DRAFT ENVIRONMENTAL IMPACT REPORT

STATE CLEARINGHOUSE NO. 2014071042

IRWINDALE REGIONAL SHOPPING CENTER

CITY OF IRWINDALE

LOS ANGELES COUNTY, CALIFORNIA

LSA

December 22, 2014

THIS PAGE INTENTIONALLY LEFT BLANK

DRAFT ENVIRONMENTAL IMPACT REPORT

STATE CLEARINGHOUSE NO. 2014071042

IRWINDALE REGIONAL SHOPPING CENTER

CITY OF IRWINDALE

LOS ANGELES COUNTY, CALIFORNIA

Prepared for:

City of Irwindale
Community Development Department
Gus Romo, Community Development Director
5050 North Irwindale Avenue
Irwindale, California 91706
Contact: Paula Kelly, Senior Planner and Project Manager
(626) 430-2200

Prepared by:

LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, California 92507
(909) 334-3330

LSA Project No. COI1401

LSA

December 22, 2014

The City of Irwindale has independently reviewed, analyzed, and exercised its judgment in the analysis contained in this Environmental Impact Report and supporting documentation pursuant to Section 21082 of the California Environmental Quality Act.

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

PAGE

TABLE OF CONTENTS i
FIGURES iii
TABLES iii

1.0 EXECUTIVE SUMMARY 1-1
1.1 INTRODUCTION 1-1
1.2 PROPOSED PROJECT 1-1
1.3 AREAS OF CONTROVERSY AND ISSUES TO BE RESOLVED 1-7
1.4 ALTERNATIVES TO THE PROPOSED PROJECT 1-9
1.5 IMPACTS, MITIGATION, AND LEVEL OF IMPACTS SUMMARY TABLE 1-10

2.0 INTRODUCTION AND PURPOSE 2-1
2.1 DOCUMENT FORMAT 2-1
2.2 PURPOSE OF CEQA AND THE ENVIRONMENTAL IMPACT REPORT 2-3
2.3 REGIONALLY SIGNIFICANT PROJECT 2-4
2.4 INCORPORATED DOCUMENTS 2-5
2.5 TECHNICAL REPORTS 2-5
2.6 PUBLIC REVIEW OF THE DRAFT ENVIRONMENTAL IMPACT REPORT 2-6
2.7 MITIGATION MONITORING AND REPORTING PROGRAM 2-8
2.8 POTENTIAL IMPACTS OF THE PROJECT DISCUSSED IN THE EIR 2-8
2.9 EFFECTS FOUND NOT TO BE SIGNIFICANT 2-8
2.10 CUMULATIVE IMPACTS 2-15

3.0 PROJECT DESCRIPTION 3-1
3.1 PROJECT LOCATION 3-1
3.2 PROJECT SETTING AND HISTORY 3-1
3.3 GENERAL PLAN AND ZONING DESIGNATIONS 3-11
3.4 PROJECT CHARACTERISTICS 3-12
3.5 PROJECT OBJECTIVES 3-25
3.6 REQUIRED DISCRETIONARY ACTIONS AND PERMITS 3-25

4.0 ENVIRONMENTAL IMPACT EVALUATION 4.0-1
4.1 AIR QUALITY 4.1-1
4.2 GEOLOGY AND SOILS 4.2-1
4.3 GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE 4.3-1
4.4 HAZARDS AND HAZARDOUS MATERIALS 4.4-1
4.5 HYDROLOGY AND WATER QUALITY 4.5-1
4.6 NOISE 4.6-1
4.7 TRANSPORTATION AND TRAFFIC 4.7-1
4.8 WATER SUPPLY 4.8-1

5.0 ADDITIONAL TOPICS REQUIRED BY CEQA 5-1
5.1 SIGNIFICANT ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED IF THE PROPOSED PROJECT IS IMPLEMENTED 5-1
5.2 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES 5-2
5.3 GROWTH-INDUCING IMPACTS 5-3
5.4 CONSISTENCY WITH REGIONAL PLANS 5-4

6.0 ALTERNATIVES 6-1
6.1 INTRODUCTION 6-1
6.2 ALTERNATIVES CONSIDERED BUT NOT ANALYZED FURTHER 6-2
6.3 DEVELOPMENT OF ALTERNATIVES 6-7
6.4 ANALYSIS OF ALTERNATIVES 6-9
6.5 COMPARISON OF PROJECT ALTERNATIVES 6-18
6.6 ENVIRONMENTALLY SUPERIOR ALTERNATIVE 6-19

7.0 REFERENCES 7-1
7.1 PERSONAL COMMUNICATION 7-1
7.2 REFERENCES CITED 7-1

8.0 LIST OF PREPARERS 8-1
8.1 CITY OF IRWINDALE 8-1
8.2 LSA ASSOCIATES, INC. 8-1

9.0 ACRONYMS, ABBREVIATIONS, AND GLOSSARY OF TERMS 9-1
9.1 ACRONYMS AND ABBREVIATIONS 9-1
9.2 GLOSSARY OF TERMS 9-9

APPENDICES

Appendix A: Notice of Preparation (NOP) and Initial Study, NOP Mailing List, NOP Response Letters

Appendix B: Air Quality and Greenhouse Gas Emissions Assessment

Appendix C: Geotechnical Reports

Appendix D: Phase I Environmental Site Assessment

Appendix E: Hydrology and Water Quality

Appendix E-1: Preliminary Standard Urban Stormwater Mitigation Plan (SUSMP)

Appendix E-2: Storm Water Hydrology Report

Appendix F: Noise Impact Analysis

Appendix G: Traffic Impact Analysis

Appendix H: Water Supply Assessment

FIGURES

1.1 Regional and Project Location 1-3
1.2 Project Site Plan 1-5

2.1 Cumulative Projects 2-19

3.1 Regional and Project Location 3-3
3.2 Project Site (Aerial photo) 3-5
3.3 Existing General Plan Land Uses 3-7
3.4 Existing Zoning 3-9
3.5 Conceptual Site Plan 3-13
3.6A Central Entry Courtyard Aerial View Rendering 3-15
3.6B Central Plaza Rendering 3-17
3.7A Representative Building Elevations (Restaurants) 3-19
3.7B Representative Building Elevations (Anchor Tenants) 3-21
3.8 Proposed Drainage Pattern 3-23

4.2.1 Regional Faults 4.2-3

4.5.1 Main San Gabriel Basin 4.5-3
4.5.2 Groundwater Contamination 4.5-7
4.5.3 Existing Drainage Pattern 4.5-13
4.5.4 Proposed Drainage Pattern 4.5-15

4.6.1 Typical A-Weighted Noise Levels 4.6-3
4.6.2 California Noise Compatibility Guidelines 4.6-9

4.7.1 Existing Study Area Intersection Geometrics and Control 4.7-3

6.1 Alternative Sites 6-5

TABLES

1.A Notice of Preparation Comment Letters Received 1-7
1.B Irwindale Regional Shopping Center Environmental Summary 1-11

2.A Notice of Preparation Comments Received 2-7
2.B Cumulative Projects List 2-17

3.A On-site and Adjacent Land Uses and Land Use Designations 3-12

4.1.A Ambient Air Quality Standards 4.1-3
4.1.B Summary of Health Risks from Some of the Common Air Pollutants 4.1-4
4.1.C Ambient Air Quality Monitored in the Project Vicinity 4.1-5
4.1.D Attainment Status of Criteria Pollutants in the South Coast Air Basin 4.1-6
4.1.E Tentative Project Construction Schedule 4.1-13
4.1.F Diesel Construction Equipment Utilized by Construction Phase 4.1-13
4.1.G Short-Term Regional Construction Emissions 4.1-14
4.1.H Construction LST Impacts 4.1-15
4.1.I Long-Term Operational LST 4.1-16
4.1.J Opening Year Regional Operational Emissions 4.1-18

4.2.A Major Active Faults in the Irwindale Region 4.2-2

4.3.A Greenhouse Gas Properties, Effects, and Sources 4.3-3
4.3.B Short-Term Regional Emissions During Construction 4.3-20
4.3.C Long-Term Operational Greenhouse Gas Emissions without Mitigation 4.3-20
4.3.D Long-Term Operational Greenhouse Gas Emissions – As Proposed with Mitigation 4.3-21
4.3.E Project Compliance with Greenhouse Gas Emission Reduction Strategies 4.3-23
4.3.F Long-Term Operational Greenhouse Gas Emissions – Business As Usual 4.3-25

4.4.A Hazardous Materials Property Categories 4.4-12

4.5.A Pollutants and General Water Quality Impacts 4.5-5
4.5.B Existing Drainage Sub-Area Profiles 4.5-12
4.5.C Post-Development Drainage Sub-Area Profiles 4.5-12
4.5.D Existing and Post-Development Pervious Conditions 4.5-17
4.5.E Project Site Runoff Flow Comparison 4.5-17
4.5.F Project Site Peak Flows, 25-Year Storm 4.5-17
4.5.G GSWC-SAS Historic Production and Water Demand (AFY)_ 4.5-19
4.5.H Projected GSWC-SAS Water Use (AFY) 4.5-19

4.6.A Human Reaction to Typical Vibration Levels 4.6-6
4.6.B Irwindale Municipal Code Ambient Base Noise Level 4.6-8
4.6.C Roadway Construction Noise Model (RCNM) Default Noise Emission Reference Levels and Usage Factors 4.6-13
4.6.D Existing Weekday Traffic Noise Levels Without the Project 4.6-14
4.6.E Existing Weekday Traffic Noise Levels With Project 4.6-15
4.6.F Existing Saturday Traffic Noise Levels Without Project 4.6-16
4.6.G Existing Saturday Traffic Noise Levels With Project 4.6-17
4.6.H Opening Year Weekday Traffic Noise Levels Without Project 4.6-18
4.6.I Opening Year Weekday Traffic Noise Levels With Project 4.6-19
4.6.J Opening Year Saturday Traffic Noise Levels Without Project 4.6-19
4.6.K Opening Year Saturday Traffic Noise Levels With Project 4.6-20
4.6.L Vibration Source Amplitudes for Construction Equipment 4.6-22
4.6.M Groundborne Vibration and Noise Impact Criteria 4.6-23
4.6.N Construction Vibration Damage Criteria 4.6-24

4.7.A Traffic Level of Service (LOS) Definitions 4.7-5
4.7.B ICU Level of Service 4.7-6
4.7.C HCM Level of Service Criteria for Intersections and Freeway Facilities 4.7.6
4.7.D Existing Intersection Levels of Service Summary (ICU Methodology) 4.7-9
4.7.E Existing Intersection Levels of Service (HCM Methodology) 4.7-11
4.7.F Existing (Saturday) Intersection Levels of Service Summary (ICU Methodology) 4.7-13
4.7.G Existing (Saturday) Intersection Levels of Service (HCM Methodology) 4.7-15
4.7.H Existing Freeway Segment and Ramp Junction Levels of Service Analysis 4.7-17
4.7.I Existing Freeway Segment and Ramp Junction Levels of Service Analysis 4.7-19
4.7.J Project Trip Generation 4.7-25
4.7.K Future Baseline Plus Cumulative Projects Segment and Ramp Junction Levels of Service Analysis 4.7-31
4.7.L Future Baseline Plus Cumulative Projects Segment and Ramp Junction Levels of Service Analysis 4.7-33
4.7.M Future Baseline Plus Cumulative Projects Intersection Levels of Service Summary (ICU Methodology) 4.7-37
4.7.N Future Baseline Plus Cumulative Projects Intersection Levels of Service (HCM Methodology) 4.7-41

4.7.O Future Baseline Plus Cumulative Projects (Saturday) Intersection Levels of Service Summary (ICU Methodology) 4.7-43
4.7.P Future Baseline Plus Cumulative Projects (Saturday) Intersection Levels of Service (HCM Methodology) 4.7-45

4.8.A GSWC-SAS Historic Production and Water Demand (AFY) 4.8-1
4.8.B Projected GSWC-SAS Water Use (AFY) 4.8-5
4.8.C Projected MSGB Water Demand (AFY) 4.8-6
4.8.D GSWC-SAS Water Supply and Demand in Normal, Single-Dry, and Multiple-Dry Years (AFY) 4.8-6
4.8.E MWD's Project Average Year Water Supply and Demand (AFY) 4.8-7

5.A Significant Adverse Environmental Effects Which Cannot Be Avoided After Mitigation 5-1
5.B Analysis of the Potential for the Project to Result in Significant Irreversible Environmental Changes 5-3
5.C Project's Consistency with Regional Plans 5-4

6.A Alternative Sites Comparison and Evaluation 6-3
6.B Summary of Project and Analyzed Alternatives 6-8
6.C Comparison of No Project/No Build Alternative to the Project Objectives 6-13
6.D No Project/Existing Specific Plan Alternative Operational Emissions 6-14
6.E Comparison of Average Daily Trips 6-14
6.F Comparison of Existing General Plan Land Use Alternative to the Project Objectives 6-15
6.G No Project/Existing Specific Plan Alternative Operational Emissions 6-16
6.H Comparison of Average Daily Trips 6-17
6.I Comparison of Reduced Intensity Alternative to the Project Objectives 6-18
6.J Impact Comparison of Project Alternatives 6-18

THIS PAGE INTENTIONALLY LEFT BLANK

1.0 EXECUTIVE SUMMARY

1.1 INTRODUCTION

The Draft Environmental Impact Report (EIR) (State Clearinghouse No. 2014071042) for the Irwindale Regional Shopping Center (proposed project or project) has been prepared by LSA Associates, Inc. on behalf of the City of Irwindale (City or Lead Agency) to: 1) identify the impacts of the proposed project on the environment; 2) discuss alternatives to the proposed project; and 3) propose mitigation measures that will offset, minimize or otherwise avoid significant environmental impacts. The EIR has been prepared in accordance with the *California Environmental Quality Act*[1] (CEQA) and the *Guidelines for California Environmental Quality Act* (*CEQA Guidelines*),[2] both of which regulate the preparation of EIRs.

Based on the potential impacts of the proposed project, including cumulative impacts, and the comments received during the public review of the Notice of Preparation (NOP), the City determined that an EIR should be prepared to further analyze in detail potential impacts of the proposed project with respect to the following environmental issues:

- Air Quality;
- Hazards and Hazardous Materials;
- Hydrology and Water Quality;
- Geology;
- Greenhouse Gas Emissions;
- Noise;
- Transportation/Traffic; and
- Water Supply.

These eight environmental issues are individually addressed in Section 4.0 (Environmental Impact Evaluation).

1.2 PROPOSED PROJECT

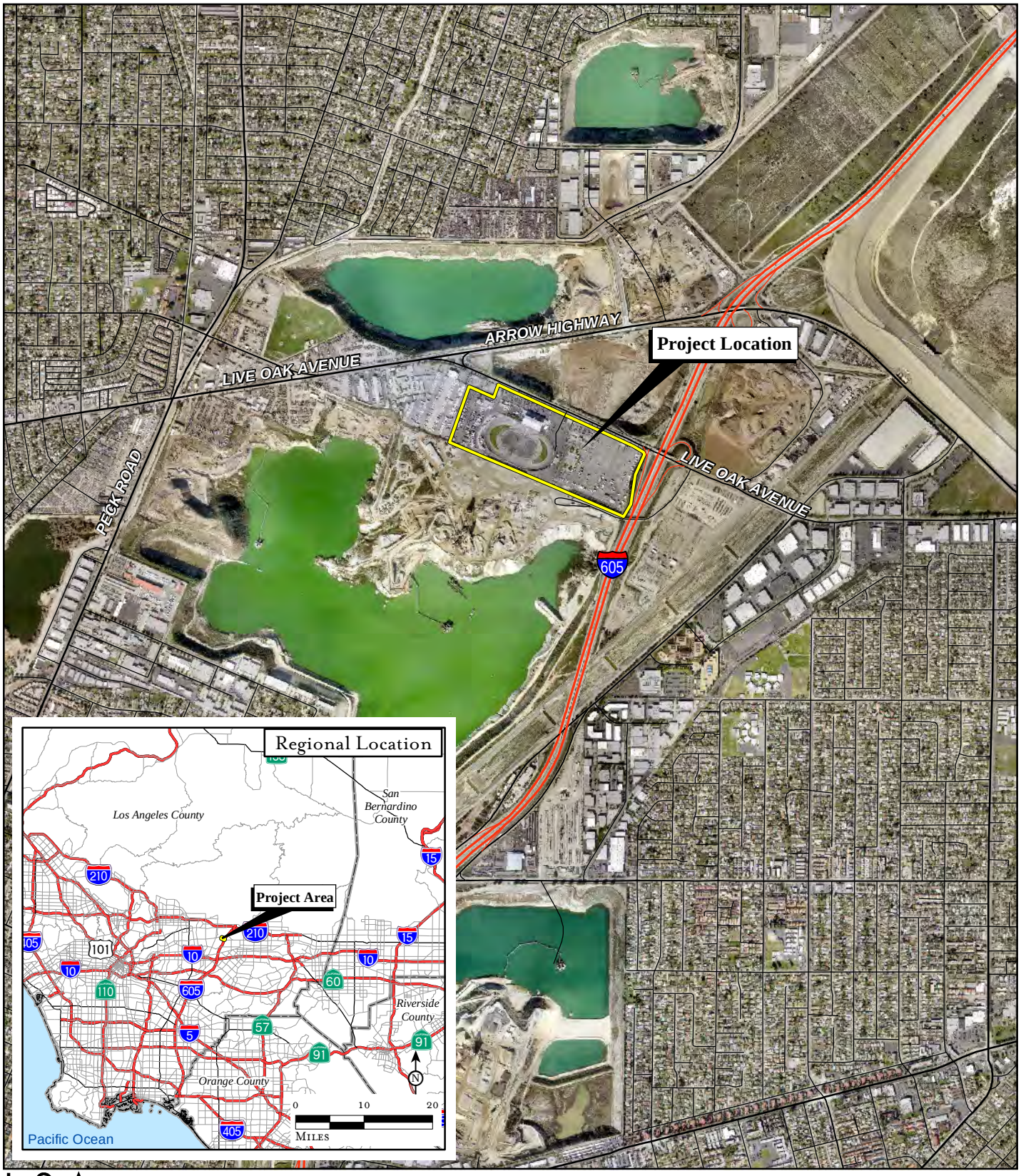
The proposed project site is located in the northwestern portion of the City of Irwindale in Los Angeles County and is approximately 63.5 acres. The project site is bordered by Live Oak Avenue and landfill to the north, an active quarry and Graham Access Road to the south, I-605 to the east, and a truck distribution center to the west (Figure 1.1). Northwest and south of the project site are two very large mining pits that are generally filled with groundwater and runoff. Beyond the adjacent land uses are residential neighborhoods. Olive Junior High School and Walnut Elementary School are approximately 0.5 mile southeast of the project site.

The applicant proposes to develop a 700,000-square foot shopping center and associated parking in two phases on the site of the Irwindale Speedway (Figure 1.2). Phase 1 of the project would start in early 2015 and be completed in fall 2017 and would include demolition of the speedway and associated buildings, all site preparation and grading, and would develop approximately 455,000 square feet or 65 percent of the total project building space. Phase 2 would start in winter of 2017 and be completed in the fall of 2018 and would develop approximately 245,000 square feet or 35 percent of the total project space. In addition to the primary function of the shopping center to provide commercial space for shopping opportunities, the project includes ancillary amenities including a central plaza for public gatherings, entryway features, an outdoor entertainment/performance area, and a food court.

---

1 *California Environmental Quality Act*, as amended 2013, §§21000–21189.3, Public Resources Code, State of California.
2 *Guidelines for Implementation of the California Environmental Quality Act*, as amended January 4, 2013. §§15000-15387, California Code of Regulations, Title 14, Chapter 3, State of California.

THIS PAGE INTENTIONALLY LEFT BLANK



LSA

FIGURE 1.1

N

0 1,000 2,000

Feet

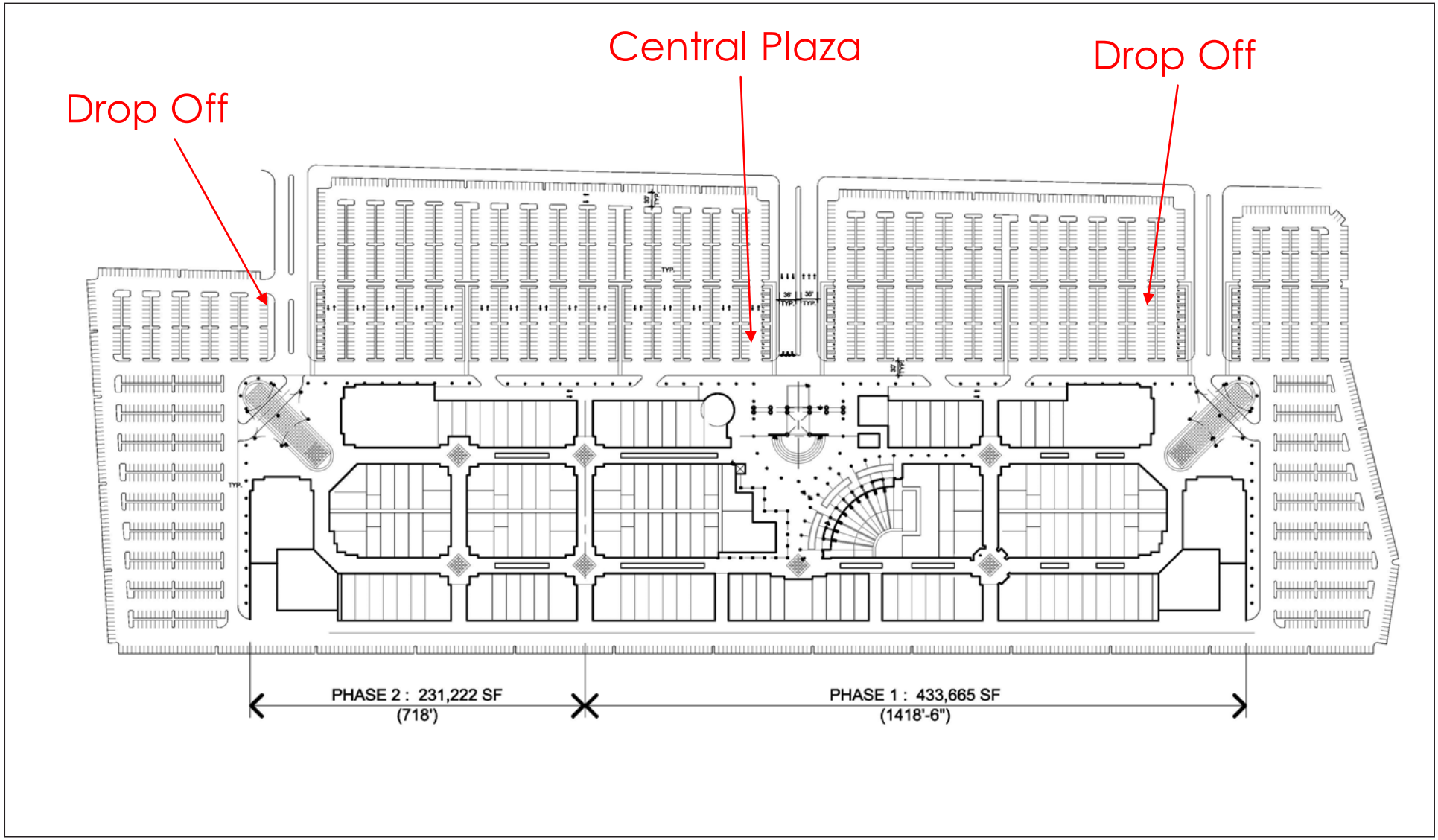
SOURCE: LARIAC, 2012; Thomas Bros., 2009

Irwindale Regional Shopping Center
Environmental Impact Report

Regional and Project Location

I:\COI1401\Reports\EIR\fig1-1_RegLoc.mxd (11/12/2014)

THIS PAGE INTENTIONALLY LEFT BLANK



LSA

FIGURE 1.2

Irwindale Regional Shopping Center
Environmental Impact Report

Conceptual Site Plan

SOURCE: FCGA Architecture, 2014

I:\COI1401\Reports\EIR\fig1-2_SitePlan.cdr (11/12/2014)

THIS PAGE INTENTIONALLY LEFT BLANK

The project site is currently developed with the Irwindale Speedway. Prior to the speedway the project site was used as an outdoor swap meet for several years and, prior to the swap meet, a landfill operated by Los Angeles County. Before the landfill, sand and gravel for construction were mined on site as part of the former Pacific Rock Quarry that operated through the late 1960s. The City's General Plan designates the entire project site as Commercial/Recreation. The site is zoned M-2 Heavy Manufacturing. The project would require the following entitlements: Zone Change, Site Plan and Design Review Permit, Development Agreement, Lot Line Adjustment, review of all on-site plans, and demolition permits. The zoning would change to C-2 Heavy Commercial. The EIR examines the impacts of the new proposed regional shopping center and demolition of the Irwindale Speedway.

1.3 AREAS OF CONTROVERSY AND ISSUES TO BE RESOLVED

CEQA Guidelines §15123(b)(2) requires that areas of controversy known to the City be stated in the EIR summary. The following discussion identifies issues raised by other agencies and the public during the 30-day public comment period of the NOP and the Public Scoping Meeting.

1.3.1 Notice of Preparation

An NOP for the Draft EIR was distributed to State, regional, and local agencies, and other interested parties considered likely to be interested in the project and its potential impacts. The objective of distributing an NOP is to solicit public comment in order to identify and determine the full range and scope of issues of concern so that these issues might be fully examined in the EIR. The City circulated 50 copies of the NOP for the Irwindale Regional Shopping Center EIR to State, regional, local agencies, adjacent properties, and individual members of the public on July 14, 2014, for a 30-day review period ending on August 13, 2014.[1] Comments received regarding the NOP were used to help identify impacts that could result from implementation of the proposed project. The NOP, distribution list, and response letters are included in Appendix A of the Draft EIR. As of the close of the NOP public review period, five responses to the NOP had been received. Table 1.A summarizes the comments received regarding the NOP.

