use	ITE Code	Unit Amount	Unit	Trip Generation							
							PM Peak Hour[1]				Peak Hour of Generator[2]		
						Weekday Daily	In	Out	Total	Weekend Daily	In	Out	Total
1	1821 S Brand Blvd	Apartment	220	38	DU	253	15	8	23	243	10	10	20
2	712 S Louise St	Apartment	220	10	DU	67	4	2	6	64	3	3	6
3	611 E Acacia Ave	Apartment	220	14	DU	93	6	3	9	89	4	4	8
4	722 E Acacia Ave	Apartment	220	18	DU	120	7	4	11	115	5	5	10
5	913 S Adams St	Apartment	220	12	DU	80	5	3	8	77	3	3	6
					Total	613	37	20	57	588	25	25	50

[1] Trip Generation Rates from ITE Trip Generation Manual

Appendix G. Intersection Turn Movement Volumes and LOS Worksheets, Opening Year Without Project Conditions

Appendices

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Cerritos Elementary School

Vistro File: P:\...\Cerritos ES_working.vistro

Report File: P:\...\2020 NP Weekday PM-Revised.pdf

Scenario 5 2020 NP Weekday PM

4/19/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Glendale Avenue at San Fernando Road	Signalized	ICU 1	WB Thru	0.718	-	C
2	Brand Boulevard at San Fernando Road	Signalized	ICU 1	NB Right	0.867	-	D
3	San Fernando Road at Cerritos Avenue	Signalized	ICU 1	NB Thru	0.520	-	A
4	Brand Boulevard at Cerritos Avenue	Signalized	ICU 1	NB Thru	0.572	-	A
5	Glendale Avenue at Cerritos Avenue	Two-way stop	HCM 2010	EB Left	0.384	25.0	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Glendale Avenue at San Fernando Road

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.718

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	100.00	50.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	416	0	139	104	783	0	0	873	416
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.03	1.00	1.03	1.03	1.03	1.00	1.03	1.03	1.03
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	2	0	0	0	1	0	0	2	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	430	0	143	107	807	0	0	901	431
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	108	0	36	27	202	0	0	225	108
Total Analysis Volume [veh/h]	0	0	0	430	0	143	107	807	0	0	901	431
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	0	0	1	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.13	0.00	0.09	0.07	0.25	0.00	0.00	0.42	0.42
Intersection LOS	C											
Intersection V/C	0.718											

Intersection Level Of Service Report
Intersection 2: Brand Boulevard at San Fernando Road

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.867

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			25.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	274	930	243	119	770	53	16	477	270	261	569	189
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	6	1	0	9	0	0	0	4	2	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	284	964	251	123	802	55	16	491	282	271	586	195
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	71	241	63	31	201	14	4	123	71	68	147	49
Total Analysis Volume [veh/h]	284	964	251	123	802	55	16	491	282	271	586	195
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.18	0.25	0.25	0.08	0.18	0.18	0.01	0.24	0.24	0.17	0.18	0.12
Intersection LOS	D											
Intersection V/C	0.867											

Intersection Level Of Service Report
Intersection 3: San Fernando Road at Cerritos Avenue

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.520

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	150.00	100.00	100.00	200.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	30	800	39	67	717	29	32	71	39	12	28	105
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	0	0	4	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	31	826	40	69	743	30	33	73	40	12	29	108
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	207	10	17	186	8	8	18	10	3	7	27
Total Analysis Volume [veh/h]	31	826	40	69	743	30	33	73	40	12	29	108
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.27	0.27	0.04	0.24	0.24	0.02	0.07	0.07	0.01	0.09	0.09
Intersection LOS	A											
Intersection V/C	0.520											

Intersection Level Of Service Report
Intersection 4: Brand Boulevard at Cerritos Avenue

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.572

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	44	1028	82	64	895	91	46	86	45	18	37	17
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	5	0	2	0	0	0	0	7	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	45	1060	89	66	924	94	47	89	46	26	38	18
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	265	22	17	231	24	12	22	12	7	10	5
Total Analysis Volume [veh/h]	45	1060	89	66	924	94	47	89	46	26	38	18
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.36	0.36	0.04	0.32	0.32	0.03	0.06	0.03	0.02	0.04	0.04
Intersection LOS	A											
Intersection V/C	0.572											

Intersection Level Of Service Report
Intersection 5: Glendale Avenue at Cerritos Avenue

Control Type:	Two-way stop	Delay (sec / veh):	25.0
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.384

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	25	593	461	35	103	69
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.03	1.03	1.03	1.03	1.03	1.03
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	2	7	5	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	26	614	477	43	111	71
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	154	119	11	28	18
Total Analysis Volume [veh/h]	26	614	477	43	111	71
Pedestrian Volume [ped/h]	0		0		0	