Table 1.A: Notice of Preparation Comment Letters Received

Agency/Organization/Individual	Date	Comments
California Department of Transportation District 7 (Caltrans) Dianna Watson	07/18/14	Traffic analysis consistent with Caltrans' Traffic Impact Study Guide is needed. Identifies key methodological requirements of the traffic analysis.
Southern California Association of Governments (SCAG) Jonathan Nadler	07/21/14	Requests a copy of the EIR for the full public review period. Requests that the EIR address the project's consistency with Goals 1-8 of the RTP/SCS. Suggests that applicable RTP/SCS Strategies to provide consistency with the Goals be referenced. Identifies current SCAG population, household, and employment forecasts for use in the EIR. Recommends that the SCAG 2012 RTP/SCS Final Program EIR Mitigation Measures be reviewed for guidance.
County Sanitation Districts of Los Angeles County Grace Robinson Hyde	07/23/14	The District states that wastewater from the proposed project will discharge to City's local sewer line (21 inch diameter; 4.2 million gallons per day (mgd) design capacity; peak flow of 1.5 mgd measured in 2012). Wastewater from the proposed project will be treated at the Whittier Narrows Water Reclamation Plant (WRP) (design capacity of 15 mgd; currently treats an average flow of 8.2 mgd) or at the Los

[1] The NOP was again circulated for another 30 days on September 25 to October 27, 2014, to provide time for the City of El Monte and the San Gabriel Valley Council of Governments to respond to the NOP. No comments on the NOP were received from either agency.

Table 1.A: Notice of Preparation Comment Letters Received

Agency/Organization/Individual	Date	Comments
		Coyotes WRP (design capacity of 37.5 mgd; currently treats an average flow of 21.2 mgd.). Suggests average wastewater flow from the project will be 96,587 gd. Project proponent must pay a connection fee before a permit to connect to the sewer is issued. Districts intend to provide wastewater service up to the levels that are legally permitted (i.e., the design capacities of the Districts' wastewater treatment facilities that are based on the regional growth forecast adopted by SCAG.
South Coast Air Quality Management District (SCAQMD) Ed Eckerle	07/24/14	Requests a copy of the Draft EIR. Requests all appendices or technical documents related to the air quality and greenhouse gas analyses and electronic versions of all air quality modeling and health risk assessment files, including original emission calculation spreadsheets and modeling files (not Adobe PDF). Recommends that air quality analyses be conducted consistent with the SCAQMD's CEQA Handbook (1993) and more recent guidance available on SCAQMD's website. Suggests the EIR identify any potential adverse air quality impacts that could occur from all phases of the project and all air pollutant sources related to the project (including demolition and operations). Suggests that the project's criteria pollutant emissions be compared to SCAQMD's regional and localized significance thresholds. Recommends that a health risk assessment be conducted in the event that the proposed project generates or attracts vehicular trips, especially heavy-duty diesel-fueled vehicles, and the assessment be prepared consistent with guidance available on SCAQMD's website. Cites several sources available for identifying mitigation measures. States that SCAQMD rules, air quality reports, and relevant data are available by calling the SCAQMD's Public Information Center and available on SCAQMD's website.
Los Angeles County Metropolitan Transportation Authority (LACMTA) Xin Tong	08/7/14	LACMTA identifies geographic areas that should be examined in the TIA including all CMP arterial monitory intersections where the project would add 50 or more trips and mainline freeway-monitoring locations where the project would add 150 or more trips. The letter also identifies other preferred analytical methodologies for transportation impact analysis.
County of Los Angeles Fire Department Frank Vidales	08/08/14	The Planning Division made corrections to the Initial Study Fire Protections Section. The Land Development Unit listed code and ordinance requirements for constructions and requested 4 copies of the site plan and 1 elevation. Water System requirements were also listed. Forestry Division commented on environmental concerns including but not limited to erosion, watershed management, endangered species, Fire Zones, archeological and cultural resources, and County Oak Tree Ordinance. The Health Hazards Materials Division claimed jurisdiction over the former landfill and requires approval of the RWQCB prior to grading of the project site.
Comments from Public Scoping Meeting		
City Hall	7/30/14	None

Note: All NOP response letters (along with the Initial Study) are included in Appendix A of the EIR.

1.4 ALTERNATIVES TO THE PROPOSED PROJECT

One of the most important aspects of the environmental review process is the identification and assessment of reasonable alternatives that have the potential for avoiding or minimizing the impacts of a proposed project. *CEQA Guidelines* (§15126[d]) emphasizes the selection of a reasonable range of technically feasible alternatives and adequate assessment of these alternatives to allow for a comparative analysis and consideration by decision-makers. *CEQA Guidelines* §15126.6(c) states "the range of potential alternatives to the proposed project shall include those that could feasibly accomplish most of basic objectives of the project and could avoid or substantially lessen one or more of the significant adverse environmental effects" of a proposed project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.

The lead agency is responsible for selecting a reasonable range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. The range of alternatives required in an EIR is governed by a "rule of reason," which requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. Of the alternatives considered, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project. Pursuant to CEQA, "feasible" has been defined as "…capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors."[1]

1.4.1 Alternatives Summary

Three alternatives were identified for further analysis in this EIR. Summaries of each alternative have been provided below. More detailed descriptions of each project alternative are provided in Section 6.0 of this EIR. The four alternatives analyzed in this EIR are:

- Alternative 1: No Project – Existing Speedway Alternative;
- Alternative 2: Existing General Plan Land Use Alternative; and
- Alternative 3: Reduced Intensity Alternative.

1.4.2 Alternative 1: No Project – Existing Speedway Alternative

Under the No Project/Existing Speedway Alternative, no development would take place within the project limits. No ground-disturbing activities would take place, nor would any form of structure or facility be erected. Impacts associated with this alternative, when compared to the proposed project, would not occur. In the absence of development, no impacts would occur and this alternative would be the environmentally superior alternative. However, disallowing development of the site, as suggested by this alternative, would not fulfill most of the basic objectives of the proposed project. Retention of the project site in its current condition would not allow development of a suitable and safe land use on the existing speedway site. Retaining the site in its current condition would not generate the revenue (e.g., property and sales tax) that could augment the City's current revenue stream.

1.4.3 Alternative 2: Existing General Plan Land Use Alternative

Pursuant to CEQA (§15126.6[e][2]), the No Project Alternative should discuss what would reasonably be expected to occur, based on current plans and consistent with available infrastructure and

[1] *Guidelines for California Environmental Quality Act*, §15364.

community services, in the foreseeable future. It is reasonable in the event the proposed project were not approved, the site would be developed in accordance with the existing General Plan land uses in the future. In this case, the General Plan indicates the site's land use designation as Recreation/ Commercial. Therefore, this alternative would result in development of 63.5 acres of amusement park, consistent with the current General Plan land use designation. The alternative project would include a miniature golf course, carnival rides, batting cages, and an arcade. The Existing General Plan Land Use Alternative would have similar impacts to the proposed project. Although impacts to air quality and greenhouse gas emissions would be reduced they would still be significant and unavoidable. However, development of the project site under this Alternative would not expand retail opportunities for residents of the City resulting in an elimination of the potential vehicle miles traveled reduction afforded by the proposed project.

1.4.4 Alternative 3: Reduced Intensity

With the intent of avoiding or substantially reducing significant air quality and GHG impacts created by the proposed project, the City has considered a Reduced Intensity Alternative. This alternative includes a shopping center covering approximately 196,000 square feet on the 63.5 acres. The reduction in building area would reduce the proposed project's significant unavoidable impact from NO_X, VOC and CO operational emissions to below the SCAQMD regional threshold. Under this alternative, the proposed shopping center uses would represent a net decrease of approximately 72 percent compared to the proposed project. The existing Commercial/Recreation General Plan designation would be retained. However, similar to the proposed project, the zoning for this alternative would change from M-2 Heavy Manufacturing to C-2 Commercial.

1.5 IMPACTS, MITIGATION, AND LEVEL OF IMPACT SUMMARY TABLE

Table 1.B, Irwindale Regional Shopping Center Environmental Summary, delineates the environmental impacts for various issues of the proposed project as discussed in this Draft EIR. This table serves as a tool designed to track both standard requirements and mitigation measures identified in the Draft EIR and will be used to prepare the project's Mitigation Monitoring Reporting Program (MMRP) to be provided in the Final EIR.

Table 1.B: Irwindale Regional Shopping Center Environmental Summary

Issues/Impacts	Mitigation Measures	Level of Significance after Mitigation
4.1 AIR QUALITY		
Less than Significant Impacts		
Air Quality Management Plan Consistency: The proposed uses would not generate more traffic than currently allowed (i.e., commercial) uses; therefore, the proposed project is consistent with the intent of the General Plan Circulation Element of the City, which is consistent with the SCAG RCP Guidelines and the SCAQMD AQMP. Therefore, the proposed project is consistent with the General Plans and the regional AQMP.	No mitigation is required.	No Impact
Short-Term Emissions From Construction Activities: The use of construction equipment on site would result in localized exhaust emissions. The emissions of the pollutants on the peak day of construction will not result in that exceed SCAQMD thresholds of significance. The project would not have any significant short-term construction emissions or fugitive dust impacts.	No mitigation is required.	No Impact
Long-Term Operational Localized Impacts: The operational emission rates would not exceed the localized impacts thresholds for receptors at the nearest sensitive receptor. Therefore, the proposed operational activity would not result in a localized significant air quality impact.	No mitigation is required.	No Impact
Architectural Coating Emissions: During a combined peak construction day, 44 lbs of VOCs would be emitted. This level of VOC emission will not exceed the SCAQMD VOC threshold of 75 lbs/day; therefore, this impact is less than significant.	No mitigation is required.	No Impact

Table 1.B: Irwindale Regional Shopping Center Environmental Summary

Issues/Impacts	Mitigation Measures	Level of Significance after Mitigation
Long-Term Microscale (CO Hotspot) Impacts: Given the extremely low level of CO concentrations in the project area, project-related vehicles are not expected to result in the CO concentrations exceeding the State or federal CO standards. Because no CO hot spot would occur, there would be no project-related impacts on CO concentrations and no mitigation is required.	No mitigation is required.	No Impact
Odors: During construction, diesel-powered vehicles and equipment in use on the site would create odors. Additionally, the application of architectural coatings and installation of asphalt may generate odors. These odors are temporary and not likely to be noticeable beyond the project boundaries. The proposed uses are not anticipated to emit any objectionable odors. Therefore, objectionable odors posing a health risk to potential on-site and existing off-site uses would not occur as a result of the proposed project.	No mitigation is required.	No Impact
Potentially Significant Impacts		
Impact 4.1.6.1 Long-Term Project Operational Emissions: The proposed project would result in a net increase in both stationary- and mobile-source emissions. The emissions as a result of the proposed project operations would exceed the corresponding SCAQMD daily emission thresholds for VOC, NO_X, and CO. Emissions of SO_X, PM_{10} and $PM_{2.5}$ would all be less than the SCAQMD daily thresholds. This is a significant impact that requires mitigation.	**4.1.6.1A** Prior to the issuance of building permits, the project applicant shall provide evidence to the City that appropriate transit facilities, including (but not limited to) bus bulbs/turnouts, benches, and shelters have been incorporated into the proposed development. The project applicant shall demonstrate that the number, location, nature, and schedule of installation for any required public transit facility have been coordinated with the local and/or regional public transit entities that service the project area. The project applicant shall further demonstrate to the City that the stated public transit facilities have been installed prior to the Certificate of Occupancy for any use where the public transit facility	Significant and Unavoidable

Table 1.B: Irwindale Regional Shopping Center Environmental Summary

Issues/Impacts	Mitigation Measures	Level of Significance after Mitigation
	is required. **4.1.6.1B** Prior to the issuance of building permits, the project applicant shall provide evidence to the City that the project incorporates sidewalks, paths, and/or bicycle/pedestrian connections to adjacent land uses, transit stops, and/or community-wide network(s) sufficient to satisfy City requirements for community connectivity. The number, location, and nature of any such connectivity feature shall be included in the project plans and specifications. **4.1.6.1C** The project applicant shall demonstrate to the City that the number, nature, and location of any bicycle parking area(s) has been established through consultation with the City, local bicycle organizations, and/or through implementation of the bicycle parking standard for a similarly sized project. The project's bicycle parking facilities shall be reviewed and approved by the City prior to the issuance of building permits. Factors that may be considered in the determination of required bicycle parking area(s) include (but shall not be limited to) convenience, security, safety, the adjacency of other bicycle facilities, and anticipated usage. The number, location, and nature of any bicycle parking feature shall be included in the project plans and specifications. **4.1.6.1D** Prior to the issuance of the first Certificate of Occupancy, the project applicant shall prepare and submit to the City for review and approval, a Transportation Demand Management (TDM) Plan that identifies measures to reduce the percentage of individual-driver vehicle trips to the proposed development. The target vehicle trip reduction addressed in the TDM Plan shall be established through discussion with the City. Specific measures included in the plan shall include, but shall not be limited to: • Installation and maintenance of an appropriate number of public transit facilities;	

Table 1.B: Irwindale Regional Shopping Center Environmental Summary

Issues/Impacts	Mitigation Measures	Level of Significance after Mitigation
	• Installation and maintenance of an appropriate number of bicycle parking facilities; • Participation in local and regional employee carpool/ride share matching services; • Providing preferential parking to carpool/ride share parking; and • Requirements for on-site employer to provide carpool/ride share/public transit information to employees. Factors that may be considered in the development of TDM measures include (but shall not be limited to) the proximity of local and regional transit features, the demographics and residency of project site employees, the number of employers participating in TDM Plan measures, and the proximity of pedestrian and bicycle facilities. The TDM Plan shall identify how the specific measures are anticipated to reduce single-occupancy vehicle trips to the project site. On or prior to the anniversary of the issuance of the first Certificate of Occupancy, the project applicant shall submit to the City for review, a report that provides a summary of effectiveness of the TDM Plan measures. Effectiveness may be measured by increases in public transit usage, increased participation in carpool/ride share programs, increased retail visits and a corresponding reduction in parking lot usage, or other reasonable measure. Upon annual review by the City, the project applicant shall revise the TDM to reflect additional measures to reduce single-occupant vehicle trips to the project site. **4.1.6.1E** The project shall include signage at delivery/loading areas that state delivery truck idling shall be limited to two minutes or less. **4.1.6.1F** The project applicant shall designate two (2) percent of total parking spaces for electric vehicle parking and charging in preferential locations. These parking and charging locations shall be reviewed and approved by the City prior to the issuance of building permits and shall be included in the plans and	

Table 1.B: Irwindale Regional Shopping Center Environmental Summary

Issues/Impacts	Mitigation Measures	Level of Significance after Mitigation
	specifications for the project.	
Cumulative Impacts: A number of individual projects in the area may be under construction simultaneously with the proposed project. Generation of fugitive dust and pollutant emissions during construction could result in substantial short-term increases in air pollutants. However, each project would be required to comply with the SCAQMD's standard construction measures. The proposed project's short-term construction emissions would not exceed the significance thresholds. Therefore, it will not have a significant short-term cumulative impact. The project's long-term operational emissions would exceed the SCAQMD's regional criteria pollutant thresholds for VOC, NO_X, and CO. Therefore, the proposed project would potentially result in a significant long-term cumulative impact.	No feasible mitigation available.	Significant and Unavoidable
BIOLOGICAL RESOURCES (From the Initial Study)		
Less than Significant Impacts		
Riparian Habitat or Other Sensitive Natural Communities: There are no riparian habitats or any other sensitive natural community types on the project site. Therefore, no impacts associated with this issue would occur and no mitigation is required.	No mitigation is required	No Impact
Jurisdictional Waters/Wetlands: The project site does not contain any jurisdictional waters or wetlands, so there will be no significant impacts in this regard.	No mitigation is required	No Impact

Table 1.B: Irwindale Regional Shopping Center Environmental Summary

Issues/Impacts	Mitigation Measures	Level of Significance after Mitigation
Habitat Fragmentation/Wildlife Movement: The proposed project site is bordered by roadways, mining, and other urban development. The project site is currently occupied by the Irwindale Speedway. Therefore, native wildlife species do not use the project site as a migratory corridor or nursery site. Impacts are not significant and no mitigation is required.	No mitigation is required	No Impact
Endangered and Threatened Species: No species listed by the State and/or Federal government as endangered or threatened was identified on site during the field surveys, and all have no or little chance of occurring on the project site due to its completely disturbed nature.	No mitigation is required	No Impact
Adopted Local Policies or Ordinances: The City does not have any local or area-wide preservation or conservation plans or policies or ordinances protecting biological resources. The project site also does not contain any protected tree species or other biologically significant resources. The project would not conflict with local policies or ordinances that protect biological resources, resulting in no significant impact and no mitigation is required.	No mitigation is required	No Impact
Adopted Habitat Conservation Plan: The County of Los Angeles (County) is currently in the process of updating Significant Ecological Area (SEA) designations and policies as part of the County General Plan Update. The proposed SEA area in the City is approximately 3 miles northeast of the project site. Therefore, the project would not affect the proposed SEAs, resulting in no significant impact and no	No mitigation is required	No Impact

Table 1.B: Irwindale Regional Shopping Center Environmental Summary

Issues/Impacts	Mitigation Measures	Level of Significance after Mitigation
mitigation is required.		
Potentially Significant Impacts		
Candidate, Non-listed Sensitive, or Special Interest Species: Due to the presence of trees along the site perimeter and open areas within the site's interior, several bird species have a very low probability of (nesting) occurrence for nesting bird species are protected by the Migratory Bird Treaty Act (MBTA) (16 USC 703-711) and Section 3503 California Fish and Game Code. This is a potentially significant impact that requires mitigation.	**BIO-1.** To ensure compliance with California Fish and Game Code and the MBTA, and to avoid potential impacts to nesting birds, the proposed project site shall be cleared of vegetation outside the general bird nesting season (February 1 through August 31). If vegetation cannot be removed outside the bird nesting season, a pre-construction nesting bird survey by a qualified biologist is required prior to vegetation removal. Should nesting birds be found, an exclusionary buffer shall be established by the biologist. This buffer shall be clearly marked in the field by construction personnel under guidance of the biologist, and construction or clearing shall not be conducted within this zone until the biologist determines that the young have fledged or the nest is no longer active.	Less than Significant
4.2 GEOLOGY AND SOILS		
Less than Significant Impacts		
Fault Rupture: No faults have been identified on site and no Alquist-Priolo Earthquake Fault Zone is located in the City. In the absence of any active or potentially active faults on or adjacent to the project site, no impact related to on-site fault rupture would occur.	No mitigation is required	No Impact
Ground Shaking: The project site, and all of Southern California, would be subject to moderate to severe ground shaking during a major seismic event on any of the several major regional faults in the Los Angeles Basin. Design and construction of the proposed project in accordance with the current California Building Code (CBC), and City/County of Los Angeles requirements is anticipated to address potential impacts associated with ground shaking	No mitigation is required	No Impact

Table 1.B: Irwindale Regional Shopping Center Environmental Summary

Issues/Impacts	Mitigation Measures	Level of Significance after Mitigation
appropriately. Adherence to these requirements is required of all development in the City; therefore, no significant ground shaking impact would occur.		
Landslides and Rockfalls: The project site is relatively flat. Due to the absence of significant slopes within the project limits, no landslide hazard impact would occur.	No mitigation is required	No Impact
Soil Erosion and Loss of Topsoil: The project would be required to obtain an NPDES Permit, including the preparation of an SWPPP and a SUSMP. Adherence to the provisions and measures detailed in these plans will reduce the potential construction and operational erosion impacts to a less than significant level; therefore, no mitigation is warranted.	No mitigation is required	No Impact
Septic Tanks: The proposed project does not include the installation of septic systems; therefore, no project-related impact would occur.	No mitigation is required	No Impact.
Cumulative Impacts: The proposed project represents only an incremental increase in potential development in the region. It is reasonable to conclude that all development in seismically active areas or in areas of potential geologic hazard will be required to adhere to applicable State regulations, the CBC, and the design and siting standards required by local agencies. As design and engineering requirements are implemented based on required and available geotechnical data, and will be appropriately mitigated to address site-specific issues, Development in the City and the	No mitigation is required	No Impact

Table 1.B: Irwindale Regional Shopping Center Environmental Summary

Issues/Impacts	Mitigation Measures	Level of Significance after Mitigation
surrounding areas in general will not have a cumulatively considerable impact relative to regional geotechnical constraints.		
Potentially Significant Impacts		
Impact 4.2.6.1 Seismic Related Ground Failure and Liquefaction: Seismic settlement may originate from seismic compression or liquefaction. The preliminary geotechnical investigation concluded the site would experience settlement of between seven to twelve inches during a peak seismic event. Under static (non-seismic) conditions, settlement of between six to eight inches is anticipated. This is potentially significant impact that requires mitigation.	**4.2.6.1A** Prior to the issuance of a building permit, the developer shall submit supplemental geotechnical/soils assessment(s) to the City of Irwindale for review and approval. The assessment(s) shall address the potential for differential settlement and other on-site geologic/soil conditions, and shall identify site-specific grading techniques; required soil improvement efforts/methodology; foundation, utility, and storm drain design requirements; and building specifications to reduce the potential for differential settlement and other geotechnical hazards to levels within those specified in the California Green Building Code and/or other applicable Code(s). **4.2.6.1B** Prior to the commencement of any on-site construction or earthmoving activity, the developer shall submit to the City of Irwindale for review and approval evidence that the specific grading techniques, foundation/utility/storm drain design, and building specifications detailed in any supplemental geotechnical/soil investigation required under Mitigation Measure 4.2.6.1A, have been appropriately incorporated into the project's construction documents.	Less than Significant
Impact 4.2.6.2 Expansive Soils: Based on the preliminary geotechnical investigation of the project site, soil descriptions of the artificial fill in the first twenty-five feet of the on-site boring included: silty-sand, sandy lean clay, lean clay with sand, clayey sand, and silty sand with gravel. The presence of clay in the boring column may indicate an on-site potential for impacts related to expansive soils.	Previously referenced **Mitigation Measures 4.2.6.1A** and **4.2.6.1B** and subsequent geotechnical investigations**.**	Less than Significant

Table 1.B: Irwindale Regional Shopping Center Environmental Summary

Issues/Impacts	Mitigation Measures	Level of Significance after Mitigation
4.3 GREENHOUSE GASES AND GLOBAL CLIMATE CHANGE		
Less than Significant Impacts		
The evaluation of the proposed project did not identify impacts or less than significant impacts from greenhouse gas emissions or climate change. Impacts of greenhouse gas emissions and climate change have been determined to be cumulative and not project specific.		
Potentially Significant Impacts		
Impact 4.3.6.1 Short-term and Long-Term Cumulative Greenhouse Gas Emissions and Conflicts With A Policy Plan or Regulation Reducing Greenhouse Gas Emissions: The project would achieve an approximate 3.9 percent reduction below Business as Usual (pre AB 32) levels. The majority of the GHG emissions are from mobile sources, which are all private vehicles used for employees and customers of the project and delivery trucks. These vehicles are not under the direct control of the operators of the proposed project. Therefore, there are no feasible mitigation measures that would alter the BAU-proposed project reduction to more that 15 percent. Even with implementation of Mitigation Measures 4.6.1.A–G, the project would conflict with and impede implementation of reduction goals identified in AB 32, the Governor's EO S-3-05, and other strategies to help reduce GHGs to the level proposed by the Governor, project GHG emissions would be significant.	**4.3.6.1A Construction and Building Materials.** Prior to issuance of the first Certificate of Occupancy for each phase of development, the project applicant shall demonstrate that the following activities have been incorporated into the project and are shown as appropriate in the project plan: • Divert by recycling at least 50 percent of the demolished and/or grubbed construction materials (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard). • Use locally produced and/or manufactured building materials for construction of the project; • Recycle/reuse demolished construction material; and • Use "Green Building Materials," such as those materials which are resource efficient, and recycled and manufactured in an environmentally friendly way, including low Volatile Organic Compound (VOC) materials. **4.3.6.1B Passive Solar Design Elements.** Prior to final development map/plan approval, the applicant shall submit to the Irwindale Planning Department for review and approval a building plan that incorporates the following passive solar design elements: • Proper building orientation to take advantage of the sun, shade, and wind; • Thermal mass materials, such as tile or brick, used in flooring or walls, especially south-facing walls, to store the sun's heat during the day and release it back into the building at night or	Significant and Unavoidable

Table 1.B: Irwindale Regional Shopping Center Environmental Summary

Issues/Impacts	Mitigation Measures	Level of Significance after Mitigation
	when the temperature drops; • Insulation of both the ceilings and walls; • Passive solar design techniques such as large south and west-facing windows with proper window overhangs and/or reflective window film to improve heating and cooling of the building naturally, reducing the need for artificial heating or cooling mechanisms; and • A daylighting system to integrate daylight effectively with electrical lighting systems to reduce electricity consumption when sufficient daylight is present within the building. **4.3.6.1C Energy Efficiency Measures**. Prior to the final development map/plan approval, the applicant shall submit to the Irwindale Planning Department for review and approval a building plan which requires and/or incorporates the following: • Water heating equipment which includes integral automatic temperature controls and circulating service water system controls such as geothermal heat pumps (Geothermal heat pumps provide heating, cooling, and hot water, and are generally more efficient and less expensive to operate and maintain than conventional systems.); • The installation of lighting systems with automatic time switch controls, occupant-sensing devices such as motion detectors, automatic daylighting controls, dimmers, indoor photo sensors, and efficient security, street, and parking lot lighting (e.g. high pressure low sodium fixtures); • The use of alternative energy sources such as photovoltaic (i.e., solar electric) systems on all building rooftops to reduce the projects electrical energy consumption; and • The use of alternative building materials that contain post-consumer recycled materials to the greatest extent possible.	

Table 1.B: Irwindale Regional Shopping Center Environmental Summary

Issues/Impacts	Mitigation Measures	Level of Significance after Mitigation
	4.3.6.1D Energy Management Design Systems. Prior to final development map/plan approval, the applicant shall submit to the Irwindale Planning Department for review and approval a building plan which incorporates energy management systems to control space conditioning or HVAC systems including operating hours, set point, scheduling of chillers, etc. **4.3.6.1E Landscape Design Plan.** Prior to final development map/plan approval, the applicant shall submit to the Irwindale Planning Department for review and approval a landscape design plan which integrates heat island minimization, xeriscape principles (i.e., landscaping that reduces or eliminates the need for supplemental water), and native drought-tolerant plants. **4.3.6.1F Water Conservation and Efficiency Measures.** To the satisfaction of the City, the following measures shall be incorporated into the design and construction of the project: • Devise a comprehensive water conservation strategy appropriate for the project and location. The strategy may include the following, plus other innovative measures that might be appropriate; • Install water-efficient irrigation systems and devices, such as soil moisture-based irrigation controls; • Design buildings to be water-efficient. Install water-efficient fixtures and appliances, including low-flow faucets, dual-flush toilets and waterless urinals; • Restrict watering methods (e.g., prohibit systems that apply water to non-vegetated surfaces) and control runoff; and • Install a separate, non-potable distribution system to accommodate the potential future use of recycled water for landscape irrigation needs of large areas with irrigated landscaping.	