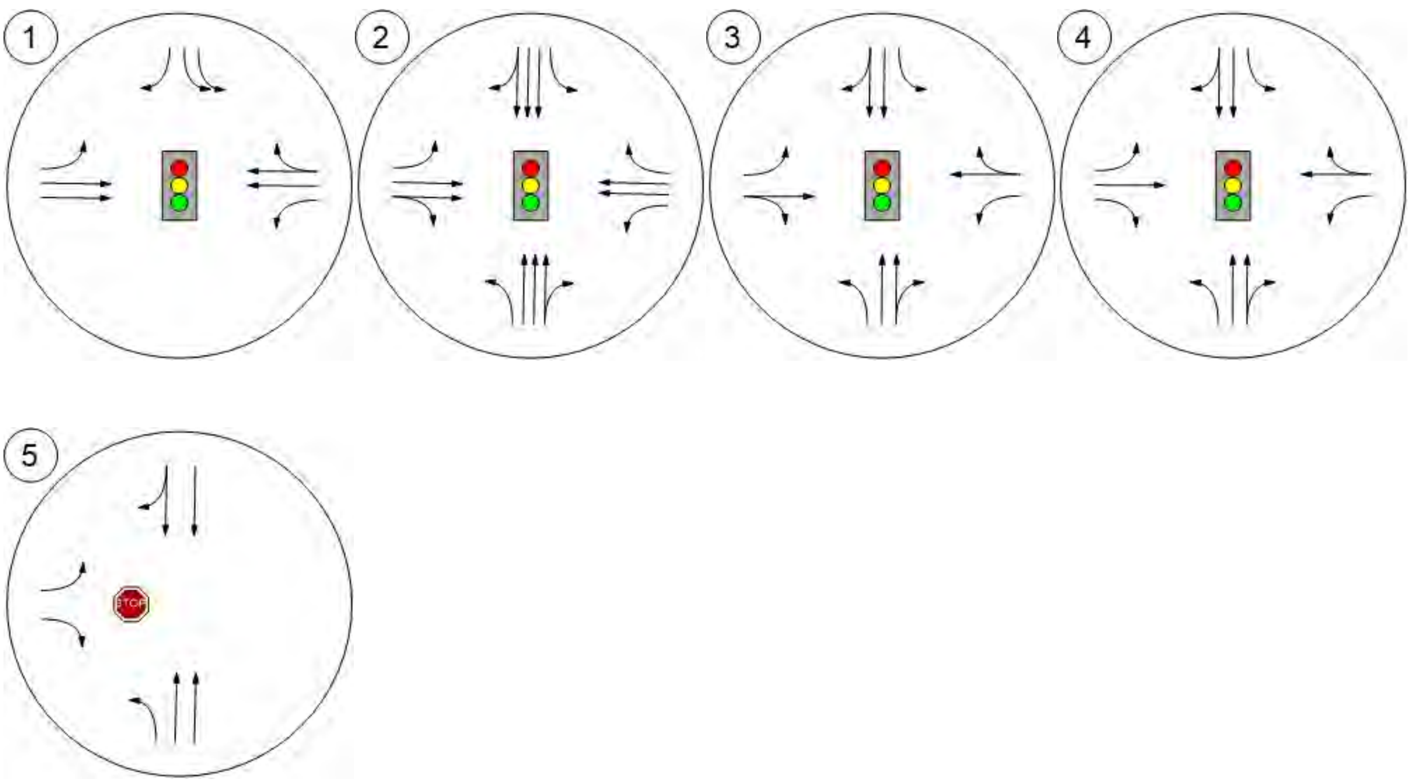
Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

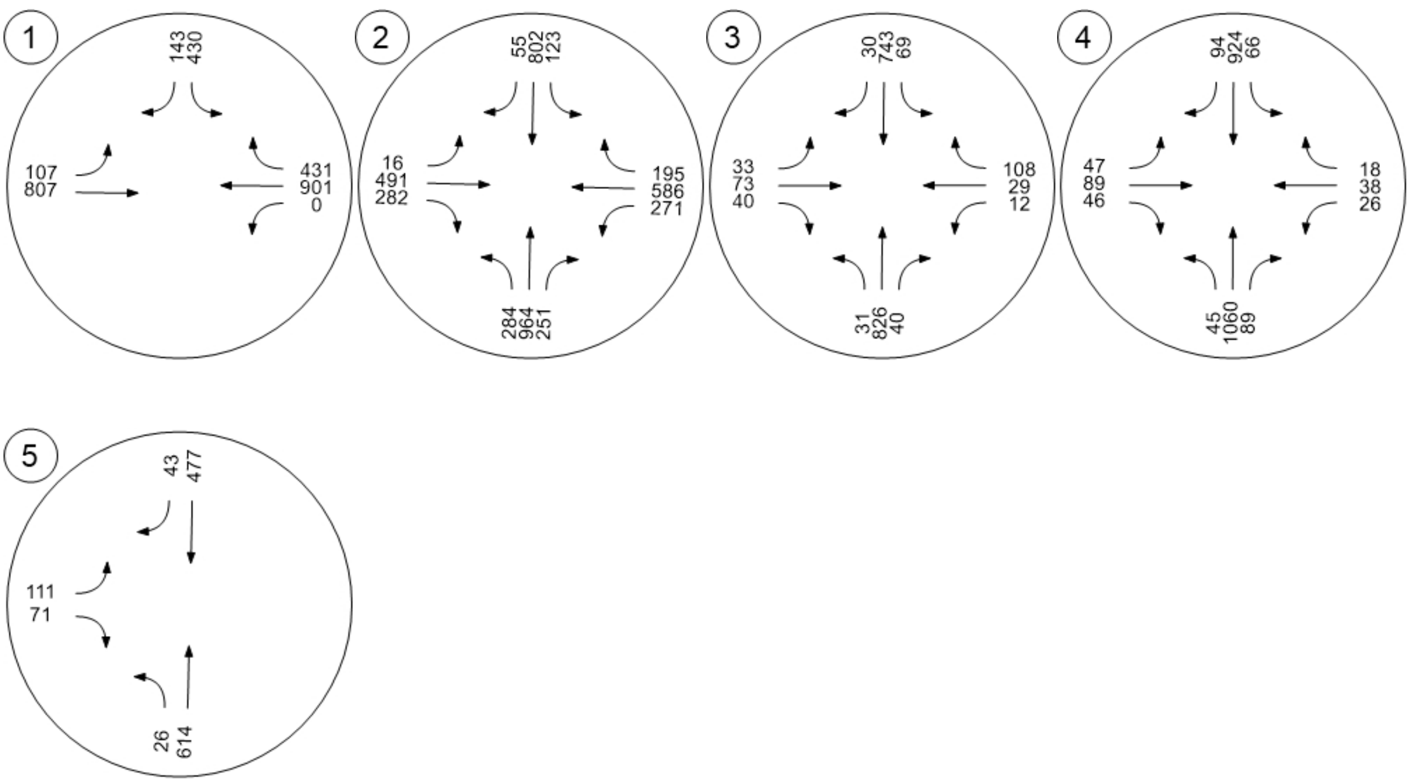
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.01	0.00	0.00	0.38	0.10
d_M, Delay for Movement [s/veh]	8.54	0.00	0.00	0.00	25.04	10.39
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	0.08	0.00	0.00	0.00	1.74	0.32
95th-Percentile Queue Length [ft/ln]	1.92	0.00	0.00	0.00	43.42	7.94
d_A, Approach Delay [s/veh]	0.35		0.00		19.32	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	2.79					
Intersection LOS	D					

Lane Configuration and Traffic Control



Traffic Volume - Future Total Volume



Cerritos Elementary School

Vistro File: P:\...\Cerritos ES_working.vistro

Report File: P:\...\2020 NP Saturday Midday-Revised.pdf

Scenario 6 2020 NP Saturday Midday

4/19/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Glendale Avenue at San Fernando Road	Signalized	ICU 1	WB Thru	0.726	-	C
2	Brand Boulevard at San Fernando Road	Signalized	ICU 1	NB Thru	0.907	-	E
3	San Fernando Road at Cerritos Avenue	Signalized	ICU 1	SB Thru	0.465	-	A
4	Brand Boulevard at Cerritos Avenue	Signalized	ICU 1	NB Thru	0.501	-	A
5	Glendale Avenue at Cerritos Avenue	Two-way stop	HCM 2010	EB Left	0.343	27.2	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Glendale Avenue at San Fernando Road

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.726

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	100.00	50.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	474	0	151	65	958	0	0	924	410
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.03	1.00	1.03	1.03	1.03	1.00	1.03	1.03	1.03
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	2	0	0	0	2	0	0	2	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	490	0	156	67	989	0	0	954	424
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	123	0	39	17	247	0	0	239	106
Total Analysis Volume [veh/h]	0	0	0	490	0	156	67	989	0	0	954	424
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	0	0	1	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.15	0.00	0.10	0.04	0.31	0.00	0.00	0.43	0.43
Intersection LOS	C											
Intersection V/C	0.726											

Intersection Level Of Service Report
Intersection 2: Brand Boulevard at San Fernando Road

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.907

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			25.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	173	889	330	155	568	43	17	532	278	281	585	221
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	6	2	0	7	0	0	0	3	2	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	181	922	342	160	592	44	18	548	289	291	603	228
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	45	231	86	40	148	11	5	137	72	73	151	57
Total Analysis Volume [veh/h]	181	922	342	160	592	44	18	548	289	291	603	228
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.26	0.26	0.10	0.13	0.13	0.01	0.26	0.26	0.18	0.19	0.14
Intersection LOS	E											
Intersection V/C	0.907											

Intersection Level Of Service Report
Intersection 3: San Fernando Road at Cerritos Avenue

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.465

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	150.00	100.00	100.00	200.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	17	745	60	61	812	19	25	17	15	12	7	70
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	0	0	3	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	770	62	63	839	20	26	18	15	12	7	72
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	193	16	16	210	5	7	5	4	3	2	18
Total Analysis Volume [veh/h]	18	770	62	63	839	20	26	18	15	12	7	72
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.26	0.26	0.04	0.27	0.27	0.02	0.02	0.02	0.01	0.05	0.05
Intersection LOS	A											
Intersection V/C	0.465											

Intersection Level Of Service Report
Intersection 4: Brand Boulevard at Cerritos Avenue

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.501

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	82	983	70	25	724	91	40	30	44	15	19	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	5	0	1	0	0	0	0	6	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	84	1013	77	26	747	94	41	31	45	21	20	9
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	253	19	7	187	24	10	8	11	5	5	2
Total Analysis Volume [veh/h]	84	1013	77	26	747	94	41	31	45	21	20	9
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.34	0.34	0.02	0.26	0.26	0.03	0.02	0.03	0.01	0.02	0.02
Intersection LOS	A											
Intersection V/C	0.501											