Table 1.B: Irwindale Regional Shopping Center Environmental Summary

Issues/Impacts	Mitigation Measures	Level of Significance after Mitigation
	4.3.6.1G LEED Certification. As defined by the LEED Program of the United States Green Building Council, the project design shall qualify for a minimum of "LEED Certified" designation. Prior to occupancy or use of the new project buildings, the applicant shall provide evidence to the Irwindale Planning Department that an LEED Certified designation has been met.	
4.4 HAZARDS AND HAZARDOUS MATERIALS		
Less than Significant Impacts		
Routine Transport, Use, and Disposal of Hazardous Materials and Reasonable Foreseeable Accident Conditions Impacts: Potentially hazardous materials such as fuel, paint products, lubricants, solvents, and cleaning products may be used, stored, and/or transported on/to the site during the construction and/or occupancy of the proposed commercial facilities. The transport, use, and storage of hazardous materials during the construction and operation of the site would be conducted in accordance with all applicable State and Federal laws. Compliance with all applicable Federal, State, and local laws and regulations would reduce the potential impact associated with the routine transport, use, storage, or disposal of hazardous materials to a less than significant level.	No mitigation is required	Less than Significant
Within Two miles of a Private Airport, Public Airport, or Within a Land Use Plan: The proposed project site is not located within two miles of any airport or private airstrip. The site is located approximately three miles from the closest airport (El Monte Airport to the east). Given the distance of the project area to the	No mitigation is required	No Impact

Table 1.B: Irwindale Regional Shopping Center Environmental Summary

Issues/Impacts	Mitigation Measures	Level of Significance after Mitigation
closest airport, the development of the project area as proposed would not result in private airport safety hazards for people working in the project area. No impacts associated with this issue would occur.		
Existing or Proposed School: There are no existing or proposed school facilities within one-quarter of a mile of the project area. In addition, with compliance of the Hazardous Materials Business Emergency Plan as required by applicable local, State, and Federal standards, ordinances, and regulations will ensure that impacts associated with environmental and health hazards related to an accidental release of hazardous materials or emissions of hazardous substance near existing or proposed schools are less than significant.	No mitigation is required	No Impact
Emergency Response Plan: The proposed project will be designed, constructed, and maintained in accordance with applicable standards associated with vehicular access, ensuring that adequate emergency access and evacuation will be provided. The construction contractor retained for the construction of the proposed project would be required to obtain an encroachment permit from the City's Public Works Department prior to the commencement of construction activities within the City's right-of-way. The proposed project will be designed and conditioned to provide required circulation and fire access to allow for ingress and emergency vehicles and egress of employees and patrons. Compliance with existing regulations for emergency access and	No mitigation is required	No Impact

Table 1.B: Irwindale Regional Shopping Center Environmental Summary

Issues/Impacts	Mitigation Measures	Level of Significance after Mitigation
evacuation will ensure that impacts related to this issue are less than significant.		
Wildland Fires: The project site is not within any designated fire hazard zone. Additionally, the project site is in developed, urbanized areas, and is not adjacent to or near wildlands that could be subject to wildland fires. The project would not increase risks related to wildland fires or expose people or structures to wildland fires. No impact would occur.	No mitigation is required	No Impact.
Cumulative Impacts: Significant cumulative impacts associated with the routine transport, use, and disposal of hazardous materials would not occur as these risks are largely site-specific and localized and therefore limited to the project site. Since the project is commercial retail in nature, its contribution to any cumulative impacts related to hazards or hazardous materials is considered to be less than significant.	No mitigation is required	No Impact
Potentially Significant Impacts		
Upset and Accidental Conditions Involving Hazardous Materials: The Irwindale Speedway is the site of a former Class III landfill that accepted mainly construction waste. Organic materials, which can produce methane as they decompose, were deposited along with inert building materials. Methane can concentrate in enclosed buildings if they are located over a closed landfill. A methane monitoring system was installed beneath the seven operating buildings of the Irwindale Speedway to prevent the buildup of explosive methane gas beneath	**4.4.6.1A** Prior to the demolition of any structure that has the potential to contain asbestos-containing materials, an inspection for Asbestos Containing Building Materials (ACM) shall be conducted by a California Site Surveillance Technician (CSST) registered by the California Division of Occupational Health and Safety (CalOSHA) for ACM. The purpose of the ACM inspection is to locate and identify suspected ACM that will be affected during the demolition portion of the project. Once a visual inspection is performed, representative asbestos samples (if present) shall be collected in accordance with the U.S. EPA established guidelines document, “Guidance for Controlling Asbestos-Containing Materials in Buildings” (U.S. EPA 560/5-85-024, 1985) and U.S. EPA 40 CFR	Less than Significant

Table 1.B: Irwindale Regional Shopping Center Environmental Summary

Issues/Impacts	Mitigation Measures	Level of Significance after Mitigation
or within the on-site buildings. However, further testing indicated problems with the probe. There are indications that water may be seeping into some of the probe locations. Any new construction of occupied buildings on the project site would need to have methane gas protection systems installed and regularly monitored to adequately protect the public from the potentially dangerous buildup of methane in occupied buildings. This is a potentially significant impact and mitigation measures are required. In addition, the Phase 1 ESA determined that there is a possibility of vapor issues on the northwest side of the property. This is also a potentially significant impact that requires mitigation.	Part 763, "Asbestos-Containing Materials in Schools, Final Rule." After sampling, ACM shall be abated/removed from the project site by a California State Registered Asbestos Abatement Contractor registered by the Division of Occupational Health and Safety (OSHA) in accordance with the California Administrative Code, Title 8, and article 2.5. and in adherence to the South Coast Air Quality Management District (SCAQMD) Asbestos Hazard Emergency Response Act (AHERA) pursuant to CFR Chapter 40, Part 763, subpart E. **4.4.6.1B** Prior to issuance of a grading permit, the applicant and the City shall meet with representatives of the Los Angeles County Department of Public Works (LACDPW) and South Coast Air Quality Management District (SCAQMD) to develop an appropriate methane gas protection system for the new commercial uses proposed on the project site. This system shall be designed by a qualified civil engineer with experience designing such systems, to the satisfaction of the LACDPW and SCAQMD. The protection system shall be approved by the LACDPW and SCAQMD prior to issuance of a grading permit for the proposed project, to the satisfaction of the City Public Works Department**.** **4.4.6.1C** During grading, a methane gas protection and monitoring system shall be installed beneath each new commercial building of the project. This system shall be designed and installed to the satisfaction of the Los Angeles County Department of Public Works (LACDPW) and the South Coast Air Quality Management District (SCAQMD) per **Mitigation Measure 4.4.6.1B**. **4.4.6.1D** Prior to issuance of the first occupancy permit, the applicant shall demonstrate that the methane gas protection system has been installed and is operating per design specifications. **4.4.6.1E** After issuance of an occupancy permit for all buildings within the project, the methane gas system shall be monitored regularly (at least weekly for the first two months, then at least monthly for the first year, then at least quarterly) and written results	

Table 1.B: Irwindale Regional Shopping Center Environmental Summary

Issues/Impacts	Mitigation Measures	Level of Significance after Mitigation
	provided to the City Public Works Department. Any measurements over 1 percent shall be reported immediately to the City and the Los Angeles County Department of Public Works (LACDPW) and the South Coast Air Quality Management District (SCAQMD) for appropriate action and additional monitoring. Any measurements over 3 percent shall be reported immediately to the City, the LACDPW, and the SCAQMD and the City shall take appropriate action, which may include but not be limited to temporary evacuation or limited occupancy of the building or buildings with elevated methane readings. Elevated methane readings over more than 2 monitoring periods will be grounds to require inspection and possible repair of the methane monitoring system, to the satisfaction of the City, the LACDPW, and the SCAQMD. **4.4.6.1F** Prior to issuance of a grading permit, the applicant shall retain a certified hazardous materials waste hauler to collect, haul away, and dispose of all on-site materials that may be potentially hazardous including, but not limited to, underground tanks, aboveground tanks, and storage drums related to current Speedway activities. The disposal of these materials and facilities shall be conducted in accordance with all Federal, State, and local regulations associated with the removal, hauling, and disposal of hazardous materials.	
Located on a List of Hazardous Materials Sites: The project site is included on the Local Lists of Landfill/Solid Waste Disposal Sites maintained by State Water Resources Control Board. The project site was included on this list due to its previous use as the former Nuway landfill. This is a potentially significant impact that requires mitigation.	Implementation of previously referenced **Mitigation Measures 4.4.6.1B** through **4.4.6.1F.**	Less than Significant
4.5 HYDROLOGY AND WATER QUALITY		
Less than Significant Impacts		
Drainage Pattern and Capacity-Related	No mitigation is required	No Impact

Table 1.B: Irwindale Regional Shopping Center Environmental Summary

Issues/Impacts	Mitigation Measures	Level of Significance after Mitigation
Impacts: The project hydrology study, based on flow calculations for the 25-year storm, found that the existing storm drain system, including existing inlets, on Live Oak Avenue has sufficient capacity for project runoff flows. During the 25-year storm, the depth of water outside the existing inlets will reach approximately 4.5 inches deep; one lane will be inundated and one lane will be clear. By intercepting and directing on-site flows directly to the existing storm drainage system, street flows on Live Oak Avenue are within the criteria established by the Los Angeles County Hydrology Manual. While the proposed project would alter the existing drainage patterns of the site, it would not increase the rate or amount of surface runoff in a manner that would result in substantial erosion, siltation, or flooding on site or off site. Peak flow rates during various storm events would be reduced after project implementation. Therefore, impacts to local drainage patterns as they relate to erosion, siltation, and flooding are less than significant, and no mitigation is required.		
Dam Inundation: The Santa Fe Dam, a flood-control dam on the San Gabriel River, is located approximately one mile northeast of the project site. The project site is not located in the inundation area of the Santa Fe Dam; therefore, the proposed project would not result in the exposure of people or structures to risk of loss, injury, or death involving flooding as a result of failure of a nearby dam or other water retention facility. Impacts related to this issue would be	No mitigation is required	No Impact

Table 1.B: Irwindale Regional Shopping Center Environmental Summary

Issues/Impacts	Mitigation Measures	Level of Significance after Mitigation
less than significant.		
Seismic Related Impacts: Due to its location and the lack of water bodies or impoundment facilities nearby, the project site will not be subject to tsunami, seiche (seismically induced standing wave), or mudflows. Impacts are less than significant.	No mitigation is required	No Impact
Groundwater: The Irwindale Speedway, its ancillary structures, and impervious parking areas occupy the project site. No groundwater recharge features are currently located within the project limits. No increase in the amount or extent of impervious surfaces within the project limits would occur. The water consumed by the proposed on-site uses will not exceed existing or projected GSWC supplies; would not exceed the adjudicated rights established in the 1973 judgment, or the OSY identified by the Watermaster; would not substantially deplete groundwater supplies in the MSGB; or interfere with groundwater recharge in the MSGB. Based on this analysis, the proposed project is not expected to interfere with groundwater recharge activities or groundwater supplies, either directly or through the use of imported water. Impacts associated with this issue are less than significant.	No mitigation is required	No Impact
100-Year Flood-Related Impacts: Based on FIRM maps, the project site does not fall within a 100-year floodplain. Therefore, impacts related to this issue are less than significant.	No mitigation is required	No Impact
Cumulative Impacts: Cumulatively, development within the watershed would result in increases in	No mitigation is required	No Impact

Table 1.B: Irwindale Regional Shopping Center Environmental Summary

Issues/Impacts	Mitigation Measures	Level of Significance after Mitigation
impervious surfaces in addition to changes in land use and associated pollutant runoff characteristics. Increased impervious surfaces are likely to alter existing hydrology and increase potential pollutant loads. However, all proposed and future development in the City and throughout the Los Angeles RWQCB jurisdiction must comply with the NPDES permit program requirements. Each new development is required to mitigate its own specific impacts on water quality and drainage. Therefore, there would be no significant cumulative impacts to water quality.		
Potentially Significant Impacts		
Impact 4.5.6.1 Construction-Related Water Quality Impacts: The construction and grading phases of the project site would require temporary disturbance of surface soils and removal of vegetative cover which could potentially result in erosion and sedimentation on site. This is a significant impact requiring mitigation.	**4.5.6.1A** Prior to issuance of any grading permit, the project developer shall file a Notice of Intent (NOI) with the Los Angeles Regional Water Quality Control Board (LARWQCB) to be covered under the National Pollutant Discharge Elimination System (NPDES) General Construction Permit for discharge of storm water associated with construction activities. The project developer shall submit to the City the Waste Discharge Identification Number issued by the State Water Quality Control Board (SWQCB) as proof that the project's NOI is to be covered by the General Construction Permit that has been filed with the SWQCB. This measure shall be implemented to the satisfaction of the City Engineer. **4.5.6.1B** Prior to issuance of a grading permit, the developer shall submit to the Los Angeles Regional Water Quality Control Board (LARWQCB) and receive approval for a project-specific Storm Water Pollution Prevention Plan (SWPPP). The SWPPP shall include a surface water control plan and erosion control plan citing specific measures to control on-site and off-site erosion during the entire grading and construction period. In addition, the SWPPP shall emphasize structural and nonstructural best management	Less than Significant

Table 1.B: Irwindale Regional Shopping Center Environmental Summary

Issues/Impacts	Mitigation Measures	Level of Significance after Mitigation
	practices (BMPs) to control sediment and non-visible discharges from the site. BMPs to be implemented may include (but shall not be limited to) the following: • Sediment discharges from the site may be controlled by the following: sandbags, silt fences, straw wattles and temporary debris basins (if deemed necessary), and other discharge control devices. The construction and condition of the BMPs are to be periodically inspected by the RWQCB during construction and repairs would be made as required. • Materials that have the potential to contribute non-visible pollutants to storm water must not be placed in drainage ways and must be placed in temporary storage containment areas. • All loose soil, silt, clay, sand, debris, and other earthen material shall be controlled to eliminate discharge from the site. Temporary soil stabilization measures to be considered include: covering disturbed areas with mulch, temporary seeding, soil stabilizing binders, fiber rolls or blankets, temporary vegetation, and permanent seeding. Stockpiles shall be surrounded by silt fences and covered with plastic tarps. • The SWPPP shall include inspection forms for routine monitoring of the site during the construction phase. • Additional required BMPs and erosion control measures shall be documented in the SWPPP. • The SWPPP would be kept on site for the duration of project construction and shall be available to the local Regional Water Quality Control Board for inspection at any time. The developer and/or construction contractor for each development area shall be responsible for performing and documenting the application of BMPs identified in the project-specific SWPPP. Regular inspections shall be performed on sediment control measures called for in the SWPPP. Monthly reports shall be	

Table 1.B: Irwindale Regional Shopping Center Environmental Summary

Issues/Impacts	Mitigation Measures	Level of Significance after Mitigation
	maintained and available for City inspection. An inspection log shall be maintained for the project and shall be available at the site for review by the City of San Gabriel and the Regional Water Quality Control Board	
Impact 4.5.6.2 Operational-Related Water Quality Impacts: The proposed project would result in the conversion of impermeable speedway-related surfaces to a larger percentage of permeable surfaces. During project occupancy, it is possible that a number of human activities could result in pollutants reaching local waterways unless Best Management Practices (BMPs) are implemented on an ongoing basis. This is a potentially significant impact requiring mitigation.	**4.5.6.2A** Upon completion of each phase of development within the project, the developer shall provide evidence that the long-term BMPs outlined in the project's SUSMP have been fully implemented. As determined appropriate by the City, the applicant shall include information related to planned maintenance of BMP features. This measure shall be implemented to the satisfaction of the City Public Works Department and Planning Division.	Less than Significant
4.6 NOISE		
Less than Significant Impacts		
Airport Noise Impacts: The proposed project site is not located within two miles of an airport or private airstrip. Therefore, there will be no significant impact related to this issue.	No mitigation is required	No Impact
Short-Term Construction Noise Impacts: Short-term noise would occur during the construction activities. Construction of the proposed project would not result in noise levels at the closest residences (2,112 feet away) exceeding the maximum noise level allowed under the City's Municipal Code. Construction noise impacts are therefore, less than significant.	No Mitigation Required.	No Impact
Long-Term Noise Impacts: The noise study examines potential long-term noise impacts of the project in relation to mobile and stationary	No mitigation is required.	No Impact

Table 1.B: Irwindale Regional Shopping Center Environmental Summary

Issues/Impacts	Mitigation Measures	Level of Significance after Mitigation
sources. Noise levels generated by project activities would not exceed the City's daytime exterior noise standard. No significant impact would occur.		
Groundborne Vibration Impacts: The project noise analysis evaluated vibration impacts on sensitive receptors for both construction (which includes demolition of the speedway) and operation of the proposed project. The nearest residences are located at a distance more than 2,000 feet from the project site, and vibration associated with project construction/demolition would be reduced to less than 30 VdB and would not be perceptible by the residents inside these nearest residences. The project would not expose sensitive receptors to significant vibration impact.	No mitigation is required.	No Impact
Cumulative Noise Impacts: It is not possible to predict if contiguous properties may be constructed at the same time and generate cumulative noise impacts that would be greater than if developed at separate times. In the unlikely event that adjacent properties are developed at the same time as the proposed project, adherence to the City's Municipal Code provisions that regulate construction activities and other development standards would render the cumulative impacts of the proposed project to less than significant levels.	No mitigation is required	No Impact
Potentially Significant Impacts		
No significant short-term or long-term noise impacts were identified for the proposed project.		

Table 1.B: Irwindale Regional Shopping Center Environmental Summary

Issues/Impacts	Mitigation Measures	Level of Significance after Mitigation
4.7 TRANSPORTATION		
Less than Significant Impacts		
Air Traffic Pattern Impacts: The proposed onsite uses (retail and associated parking) will not be located in a flight safety hazard zone of the airport; therefore, the proposed project will have no impact on air traffic pattern or will result in a substantial safety risk at the airport.	No mitigation is required.	No Impact
Design Features or Incompatible Uses: Roadway improvements in and around the project site would be designed and constructed to satisfy all City requirements for street widths, corner radii, intersection control as well as incorporate design standards tailored specifically to site access requirements. Adherence to applicable City requirements would make it unlikely that the proposed development would include any sharp curves or dangerous intersections. The proposed project would have a less than significant impact.	No mitigation is required.	No Impact
Inadequate Emergency Access: The developer of the proposed project would be required to design, construct, and maintain structures, roadways, and facilities to provide for adequate emergency access and evacuation. Construction activities, which may temporarily restrict vehicular traffic, would be required to implement measures to facilitate the passage of persons and vehicles through/around any required road closures. Adherence to applicable existing requirements of the City of Irwindale and other agencies would reduce impacts associated with this issue to a less than	No mitigation is required.	No Impact

Table 1.B: Irwindale Regional Shopping Center Environmental Summary

Issues/Impacts	Mitigation Measures	Level of Significance after Mitigation
significant level.		
Existing Conditions (2014) With Project Freeway LOS Impacts: The project would add traffic volumes to regional freeways, potentially resulting in significant project direct traffic impacts based on analysis of Existing Plus Project Freeway Segments and Ramp Junctions LOS. All study area freeway segments and ramps are projected to operate at satisfactory LOS. No significant impact would occur.	No mitigation is required.	No Impact
Future Baseline Plus Cumulative Project With Project Freeway LOS Impacts: The project would add traffic volumes to regional freeways, potentially resulting in significant project cumulative traffic impacts based on analysis of Future Baseline Plus Cumulative Projects With Project Freeway Segments and Ramp Junctions LOS. All study area freeway segments and ramps are projected to operate at satisfactory LOS. No significant impact would occur.	No mitigation is required.	No Impact
Cumulative Impacts: With the project-specific mitigation outlined in Section 4.7.6, project-related direct and cumulative impacts will be reduced to less than significant levels, and thus the project will only make incremental (i.e., less than significant) cumulative traffic impacts on local and regional intersections and roadways, and no additional mitigation is required.	No mitigation is required.	No Impact
Potentially Significant Impacts		
Impact 4.7.6.1: Existing Conditions (2014) With Project Intersection LOS Impacts: The project results in significant project direct traffic impacts to local intersections based on analysis of	**4.7.6.1A** Prior to issuance of Certificates of Occupancy for the first phase of development, the project applicant shall install a traffic signal at the Driveway 1/Live Oak Avenue intersection. The traffic signal improvement plans shall be reviewed and approved by the	Significant and Unavoidable

Table 1.B: Irwindale Regional Shopping Center Environmental Summary

Issues/Impacts	Mitigation Measures	Level of Significance after Mitigation
Existing Plus Project Intersection LOS. all intersections are projected to operate at satisfactory LOS, with the exception of the following intersections: • Driveway 1/Live Oak Avenue (LOS F in the p.m. peak hour); • Driveway 3/Live Oak Avenue (LOS F in the p.m. peak hour); and • I-605 Northbound Off-Ramps/Live Oak Avenue (LOS F in the p.m. peak hour). The project contributes to the less than standard LOS at one intersection and two driveways, resulting in a significant impact.	City of Irwindale Public Works Department. This measure shall be implemented to the satisfaction of the City Public Works Director. **4.7.6.1B** Prior to issuance of Certificates of Occupancy for the first phase of development, the project applicant shall install a traffic signal at the Driveway 3/Live Oak Avenue intersection. The traffic signal improvement plans shall be reviewed and approved by the City of Irwindale Public Works Department. This measure shall be implemented to the satisfaction of the City Public Works Director. **4.7.6.1C** Prior to the issuance of the first Certificate of Occupancy for the first phase of development, the project applicant shall make a fair-share contribution to the following circulation improvements and these improvements shall be in place: • I-605 Northbound Off-Ramps/Live Oak Avenue: Install a traffic signal and add a second northbound right-turn lane. It should be noted that these improvements are a joint improvement project between Caltrans and the City of Irwindale and preparation of the engineering design and environmental documentation is currently underway. It is anticipated that these improvements will be completed in 2016 and in operation prior to the opening year of the project. The fair-share contribution shall be calculated based on the project's share of the existing plus project traffic volume during the peak hour on a weekday or weekend. The highest fair-share percentage is 25.4 percent during the Saturday peak hour. This measure shall be implemented to the satisfaction of the City Public Works Department.	
Impact 4.7.6.2: Future Baseline Plus Cumulative Projects With Project Intersection LOS: The project contributes to the less than standard LOS at intersections in the Future Baseline Plus cumulative Projects with Project a.m. and p.m. peak hour LOS analysis, resulting in a	**4.7.6.2A** Prior to the issuance of the first certificate of occupancy for the project, the developer shall make fair-share contributions to the following circulation improvements: • Arrow Highway/Live Oak Avenue: Add an eastbound through lane. It should be noted, to accommodate a third eastbound	Significant and Unavoidable

Table 1.B: Irwindale Regional Shopping Center Environmental Summary

Issues/Impacts	Mitigation Measures	Level of Significance after Mitigation
significant impact requiring mitigation. In addition, the project contributes to the less than standard LOS at three intersections in the Future Baseline Plus Cumulative Projects with Project Saturday peak hour LOS analysis, resulting in a significant impact requiring mitigation.	through lane, on-street parking will be prohibited. The fair-share contribution shall be calculated based on the project's share of the existing plus project traffic volume during the peak hour on a weekday or weekend. The highest fair-share percentage is 1.9 percent during the Saturday peak hour. This measure shall be implemented to the satisfaction of the City Public Works Department. **4.7.6.2B** Prior to the issuance of the first certificate of occupancy for the project, the developer shall make fair-share contributions to the following circulation improvements: • Avenida Barbosa/Arrow Highway: Add a second eastbound left-turn lane. The fair-share contribution shall be calculated based on the project's share of the existing plus project traffic volume during the peak hour on a weekday or weekend. The highest fair-share percentage is 41.1 percent during the Saturday peak hour. This measure shall be implemented to the satisfaction of the City Public Works Department.	
Impact 4.7.6.3: Alternative Transportation: The proposed project plans are not detailed, and therefore amenities that would promote the use of alternative modes of transportation are not shown on the conceptual site plan. This could conflict with applicable policies, plans, or programs supporting alternative transportation resulting in a significant impact requiring mitigation.	**4.7.6.3A** Prior to issuance of occupancy permits, the developer shall install bike racks and provide showers and locker rooms for employees who wish to ride bicycles to work. Bike racks shall also be installed for retail customers in appropriate locations. An appropriate number of bike racks shall be located near each building to serve the anticipated number of employees and customers. This measure shall be implemented to the satisfaction of the City Engineer. **4.7.6.3B** Prior to issuance of the first building permit, the project plans shall be circulated to Foothill Transit (FT) and the Metropolitan Transit Authority (MTA) to determine if there is a need for a bus stop on the south side of Live Oak Avenue in front of the project site (i.e., for either FT Route 270, 272 and 492). If either agency determines a need for such a stop, the developer shall	Less than Significant

Table 1.B: Irwindale Regional Shopping Center Environmental Summary

Issues/Impacts	Mitigation Measures	Level of Significance after Mitigation
	install a bus stop to agency specifications prior to issuance of occupancy permits. This measure shall be implemented for each phase to the satisfaction of the City Engineer.	
4.8 WATER SUPPLY		
Less than Significant Impacts		
Availability of Service Supplies/Need for New or Expanded Entitlements / Construction or Expansion of Water Treatment Facilities: Water to the project site is provided by the Golden State Water Company (GSWC), an investor-owned utility in California that provides water service to residents across within 75 communities throughout California. The project site is served by GSWC's South Arcadia System (GSWC-SAS). Currently, GSWC-SAS provides water service to a population of approximately 29,500. The existing water demand for the project site for the past five years has averaged approximately 20 acre-feet per year (AFY). The estimated water demand for the retail uses and proposed on-site landscaping is approximately 141 and 19 AFY, respectively (160 AFY total.) The project specific Water Supply Assessment assumed that the water demand for the existing Speedway uses has been incorporated into the GSWC-SAS' 2010 UWMP. As the proposed project will replace existing uses, the net increase in annual water demand will be approximately 140 AFY (160 AFY – 20 AFY = 140 AFY.) With the inclusion of the proposed project, GSWC-SAS' estimated water demand in 2035 will total approximately 4,955 AFY.	No mitigation required.	No Impact.