Intersection Level Of Service Report

Intersection 5: Glendale Avenue at Cerritos Avenue

Control Type:	Two-way stop	Delay (sec / veh):	27.2
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.343

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	28	550	587	24	77	68
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.03	1.03	1.03	1.03	1.03	1.03
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	2	6	5	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	569	607	31	84	70
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	142	152	8	21	18
Total Analysis Volume [veh/h]	29	569	607	31	84	70
Pedestrian Volume [ped/h]	0		0		0	

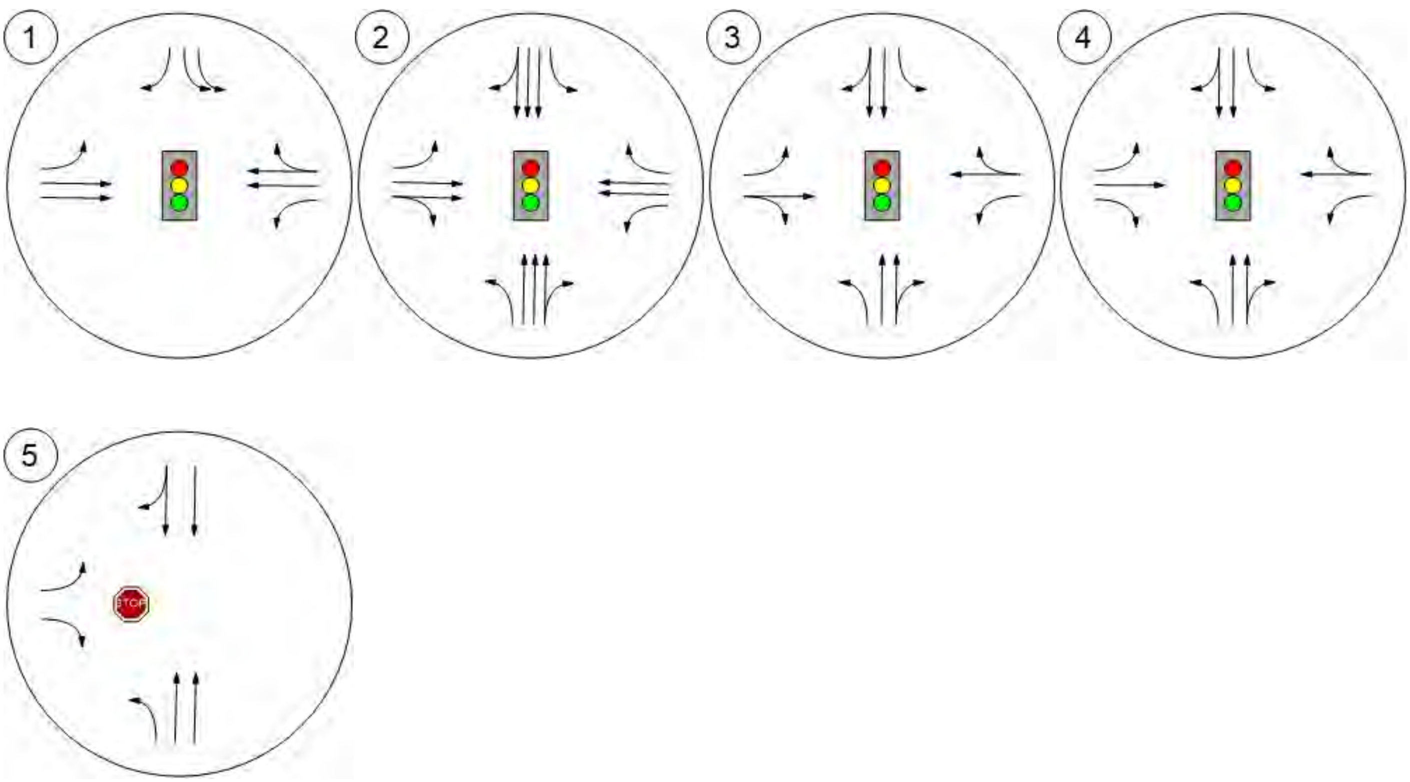
Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

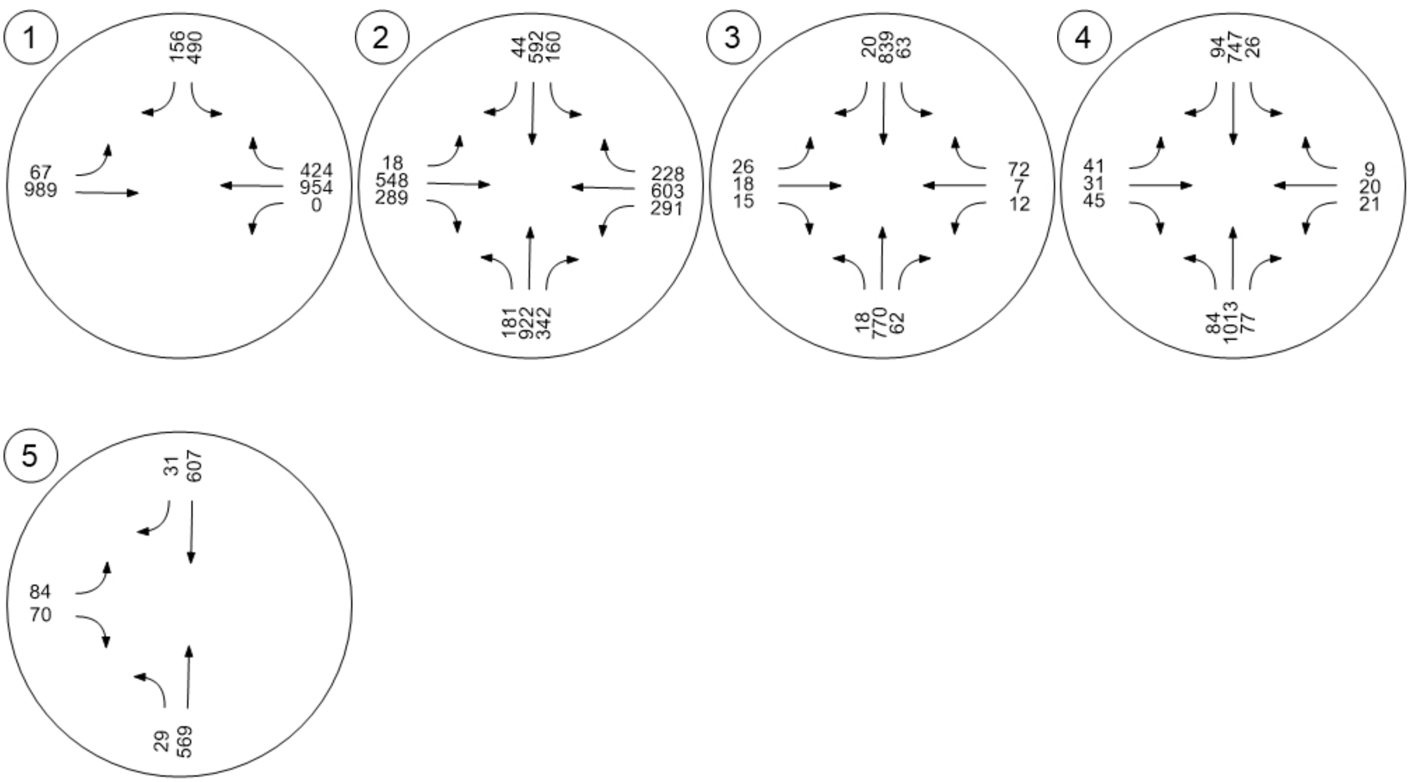
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.01	0.01	0.00	0.34	0.10
d_M, Delay for Movement [s/veh]	8.94	0.00	0.00	0.00	27.20	10.93
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	0.10	0.00	0.00	0.00	1.46	0.34
95th-Percentile Queue Length [ft/ln]	2.38	0.00	0.00	0.00	36.53	8.61
d_A, Approach Delay [s/veh]	0.43		0.00		19.81	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	2.38					
Intersection LOS	D					

Lane Configuration and Traffic Control



Traffic Volume - Future Total Volume



Appendix H. Intersection Turn Movement Volumes and LOS Worksheets, Opening Year With Project Conditions

Appendices

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Cerritos Elementary School

Vistro File: P:\...\Cerritos ES_working.vistro

Scenario 7 2020 WP Weekday PM

Report File: P:\...\2020 WP Weekday PM-Revised.pdf

4/19/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Glendale Avenue at San Fernando Road	Signalized	ICU 1	WB Thru	0.728	-	C
2	Brand Boulevard at San Fernando Road	Signalized	ICU 1	NB Right	0.871	-	D
3	San Fernando Road at Cerritos Avenue	Signalized	ICU 1	NB Thru	0.521	-	A
4	Brand Boulevard at Cerritos Avenue	Signalized	ICU 1	NB Thru	0.573	-	A
5	Glendale Avenue at Cerritos Avenue	Two-way stop	HCM 2010	EB Left	0.394	25.8	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: Glendale Avenue at San Fernando Road

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.728

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	100.00	50.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	416	0	139	104	783	0	0	873	416
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.03	1.00	1.03	1.03	1.03	1.00	1.03	1.03	1.03
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	4	0	8	14	1	0	0	2	8
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	432	0	151	121	807	0	0	901	436
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	108	0	38	30	202	0	0	225	109
Total Analysis Volume [veh/h]	0	0	0	432	0	151	121	807	0	0	901	436
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	0	0	1	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.14	0.00	0.09	0.08	0.25	0.00	0.00	0.42	0.42
Intersection LOS	C											
Intersection V/C	0.728											

Intersection Level Of Service Report
Intersection 2: Brand Boulevard at San Fernando Road

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.871

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			25.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	274	930	243	119	770	53	16	477	270	261	569	189
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	6	4	3	9	0	0	8	4	4	4	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	284	964	254	126	802	55	16	499	282	273	590	197
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	71	241	64	32	201	14	4	125	71	68	148	49
Total Analysis Volume [veh/h]	284	964	254	126	802	55	16	499	282	273	590	197
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.18	0.25	0.25	0.08	0.18	0.18	0.01	0.24	0.24	0.17	0.18	0.12
Intersection LOS	D											
Intersection V/C	0.871											

Intersection Level Of Service Report
Intersection 3: San Fernando Road at Cerritos Avenue