Table 1.B: Irwindale Regional Shopping Center Environmental Summary

Issues/Impacts	Mitigation Measures	Level of Significance after Mitigation
Based on the demonstrated reliability of water resources available to GSWC-SAS, including GSWC-SAS' access to the Main San Gabriel Basin and imported replacement water, GSWC-SAS has sufficient and reliable potable water supplies to meet its future demands with the project from 2015 to 2035, including during single and multiple dry years. The proposed project will not have a significant impact on water supplies or availability. All necessary water distribution facilities would be installed simultaneously with site development. The amount of water demand would be within the existing available supply even with a reduction in deliveries from the State Water Project (SWP). The proposed project would not require the construction of new water treatment facilities or expansion of existing facilities, which could cause significant environmental effects. Adherence to standard requirements identified by GSWC-SAS and the City associated with the design and installation of new water infrastructure would ensure that no significant impacts would result from the construction or operation of the proposed project. Therefore, impacts related to this issue would be less than significant and no mitigation measures would be required.		
<u>Cumulative Water Supply Impacts:</u> Existing and future demand with the GSWC-SAS' service area would demand additional quantities of water. The adopted UWMP (2010) projects the population within the service area will increase to 33,811 by 2035. The anticipated conversion	No mitigation required.	No Impact.

Table 1.B: Irwindale Regional Shopping Center Environmental Summary

Issues/Impacts	Mitigation Measures	Level of Significance after Mitigation
of water-intensive uses (i.e., agriculture) and the implementation of existing water conservation measures and recycling programs would reduce the need for increased water supply. The Water Supply Assessment for the proposed project concluded that GSWC-SAS's water supply sources are sufficient to be fully reliable and available to meet GSWC-SAS's future demands with the project, including during single and multiple dry years		

2.0 INTRODUCTION AND PURPOSE

This project-level Environmental Impact Report (EIR) has been prepared to evaluate the environmental impacts associated with the proposed Irwindale Regional Shopping Center("proposed project" or "project") in the eastern portion of the City of Irwindale("City"), and to identify mitigation measures and project alternatives that would avoid or minimize significant environmental impacts. The City is the "public agency which has the principal responsibility for carrying out or approving the project" and, as such, is the "Lead Agency" for this project under the California Environmental Quality Act (CEQA) of 1970 (*CEQA Guidelines* section 15367). CEQA requires the Lead Agency to consider the information contained in the EIR and certify the EIR prior to taking any discretionary action. The EIR is also a public disclosure document available to agencies and the public for review and comment prior to the consideration of the proposed project by the City, and is intended to serve as an informational document to be considered by the City, Responsible Agencies, and Trustee Agencies during deliberations on the proposed project. A detailed project description and the approvals associated with the proposed project are discussed in Section 3.0.

This section of the EIR outlines the document's format; describes the purpose of the EIR; summarizes public review of the EIR; describes the Mitigation Monitoring and Reporting Program (MMRP); identifies the environmental issues discussed in the EIR; and defines the parameters and data to be used in the analysis of cumulative impacts.

2.1 DOCUMENT FORMAT

To assist the reader's review of the document, the following describes the format of this EIR.

Section 1.0 *Executive Summary* provides a summary of the EIR document and (in Table 1.B) identifies potentially significant impacts, mitigation measures, and the level of significance of each impact following mitigation.

Section 2.0 *Introduction and Purpose* outlines the EIR document's format including technical appendices; describes the purpose of the EIR including the legal purpose of CEQA, the intended use of EIR, and the EIR's incorporated documents and referenced technical reports; summarizes the public review of the environmental documentation to date; describes the role of the MMRP to be provided in the Final EIR; identifies the sixteen environmental issues that are discussed; and defines the cumulative analysis provided in the EIR.

Section 3.0 *Project Description* provides a detailed description of the geographical setting, project location, project setting, City of Irwindale General Plan designations, zoning designations, project characteristics, project objectives, and discretionary actions required to implement the proposed project.

Section 4.0 *Existing Setting, Impacts, and Mitigation Measures* evaluates the impacts associated with the proposed project. This section is organized into eight issue areas with each following the framework:

- *Existing Setting*. Information in the existing setting contains a discussion of the local and regional environment conditions (environmental and man-made) in existence at the time this EIR was prepared. Existing setting information provides the reader with the "baseline" from which future impacts are analyzed, and provides a standard against which to measure these impacts.
- *Existing Policies and Regulations.* Regulatory requirements and policies (federal, state, and local) applicable to the issue area are summarized.

- *Methodology*. A brief summary of the methods and resources utilized in the preparation of the environmental analysis.
- *Thresholds of Significance*. Determinations regarding the significance of potential impacts resulting from implementation of the proposed project are provided. These thresholds represent the criteria used in this Project EIR to determine whether identified impacts are significant.
- *Less than Significant Impacts*. Potential issues for which the proposed project was determined to have no impact or a less than significant impact are identified. For these issues, either no mitigation would be required or adherence to established regulations, standards, and policies would reduce potential impacts to a less than significant level.
- *Potentially Significant Impacts*. Potential impacts from implementation of the proposed project are identified. Each of these issues contains an impact analysis, mitigation measures, and significance after mitigation discussion.
    - *Impact Analysis.* An analysis of potential impacts of the proposed project is presented in this section. This discussion focuses on the impacts of implementation of the proposed project, and includes potential short-term/ long-term and direct/indirect project impacts, and consistency with applicable planning documents or regulations.
    - *Project Design Features.* Characteristics of the Irwindale Regional Shopping Center that help reduce potential environmental impacts.
    - *Mitigation Measures*. The measures proposed to mitigate any potential impacts of the proposed project are identified.
    - *Level of Significance after Mitigation* provides a conclusion as to whether implementation of the proposed project will reduce the project-related and cumulative impacts to a level that is less than significant.
- *Cumulative Impacts.* This discussion focuses on the potential environmental effect of the proposed project combined with the effects of reasonably foreseeable cumulative projects within the project study area.

Section 5.0 *Other CEQA Topics* contains discussions of additional topics required by CEQA, including effects found not to be significant, unavoidable effects of the proposed project, and significant irreversible environmental changes. The proposed project's consistency with regional plans (discussed in Section 4.10) and potential to induce growth (discussed in Sections 4.13) are summarized in this section.

Section 6.0 *Alternatives* contains discussion of alternatives to development of the proposed project that attain most of main objectives of the project and avoid or substantially lessen significant effects of the project. As allowed by CEQA, the impacts of these alternatives are evaluated at a more general level than the analyses of the proposed project that is contained in Section 4.0. This section also evaluates the proposed effects of the No Project Alternative and identifies the environmentally superior alternative.

Section 7.0 This section lists the organizations and persons consulted in preparation of the EIR.

Section 8.0 This section contains all the references cited in the EIR, acronyms and abbreviations used in the document, and definitions of terms used, including those specific to the proposed project.

Appendices The Appendices contain a copy of the NOP, NOP mailing list, NOP comment letters and responses, public scoping meeting information, all of the various technical

studies that support the EIR analysis, referenced materials, and other relevant correspondence received during the course of the analysis of the proposed project.

2.2 PURPOSE OF CEQA AND THE ENVIRONMENTAL IMPACT REPORT

According to Section 15002 of *CEQA Guidelines*, the basic purposes of CEQA are to:

- Inform government decision-makers and the public about the potential significant environmental effects of proposed projects;
- Identify ways that environmental damage can be avoided or significantly reduced;
- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governing agency finds the changes to be feasible; and
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

CEQA requires that a project be reviewed to determine the environmental effects that would result if the project were approved and implemented. The City has the responsibility for preparing, processing, and determining whether to approve the proposed project and certify this EIR. As Lead Agency, the City has the authority to make decisions regarding discretionary actions relating to implementation of the proposed project.

As previously noted, CEQA requires the Lead Agency consider the information contained in the EIR and certify the EIR prior to taking any discretionary action on a project. This EIR provides information to the Lead Agency and other public agencies, the general public, and decision-makers regarding the potential environmental impacts from the construction and operation of the proposed project. The purpose of the public review of the EIR is to evaluate the adequacy of the environmental analysis in terms of compliance with CEQA. Section 15151 of the *CEQA Guidelines* states the following regarding standards from which adequacy of an EIR is judged:

> "An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among experts. The courts have not looked for perfection but for adequacy, completeness, and a good faith effort at full disclosure."

An EIR is the most comprehensive form of environmental documentation identified in CEQA and the *CEQA Guidelines*, and provides the information needed to assess the environmental consequences of a proposed project. EIRs are intended to provide an objective, factually supported, full-disclosure analysis of the environmental consequences associated with a proposed project that has the potential to result in significant, adverse environmental impacts.

Under CEQA (PRC Section 21002.1[a]):

> "The purpose of an environmental impact report is to identify the significant effects on the environment of a project, to identify alternatives to the proposed project, and to indicate the manner in which those significant effects can be mitigated or avoided."

This project-level EIR has been prepared to evaluate the potential environmental impacts associated with the entitlement, construction and occupancy of a 700,000 square foot regional shopping center

proposed on 63.5 acres by the Lindom Company, as well as infrastructure improvements associated with the proposed project. As permitted under the *CEQA Guidelines* (Section 15084[d-e]), consultant LSA Associates, Inc. (LSA) has prepared the EIR under the direction of professional City planning staff. However, prior to certification, the Planning Commission and the City Council must independently review the methodologies used, and conclusions reached in the EIR. The City is undertaking an independent review of this EIR by having City planning staff work with LSA on the EIR. If certified by the City, the information included in and the conclusions reached in the EIR will therefore represent the City's independent judgment.

This EIR has been prepared utilizing information from City planning and environmental documents, technical studies prepared by LSA, applicant-provided technical studies, and other publicly-available data. Alternatives to the proposed project are also discussed and mitigation measures that would offset, minimize, or otherwise avoid significant environmental impacts from the proposed project have been identified. This EIR has been prepared in accordance with CEQA, California Public Resources Code §21000 *et seq.*; the *Guidelines for California Environmental Quality Act* (California Code of Regulations, Title 14, Chapter 3); and the rules, regulations, and procedures for implementing CEQA as adopted by the City. The objective of the EIR is to inform City decision-makers, representatives of other affected/responsible agencies, the public, and other interested parties of the potential environmental consequences that may be associated with the approval and implementation of the proposed project.

2.3 REGIONALLY SIGNIFICANT PROJECT

When an EIR is prepared for any project that is considered to be of statewide, regional, or area-wide significance, as defined by *CEQA Guidelines* Section 15206, then the Draft EIR must be submitted to the State Clearinghouse and the appropriate metropolitan area council of governments for review and comment. A project is considered to be of statewide, regional, or area-wide significance if it meets any of the following criteria:

(1) A proposed local general plan, element, or amendment thereof for which an EIR was prepared.

(2) A project has the potential for causing significant effects on the environment extending beyond the city or county in which the project would be located. Projects of this nature would include:

   (a) A proposed residential development of more than 500 dwelling units.

   (b) A proposed shopping center or business establishment employing more than 1,000 persons or encompassing more than 500,000 square feet of floor space.

   (c) A proposed commercial office building employing more than 1,000 persons or encompassing more than 250,000 square feet of floor space.

   (d) A proposed hotel/motel development of more than 500 rooms.

   (e) A proposed industrial, manufacturing, processing plant, or industrial park planned to employ more than 1,000 persons, occupying more than 40 acres of land, or encompassing more than 650,000 square feet of floor area.

(3) A project which would result in cancellation of an open space contract made pursuant the California Land Conservation Act of 1965 (Williamson Act) for any parcel of 100 or more acres.

(4) A project for which an EIR has been prepared that is located in and would substantially affect areas of critical environmental sensitivity.

(5) A project which would substantially affect sensitive wildlife habitats and habitats for endangered, rare, or threatened species.

(6) A project that would interfere with the attainment of regional water quality control standards as stated in the approved area-wide waste treatment management plan.

(7) A project that would provide housing, jobs, or occupancy for 500 or more persons within 10 miles of a nuclear power plant.

The Irwindale Regional Shopping Center, as proposed, would be considered a "project of statewide, regional or area-wide significance" per criteria 2(b) in that it consists of a shopping center anticipated to employ more than 1,000 persons and would encompass more than 500,000 square feet of floor space. Therefore, the NOP was and the Draft EIR and NOC will be transmitted to the State Clearinghouse and the appropriate metropolitan area council of governments, which in this case is the Southern California Association of Governments (SCAG), for review and comment.

2.4 INCORPORATED DOCUMENTS

CEQA (§15150) permits the incorporation by reference of all or portions of other documents that are generally available to the public. Any document incorporated by reference shall be made available to the public for inspection at a public place or public building and requires that the EIR state where the incorporated documents will be made available for public inspection. The following documents have been incorporated by reference:

- City of Irwindale General Plan Update, adopted June 2008.
- City of Irwindale Zoning Map, last updated 1988.
- *City of Irwindale Commercial and Industrial Design Guidelines*, January 14, 2009.
- City of Irwindale Municipal Code (various chapters), approved through Ordinance 661 and last updated March 2013.
- City of Irwindale. Irwindale Materials Recovery Facility and Transfer Station Recirculated Draft EIR. July 2014.

2.5 TECHNICAL REPORTS

Various technical or project-related reports have been prepared to assess specific issues that may result from the construction and operation of the proposed project. As relevant, information from the following documents and technical reports has been integrated into the EIR as appendices.

- Air Quality and Greenhouse Gas Assessment for the Irwindale Regional Shopping Center, LSA Associates, Inc. October 2014 (EIR Appendix B).
- Preliminary Geotechnical Engineering Report, Subsurface Characterization and Preliminary Settlement, Proposed Irwindale Outlet Center, Shannon & Wilson, Inc., May 20, 2014 (EIR Appendix C-1).
- Preliminary Geotechnical Review Proposed Irwindale Speedway, Shannon & Wilson, Inc., May 8, 2013 (EIR Appendix C-2).
- Phase I Environmental Site Assessment, 500 Speedway Drive, Irwindale, CA, S & S Commercial Environmental Services, August 28, 2013 (EIR Appendix D).
- Preliminary Standard Urban Stormwater Mitigation Plan, Irwindale International Retail Outlet, JR Miller & Associates, Inc., November 25, 2014 (EIR Appendix E-1).
- Storm Water Hydrology Report, International Outlet Center, JR Miller & Associates, Inc., November 24, 2014 (EIR Appendix E-2).
- Noise Impact Analysis, LSA Associates, Inc., August 2014 (EIR Appendix F).
- Traffic Impact Assessment for the Irwindale Regional Shopping Center, LSA Associates, Inc., November 2014 (EIR Appendix G).

- Water Supply Assessment for the Irwindale Outlet Center Project, Stetson Engineers, Inc., October 2014 (EIR Appendix H).

These documents are included in the appendices of this EIR. In addition, these documents are available for review at the following location:

Irwindale City Hall
Department of Community Development
5050 North Irwindale Avenue
Irwindale, California 91706

2.6 PUBLIC REVIEW OF THE DRAFT ENVIRONMENTAL IMPACT REPORT

This EIR was distributed to responsible and trustee agencies, other affected agencies, and interested parties. Additionally, in accordance with Public Resources Code Section 21092(b)(3), the EIR has been provided to all parties who have previously requested copies. The Notice of Completion (NOC) and Notice of Availability (NOA) of the EIR have been distributed as required by CEQA. During the 45-day public review period, the EIR and technical appendices have been made available for review.

Written comments regarding this EIR should be addressed to:

Paula Kelly, Senior Planner/Project Manager
Irwindale City Hall
Department of Community Development
5050 North Irwindale Avenue
Irwindale, California 91706
Phone: (626) 430-2209
Email: paulakelly@ci.irwindale.ca.us

After the 45-day public review period, written responses to all significant environmental issues raised will be prepared. These responses will be available for review for a minimum of 10 days prior to the public hearings before the Irwindale City Council, at which time the certification of the Final EIR will be considered. The Final EIR (which includes the Draft EIR, the public comments and responses to the Draft EIR, and findings) will be included as part of the environmental record for consideration by the City decision-makers. The City will respond as appropriate to comments made at public hearings on the Irwindale Regional Shopping Center and its EIR.

2.6.1 Notice of Preparation and Initial Study

The City initiated the environmental process with completion of a Notice of Preparation (NOP) and an Initial Study (IS). Based on the findings contained in the IS, the City determined that eight environmental topics warranted further environmental review in the EIR (see section 2.8 for a list of the eight topics). The City circulated the NOP and IS for the EIR to State, regional, and local agencies, and owners of adjacent properties on July 10, 2014, for a 30-day review period.[1] The NOP was distributed to the State Clearinghouse, as well as agencies and organizations that may provide comment on the proposed project as well as the potential environmental impacts that may result from the construction and operation of the proposed retail shopping center.

Comments received regarding the NOP were used to help identify impacts that could result from implementation of the proposed project. The City received 6 comment letters to the NOP. The NOP

[1] The City's Notice of Preparation 30-day public review period was from July 14 to August 13, 2014.

and comment letters received regarding the NOP are included in Appendix A of the EIR. Table 2.A provides a brief summary of NOP comment letters.

Table 2.A: Notice of Preparation Comments Received

Agency/ Organization/ Individual	Date	Comments*	See Section(s) of the EIR
California Department of Transportation, District 7	July 18, 2014	Traffic analysis consistent with Caltrans' Traffic Impact Study Guide is needed. Identifies key methodological requirements of the traffic analysis.	4.7
Southern California Association of Governments	July 21, 2014	Requests a copy of the EIR for the full public review period. Requests that the EIR address the project's consistency with Goals 1-8 of the RTP/SCS. Suggests that applicable RTP/SCS Strategies to provide consistency with the Goals be referenced. Identifies current SCAG population, household, and employment forecasts for use in the EIR. Recommends that the SCAG 2012 RTP/SCS Final Program EIR Mitigation Measures be reviewed for guidance.	5.0
County Sanitation Districts of Los Angeles County	July 23, 2014	States that wastewater from the proposed project will discharge to City's local sewer line (21 inch diameter; 4.2 million gallons per day (mgd) design capacity; peak flow of 1.5 mgd measured in 2012). Wastewater from the proposed project will be treated at the Whittier Narrows Water Reclamation Plant (WRP) (design capacity of 15 mgd; currently treats an average flow of 8.2 mgd) or at the Los Coyotes WRP (design capacity of 37.5 mgd; currently treats an average flow of 21.2 mgd.). Suggests average wastewater flow from the project will be 96,587 gd. Project proponent must pay a connection fee before a permit to connect to the sewer is issued. Districts intend to provide wastewater service up to the levels that are legally permitted (i.e., the design capacities of the Districts' wastewater treatment facilities that are based on the regional growth forecast adopted by SCAG.	2.9.10
South Coast Air Quality Management District	July 24, 2014	Requests a copy of the Draft EIR. Requests all appendices or technical documents related to the air quality and greenhouse gas analyses and electronic versions of all air quality modeling and health risk assessment files, including original emission calculation spreadsheets and modeling files (not Adobe PDF). Recommends that air quality analyses be conducted consistent with the SCAQMD's CEQA Handbook (1993) and more recent guidance available on SCAQMD's website. Suggests the EIR identify any potential adverse air quality impacts that could occur from all phases of the project and all air pollutant sources related to the project (including demolition and operations). Suggests that the project's criteria pollutant emissions be compared to SCAQMD's regional and localized significance thresholds. Recommends that a health risk assessment be conducted in the event that the proposed project generates or attracts vehicular trips, especially heavy-duty diesel-fueled vehicles, and the assessment be prepared consistent with guidance available on SCAQMD's website. Cites several sources available for identifying mitigation measures. States that SCAQMD rules, air quality reports, and relevant data are available by calling the SCAQMD's Public Information Center and available on SCAQMD's website.	4.1
Los Angeles County Metropolitan Transportation Authority (LACMTA)	August 07, 2014	LACMTA identifies geographic areas that should be examined in the TIA including all CMP arterial monitory intersections where the project would add 50 or more trips and mainline freeway-monitoring locations where the project would add 150 or more trips. The letter also identifies other preferred analytical methodologies for transportation impact analysis.	4.7
County of Los Angeles Fire Department	August 08, 2014	The Planning Division made corrections to the Initial Study Fire Protections Section. The Land Development Unit listed code and ordinance requirements for constructions and requested 4 copies of the site plan and 1 elevation. Water System requirements were also listed. These will be submitted to the Department if and when the project is submitted for building plan check. Forestry Division commented on environmental concerns including but not	2.9.8 Not an EIR topic Addressed

Table 2.A: Notice of Preparation Comments Received

Agency/ Organization/ Individual	Date	Comments*	See Section(s) of the EIR
		limited to erosion, watershed management, endangered species, Fire Zones, archaeological and cultural resources, and County Oak Tree Ordinance.	in IS
		The Health Hazards Materials Division claimed jurisdiction over the former landfill and requires approval of the RWQCB prior to grading of the project site.	4.4

Notes: All Notice of Preparation (NOP) response letters are included in Appendix A of the EIR.
NA = Not Applicable
GHG = greenhouse gases
NOP = Notice of Preparation
RTP = Regional Transportation Plan (SCAG)

2.6.2 Public Scoping Meeting

The City held a public scoping meeting on July 30, 2014, at 6:00 p.m. in the City Council Chambers. No members of the public or agency staff members attended with the exception of the City of Irwindale staff.

2.7 MITIGATION MONITORING AND REPORTING PROGRAM

A Mitigation Monitoring and Reporting Program (MMRP) will be prepared for this EIR to comply with the requirements of State law (Public Resources Code Section 21081.6). When mitigation measures are required to avoid or reduce the severity of significant impacts, State law requires the adoption of an MMRP. The monitoring program is intended to ensure compliance during implementation of the program. An MMRP will be adopted by the City Council concurrent with certification of the Final EIR for the proposed project.

2.8 POTENTIAL IMPACTS OF THE PROJECT DISCUSSED IN THE EIR

This EIR focuses on the areas of concern identified in the NOP and Initial Study and comments submitted regarding the NOP. The following eight environmental topics are addressed in this EIR:

- Air Quality
- Geology
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology, and Water Quality
- Noise
- Transportation and Traffic
- Water Supply

2.9 EFFECTS FOUND NOT TO BE SIGNIFICANT

As required under CEQA (Section 15128), an EIR is to contain a statement supporting the Lead Agency's determination that some of the possible effects of a project are not significant and, therefore, are not discussed in detail in the EIR. The City has determined that potential impacts related to the following issue areas are either no impact, less than significant, or less than significant with implementation of mitigation measures as defined previously in the Initial Study (see EIR Appendix A). Mitigation that is identified for issues that were determined to be less than significant with the implementation of mitigation measures will be identified in the Mitigation Monitoring Plan that

will be attached to the Final EIR and adopted by the City. The summary discussion below addresses each significance threshold as indicated in Appendix G of the CEQA Guidelines to make it clear to the reader which impacts are no impact, less than significant and less than significant with the implementation of mitigation measures.

2.9.1 Aesthetics

Would the Project:

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

Less than Significant Impact. The proposed development would alter the existing character of the proposed site; however, the project would not block views of a scenic vista. The proposed project would have a less than significant impact on a scenic vista; therefore, no mitigation is required.

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

No Impact. There are no officially designated scenic highways within the City of Irwindale. The proposed project would have a less than significant impact on a scenic vista or scenic resource; therefore, no mitigation is required.

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

Less than Significant Impact. The proposed project site is currently occupied by the Irwindale Speedway, which would be demolished prior to construction of the proposed project. This would be a substantial change in the existing visual character of the project site. However, the proposed use (commercial center) would not block views of sensitive receptors or have a negative or degrading effect on the visual character of the area. Therefore, the proposed project's impacts on the existing visual character of the project site would be less than significant and no mitigation is required.

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

Less than Significant Impact. The proposed project will include lighting that is typical for a commercial center for security and safety of the employees and patrons which is no greater than currently exists on the project site. The additional night lighting will not be intrusive to the surrounding land uses. The proposed project will have a less than significant impact on the area from light and glare effects with adherence to existing City regulations; therefore, no mitigation is required.

2.9.2 Agriculture and Forestry Resources

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?

No Impact. The project site is not considered Prime Farmland, Unique Farmland, or Farmland of Statewide Importance pursuant the Farmland Mapping and Monitoring Program of the California Resources Agency. Therefore, the project would not impact any farmlands and no mitigation is required.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. The project site is not located in an agricultural zone and the project site is not located within a Williamson Act contract area. Therefore, no impact associated with agricultural zoning conflicts or Williamson Act contract conflicts would result from the proposed development and no mitigation is required.

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

No Impact. There is no forestry zoning in the City. The proposed project would not conflict with existing forest zoning, cause rezoning of forest land, or result in the loss or conversion of forest lands to non-forest uses as no such resources existing within the City. Therefore, no impacts associated with these issues would occur. No mitigation is required.

d) Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. The proposed project would not conflict with existing forest zoning, cause rezoning of forest land, or result in the loss or conversion of forest lands to non-forest uses as no such resources existing within the City. Therefore, no impacts associated with these issues would occur. No mitigation is required.

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. Implementation of the proposed project would not result in the conversion of agricultural or forestry land to non-agricultural or non-forestry uses. The project site was previously a landfill and currently contains a speedway. No impact associated with these issues would occur and no mitigation is required.

2.9.3 Biology

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?

Potentially Significant Impact Unless Mitigation is Incorporated. Due to the presence of trees along the site perimeter and open areas within the site's interior, several bird species have a very low probability of occurrence for the purposes of nesting. Nesting bird species are protected by the Migratory Bird Treaty Act (MBTA) (16 USC 703-711) and Section 3503 California Fish and Game Code. Therefore, the following mitigation measure is required.

BIO-1: To ensure compliance with California Fish and Game Code and the MBTA, and to avoid potential impacts to nesting birds, the proposed project site shall be cleared of vegetation outside the general bird nesting season (February 1 through August 31). If vegetation cannot be removed outside the bird nesting season, a pre-construction nesting bird survey by a qualified biologist is required prior to vegetation removal. Should nesting birds be found, an exclusionary buffer shall be established by the biologist. This buffer shall be clearly marked in the field by construction personnel under guidance of the biologist, and construction or clearing shall not be conducted within this zone until the biologist determines that the young have fledged or the nest is no longer active.

b) Have a substantially 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. Wildlife Service?

No Impact. There are no riparian habitats or any other sensitive natural community types on the project site. Therefore, no impacts associated with this issue would occur and no mitigation is required.

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

No Impact. There is no wetland habitat on the project site. Therefore, no impact associated with this issue would occur and no mitigation is required.

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

No Impact: The proposed project site is bordered by roadways, mining, and other urban development. The project site is currently occupied by the Irwindale Speedway. Therefore, native wildlife species do not use the project site as a migratory corridor or nursery site. Impacts are not significant and no mitigation is required.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impact. The City does not have any local or area-wide preservation or conservation plans or policies or ordinances protecting biological resources. The project site also does not contain any protected tree species or other biologically significant resources. The project would not conflict with local policies or ordinances that protect biological resources, resulting in no significant impact and no mitigation is required.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan?

No Impact. The County of Los Angeles (County) is currently in the process of updating Significant Ecological Area (SEA) designations and policies as part of the County General Plan Update. The proposed SEA area in the City is approximately 3 miles northeast of the project site. Therefore, the project would not affect the proposed SEAs, resulting in no significant impact and no mitigation is required.

2.9.4 Cultural Resources

Would the Project:

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

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

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

Less than Significant Impact. There are no known historic structures, archaeological resources, or paleontological resources located within the project site nor would the project affect any offsite resources of historical, archaeological, or paleontological significance. Also, past development of the site as a landfill and then speedway would have disturbed and/or removed any significant resources. Therefore, it is unlikely that there are significant historical, archaeological, or paleontological resources that could be unearthed during grading activities. The project will have a less than significant impact on historical, archaeological, and paleontological resources and no mitigation is required.

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

Less than Significant Impact. Due to the project site being previously developed as a landfill, followed by an outdoor swap meet, and then a speedway the likelihood of encountering human remains is minimal. However, the California Health and Safety Code states that if human remains are discovered

on site, no further disturbance shall occur until the County Coroner has made a determination of origin and disposition.[1] Disposition of the human remains should occur in the manner provided in §5097.98 of the Public Resources Code. As adherence to State regulations is required for all development, no mitigation is required in the unlikely event that human remains were discovered on the site. Therefore, impacts associated with the discovery of human remains would be less than significant.

2.9.5 Land Use and Planning

Would the Project:

a) Physically divide an established community?

No Impact. The project site is bordered by Live Oak Avenue, and an active landfill to the north, and active quarry and Graham Access Road to the south, I-605 to the east, and a truck distribution center to the west. Redeveloping the site with a shopping center will not physically divide an existing neighborhood and no mitigation is required. No impact will occur from the project for this issue.

b) Conflict with an 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?

Less than Significant Impact. The Irwindale General Plan Land Use designation for the project site is "Commercial/Recreation" and zoning for the project site is "Heavy Manufacturing" (M-2). Upon approval of the proposed project the C-2 zoning will be consistent with the General Plan designation of Commercial/Recreation and therefore, there would be no impact on the General Plan. Therefore the proposed project is not expected to have a land use impact.

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

No Impact. The project site is not designated for any type of habitat protection under the City's General Plan, and is not covered by any adopted Habitat Conservation Plan or Natural Community Conservation Plan. No impact on an applicable habitat conservation plan or natural community conservation plan will occur and no mitigation is required.

2.9.6 Mineral Resources

Would the Project:

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

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

Less than Significant Impact. The California Department of Conservation does not designate any portions of the project site as being within a Regionally Significant Aggregate Resource Area.[2] South of the project site is an active aggregate extraction quarry. However, the proposed project will not interfere with the activities at the quarry and no known mineral deposits are on the project site. Therefore, a less than significant impact relating to mineral resource extraction would occur and no mitigation is required.

---

[1] Division 7, *Dead Bodies;* Chapter 2, *General Provisions*, § 7050.5, California Health and Safety Code.

[2] California Department of Conservation, The Resources Agency, Regionally Significant Construction Aggregate Resources Areas of the San Gabriel Alluvial Fan, SP 143, Plate 43, 1983.

2.9.7 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)?

Less than Significant Impact. The proposed project requires a zone change from the existing zoning which is M-2 Heavy Manufacturing to Heavy Commercial (C-2). Employment created by the proposed project would likely be filled by existing residents or residents in the surrounding communities due to local unemployment rates. This is a factor that tends to reduce the growth-inducing effect of a project. The construction of the proposed project would create short-term construction jobs. It is anticipated that the project would not directly affect population growth as compared with new residential development, because it is not creating homes. While the proposed project would generate employment opportunities, the jobs created are not expected to induce substantial growth in the City or region over and above the growth anticipated by the City's General Plan and the SCAG's regional growth forecasts. Therefore, there is a less than significant impact and no mitigation is required.

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

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

No Impact. The proposed project site consists of the Irwindale Speedway with no residential structures located within the project limits. Therefore, no displacement of housing or residents would occur and construction of replacement housing is not required. No impact associated with this issue would occur and no mitigation is required.

2.9.8 Public Services

Would the Project:

a) Result in impacts related to fire protection?

Less than Significant Impact. The project site is served by the El Monte fire station, Station No. 169, which is located at 5112 North Peck Road in El Monte and approximately 2.3 miles south of the project site. The average response time in the City is 3-5 minutes with a goal of 5 minutes.[1] According to Fire Captain David Molner, the proposed project will not cause a significant decrease in fire service to the City.[2] Therefore, the project would result in a less than significant impact and no mitigation is required.

b) Result in impacts related to police protection?

Less than Significant Impact. The nearest first response police station is at 5050 North Irwindale Avenue, which is approximately 3 miles from the project site. The proposed project would cause an incremental increase in the need for police service. This increase in police service may create the need for new or altered police stations. However, the City is including in the development agreement with the applicant the construction of substation on the project site including reserved parking spaces and installation of a surveillance system. Therefore the project would have a less than significant impact and no mitigation is required.

c) Result in impacts related to schools?

Less than Significant Impact. The proposed project would not directly increase the number of student-aged residents in the City, and it would not include new homes or directly generate new residents. The proposed project would pay all applicable local school district impact fees to alleviate potential

[1] Irwindale Fire Station 48, Fire Captain David Molner, June 30, 2014.
[2] Ibid.

impacts related to school services, resulting in a less than significant impact and no mitigation is required.

d) Result in impacts related to parks?

No Impact. The proposed project would not include new homes or directly generate new residents. Since it would not include new homes or generate new residents, the proposed project would have a less than significant impact on local parks. Additionally, the project is proposing an outdoor entertainment/performance area along with its commercial land uses, which will provide new recreational amenities to the City's residents. Based on this, the project will not require the construction of new parks and there is no significant impact and no mitigation is required.

e) Result in impacts related to other public facilities?

Less than Significant Impact. There are no other identified public services that will be affected by the Project or any need for new public service facilities. Additionally, the Project is expected to contribute new sales and property taxes, which may be used to offset any additional demands on public services. This impact is less than significant and no mitigation is required.

2.9.9 Recreation

Would the Project:

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

Less than Significant Impact. The proposed project does not include a residential component and is unlikely to significantly increase local or regional populations; therefore, the proposed project would not cause a significant increase in the use of existing neighborhood or regional parks or other recreational facilities in the area. In addition, the proposed project will include aspects that provide some recreational use such as a central plaza and outdoor entertainment area. Impacts associated with this issue are considered less than significant and no mitigation is required.

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

No Impact. Implementation of the proposed project does not include or require the construction or expansion of recreational facilities. Therefore, no impacts associated with this issue would occur and no mitigation is required.

2.9.10 Utilities

Would the Project:

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

Less than Significant Impact. The Los Angeles County Sanitation District 22 (LACSD) would be responsible for the treatment of wastewater generated by the project. Wastewater generated by the project would be typical of retail and would not require treatment beyond that provided by existing LACSD facilities. According to generation rates for regional shopping centers from the Los Angeles County Sanitation District, the proposed project would generate approximately 96,587 gallons a day or 0.97 mgd of wastewater.[1] The addition of 0.97 mgd of wastewater (0.02587% of the Los Coyotes WRP treatment capacity and 0.06467% of the Whittier Narrows WRP) generated by the proposed project would not result in the plant exceeding sewage treatment capacities. Therefore a less than significant impact would occur and no mitigation is required.

[1] Letter from the Los Angeles Sanitation District, Adriana Raza, Customer Service Representation, July 23, 2014.

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

Less Than Significant Impact. Solid waste from the proposed project would be hauled by Athens Services. Any materials that are not composted or recycled by Athens Services are transferred to the Mid-Valley Sanitation Landfill in the City of Rialto.[1] The landfill is permitted to accept a max of 7,500 tons of solid waste per day.[2] The project would generate approximately 8.7 tons of solid waste per day which represents 0.12 percent of the landfill's permitted daily maximum capacity. As adequate daily surplus capacity exists at the receiving landfill, development of the proposed project would not significantly affect current operations or the expected lifetime of the landfills serving the project area. No significant solid waste disposal impact would occur and no mitigation is required.

c) Comply with federal, state, and local statues and regulations related to solid waste?

Less than Significant Impact. Solid waste and recyclables are collected and transported by Athens Services in the City of Irwindale. The City compels its waste hauler to comply with Assembly Bill 341 (Chapter 476, Statutes of 2011), as amended by Senate Bill 1018. Additionally, the proposed project would be required to comply with applicable elements of AB 1327, Chapter 18 (California Solid Waste Reuse and Recycling Access Act of 1991) and other applicable local, State, and Federal solid waste disposal standards, thereby ensuring that the solid waste stream to regional landfills are reduced in accordance with existing regulations. Impacts are considered less than significant and require no mitigation.

2.10 CUMULATIVE IMPACTS

2.10.1 Definition of Cumulative Impact

CEQA defines cumulative effects as "two or more individual effects that, when considered together, are considerable or which compound or increase other environmental impacts." (*State CEQA Guidelines* Section 15130) The *Guidelines* further state that the individual effects can be the various changes related to a single project or the changes involved in a number of other closely related past, present, and reasonably foreseeable future projects (Section 15335). Substantial changes are anticipated to occur as the result of warehousing and employment growth of the proposed project, as well as growth in population, housing, and employment from development of other projects in the City of Irwindale and the surrounding region. Section 15130 of the *State CEQA Guidelines* requires that an EIR include a discussion of the potential cumulative impacts of a proposed project. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the development when added to the impacts of other closely related past, present, and reasonably foreseeable or probable future developments. Cumulative impacts can result from individually minor, but collectively significant, developments taking place over a period of time. With respect to the analysis of cumulative impacts, CEQA generally requires the following:

(a) Cumulative impacts shall be discussed when the project's incremental effect is cumulatively considerable.

(b) The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided of the effects attributable to the project. The discussion should be guided by the standards of practicality and reasonableness.

Pursuant to *CEQA Guidelines*, Section 15130, the assessment of cumulative impacts contained in EIRs is typically based on either: (i) past, present, and probable future projects, which are either approved or being considered for approval by the City or other municipalities (or anticipated to be

[1] Amy Gonzales, Customer Service at Athens Services, personal communication on July 9, 2014.
[2] Facility/Site Summary Details: Mid-Valley Sanitary Landfill, CalRecycle, http://www.calrecycle.ca.gov/SWFacilities/Directory/36-AA-0055/Detail, date accessed July 9, 2014.

submitted for consideration, including projects in the design phase or under construction); or (ii) growth projections set forth in regional plans, including regional modeling plans.

Table 2.B summarizes the potential cumulative development projects that could contribute to cumulative impacts within the project area. The cumulative projects were identified by examining approved, pending, and probable development projects within a five mile radius. This included the surrounding 17 communities (Bradbury, Rosemead, Azusa, unincorporated Los Angeles County, San Gabriel, West Covina, Monrovia, Sierra Madre, Baldwin Park, Duarte, Covina, El Monte, Temple City, Arcadia, La Puente, South El Monte, and City of Industry) as well as the City of Irwindale. Irwindale and the surrounding 17 communities were contacted to obtain each cities cumulative projects list in order to identify projects whose traffic would intermingle with the proposed project. The list of cumulative projects methodology was used for the cumulative analysis in traffic. Because traffic data is also used in the cumulative analysis for air quality and noise, the list of cumulative projects was used for these topics as well. Only large development projects have been included in the list of cumulative projects. Large development projects were defined as projects with estimated daily trip generation of more than 100 vehicles per day, residential projects greater than 10 single-family dwelling units (du), 15 du or more multifamily, office greater than 10,000 square feet (sf), and retail greater than 2,500 sf. The locations of these various cumulative projects are shown in Figure 2.1, *Cumulative Projects*.

It is expected that the cumulative impact analysis set forth in this EIR will be conservative and would tend to overstate (rather than understate) cumulative impacts. The significance of a cumulative impact may be greater than the effects resulting from the individual actions if the effects of more than one action are additive. Thus, as set forth above, this section evaluates the proposed project together with (i) the reasonably foreseeable potential effects of other closely related past, present, and reasonably foreseeable or probable future development in the area of the project, and (ii) growth projections set forth in regional plans.

Criteria for evaluating the significance of adverse effects are identified for each environmental issue in Section 4.0. These criteria, which are based on resource sensitivity, quality, and quantity, are also instructive when evaluating whether the environmental effect resulting from implementation of a particular project is cumulatively considerable. The timing and duration of each project is also an important consideration for evaluating the potential cumulative effects of projects that may occur only for a limited period. In such cases, a cumulative effect may occur only when two or more of the projects are occurring simultaneously.

Table 2.B: Cumulative Projects List

Map No.[1]	Address or Location	City	Land Use	Size	Status	Total ADT [2]
1	NWC Highland Ave/Duarte Rd.	Duarte	Transit Oriented Development (Gold Line Light Rail Station)	Mixed Use	Approved under construction.	7,259
2	NWC Live Oak Ave/Arrow Hwy	Irwindale	Irwindale Materials Recovery Facility and Transfer Station	• Total Project Building Size – approx. 322,972 SF • Materials Recovery Facility – 31,834 SF • Materials Recovery Facility Expansion – 31,834 SF • Transfer Station – 54,610 SF • Transfer Station Expansion – 21,070 SF • Transfer Loadout Area – 13,680 SF • Ramp and Tarping Enclosure – 10,418 SF • Employee Facility / Operations – 2,948 SF • Self Haul / C+D / Green Waste – 69,747 SF • Self Haul / C+D / Green Waste Expansion – 64,150 SF • Maintenance Building and Mezzanine – 5,352 SF • Wash Bay Canopy – 1,680 SF • Scale House – 72 SF • Administration and Visitor Facility – 9,488 SF • Education Center – 2,813 SF Convenience Store – 3,276 SF • Maximum Daily Tonnage – 6,000 tons • Employee Capacity – 323 employees	Draft EIR pending public review.	16,666
3	NEC Arrow Hwy/I-605	Irwindale	KARE Youth League/ Santa Fe Dam Sports Park - Recreation	17 acres - Development of a youth sports park to be constructed over a ten-year period. Multiple baseball fields, basketball courts, and soccer fields, all with grandstand seating. Restrooms, Administrative/Retail Building, and Club room/Office building.	Grading permit issued.	710
4	13645 Live Oak Ln.	Irwindale	Commercial	29,000 SF building	Pulled from consideration.	1,202

Table 2.B: Cumulative Projects List

Map No.[1]	Address or Location	City	Land Use	Size	Status	Total ADT [2]
5	1611, 1623, & 1773 W. San Bernardino Road	West Covina	Residential	135 residential condominiums	Planning Commission recommended approval; pending City Council public hearing.	784
6	4832-4910 Azusa Canyon Rd.	Irwindale	Commercial/ Industrial	Two office/ warehouse buildings totaling +/- 172,000 SF	Pending City Council public hearing; Planning Commission recommended approval.	810
7	16203-16233 Arrow Hwy	Irwindale	Industrial	Office/warehouse building totaling +/- 138,000 SF	Pending City Council public hearing; Planning Commission recommended approval.	654
8	4700-4750 Littlejohn St.	Baldwin Park	Commercial	Industrial building - 41,375 SF	Tentative approval	376
9	4407 Azusa Canyon Road	Irwindale	Resumption of Mining & Reclamation (Olive Pit)	189 acres	EIR circulated for public review; pending Planning Commission and City Council public hearings.	262

Sources: SF = square feet
1. See Figure 2.1
2. ADT = average daily trips

LSA

Project Boundary

Irwindale City Boundary

Cumulative Projects

N

0 1,500 3,000

FEET

SOURCE: LARIAC Aerials, 2012; Thomas Bros., 2009

I:\COI1401\Reports\EIR\fig2-1_CumProject.mxd (12/3/2014)

FIGURE 2.1

Irwindale Regional Shopping Center
Environmental Impact Report

Cumulative Projects

THIS PAGE INTENTIONALLY LEFT BLANK

Because of the nature of individual environmental factors, the cumulative "universe" for every issue addressed in this EIR will not be identical. For example, the cumulative universe for air quality impacts is reasonably assumed to be the entire South Coast Air Basin, which is much larger than the cumulative universe for traffic/transportation impacts. The individual cumulative areas for the issues addressed in this EIR are provided within the cumulative impacts discussion in the respective impact sections, but range from the City of Irwindale to the County to the entire SCAG region when necessary.

2.10.2 Analysis of Cumulative Impacts

The analysis of each environmental issue or topic (EIR Sections 4.1 through 4.8) also discusses the cumulative impacts of the proposed project. Implementation of the mitigation measures identified in each specific section of this EIR will reduce the cumulative impact of the project to the extent feasible. In many cases, the mitigation measures result in reducing the project's cumulative impact to a less than significant level. For other impacts, the implementation of the identified mitigation measures will not avoid a significant cumulative impact. The eight subsections of Section 4.0 (i.e., 4.1 through 4.8) identify those significant, unavoidable cumulative impacts that will not be reduced to a less than significant level by implementation of the identified mitigation measures presented in each of those sections. In addition, the analyses indicate to what degree the project makes a significant contribution to cumulatively considerable impacts for each environmental issue (air quality, noise, traffic, etc.). It should be noted that the project Air Quality Analysis, Noise Study Analysis, and Traffic Impact Assessment (TIA), used this same list of cumulative projects to accurately estimate potential air quality, noise, and traffic impacts over time on local roadways and intersections (see Sections 4.1, 4.6, and 4.7).

THIS PAGE INTENTIONALLY LEFT BLANK

3.0 PROJECT DESCRIPTION

The project description is provided in this section of the EIR in conformance with *CEQA Guidelines* Section 15124. It discusses the project location, project setting, City of Irwindale General Plan and zoning designations, project characteristics, project objectives, and discretionary actions required to implement the proposed project. The project description is used as the basis for analyzing the proposed project's impacts on the existing physical environment in Section 4.0 of the EIR.

3.1 PROJECT LOCATION

The project area is generally located west of Interstate 605 (I-605), south of Interstate 210 (I-210) and north of Interstate 10 (I-10) in the northwestern portion of the City of Irwindale in Los Angeles County. Figure 3.1 depicts the location of the proposed project within the region and the City of Irwindale. The project site is specifically located at the southwest corner of the I-605/Live Oak Avenue interchange approximately 750 feet east of Arrow Highway and is currently occupied by the Irwindale Event Center (aka Irwindale Speedway) with an address of 500 Speedway Drive. The project site consists of three parcels of land identified as Assessor's Parcel Numbers (APNs) 8532-004-022, 8532-004-025, and 8532-004-026 totaling approximately 63.5 acres. The project site is bordered by Live Oak Avenue and a landfill to the north, an active quarry to the south, I-605 to the east, and a trucking and distribution center to the west.

The project area is located in portions of Sections 12 of Township 1 South, Range 11 West, as depicted on the U.S. Geological Survey (USGS) 7.5-minute series *El Monte, California* quadrangle (latitude 34° 06' 35"north and longitude 117° 59' 16" west). Figure 3.2 shows an aerial photo of the project area.

3.2 PROJECT SETTING AND HISTORY

3.2.1 Project Setting

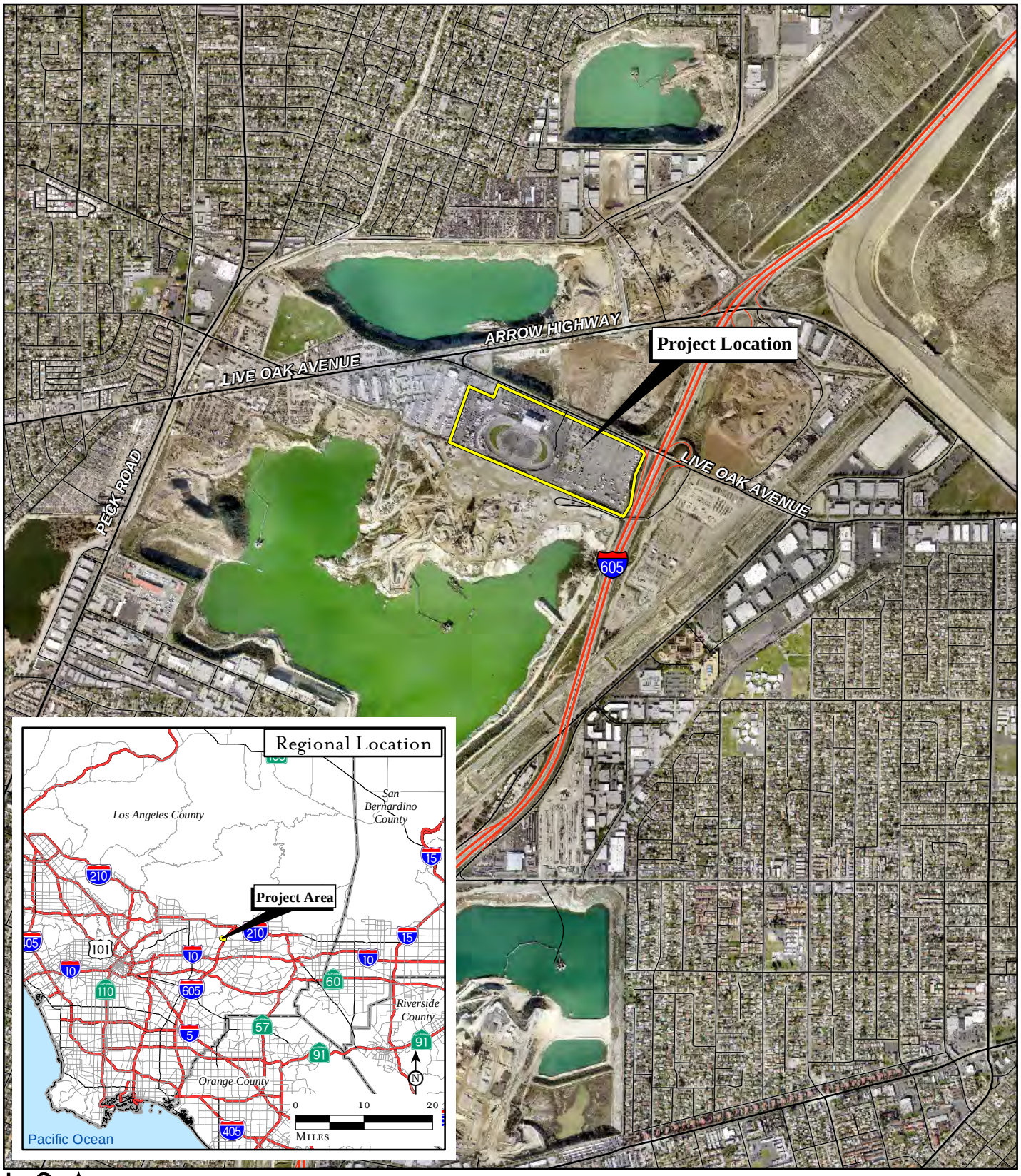
The project site is generally level and fully developed with the Irwindale Speedway. Soils within the proposed project consist primarily of Hanford Silt Loam and Tujunga Fine Sandy Loam. The soil on site has been disturbed and is unconsolidated materials with a mixture of natural soils and fill placed in various areas.

3.2.2 Existing On-site Land Uses

As indicated previously, the project site is currently developed with the Irwindale Speedway in the City of Irwindale. The project site is approximately 63.5 acres and is zoned M-2 (Heavy Manufacturing) and is relatively flat. The General Plan land use designation for the site is Commercial/Recreation. Figure 3.3 shows the existing General Plan land uses and Figure 3.4 shows the existing zoning on the project site and vicinity.

The project site consists entirely of urban/developed uses, which include vast human disturbance associated with the existing use. The project area includes roads, buildings and structures, pavement, and concrete. The project site is not associated with any native vegetation and provides only limited habitat value, primarily as cover, nesting, and perching opportunities for birds and common terrestrial wildlife that have adapted to urban conditions, and other disturbed areas associated with human activity.