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.521

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	150.00	100.00	100.00	200.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	30	800	39	67	717	29	32	71	39	12	28	105
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	6	0	0	12	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	31	830	40	69	751	30	33	73	40	12	29	108
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	208	10	17	188	8	8	18	10	3	7	27
Total Analysis Volume [veh/h]	31	830	40	69	751	30	33	73	40	12	29	108
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.27	0.27	0.04	0.24	0.24	0.02	0.07	0.07	0.01	0.09	0.09
Intersection LOS	A											
Intersection V/C	0.521											

Intersection Level Of Service Report
Intersection 4: Brand Boulevard at Cerritos Avenue

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.573

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	44	1028	82	64	895	91	46	86	45	18	37	17
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	5	0	5	0	0	0	0	7	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	45	1062	89	66	927	94	47	89	46	26	38	18
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	266	22	17	232	24	12	22	12	7	10	5
Total Analysis Volume [veh/h]	45	1062	89	66	927	94	47	89	46	26	38	18
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.36	0.36	0.04	0.32	0.32	0.03	0.06	0.03	0.02	0.04	0.04
Intersection LOS	A											
Intersection V/C	0.573											

Intersection Level Of Service Report
Intersection 5: Glendale Avenue at Cerritos Avenue

Control Type:	Two-way stop	Delay (sec / veh):	25.8
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.394

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	25	593	461	35	103	69
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.03	1.03	1.03	1.03	1.03	1.03
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	15	7	5	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	26	620	490	43	111	71
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	155	123	11	28	18
Total Analysis Volume [veh/h]	26	620	490	43	111	71
Pedestrian Volume [ped/h]	0		0		0	

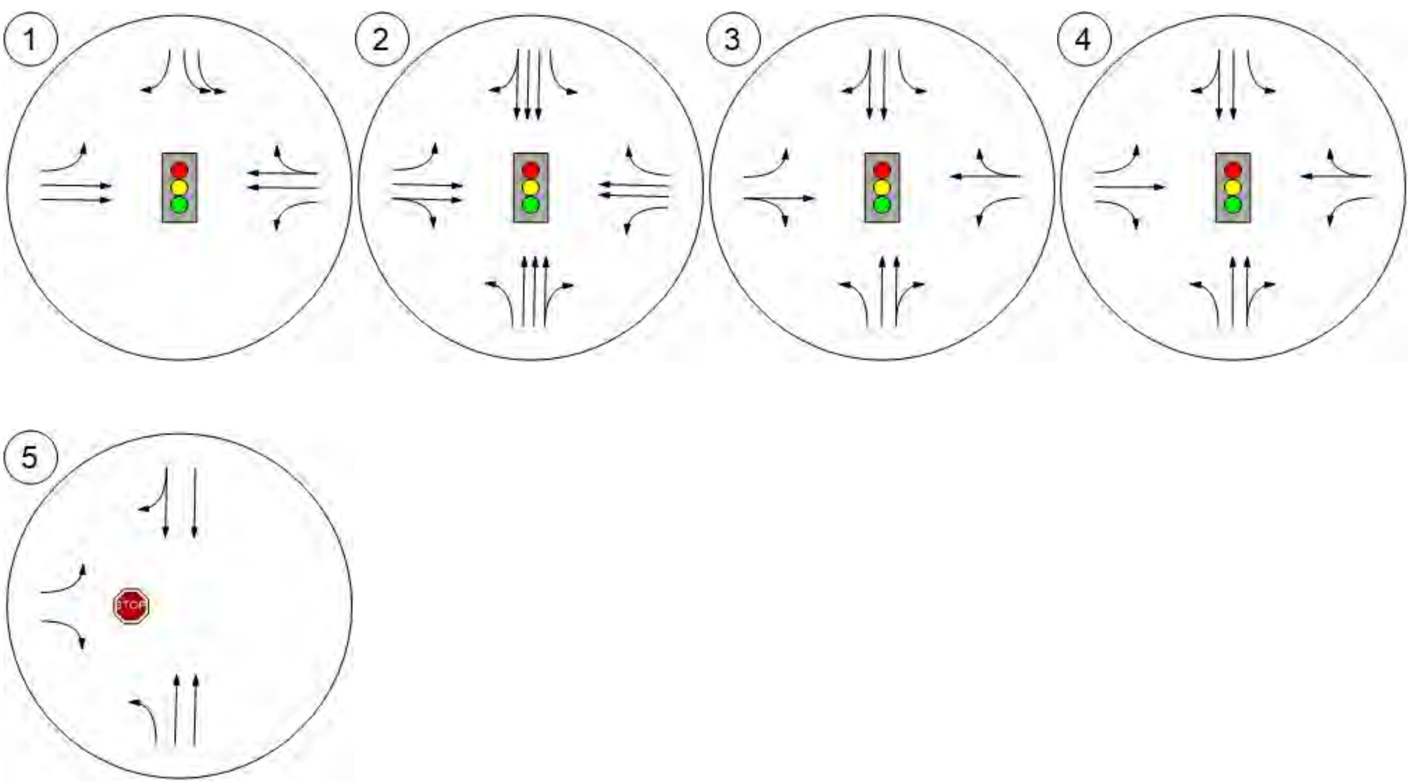
Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