THIS PAGE INTENTIONALLY LEFT BLANK



LSA

FIGURE 3.1

N

0 1,000 2,000

FEET

Irwindale Regional Shopping Center
Environmental Impact Report

SOURCE: LARIAC, 2012; Thomas Bros., 2009

Regional and Project Location

I:\COI1401\Reports\EIR\fig3-1_RegLoc.mxd (8/26/2014)

THIS PAGE INTENTIONALLY LEFT BLANK

LSA

FIGURE 3.2

N

Project Boundary

0 300 600

FEET

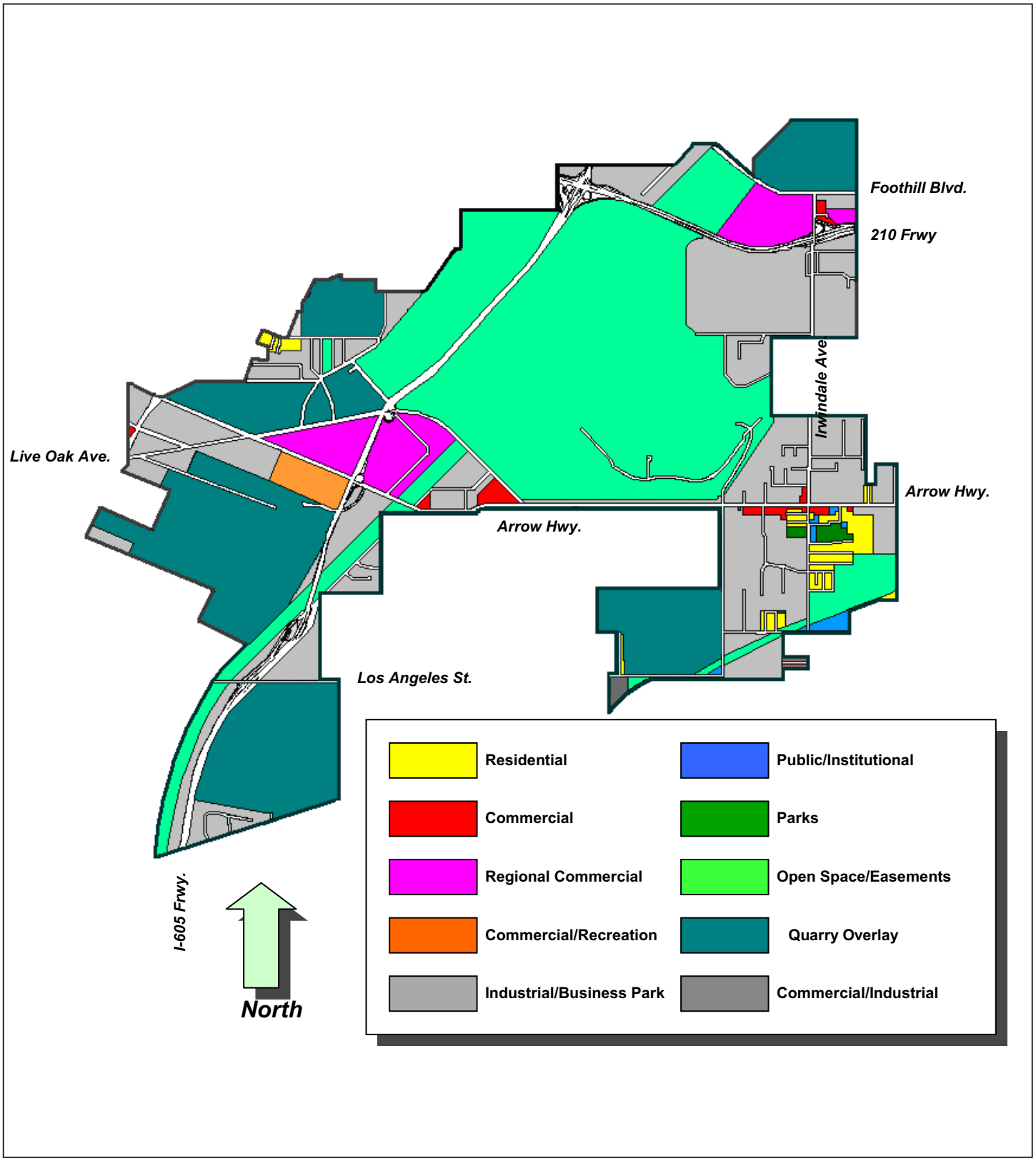
Irwindale Regional Shopping Center
Environmental Impact Report

Project Site

SOURCE: LARIAC Aerials, 2012; Thomas Bros., 2009

I:\COI1401\Reports\EIR\fig3-2_Project.mxd (8/27/2014)

THIS PAGE INTENTIONALLY LEFT BLANK



LSA

FIGURE 3.3

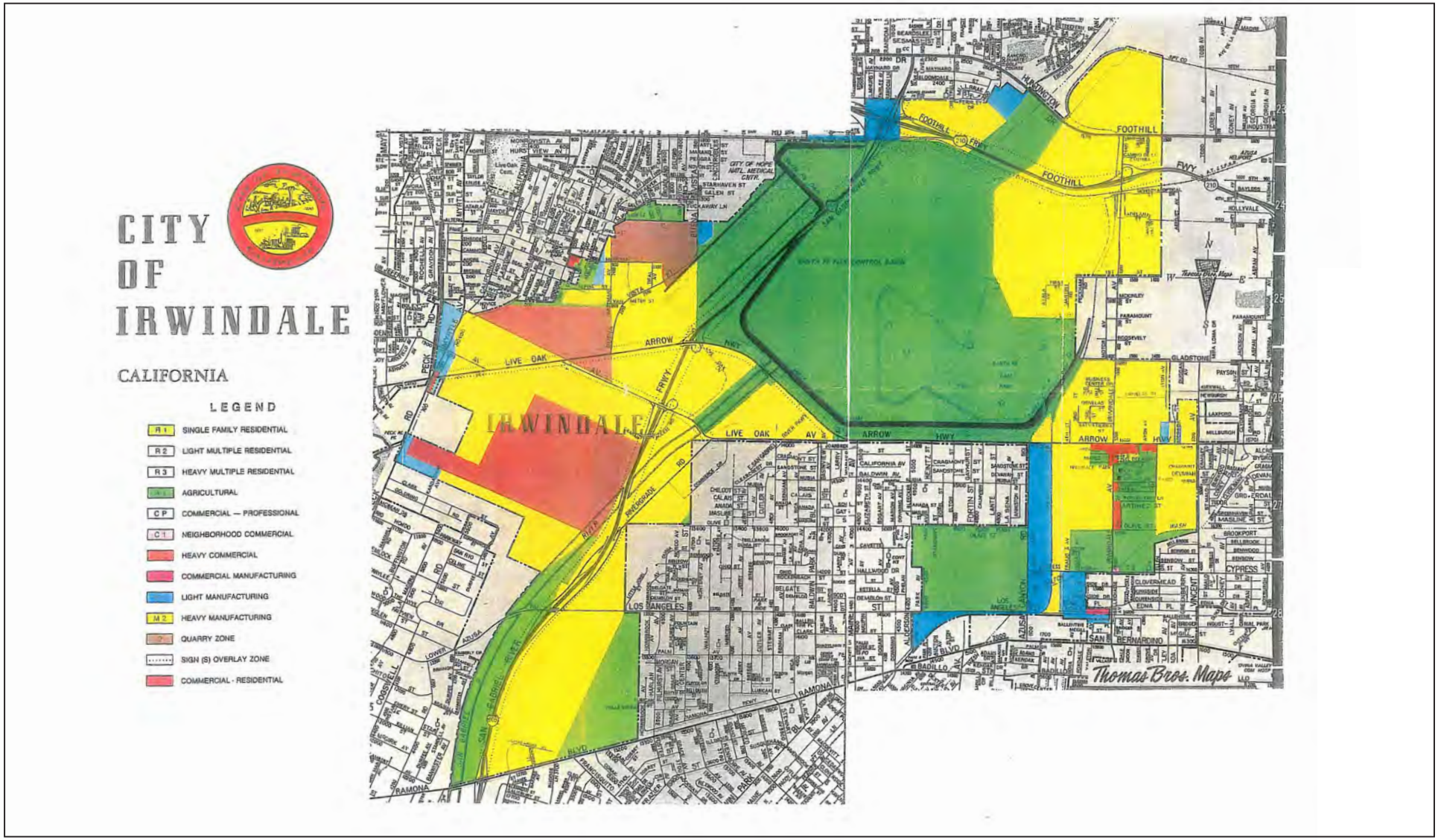
Irwindale Regional Shopping Center
Environmental Impact Report

Existing General Plan Land Uses

SOURCE: City of Irwindale General Plan

I:\COI1401\Reports\EIR\fig3-3_GenPlanLU.cdr (08/26/2014)

THIS PAGE INTENTIONALLY LEFT BLANK



LSA

FIGURE 3.4

Irwindale Regional Shopping Center
Environmental Impact Report

Existing Zoning

SOURCE: City of Irwindale

I:\COI1401\Reports\EIR\fig3-4_Zoning.cdr (08/26/2014)

THIS PAGE INTENTIONALLY LEFT BLANK

3.2.3 Surrounding Land Uses

The project surroundings consist of General Plan land use designations of Industrial/Business Park, Quarry Overlay, and Regional Commercial and related zoning of M-2 and Quarry Overlay. Water features in the area include the Santa Fe Dam approximately 0.8 mile northeast of the project site, and the San Gabriel River approximately 0.25 mile east of the project site. The project site is bordered by Live Oak Avenue and a landfill to the north, an active quarry and Graham Access Road to the south, I-605 to the east, and a truck distribution center to the west. Northwest and south of the project site are two very large mining pits that are partially filled with groundwater. Beyond the adjacent land uses are residential neighborhoods. Olive Junior High School and Walnut Elementary School are approximately 0.5 mile southeast of the project site.

3.2.4 Local History

The project site is located in the City of Irwindale. Irwindale was founded in the 1850s by the families of Gregorio Fraijo and Fecundo Ayon. The land was a barren waste of rocks, sand, and jack rabbits, but rocks later became a key asset to the area. Motor cars were becoming increasingly numerous in California and the cry went up for improved roads, which, in turn, required vast quantities of crushed rock and gravel. In the 1950s, the community became aware of the vast wealth from the rocks and sand. On August 6, 1957, 9.5 square miles of land was incorporated as the City of Irwindale, the 56th city of Los Angeles County.

Prior to the Speedway, the project site was used as an outdoor swap meet for several years and, prior to the swap meet, a landfill. Prior to the landfill, sand and gravel for construction was mined on site as part of the former Pacific Rock Quarry that operated through the late 1960s. The quarry was backfilled as part of the former Nu-Way Landfill from the mid-1970s to May 1993 with approximately 200 vertical feet of fill, composed of soils and non-hazardous demolition debris. The fill consists of silty sand, clayey silt, and sandy silt plus asphalt concrete, brick fragments, concerted plastic, metallic wire, and wood. The underlying fill may also include vehicles and tires.

The Irwindale Speedway was opened in 1999 and includes a one-half oval, third-mile oval, and a one-eighth mile drag strip. The Speedway includes a large parking area that can accommodate over 3,000 cars, stadium lighting around the track, perimeter landscaping, and 6,000 stadium-style bleacher seats. The Speedway also includes ancillary administration and concessions buildings east of the grandstands and repair and service structures west of the racetrack. The facility is used nearly every day for race training, fire and police training, filming of commercials, television programming, and for racing. The eastern portion of the project site is also used for swap meets, special event operations, and vehicle and trailer shows. Irwindale Speedway, LLC declared bankruptcy after the 2011 season and vacated the property in early 2012. The previous owner, Nu-Way Industries, and the existing Irwindale Event Center operator, 211 Enterprises, entered into a partnership shortly after the bankruptcy so that drag racing and other activities could take place in 2012. NASCAR racing returned in 2013. The project site was purchased by the current owner and project applicant, Lindom Company in 2013. The existing lease permitting 211 Enterprises to operate the Irwindale Event Center will continue through at least December 2014.

3.3 GENERAL PLAN AND ZONING DESIGNATIONS

As identified in the City of Irwindale's General Plan, the City designates the entire project site as Commercial/Recreation. The site is zoned M-2 Heavy Manufacturing. The area immediately north has a land use designation of Regional Commercial; to the east and west Industrial/Business Park; and to the south Quarry Overlay. Table 3.A is a summary of existing General Plan land use and zoning designations of the project site and surrounding area.

Table 3.A: On-site and Adjacent Land Uses and Land Use Designations

Location	Current Land Use	General Plan Land Use Designation	Zoning
On site	Speedway	Commercial/Recreation	M-2 Heavy Manufacturing
North	Landfill north of Live Oak Avenue	Regional Commercial north of Live Oak Avenue	M-2 Heavy Manufacturing/C-2 Heavy Commercial
South	Quarry	Quarry Overlay	C-2 Heavy Commercial
East	Industrial east of I-605	Industrial/Business Park east of I-605	M-2 Heavy Manufacturing east of I-605
West	Trucking Facility	Industrial/Business Park	M-2 Heavy Manufacturing

Sources: City of Irwindale General Plan Land Use Map, adopted June 2008; City of Irwindale Zoning, online data accessed July 2014.

3.4 PROJECT CHARACTERISTICS

3.4.1 Land Uses

The project site is approximately 63.5 acres in size. The proposed project includes the construction and occupancy of an approximately 700,000-square foot shopping center and associated parking. In addition to the primary function of the shopping center to provide “retail” commercial space for shopping opportunities, the project includes ancillary amenities including a central plaza for public gatherings, entryway features, an outdoor entertainment/performance area, and a food court. The proposed project will include related improvements, including, but not limited to parking, landscape planters, fencing, and walls.

Figure 3.5 illustrates the proposed conceptual site plan. Conceptual renderings showing the central entry courtyard and central plaza are shown in Figures 3.6A and 3.6B. Representative building elevations are shown in Figures 3.7A and 3.7B.

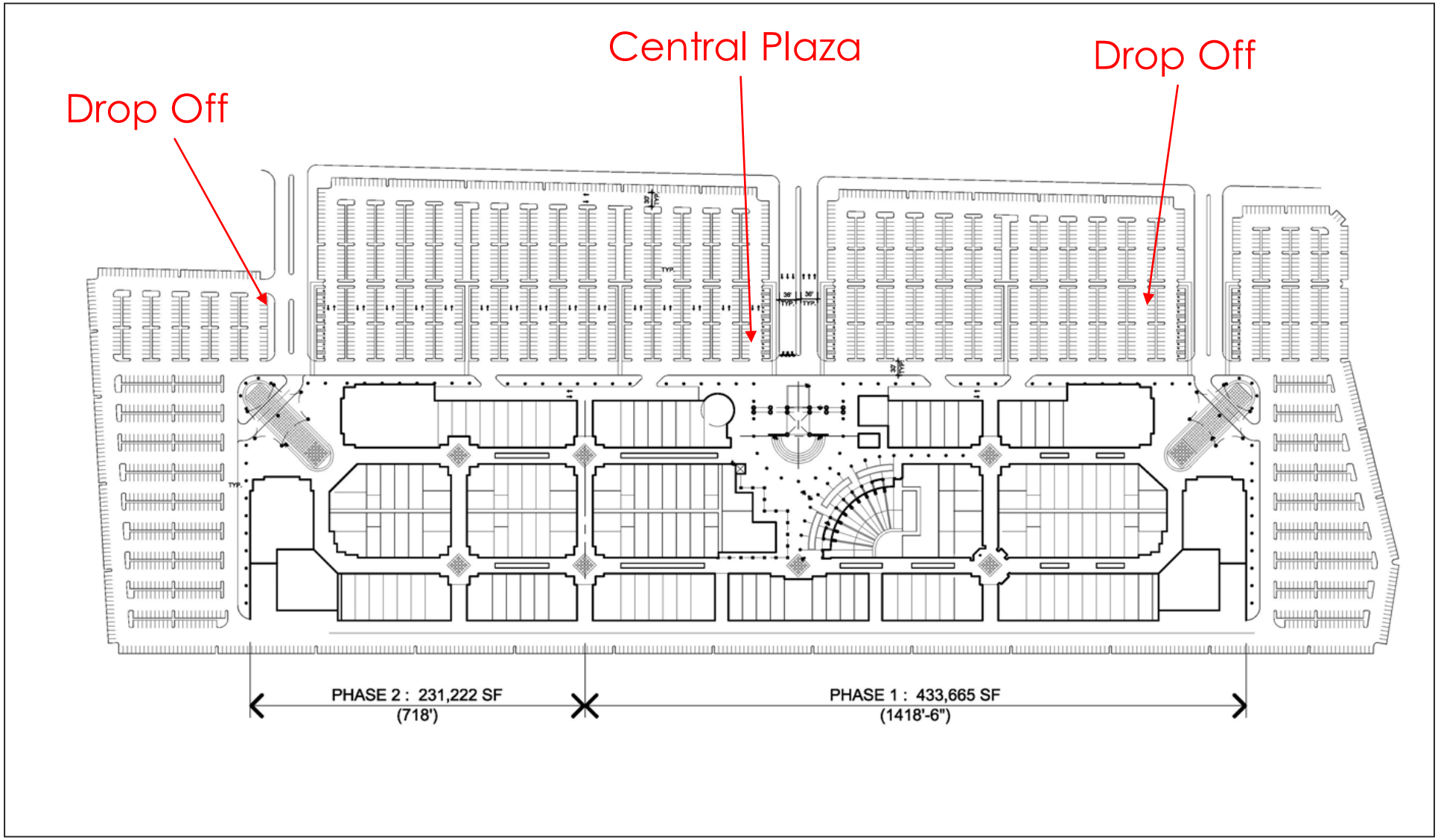
The shopping center is expected to employ approximately 5,000 people. Regular hours of operation of the shopping center are expected to be Monday through Saturday from 10 a.m. to 9 p.m. and Sundays from 10 a.m. to 7 p.m. It is anticipated that extended hours of operation will occur during holidays.

3.4.2 Access and Circulation

Access to the site would be from three driveways on Live Oak Avenue. Parking for customers and employees would exist on all sides of the proposed shopping center.

3.4.3 Major Utilities

Post-development, the project site will be divided into three drainage sub-areas. The three subareas will drain into three separate connections (see Table 4.5.C). All storm flows will be collected, treated and conveyed to the existing storm drain system in Live Oak Avenue via catch basins or trench drains. On each of the connection lines, the project proposes to install media filter devices. The filters will capture and retain sediment, oils, metals, and other targeted constituents. Curb inlets, if utilized, will also have media filters and curb guard installed. If roof drains are connected directly into the storm drain system, roof drain filters will be installed on the roof leaders. A trench drain will be constructed across the westerly driveway intercepting flows and directing the run-off into a drainage collection line. Trench drain filters will be installed in this feature. The post-development drainage pattern is discussed further in Section 4.5 and depicted in Figure 3.8.



LSA

FIGURE 3.5

Irwindale Regional Shopping Center
Environmental Impact Report

Conceptual Site Plan

SOURCE: FCGA Architecture, 2014

I:\COI1401\Reports\EIR\fig3-5_SitePlan.cdr (08/26/2014)

THIS PAGE INTENTIONALLY LEFT BLANK

Courtyard
Aerial

LSA

FIGURE 3.6A

Irwindale Regional Shopping Center
Environmental Impact Report

Central Entry Courtyard Aerial View Rendering

SOURCE: FCGA Architecture, 2014

I:\COI1401\Reports\EIR\fig3-6A_Courtyard.cdr (08/26/2014)

THIS PAGE INTENTIONALLY LEFT BLANK

LSA

FIGURE 3.6B

Irwindale Regional Shopping Center
Environmental Impact Report

Central Plaza Rendering

SOURCE: FCGA Architecture, 2014

I:\COI1401\Reports\EIR\fig3-6B_CentPlaza.cdr (08/26/2014)

THIS PAGE INTENTIONALLY LEFT BLANK

LSA

FIGURE 3.7A

Irwindale Regional Shopping Center
Environmental Impact Report

Representative Building Elevations

SOURCE: FCGA Architecture, 2014

I:\COI1401\Reports\EIR\fig3-7A_Restaurants.cdr (08/26/2014)

THIS PAGE INTENTIONALLY LEFT BLANK

LSA

FIGURE 3.7B

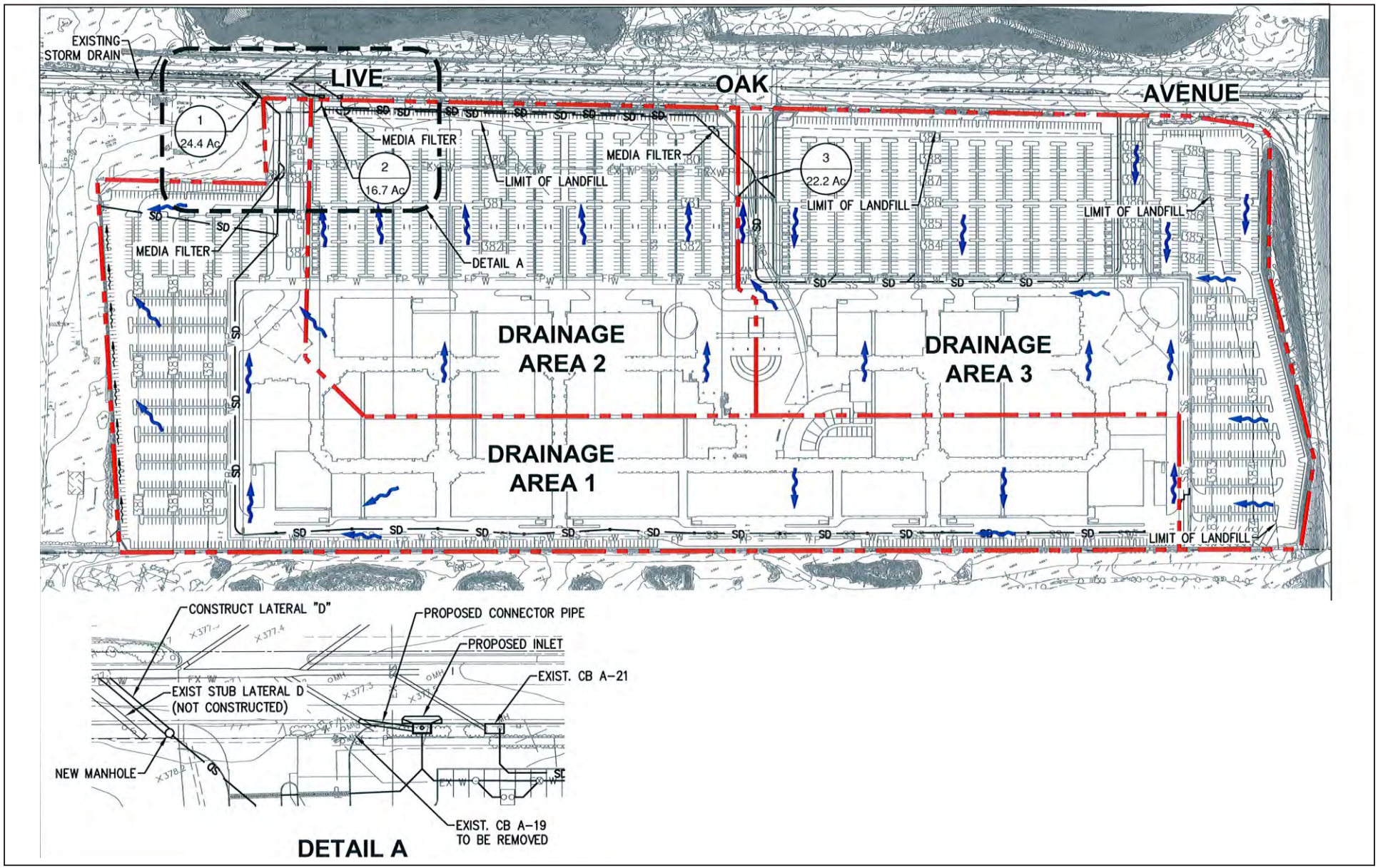
Irwindale Regional Shopping Center
Environmental Impact Report

Representative Building Elevations

SOURCE: FCGA Architecture, 2014

I:\COI1401\Reports\EIR\fig3-7B_Anchors.cdr (08/26/2014)

THIS PAGE INTENTIONALLY LEFT BLANK



LSA

FIGURE 3.8

0 160 320
FEET

SOURCE: JR Miller & Associates, 11/24/14.

Irwindale Regional Shopping Center
Environmental Impact Report

Proposed Drainage Pattern

I:\COI1401\Reports\EIR\fig3-8_ProDrainPattern.cdr (12/19/2014)

THIS PAGE INTENTIONALLY LEFT BLANK

Wastewater from the project site would be conveyed by the City's local main sewer line located in Live Oak Avenue to a Los Angeles County Sanitation District (LACSD) wastewater treatment plant. The main sewer line connects to a primary sewer trunk line located to the west in Peck Road. The primary treatment plant servicing the City is LSCSD's San Jose Creek Water Reclamation Plant (WRP), with excess sewage and all bio solids treated at LSCSD's Joint Water Pollution Control Plant.

The project is located in the water service area of Golden State Water Company (GSWC), with water delivered by the South Arcadia System. Water delivery to the project site will be accomplished by a connection to the existing water line located in Live Oak Avenue.

3.4.4 Construction and Phasing

The project would be completed in two phases. Phase 1 of the project would start in early 2015 and be completed in fall 2017 and would include demolition of the speedway and associated buildings, all site preparation and grading, and would develop approximately 455,000 square feet or 65 percent of the total project building space. Phase 2 would start in winter of 2017 and be completed in the fall of 2018 and would develop approximately 245,000 square feet or 35 percent of the total project space. Concrete, asphalt, and other acceptable demolition debris would be used on site as fill within the racetrack oval as well as other portions of the project as deemed necessary for proper preparation of the site's foundations. For the proposed phasing plan refer to Figure 3.5.

3.5 PROJECT OBJECTIVES

The purpose of the proposed project is to provide a new regional shopping center on former commercial land within the western portion of the City. The following main objectives have been developed for the proposed Irwindale Regional Shopping Center Project:

- To provide employment opportunities for various segments of the region and local community;
- To provide a pleasant and unique shopping experience for outlet-focused customers looking for bargains within and outside the region;
- To increase tourism and bolster the image of Irwindale as a regional hub;
- To encourage complementary uses around the shopping center in an effort to further boost economic development in the City and region; and
- To meet the goals and objectives of the City's General Plan by implementing uses consistent with the "Commercial/Recreation" land use designation.

3.6 REQUIRED DISCRETIONARY ACTIONS AND PERMITS

3.6.1 City of Irwindale

This project-level EIR is intended to inform the City of Irwindale decision-makers and the general public of the environmental consequences of the proposed project. Entitlements being analyzed in this EIR include:

- *Zone Change No. 03-2013.* Approval of the project includes a zone change that would change the existing zoning from M-2 (Heavy Manufacturing) to C-2 (Heavy Commercial).*Site Plan & Design Review Permit No. 01-2013.* Approval of the project includes a detailed review of the proposed site plan and architectural design of the project. *Development Agreement No. 01-2013*.

The City of Irwindale is the Lead Agency for the proposed project, but discretionary actions may also be required by other agencies (see Section 3.6.2).

3.6.2 Actions by Others

Although the City of Irwindale is the Lead Agency for the proposed project, a number of other Federal, State, or special purpose agencies may consult on this EIR for their own decision-making and actions now or in the future. The following is a list of anticipated discretionary or non-discretionary actions by other agencies; however, it is not exhaustive and may include other agencies and processes in the future as appropriate:

- ***State of California***
  - Regional Water Quality Control Board: Water Quality Permitting.
  - South Coast Air Quality Management District

4.0 ENVIRONMENTAL IMPACT EVALUATION

As stated previously, there are 8 environmental issue areas that are analyzed in this EIR with respect to the proposed project. These issues are:

4.1	Air Quality	4.5	Hydrology and Water Quality
4.2	Geology and Soils	4.6	Noise
4.3	Greenhouse Gas Emissions	4.7	Traffic
4.4	Hazards and Hazardous Materials	4.8	Water Supply

Within each subsection described in Section 4.0, the following information is presented relative to each environmental issue described:

- Description of the existing setting as it relates to the specific environmental issue;
- A summary of policies and regulations relevant to the specific environmental issue;
- Identification of the thresholds of significance;
- Evaluation of project-specific direct and indirect impacts and a determination of significance based on identified threshold levels;
    - *Direct Impacts.* Direct impacts are the result of the project itself (from its construction and operation) in the form of project activity and trips generated by the project. For example, in the case of a commercial project, construction emissions (e.g., equipment exhaust, wind erosion, and vehicle exhaust) and trips to and from the shops (e.g., vehicle exhaust and tire wear) represent direct impacts.
    - *Indirect Impacts.* Indirect impacts are the result of changes that would not occur without the project. In the case of the proposed project, indirect impacts on the surrounding community can be generated in many ways: nearby construction of roadways (or roadway modifications) and other infrastructure to support the shopping center, construction and operation of development, changes in traffic/circulation patterns that result in increased congestion/ delays, etc.
- Identification of mitigation measures;
- A determination of the level of significance after mitigation measures are implemented; and
- Cumulative impacts. Cumulative impacts are direct and indirect impacts to which the project contributes. In the case of a commercial project, a given project has a cumulative impact with all other area development projects, from the standpoint of each type of impact (cumulative construction emissions, commercial electricity consumption, solvent use, transportation emissions, congestion, etc.).

THIS PAGE INTENTIONALLY LEFT BLANK

4.1 AIR QUALITY

This section analyzes the proposed project's potential air quality impacts based on the comprehensive *Air Quality Analysis* contained in Appendix B (LSA Associates, Inc. December 2014) to this EIR. The air quality analysis evaluates potential air quality impacts and mitigation measures by examining the short-term construction and long-term operational impacts associated with the project and by evaluating the effectiveness of mitigation measures incorporated as part of the project design. Additionally, the analysis provides a discussion of the proposed project, the physical setting of the project area, and the air quality regulatory framework. The evaluation was prepared in accordance with appropriate standards, utilizing procedures and methodologies in the South Coast Air Quality Management District (SCAQMD) *CEQA Air Quality Handbook* (SCAQMD 1993 and associated updates) using the latest CalEEMod computer program developed and maintained by SCAQMD. Air quality data posted by the California Air Resources Board (CARB) and the U.S. Environmental Protection Agency (EPA) Web sites are included to document the local air quality environment.

4.1.1 Existing Setting

The project site is located in the City of Irwindale in the San Gabriel Valley, east of the City of Los Angeles, California. The project site is located in the South Coast Air Basin (Basin), a geographic area that encompasses the coastal plain and connecting broad inland valleys and low hills. The Pacific Ocean forms the southwestern border of the Basin, with mountain ranges forming the remainder of the border. The Basin includes Orange County and the non-desert portions of Los Angeles County, Riverside County, and San Bernardino County. The Basin is under the jurisdiction of the SCAQMD.

4.1.1.1 Climate and Meteorology

Air quality in the planning area is not only affected by various emission sources (mobile, industry, etc.), but also by atmospheric conditions such as wind speed, wind direction, temperature, and rainfall. The combination of topography, low mixing height, abundant sunshine, and emissions from the second largest urban area in the United States gives the Basin the worst air pollution problem in the nation.

The annual average temperature varies little throughout the Basin, 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 closest to the site with complete temperature and rainfall records is the San Gabriel Fire Department station, which provides sufficient data for average temperatures in the project area. The San Gabriel Fire Department station shows that the monthly average maximum temperature recorded from May 1939 to March 2013 ranged from 69.1°F in January to 89.7°F in August, with an annual average maximum of 78.4°F. The monthly average minimum temperature recorded at this station ranged from 41.9°F in January to 61.6°F in August, with an annual average minimum of 51.3°F. January is typically the coldest month, and August is typically the warmest month in this area of the Basin. The majority of annual rainfall in the Basin occurs between November and April. Summer rainfall is minimal and is generally limited to scattered thundershowers in coastal regions and slightly heavier showers in the eastern portion of the Basin and along the coastal side of the mountains. The San Gabriel Fire Department station monitored precipitation as well. Average monthly rainfall during that period varied from 3.69 inches in January to 0.57 inch or less from May to October, with an annual total of 17.20 inches. Patterns in monthly and yearly rainfall totals are unpredictable due to fluctuations in the weather.

The Basin experiences a persistent temperature inversion (increasing temperature with increasing altitude) as a result of the Pacific high. This inversion limits the vertical dispersion of air contaminants, holding them relatively near the ground. As the sun warms the ground and the lower air layer, the temperature of the lower air layer approaches the temperature of the base of the inversion (upper) layer

until the inversion layer finally breaks, allowing vertical mixing with the lower layer. This phenomenon is observed in mid-afternoon to late afternoon on hot summer days, when the smog appears to clear up suddenly. Winter inversions frequently break by midmorning.

Winds in the vicinity of the project area blow predominantly from the south-southwest, with relatively low velocities. Wind speeds in the project area average about 5 miles per hour (mph). Summer wind speeds average slightly higher than winter wind speeds. Low average wind speeds, together with a persistent temperature inversion limit the vertical dispersion of air pollutants throughout the Basin. Strong, dry, north or northeasterly winds, known as Santa Ana winds, occur during the fall and winter months, dispersing air contaminants. The Santa Ana conditions tend to last for several days at a time.

The combination of stagnant wind conditions and low inversions produces the greatest pollutant concentrations. On days of no inversion or high wind speeds, ambient air pollutant concentrations are the lowest. During periods of low inversions and low wind speeds, air pollutants generated in urbanized areas are transported predominantly on shore into Riverside and San Bernardino Counties. In the winter, the greatest pollution problems are carbon monoxide (CO) and nitrogen oxides (NO_X) because of extremely low inversions and air stagnation during the night and early morning hours. In the summer, the longer daylight hours and the brighter sunshine combine to cause a reaction between hydrocarbons and NO_X to form photochemical smog.

4.1.1.2 Regional Air Quality

Both the State of California and the Federal government have established health-based ambient air quality standards (AAQS) for six air pollutants. As identified in Table 4.1.A, these pollutants include ozone (O_3), CO, nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter with a diameter of 10 microns or less (PM_{10}), and lead (Pb). In July 1997, the EPA adopted standards for eight-hour ozone and for fine particulate matter less than 2.5 microns in diameter ($PM_{2.5}$). 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 4.1.B lists the health effects of criteria pollutants and their potential sources. These health effects would not occur unless the standards are exceeded by a large margin or for a prolonged period of time. The State AAQS are more stringent than the Federal AAQS. Indirect sources of pollution are generated when minor sources collectively emit a substantial amount of pollution. Examples of this would be the motor vehicles at intersections, malls, and on highways. The California Clean Air Act (CCAA) provides the SCAQMD with the authority to manage transportation activities at indirect sources. The SCAQMD also regulates stationary sources of pollution throughout its jurisdictional area. Direct emissions from motor vehicles are regulated by the CARB.

4.1.1.3 Local Air Quality

The SCAQMD, together with the CARB, maintains ambient air quality monitoring stations in the Basin. The air quality monitoring station closest to the site is the Azusa station, which monitors all criteria air pollutant data except SO_2. The air quality trends from this station are used to represent the ambient air quality in the project area. The pollutants monitored are CO, O_3, PM_{10}, $PM_{2.5}$, and NO_2. The closest air quality monitoring station that monitors SO_2 is the Fontana station. The criteria pollutants monitored at this station[1] are identified in Table 4.1.C. Based on this data, O_3, PM_{10}, and $PM_{2.5}$ levels monitored at the Azusa station have exceeded State and Federal standards in the past three years.

[1] California Air Resources Board and U.S. EPA, 2008.

Table 4.1.A: Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		Federal Standards[2]		
		Concentration[3]	Method[4]	Primary[2,5]	Secondary[2,6]	Method[7]
Ozone (O_3)	1-Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.07 ppm (137 µg/m^3)		0.075 ppm (147 µg/m^3)		
Respirable Particulate Matter (PM_{10})	24-Hour	50 µg/m^3	Gravimetric or Beta Attenuation*	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	No Separate State Standard		35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation*	12 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m^3)	None	Non-Dispersive Infrared Photometry (NDIR)
	1-Hour	20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)		
	8-Hour (Lake Tahoe)	6ppm (7 mg/m^3)		—		
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (56 µg/m^3)	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m^3)	Same as Primary Standard	Gas Phase Chemiluminescence
	1-Hour	0.18 ppm (338 µg/m^3)		100 ppb		
Lead (Pb)[8]	30-Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m^3		
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	—	Ultraviolet Fluorescence	0.030 ppm (80 µg/m^3)	—	Spectrophotometry (Pararosaniline Method)
	24-Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (80 µg/m^3)	—	
	3-Hour	—		—	0.5 ppm (1300 µg/m^3)	
	1-Hour	0.25 ppm (655 µg/m^3)		75 ppb	—	
Visibility-Reducing Particles Sulfates	8-Hour	Extinction coefficient of 0.23 per kilometer—visibility of 10 miles or more (0.07-30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70%. Method: Beta Attenuation and Transmittance through Filter Tape. Method: Beta Attenuation and transmittance through Filter Tape.		**No Federal Standards**		
Sulfates	24-Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[8]	24-Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

Source: California Air Resources Board (June 4, 2013).

Notes

1 California standards for ozone; carbon monoxide (except Lake Tahoe); sulfur dioxide (1 and 24 hour); nitrogen dioxide; suspended particulate matter, PM_{10}; 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 ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth-highest 8-hour concentration in a year, averaged over 3 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 1. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current federal policies.

3 Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25˚C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25˚C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4 Any equivalent procedure that can be shown to the satisfaction of the CARB to give equivalent results at or near the level of the air quality standard may be used.

5 National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6 National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7 Reference method as described by the EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the EPA.

8 The CARB has identified lead and vinyl chloride as ‘toxic air contaminants’ with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Table 4.1.B: Summary of Health Risks from Some of the Common Air Pollutants

Pollutants	Health Risks	Examples of Sources
Particulate Matter ($PM_{10:}$ less than or equal to 10 microns)	Increase respiratory disease Lung damage Premature death	Cars and trucks, especially diesels. Fireplaces, wood stoves. Windblown dust from roadways, agriculture, and construction.
Ozone (O_3)	Breathing difficulties Lung damage	Formed by chemical reactions of air pollutants in the presence of sunlight; common sources are motor vehicles, industries, and consumer products.
Carbon Monoxide (CO)	Chest pain in heart patients Headaches, nausea Reduced mental alertness Death at very high levels	Any source that burns fuel such as cars, trucks, construction and farming equipment, and residential heaters and stoves.
Nitrogen Dioxide (NO_2)	Lung damage	See carbon monoxide sources.
Toxic Air Contaminants	Cancer Chronic eye, lung, or skin irritation Neurological and reproductive disorders	Cars and trucks, especially diesels. Industrial sources such as chrome platers. Neighborhood businesses such as dry cleaners and service stations. Building materials and products.

Source: CARB 2005.

Table 4.1.C: Ambient Air Quality Monitored in the Project Vicinity

Pollutant	Standard		2011	2012	2013
Carbon Monoxide (CO) – 1-hour CO levels taken from EPA Website					
Maximum 1-hour concentration (ppm)			2.4	1.8	3.1
Number of days exceeded:	State:	> 20 ppm	0	0	0
	Federal:	> 35 ppm	0	0	0
Maximum 8-hour concentration (ppm)			1.36	1.13	1.7
Number of days exceeded:	State:	≥ 9.0 ppm	0	0	0
	Federal:	≥ 9 ppm	0	0	0
Ozone (O_3)					
Maximum 1-hour concentration (ppm)			0.111	0.134	0.115
Number of days exceeded:	State:	> 0.09 ppm	13	18	7
Maximum 8-hour concentration (ppm)			0.092	0.095	0.085
Number of days exceeded:	State:	> 0.07 ppm	19	20	15
	Federal:	> 0.075 ppm	12[1]	10	6
Coarse Particulates (PM_{10})					
Maximum 24-hour concentration (µg/m^3)			65.0	78.0	76.0
Number of days exceeded:	State:	> 50 µg/m^3	8	6	6
	Federal:	> 150 µg/m^3	0	0	0
Annual arithmetic average concentration (µg/m^3)			31.9	29.6	32.3
Exceeded for the year:	State:	> 20 µg/m^3	Yes	Yes	Yes
Fine Particulates ($PM_{2.5}$)					
Maximum 24-hour concentration (µg/m^3)			94.6	39.6	29.6
Number of days exceeded:	Federal:	> 35 µg/m^3	2	1	0
Annual arithmetic average concentration (µg/m^3)			ND	ND	ND
Exceeded for the year:	State:	> 12 µg/m^3	ND	ND	ND
	Federal:	> 15 µg/m^3	ND	ND	ND
Nitrogen Dioxide (NO_2)					
Maximum 1-hour concentration (ppm)			0.0795	0.0718	0.0768
Number of days exceeded:	State:	> 0.18 ppm	0	0	0
Annual arithmetic average concentration (ppm)			ND	0.019	0.017
Exceeded for the year:	State:	> 0.030 ppm	ND	No	No
	Federal:	> 0.053 ppm	ND	No	No
Sulfur Dioxide (SO_2) – taken from Fontana-Arrow Highway Station					
Maximum 24-hour concentration (ppm)			0.003	0.004	0.001
Number of days exceeded:	State:	> 0.04 ppm	0	0	0
	Federal:	> 0.14 ppm	0	0	0
Annual arithmetic average concentration (ppm)			0.000	ND	ND
Exceeded for the year:	Federal:	> 0.030 ppm	0	ND	ND

Sources: United States Environmental Protection Agency and California Air Resources Board websites: www.epa.gov/air/data/index.html and www.arb.ca.gov/adam/welcome.html.

[1] The exceedances of the federal 8-hour O_3 standard are based on the old 0.08 ppm standard. In April 2008, the EPA revised the standard to 0.075 ppm.

ARB = California Air Resources Board
EPA = United States Environmental Protection Agency
µg/m^3 = micrograms per cubic meter
ND = no data available
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
ppm = parts per million

The State 1-hour O_3 standard was exceeded 7 to 18 times per year in the past 3 years. The Federal 8 hour O_3 standard was exceeded 6 to 12 days per year in the past 3 years, and the State 8-hour O_3 standard was exceeded 15 to 19 times per year in the past 3 years. The Federal 24-hour $PM_{2.5}$ standards were exceeded 1 to 2 times per year in the past 3 years, and the Federal annual average $PM_{2.5}$ standards were not measured at this monitoring station in the past 3 years. The State 24-hour PM_{10} standards were exceeded 6 to 8 times per year in the past 3 years. The State annual average PM_{10} standards were exceeded at this monitoring station every year in the past 3 years.

4.1.1.4 Air Pollution Constituents and Attainment Status

The CARB coordinates and oversees both State and Federal air pollution control programs in California. The CARB oversees activities of local air quality management agencies and maintains air quality monitoring stations throughout the State in conjunction with the EPA and local air districts. The CARB has divided the State into 15 air basins based on meteorological and topographical factors of air pollution. The CARB and EPA use the data collected at monitoring stations to classify air basins as attainment, nonattainment, nonattainment transitional, or unclassified, based on air quality data for the most recent three calendar years compared with the AAQS. Nonattainment areas are imposed with additional restrictions, as required by the EPA. The air quality data are also used to monitor progress in attaining air quality standards. Table 4.1.D identifies the attainment status[1] for the criteria pollutants in the Basin.

Table 4.1.D: Attainment Status of Criteria Pollutants in the South Coast Air Basin

Pollutant	State	Federal
1-hour O_3	Nonattainment	Not Applicable (revoked June 2005)
8-hour O_3	Nonattainment	Extreme Nonattainment
PM_{10}	Nonattainment	Attainment/Maintenance
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment	Attainment/Maintenance
NO_2	Nonattainment	Attainment/Maintenance
SO_2	Attainment	Attainment
Lead	Attainment	Attainment
All others	Attainment/Unclassified	Attainment/Unclassified

CO = carbon monoxide
NO_2 = nitrogen dioxide
O_3 = ozone (smog)
PM_{10} = particular matter less than 10 microns in size
$PM_{2.5}$ = particular matter less than 2.5 microns in size
SO_2 = sulfur dioxide
Source: CARB (www.arb.ca.gov/desig/desig.htm) and EPA (www.epa.gov/air/data/monvals.html) 2013. LSA Associates, Inc. 2014. Table D.

4.1.1.5 Sensitive Land Uses in the Project Vicinity

Sensitive receptors include residences, schools, medical offices, convalescent facilities, and similar uses that are sensitive to air pollutants. The project vicinity consists of a residential neighborhood to the north approximately 0.4 mile from the project site, two schools (Olive Junior High and Walnut Elementary School) approximately 0.5 mile to the southeast of the project site, and City of Hope Helford Clinical Research Hospital approximately 1.3 miles to the northeast of the project site. These are the nearest land uses that would be considered sensitive receptors.

[1] Unclassified designation: a pollutant that is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment; Attainment designation: a pollutant is designated attainment if the State standard for that pollutant was not violated at any site in the area during a 3-year period. Nonattainment: a pollutant is designated nonattainment if there was at least one violation at any site in the area during a 3-year period.

4.1.1.6 NOP and Scoping Responses

The SCAQMD sent a letter outlining its recommendations for the air quality study to be prepared for the proposed project. This letter is included in Appendix A to this EIR. There were no comments made at the public scoping meeting because there were no attendees. Aside from SCAQMD, there were no other responses to the NOP related to air quality.

4.1.2 Existing Policies and Regulations

4.1.2.1 Federal Regulations

Clean Air Act. Pursuant to the Federal Clean Air Act (CAA) of 1970, the EPA established national ambient air quality standards (NAAQS). The NAAQS were established for six major pollutants, termed "criteria" pollutants. Criteria pollutants are defined as those pollutants for which the Federal and State governments have established ambient air quality standards, or criteria, for outdoor concentrations in order to protect public health. In April 2003, the EPA was cleared by the White House Office of Management and Budget (OMB) to implement the eight-hour ground-level O_3 standard. The EPA issued the proposed rule implementing the eight-hour O_3 standard in April 2003. The EPA completed final eight-hour nonattainment status on April 15, 2004. The EPA issued the final $PM_{2.5}$ implementation rule in fall 2004. The EPA issued final designations on December 15, 2004.

4.1.2.2 State Regulations

Mulford-Carrell Act. The state first set California Ambient Air Quality Standards (CAAQS) in 1969 under the mandate of the Mulford-Carrell Act. The CAAQS are generally more stringent than the NAAQS. In addition to the six criteria pollutants covered by the NAAQS, there are CAAQS for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Originally, there were no attainment deadlines for CAAQS; however, the CCAA of 1988 provided a time frame and a planning structure to promote their attainment. The CCAA required nonattainment areas in the state to prepare attainment plans and proposed to classify each such area on the basis of the submitted plan, as follows: moderate, if CAAQS attainment could not occur before December 31, 1994; serious, if CAAQS attainment could not occur before December 31, 1997; and severe, if CAAQS attainment could not be conclusively demonstrated at all. The attainment plans are required to achieve a minimum 5 percent annual reduction in the emissions of nonattainment pollutants unless all feasible measures have been implemented. The EPA has designated the Southern California Association of Governments (SCAG) as the Metropolitan Planning Organization (MPO) responsible for ensuring compliance with the requirements of the CAA for the Basin.

California Code of Regulations Title 24, Part 6. Enacted in 1978, this part of the California Code established energy efficiency standards for residential and nonresidential buildings in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and incorporation of new energy efficiency technologies and methods. The latest amendments were enacted in 2011 as part of the new California "Green" Building Code.

4.1.2.3 Regional Regulations

Lewis Air Quality Management Act. The 1976 Lewis Air Quality Management Act established the SCAQMD and other air districts throughout the State. The Federal Clean Air Act Amendments of 1977 required that each state adopt an implementation plan outlining pollution control measures to attain the Federal standards in nonattainment areas of the State. The CARB is responsible for incorporating air quality management plans for local air basins into a State Implementation Plan (SIP)

for EPA approval. Significant authority for air quality control within them has been given to local air districts that regulate stationary source emissions and develop local nonattainment plans.

Regional Air Quality Management Plan (AQMP). The SCAQMD and the SCAG are responsible for formulating and implementing the AQMP, which has a 20-year horizon for the Basin. The SCAQMD and SCAG must update the AQMP every three years. The SCAQMD adopted the 2012 AQMP in December 2012 and forwarded it to the CARB for review and approval.

The 2012 AQMP incorporated the latest scientific and technological information and planning assumptions, including the 2012 Regional Transportation Plan/Sustainable Communities Strategy and updated emission inventory methodologies for various source categories. The 2012 AQMP included the new and changing Federal requirements, implementation of new technology measures, and the continued development of economically sound, flexible compliance approaches.

4.1.2.4 City General Plan Policies

Local jurisdictions have the authority and responsibility to reduce air pollution through its police power and decision-making authority. Specifically, the City is responsible for the assessment and mitigation of air emissions resulting from its land use decisions. The City is also responsible for the implementation of transportation control measures as outlined in the AQMP. Examples of such measures include bus turnouts, energy-efficient streetlights, and synchronized traffic signals. In accordance with CEQA requirements and the CEQA review process, the City assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits and monitors and enforces implementation of such mitigation. In accordance with CEQA requirements, the City does not, however, have the expertise to develop plans, programs, procedures, and methodologies to ensure that air quality within the City and region will meet Federal and State standards. Instead, the City relies on the expertise of the SCAQMD and utilizes the CEQA *Air Quality Handbook* as the guidance document for the environmental review of plans and development proposals within its jurisdiction.

The City's General Plan does not include an Air Quality Element. Air quality is discussed under the City's Public Safety Element (Irwindale General Plan, 2008, page 140). The City's General Plan does not contain any policies specific to the attainment of the air quality goals or emissions thresholds for environmental review purposes. The City has acknowledged the existing condition of the quality of the air, and the City's commitment to the improvement the City's residents' quality of life. Although the City General Plan does not include any specific air quality policies or goals, a number of the goals, policies, and programs identified in the City's Infrastructure Element (Irwindale General Plan, 2008, pages 96–101) would result in an indirect reduction in air quality emissions through reductions in vehicle trips, vehicle miles traveled, transit, and energy use.

4.1.3 Methodology

Evaluation of air quality impacts associated with the proposed project includes the following:

- Determine the short-term construction air quality impacts based on SCAQMD emissions thresholds;
- Determine the long-term air quality impacts, including vehicular traffic, on both on-site and off-site air quality sensitive uses based on SCAQMD emissions thresholds; and
- Determine the required mitigation measures to reduce short-term and long-term on-site air quality impacts from all sources.

A number of modeling tools are available to assess air quality impacts of projects. In addition, certain air districts, such as the SCAQMD, have created guidelines and requirements to conduct air quality analysis. SCAQMD's current guidelines, *CEQA Air Quality Handbook*, *April 1993*, and associated updates were adhered to in the assessment of air quality impacts for the proposed project. The air quality models identified in the document are outdated; therefore, the CalEEMod model was used to estimate project-related mobile and stationary source emissions in this air quality assessment.

The air quality assessment includes estimating emissions associated with short-term construction of the proposed project. Localized air quality impacts (i.e., higher CO concentrations [CO hot spots] near intersections or roadway segments in the project vicinity) would be small and less than significant due to the generally low ambient CO concentrations (5.6 parts per million [ppm] versus the State one-hour CO standard of 20.0 ppm and 1.36 ppm versus the State eight-hour CO standard of 9.0 ppm) in the project area. The net increase in pollutant emissions determines the significance and impact on regional air quality as a result of the proposed project. The results also allow the local government to determine whether the proposed project will deter the region from achieving the goal of reducing pollutants in accordance with the AQMP in order to comply with Federal and State AAQS.

Air quality in the project area would be affected by long-term air pollutant emissions from stationary sources and mobile sources related to the proposed project. The CalEEMod model was used to predict these project-related long-term impacts. Localized air quality impacts (i.e., CO hot spots) in the project area would be affected by increased traffic flow due to the proposed project. The Caltrans CALINE4 model and the CARB's CalEEMod model were used to assess the project's impact on the local CO concentrations.

The SCAQMD has developed Local Significance Threshold (LST) methodology that can be used to determine whether or not a project may generate significant adverse localized air quality impacts. LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable Federal or State AAQS and are developed based on the ambient concentrations of that pollutant for each source receptor area. SCAQMD current guidelines, *Final Localized Significance Threshold Methodology* (June 2003), were adhered to in the assessment of air quality impacts for the proposed project. The LST mass rate look-up tables are used to determine whether the daily emissions for the proposed construction activities could result in significant localized air quality impacts. The emissions of concern from construction activities are NO_X, CO, PM_{10}, and $PM_{2.5}$ combustion emissions from construction equipment and fugitive PM_{10} dust from construction site preparation activities.

No health risk assessment (HRA) was included because no existing residents are within 2,000 feet (or 0.4 mile) of the project site who could be exposed to construction or operational emissions. The LST shows that all pollutant concentrations would be well below their thresholds of significance, no person living near this project would be exposed to unhealthful levels of air pollutants from project operational emissions; therefore, an HRA is not required. This means that, while the air quality impacts to the overall region would be significant, there would not be any health impacts to local residents from these emissions because of the distance and dispersion in the atmosphere preventing any of these emissions from creating concentrations above the safe levels defined in the ambient air quality standards.

4.1.3.1 Types of Impacts

Direct Impacts. Direct impacts are the result of the project itself (from its construction and operation) in the form of project activity and trips generated by the project. For example, in the case of a commercial project, construction emissions (e.g., equipment exhaust, wind erosion, and vehicle exhaust) and trips to and from the shops (e.g., vehicle exhaust and tire wear) represent direct impacts.

Indirect Impacts. Indirect impacts are the result of changes that would not occur without the project. In the case of the proposed project, indirect impacts on the surrounding community can be generated in many ways: nearby construction of roadways (or roadway modifications) and other infrastructure to support the shopping center, construction and operation of development, changes in traffic/circulation patterns that result in increased congestion/delays, etc.

Cumulative Impacts. Cumulative impacts are direct and indirect impacts to which the project contributes. In the case of a commercial project, a given project has a cumulative impact with all other area development projects, from the standpoint of each type of impact (cumulative construction emissions, commercial electricity consumption, solvent use, transportation emissions, congestion, etc.).

Conformity Impacts. A project is non-conforming if it conflicts with or delays implementation of any applicable attainment or maintenance plan. A project is conforming if it complies with all applicable air district rules and regulations, complies with all proposed control measures that are not yet adopted from the applicable plan(s), and is consistent with the growth forecasts in the applicable plan(s) (or is directly included in the applicable plan). Conformity with regional growth forecasts can be established by demonstrating that the project is consistent with the land use plan that was used to generate the growth forecast, such as a City's General Plan (i.e., a project is consistent with the established local land use and zoning designations of the General Plan at the time the regional plan was prepared).

4.1.4 Thresholds of Significance

Appendix G of the *State CEQA Guidelines* recognizes the following significance thresholds related to air quality. Based on these significance thresholds, potential impacts to air quality could be considered significant if the proposed project would:

- Violate any AAQS;
- Contribute substantially to an existing air quality violation;
- Expose sensitive receptors to substantial pollutant concentrations;
- Create objectionable odors affecting a substantial number of people; and/or
- Conflict with adopted environmental plans and goals of the community in which it is located.

In addition to the Federal and State AAQS, there are daily emissions thresholds for construction and operation of a proposed project in the Basin. The Basin is administered by the SCAQMD, and guidelines and emissions thresholds established by the SCAQMD in its CEQA Air Quality Handbook (SCAQMD, April 1993) and associated updates are used in this analysis.

It should be noted that the emissions thresholds were established based on the attainment status of the air basin with regard to air quality standards for specific criteria pollutants. Because the concentration standards were set at a level that protects public health with an adequate margin of safety (EPA), these emissions thresholds are regarded as conservative and would overstate an individual project's contribution to health risks.