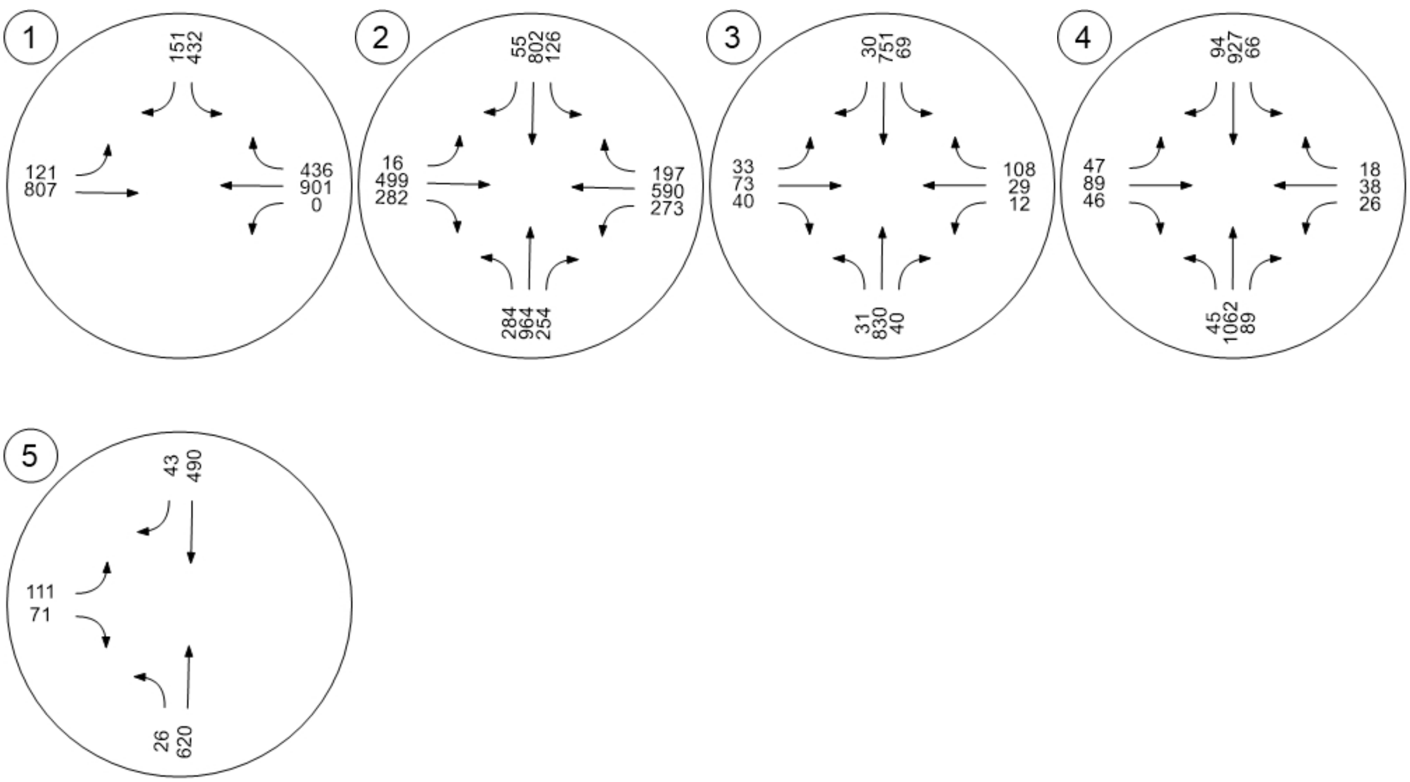
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.01	0.00	0.00	0.39	0.10
d_M, Delay for Movement [s/veh]	8.58	0.00	0.00	0.00	25.82	10.45
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	0.08	0.00	0.00	0.00	1.80	0.32
95th-Percentile Queue Length [ft/ln]	1.94	0.00	0.00	0.00	44.91	8.03
d_A, Approach Delay [s/veh]	0.35		0.00		19.82	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	2.81					
Intersection LOS	D					

Lane Configuration and Traffic Control



Traffic Volume - Future Total Volume



Cerritos Elementary School

Vistro File: P:\...\Cerritos ES_working.vistro

Report File: P:\...\2020 WP Saturday Midday-Revised.pdf

Scenario 8 2020 WP Saturday Midday

4/19/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Glendale Avenue at San Fernando Road	Signalized	ICU 1	WB Thru	0.738	-	C
2	Brand Boulevard at San Fernando Road	Signalized	ICU 1	EB Thru	0.914	-	E
3	San Fernando Road at Cerritos Avenue	Signalized	ICU 1	SB Thru	0.468	-	A
4	Brand Boulevard at Cerritos Avenue	Signalized	ICU 1	NB Thru	0.502	-	A
5	Glendale Avenue at Cerritos Avenue	Two-way stop	HCM 2010	EB Left	0.354	28.2	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Glendale Avenue at San Fernando Road

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.738

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	100.00	50.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	474	0	151	65	958	0	0	924	410
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.03	1.00	1.03	1.03	1.03	1.00	1.03	1.03	1.03
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	7	0	17	14	2	0	0	2	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	495	0	173	81	989	0	0	954	429
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	124	0	43	20	247	0	0	239	107
Total Analysis Volume [veh/h]	0	0	0	495	0	173	81	989	0	0	954	429
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	0	0	1	0	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.15	0.00	0.11	0.05	0.31	0.00	0.00	0.43	0.43
Intersection LOS	C											
Intersection V/C	0.738											

Intersection Level Of Service Report
Intersection 2: Brand Boulevard at San Fernando Road

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.914

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			25.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	173	889	330	155	568	43	17	532	278	281	585	221
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	6	5	3	7	0	0	8	3	6	9	4
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	181	922	345	163	592	44	18	556	289	295	612	232
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	45	231	86	41	148	11	5	139	72	74	153	58
Total Analysis Volume [veh/h]	181	922	345	163	592	44	18	556	289	295	612	232
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.26	0.26	0.10	0.13	0.13	0.01	0.26	0.26	0.18	0.19	0.15
Intersection LOS	E											
Intersection V/C	0.914											

Intersection Level Of Service Report

Intersection 3: San Fernando Road at Cerritos Avenue

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.468

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	150.00	100.00	100.00	200.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	17	745	60	61	812	19	25	17	15	12	7	70
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	0	0	11	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	779	62	63	847	20	26	18	15	12	7	72
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	195	16	16	212	5	7	5	4	3	2	18
Total Analysis Volume [veh/h]	18	779	62	63	847	20	26	18	15	12	7	72
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.26	0.26	0.04	0.27	0.27	0.02	0.02	0.02	0.01	0.05	0.05
Intersection LOS	A											
Intersection V/C	0.468											

Intersection Level Of Service Report
Intersection 4: Brand Boulevard at Cerritos Avenue

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.502

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	82	983	70	25	724	91	40	30	44	15	19	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	5	5	0	4	0	0	0	0	6	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	84	1017	77	26	750	94	41	31	45	21	20	9
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	254	19	7	188	24	10	8	11	5	5	2
Total Analysis Volume [veh/h]	84	1017	77	26	750	94	41	31	45	21	20	9
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.34	0.34	0.02	0.26	0.26	0.03	0.02	0.03	0.01	0.02	0.02
Intersection LOS	A											
Intersection V/C	0.502											

Intersection Level Of Service Report
Intersection 5: Glendale Avenue at Cerritos Avenue

Control Type:	Two-way stop	Delay (sec / veh):	28.2
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.354

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	28	550	587	24	77	68
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.03	1.03	1.03	1.03	1.03	1.03
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	16	15	6	5	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	583	620	31	84	70
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	146	155	8	21	18
Total Analysis Volume [veh/h]	29	583	620	31	84	70
Pedestrian Volume [ped/h]	0		0		0	

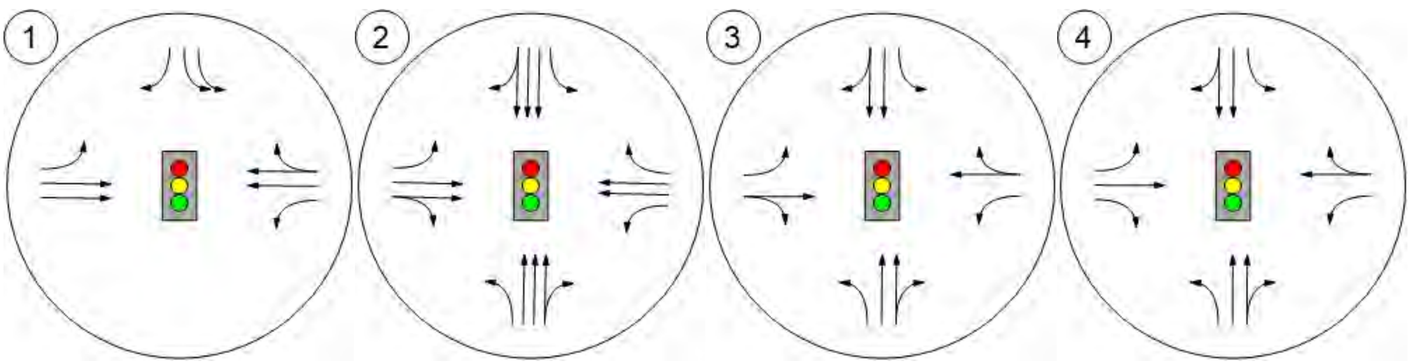
Intersection Settings

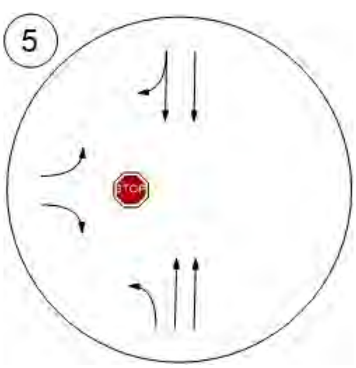
Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.01	0.01	0.00	0.35	0.10
d_M, Delay for Movement [s/veh]	8.99	0.00	0.00	0.00	28.22	11.00
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	0.10	0.00	0.00	0.00	1.52	0.35
95th-Percentile Queue Length [ft/ln]	2.41	0.00	0.00	0.00	38.02	8.71
d_A, Approach Delay [s/veh]	0.43		0.00		20.39	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	2.40					
Intersection LOS	D					

Lane Configuration and Traffic Control





Traffic Volume - Future Total Volume