4.1.4.1 Thresholds for Construction Emissions

The following CEQA significance thresholds for construction emissions have been established by the SCAQMD for the Basin:

- 75 pounds per day of reactive organic compounds (ROC).
- 100 pounds per day of NO_X.
- 550 pounds per day of CO.
- 150 pounds per day of PM_{10}.
- 50 pounds per day of SO_2.
- 55 pounds per day of $PM_{2.5}$.

Projects in the Basin with construction-related emissions that exceed any of the emission thresholds are considered to be significant under CEQA.

4.1.4.2 Thresholds for Operational Emissions

Projects with operation-related emissions that exceed any of the emission thresholds listed below are considered significant under the SCAQMD guidelines with respect to CEQA.

- 55 pounds per day of ROC/VOC.
- 55 pounds per day of NO_X.
- 550 pounds per day of CO.
- 150 pounds per day of PM_{10}.
- 150 pounds per day of SO_2.
- 55 pounds per day of $PM_{2.5}$.

4.1.4.3 Air Pollutant Standards for CO with Localized Effects

The significance of localized project impacts under CEQA depends on whether ambient CO levels in the vicinity of the project are above or below State and Federal CO standards. If ambient levels are below the standards, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a State or Federal standard, project emissions are considered significant if they increase one-hour CO concentrations by 1.0 ppm or more or eight-hour CO concentrations by 0.45 ppm or more. The Basin (with the exception of Los Angeles County) meets State and Federal attainment standards for CO; therefore, the proposed project would have a significant CO impact if project emissions result in an exceedance of State or Federal one-hour or eight-hour standard. The following emission concentration standards for CO apply to the proposed project:

- California State one-hour CO standard of 20.0 ppm.
- California State eight-hour CO standard of 9.0 ppm.

4.1.4.4 Local Significance Thresholds

For this project, the appropriate Source Receptor Area (SRA) is the East San Gabriel Valley (SRA 9) and local air quality conditions are evaluated based on data from two recording sites, the Azusa Station and the Los Angeles Main Street Station, as shown in Table 4.1.C based on available SCAQMD data.[1] The site is approximately 63.5 acres. Construction-period emissions were evaluated using the CalEEMod (Version 2013.2.2) model that was developed by the SCAQMD.

[1] www.aqmd.gov/ceqa/handbook/LST/LST.html.

The nearest sensitive receptors to the project site are the existing residences approximately 2,112 feet away from the north side of the project site. Therefore, using the screening thresholds for a 5 acre site for a receptor at 1,640 feet or 500 meters (m) would be a very conservative approach.

Local air quality LST thresholds are as follows assuming 1,640 feet (or 500 m) to the closest sensitive receptors:

- Construction LST Thresholds, 4 ac, 0.4 mile distance
  - 560 lbs/day of NO_X
  - 24,403 lbs/day of CO
  - 222 lbs/day of PM_{10}
  - 111 lbs/day of $PM_{2.5}$
- Operation LST Thresholds, 5 ac, 0.4 mile distance
  - 584 lbs/day of NO_X
  - 25,558 lbs/day of CO
  - 55 lbs/day of PM_{10}
  - 28 lbs/day of $PM_{2.5}$

4.1.5 Less than Significant Impacts

The following impacts were determined to be less than significant. In each of the following issues, either no impact would occur (therefore, no mitigation would be required) or adherence to established regulations, standards, and policies would reduce impacts to a less than significant level.

4.1.5.1 Air Quality Management Plan Consistency

Threshold	Would the proposed project conflict with or obstruct implementation of the applicable air quality plan?

A consistency determination plays an essential role in local agency project review by linking local planning and unique individual projects to the air quality plans. It fulfills the CEQA goal of fully informing local agency decision-makers of the environmental costs of the project under consideration at a stage early enough to ensure that air quality concerns are addressed. Only new or amended General Plan elements, Specific Plans, and significantly unique projects need to undergo a consistency review due to the air quality plan strategy being based on projections from local General Plans. The SCAQMD has the following consistency criteria:

- **Consistency Criterion No. 1:** The proposed project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay the timely attainment of air quality standards or the interim emissions reductions specified in the AQMP.
- **Consistency Criterion No. 2:** The proposed project will not exceed the assumptions in the AQMP in 2012 or increments based on the year of project build-out phase.

Implementation of the proposed project would result in the development of a new regional shopping center on land located in the western portion of the City designated for such uses. As identified in the City of Irwindale's General Plan, the City designates the entire project site as Commercial/Recreation. As the AQMP is based on the General Plan, and the proposed project is consistent with that General Plan, according to the SCAQMD Consistency Criterion No. 2, the proposed project is consistent with the AQMP.

The proposed uses would not generate more traffic than currently allowed (i.e., commercial) uses; therefore, the proposed project is consistent with the intent of the General Plan Circulation Element of the City, which is consistent with the SCAG Regional Comprehensive Plan (RCP) Guidelines and the SCAQMD AQMP. Therefore, the proposed project is consistent with the General Plan and the regional AQMP.

4.1.5.2 Short-Term Construction-Related Emissions

Threshold	Would the proposed project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable Federal or State ambient air quality standard? For construction operations, the applicable daily thresholds are: • 75 pounds of ROC/VOC; • 100 pounds of NO_X; • 550 pounds of CO; • 150 pounds of PM_{10}; • 55 pounds of $PM_{2.5}$; and • 150 pounds of SO_2.

Construction activities produce combustion emissions from various sources, such as demolition, grading, site preparation, utility engines, tenant improvements, and motor vehicles transporting the construction crew. Exhaust emissions from construction activities envisioned on site would vary daily as construction activity levels change. The use of construction equipment on site would result in localized exhaust emissions. This analysis provides the peak-day construction emissions. Table 4.1.E lists the tentative project construction schedule. Based on the available project information, Tables 4.1.F and 4.1.G summarize the construction-related emissions of the proposed project.

Table 4.1.E: Tentative Project Construction Schedule

Construction Phase Number	Phase Name	Phase Start Date	Phase End Date	Number of Days/Week	Number of Days
1	Demolition	1/1/2015	2/27/2015	5	42
2	Site Preparation	3/2/2015	3/20/2015	5	15
3	Grading	3/23/2015	4/3/2015	5	10
4	Building Construction	4/4/2015	7/5/2018	5	849
5	Architectural Coating	5/2/2016	7/1/2018	5	565
6	Paving	7/6/2018	10/20/2018	5	76

Source: Project Plans (August 2014).

Table 4.1.F: Diesel Construction Equipment Utilized by Construction Phase

Construction Phase	Off-Road Equipment Type	Off-Road Equipment Unit Amount	Hours Used per Day	Horse-power	Load Factor
Demolition	Concrete/Industrial Saws	1	8	81	0.73
	Excavators	3	8	162	0.38
	Rubber Tired Dozers	2	8	255	0.40
Site Preparation	Rubber Tired Dozers	3	8	255	0.40
	Tractors/Loaders/ Backhoes	4	8	97	0.37

Table 4.1.F: Diesel Construction Equipment Utilized by Construction Phase

Construction Phase	Off-Road Equipment Type	Off-Road Equipment Unit Amount	Hours Used per Day	Horse-power	Load Factor
Grading	Excavators	2	8	162	0.38
	Graders	1	8	174	0.41
	Rubber Tired Dozers	1	8	255	0.40
	Scrapers	2	8	361	0.48
	Tractors/Loaders/ Backhoes	2	8	97	0.37
Building Construction	Cranes	1	7	226	0.29
	Forklifts	3	8	89	0.2
	Generator Sets	1	8	84	0.74
	Tractors/Loaders/ Backhoes	3	7	97	0.37
	Welders	1	8	46	0.45
Architectural Coating	Air Compressors	1	6	78	0.48
Paving	Pavers	2	8	125	0.42
	Paving Equipment	2	8	130	0.36
	Rollers	2	8	80	0.38

Source: CalEEMod Defaults.

Table 4.1.G: Short-Term Regional Construction Emissions

Construction Phase	Total Regional Pollutant Emissions (lbs/day)								
	VOC	NO_X	CO	SO_2	Fugitive PM_{10}	Exhaust PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$	CO_2e
Demolition	5.7	66	50	0.082	5.7	2.7	0.99	2.6	8,400
Site Preparation	5.3	57	44	0.042	7.2	3.1	3.9	2.8	4,400
Grading	6.9	79	52	0.065	3.6	3.8	1.5	3.5	6,800
Building Construction	14	83	150	0.28	15	3	4	2.8	26,000
Architectural Coating	30	3.6	16	0.034	2.4	0.22	0.65	0.22	2,900
Paving	2.5	17	15	0.024	0.17	0.94	0.045	0.86	2,400
Peak Daily	**44**	**87**	**170**	**0.31**	**21**		**7.7**		**29,000**
SCAQMD Thresholds	**75**	**100**	**550**	**150**	**150**		**55**		**No Threshold**
Significant Emissions?	**No**	**No**	**No**	**No**	**No**		**No**		

Source: LSA Associates, Inc. (November 2014). Table I
Note: The analysis incorporates all required control measures to reduce PM_{10} and $PM_{2.5}$ emissions from construction.

CO = carbon monoxide
CO_2 = carbon dioxide
CO_{2e} = carbon dioxide equivalent
lbs/day = pounds per day
NO_x = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
SCAQMD = South Coast Air Quality Management District
SO_x = sulfur oxides
VOC = volatile organic compounds

Table 4.1.G lists total construction emissions (i.e., fugitive dust emissions and construction equipment exhausts) that have incorporated a number of feasible control measures that can be reasonably implemented to significantly reduce PM_{10} emissions from construction.

The most recent version of the CalEEMod model (Version 2013.2.2) was used to calculate the construction emissions. The emissions rates shown are from the CalEEMod output tables listed as "Mitigated Construction," even though the only measures that have been applied to the analysis are the required construction emissions control measures, or standard conditions. They are also the combination of the on- and off-site emissions. Since no exceedances of any criteria pollutants are expected, no significant impacts would occur for project construction.

Fugitive Dust. Fugitive dust emissions are generally associated with land clearing and exposure of soils to the air and wind, as well as cut-and-fill grading operations. Dust generated during construction varies substantially on a project-by-project basis, depending on the level of activity, the specific operations, and weather conditions at the time of construction. Construction emissions can vary greatly depending on the level of activity, the specific operations taking place, the equipment being operated, local soils, weather conditions, and other factors. The proposed project will be required to comply with SCAQMD Rules 402 and 403 to control fugitive dust.

Localized Significance Analysis for Construction. The SCAQMD has issued guidance on applying CalEEMod modeling results to local significance threshold (LST) analyses.[1] Sensitive receptors include residences, schools, hospitals, and similar uses that are sensitive to noise and air pollutants. The existing residences nearest to the project site are approximately 0.4 mile north of the project boundary. Table 4.1.H shows that the emissions of the pollutants on the peak day of construction will result in concentrations of pollutants at the nearest residences that are all below the SCAQMD thresholds of significance.

Table 4.1.H: Construction LST Impacts

Emissions Sources	NO_X	CO	PM_{10}	$PM_{2.5}$
Onsite Emissions	79.0	51.0	10.1	6.7
LST Thresholds	**584**	**25,558**	**229**	**116**
Significant Emissions?	**No**	**No**	**No**	**No**

Source: LSA Associates, Inc. (November 2014). Table J.
Note: Source Receptor Area = East San Gabriel Valley, 4 acres, 0.4 mile distance for residents.

CO = carbon monoxide
lbs/day = pounds per day
LST = local significance threshold
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size

4.1.5.3 Long-Term Operational Localized Impacts

Threshold	Would the proposed project exceed SCAQMD localized impacts thresholds?

Table 4.1.I shows the calculated emissions for the proposed operational activities compared with the appropriate SCAQMD localized impacts thresholds. By design, the localized impacts analysis only includes on-site sources; however, the CalEEMod model outputs do not separate on-site and off-site emissions for mobile sources. For a worst-case scenario assessment, the emissions shown in Table 4.1.I include all on-site project-related stationary sources and 5 percent of the project-related new mobile sources, which is an estimate of the amount of project-related new vehicle traffic that will occur on site. A total of 5 percent is considered conservative as the average trip lengths assumed are 16.6 miles for home to work, 8.4 miles for home to shopping, and 6.9 miles for other types of trips. It is unlikely that the average on-site distance driven will be even 1,000 feet, which is approximately 2.2 percent of the total miles traveled. Considering the total trip length included in the CalEEMod model, the 5 percent assumption is conservative.

[1] From the SCAQMD website, www.aqmd.gov/ceqa/handbook/lst/CalEEModguidance.pdf.

Table 4.1.I: Long-Term Operational LST

Emissions Sources	NO_X	CO	PM_{10}	$PM_{2.5}$
On-site Emissions	9.5	39	6.5	1.8
LST Thresholds	**584**	**25,558**	**55**	**28**
Significant Emissions?	**No**	**No**	**No**	**No**

Source: LSA Associates, Inc. (December 2014).

SRA: East San Gabriel Valley, 5 acres, 0.4 mile distance, on-site traffic 5 percent of total.

CO = carbon monoxide
lbs/day = pounds per day
LST = localized significance threshold
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
SRA = State Recreation Area

Table 4.1.I shows that the operational emission rates would not exceed the localized impacts thresholds for receptors at the nearest sensitive receptor, a residence at 0.4 mile distance. Therefore, the proposed operational activity would not result in a localized significant air quality impact. This means that, while the air quality impacts to the overall region would be significant, there would not be any health impacts to local residents from these emissions because of the distance and dispersion in the atmosphere preventing any of these emissions from creating concentrations above the safe levels defined in the ambient air quality standards.

This localized impact analysis is a screening-level Health Risk Assessment (HRA). The LST analysis shows that all pollutant concentrations would be well below the thresholds of significance, no person living near this project would be exposed to unhealthful levels of air pollutants from project operational emissions; therefore, an HRA is not required.

4.1.5.4 Architectural Coating Emissions

Threshold	Would the proposed project violate any air quality standard or contribute substantially to an existing or projected air quality violation? For VOC, the applicable threshold is 75 pounds per day.

Architectural coatings contain reactive organic compounds (ROC) that are similar to Volatile Organic Compounds (VOCs) and are part of the O_3 precursors. Rule 1113 of the SCAQMD deals with the selling and application of architectural coatings. Rule 1113 is applicable to any person who supplies, sells, offers for sale, or manufactures any architectural coating for use in the Basin that is intended to be applied to buildings, pavements, or curbs. This rule is also applicable to any person who applies or solicits the application of any architectural coating within the Basin. Rule 1113 sets limits on the amount of ROC emissions allowed for all types of architectural coatings, along with a time table for tightening the emissions standards in the future. Based on the characteristics of the proposed project, it is estimated that application of the architectural coatings for the proposed peak construction day will result in a combined peak construction day (when building construction will also be occurring) would result in a peak of 44 (14 + 30) lbs/day of VOC as outlined in previously referenced Table 4.3.G. Therefore, these VOC emissions will not exceed the SCAQMD VOC threshold of 75 lbs/day. This impact therefore is less than significant.

4.1.5.5 Long-Term Microscale (CO Hotspot) Impacts

Threshold	Would the proposed project violate any air quality standard or contribute substantially to an existing or projected air quality violation? For CO, the applicable thresholds are: • California State one-hour CO standard of 20.0 ppm; and

• California State eight-hour CO standard of 9.0 ppm.

Typically, high CO concentrations are associated with roadways or intersections operating at unacceptable levels of service or with extremely high traffic volumes. In areas with high ambient background CO concentrations, modeling is recommended, to determine a project's effect on local CO levels. Vehicular trips associated with the proposed project would contribute to traffic levels at intersections and along roadway segments in the project vicinity. Localized air quality impacts would occur when emissions from vehicular traffic increase in local areas as a result of the proposed project. The primary mobile-source pollutant of local concern is CO, which is a direct function of vehicle idling time and, thus, traffic flow conditions. CO transport is extremely limited and disperses rapidly with distance from the source under normal meteorological conditions; however, under certain extreme meteorological conditions, CO concentrations proximate to a congested roadway or intersection may reach unhealthful levels affecting local sensitive receptors (residents, schoolchildren, the elderly, hospital patients, etc). While the entire Basin is in attainment for the State standards for CO, the Basin is designated as "Severe Maintenance" area under the Federal CO standards.

An assessment of project-related impacts on localized ambient air quality requires that future ambient air quality levels be projected. Existing CO concentrations in the immediate project vicinity are not available. Ambient CO levels monitored in the Los Angeles County stations showed a highest recorded 1-hour concentration of 3.1 ppm (State standard is 20 ppm) and a highest 8-hour concentration of 1.7 ppm (State standard is 9 ppm) during the past 3 years (see Table 4.1.C). The highest CO concentrations would normally occur during peak traffic hours; hence, CO impacts calculated under peak traffic conditions represent a worst-case analysis.

Given the extremely low level of CO concentrations in the project area, project-related vehicles are not expected to result in the CO concentrations exceeding the State or Federal CO standards. Because no CO hot spot would occur, there would be no project-related impacts on CO concentrations and no mitigation is required.

4.1.5.6 Odors

Threshold	Would the proposed project create objectionable odors affecting a substantial number of people?

During construction, diesel-powered vehicles and equipment in use on the site would create odors. Additionally, the application of architectural coatings and installation of asphalt may generate odors. These odors are temporary and not likely to be noticeable beyond the project boundaries. Although there will be food establishments on site as a part of the proposed project, this is not significant impact because food odors are generally only noticeable within a few hundred feet of the source of the odor. In addition, the nearest sensitive receptors are the residential neighborhoods to the north which are approximately 0.4 mile from the project site. Any food establishments on the project site would also be required to adhere to AQMD permitting requirements. SCAQMD Rule 402 regarding nuisances 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 proposed uses are not anticipated to emit any objectionable odors. Therefore, objectionable odors posing a health risk to potential on-site and existing off-site uses would not occur as a result of the proposed project.

4.1.6 Potentially Significant Impacts

4.1.6.1 Long-Term Project Operational Emissions

Impact 4.1.6.1: The proposed project would result in cumulatively considerable net increase in VOC, NO_X, and CO criteria pollutants.

Threshold	Would the proposed project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable Federal or State ambient air quality standard? For long-term operations, the applicable daily thresholds are: • 55 pounds of ROC/VOC; • 55 pounds of NO_X; • 550 pounds of CO; • 150 pounds of PM_{10}; • 55 pounds per day of $PM_{2.5}$.; and • 150 pounds of SO_X.

Long-term air pollutant emission impacts are those associated with stationary sources and mobile sources involving any project-related changes. The proposed project would result in net increases in both stationary- and mobile-source emissions. The stationary-source emissions would come from many sources, including the use of consumer products, landscape equipment, general energy, and solid waste. Based on trip generation factors included in the Institute of Transportation Engineers (ITE) *Trip Generation Manual, Ninth Edition,* which are also provided in the traffic study prepared for the proposed project (LSA, October 2014), the project's daily trips were entered in the CalEEMod model. Based on trip generation factors provided in the traffic impact analysis prepared for the proposed project (LSA, October 2014), the project's weekday rate of 17,788 ADT and the weekend (both Saturday and Sunday) rate of 27,408 ADT were entered in the CalEEMod model. Long-term operational emissions associated with the proposed project are shown in Table 4.1.J. Area sources include architectural coatings, consumer products, and landscaping. Energy sources include natural gas consumption for heating. Table 4.1.J shows that the emissions as a result of the proposed project operations would exceed the corresponding SCAQMD daily emission thresholds for VOC, NO_X, and CO, while emissions of SO_X, PM_{10} and $PM_{2.5}$ would all be less than the SCAQMD daily thresholds.

Table 4.1.J: Opening Year Regional Operational Emissions

Source	Pollutant Emissions (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Area Sources	18	0.00072	0.077	0.00001	0.00028	0.00028
Energy Sources	0.029	0.26	0.22	0.0016	0.02	0.02
Mobile Sources	82	190	770	1.9	130	36
Total Project Emissions	**100**	**190**	**770**	**1.9**	**130**	**36**
SCAQMD Thresholds	**55**	**55**	**550**	**150**	**150**	**55**
Significant?	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**

Source: LSA Associates, Inc. (November 2014).

CO = carbon monoxide
CO_2 = carbon dioxide
lbs/day = pounds per day
NO_x = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
SCAQMD = South Coast Air Quality Management District
SO_x = sulfur oxides oxides
VOC = volatile organic compounds

Mitigation Measures. The following measures are considered to be feasible and effective in reducing vehicle trip generation and resulting emissions from the project.

4.1.6.1A Prior to the issuance of building permits, the project applicant shall provide evidence to the City that appropriate transit facilities, including (but not limited to) bus bulbs/turnouts, benches, and shelters have been incorporated into the proposed development. The project applicant shall demonstrate that the number, location, nature, and schedule of installation for any required public transit facility have been coordinated with the local and/or regional public transit entities that service the project area.

The project applicant shall further demonstrate to the City that the stated public transit facilities have been installed prior to the Certificate of Occupancy for any use where the public transit facility is required.

4.1.6.1B Prior to the issuance of building permits, the project applicant shall provide evidence to the City that the project incorporates sidewalks, paths, and/or bicycle/pedestrian connections to adjacent land uses, transit stops, and/or community-wide network(s) sufficient to satisfy City requirements for community connectivity.

The number, location, and nature of any such connectivity feature shall be included in the project plans and specifications.

4.1.6.1C The project applicant shall demonstrate to the City that the number, nature, and location of any bicycle parking area(s) have been established through consultation with the City, local bicycle organizations, and/or through implementation of the bicycle parking standard for a similarly sized project. The project's bicycle parking facilities shall be reviewed and approved by the City prior to the issuance of building permits. Factors that may be considered in the determination of required bicycle parking area(s) include (but shall not be limited to) convenience, security, safety, the adjacency of other bicycle facilities, and anticipated usage.

The number, location, and nature of any bicycle parking feature shall be included in the project plans and specifications.

4.1.6.1D Prior to the issuance of the first Certificate of Occupancy, the project applicant shall prepare and submit to the City for review and approval, a Transportation Demand Management (TDM) Plan that identifies measures to reduce the percentage of individual-driver vehicle trips to the proposed development. The target vehicle trip reduction addressed in the TDM Plan shall be established through discussion with the City. Specific measures included in the plan shall include, but shall not be limited to:

- Installation and maintenance of an appropriate number of public transit facilities;
- Installation and maintenance of an appropriate number of bicycle parking facilities;
- Participation in local and regional employee carpool/ride share matching services;
- Providing preferential parking to carpool/ride share parking; and
- Requirements for on-site employer to provide carpool/ride share/public transit information to employees.

Factors that may be considered in the development of TDM measures include (but shall not be limited to) the proximity of local and regional transit features, the demographics and residency of project site employees, the number of employers participating in TDM Plan measures, and the proximity of pedestrian and bicycle facilities. The TDM Plan shall identify how the specific measures are anticipated to reduce single-occupancy vehicle trips to the project site. On or prior to the anniversary of the issuance of the first Certificate of Occupancy, the project applicant shall submit to the City for review, a report that provides a summary of effectiveness of the TDM Plan measures. Effectiveness may be measured by increases in public transit usage, increased participation in carpool/ride share programs, increased retail visits and a corresponding reduction in parking lot usage, or other reasonable measure. Upon annual review by the City, the project

applicant shall revise the TDM to reflect additional measures to reduce single-occupant vehicle trips to the project site.

4.1.6.1E The project shall include signage at delivery/loading areas that state delivery truck idling shall be limited to two minutes or less.

4.1.6.1F The project applicant shall designate two (2) percent of total parking spaces for electric vehicle parking and charging in preferential locations. These parking and charging locations shall be reviewed and approved by the City prior to the issuance of building permits and shall be included in the plans and specifications for the project.

Level of Impact after Mitigation. The implementation of the stated measures and a comprehensive TDM Plan that includes appropriate incentives for non-auto travel may reduce project impacts by approximately 10 to 15 percent. However, even a reduction of this magnitude would not reduce all emissions to below the SCAQMD significance threshold. There is no mitigation available with currently feasible technology to reduce the project's regional air quality impact to a less than significant level. Therefore, the project's regional air quality impacts would remain significant and unavoidable.

4.1.7 Cumulative Impacts

As stated in Section 15130(b) of the *CEQA Guidelines*, cumulative impacts can either be (1) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects out the control of the agency or (2) A summary of projections contained in a prior adopted or certified environmental document such as an adopted General Plan or related planning document which describes or evaluated regional or area-wide conditions contributing to the cumulative impact. For purposes of analysis, the cumulative area for air quality impacts is the Basin.

The AQMP describes and evaluated regional/area-wide conditions within the Basin and set regional emission significance thresholds for both construction and operation of development projects. The SCAQMD recommends that a project's potential contribution to cumulative impacts should be assessed using the same significance criteria as those for project-specific impacts. This would mean that if a project exceeds the SCAQMD recommended daily regional emission thresholds, the project-specific impacts would also result in a cumulatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment. Therefore, the SCAQMD daily regional emission thresholds are utilized in this cumulative discussion.

The project would temporarily contribute criteria pollutants to the area during project construction. A number of individual projects in the area may be under construction simultaneously with the proposed project. Depending on construction schedules and actual implementation of projects in the area, generation of fugitive dust and pollutant emissions during construction could result in substantial short-term increases in air pollutants. However, each project would be required to comply with the SCAQMD's standard construction measures. The proposed project's short-term construction emissions would not exceed the significance thresholds. Therefore, it will not have a significant short-term cumulative impact.

The project's long-term operational emissions would exceed the SCAQMD's regional criteria pollutant thresholds for VOC, NO_X, and CO. Therefore, the proposed project would potentially result in a significant long-term cumulative impact.

4.2 GEOLOGY AND SOILS

This section describes the project site relative to the known geologic features and soil conditions on and in the vicinity of that site and qualitatively evaluates the potential for those features and conditions to affect the proposed project or be affected by the proposed project. Specifically, this section evaluates whether construction and operation of the proposed project site would be significantly affected by fault rupture, seismic shaking, erosion or unstable slopes, liquefaction, settlement, expansive soils, or other soil or geologic conditions.

The following documents were used to support the analysis of the potential geologic and soils impacts related to the proposed development and are provided in Appendix C of the EIR:

- Preliminary Geotechnical Review Proposed Irwindale Speedway Redevelopment, Shannon & Wilson, May 8, 2013.
- Preliminary Geotechnical Engineering Report, Subsurface Characterization and Preliminary Settlement Proposed Irwindale Outlet Center, Irwindale, California, Shannon & Wilson, Inc., May 20, 2014.
- Preliminary Geotechnical Investigation Irwindale Speedway Site/Former Nu-Way Landfill, Mission Geoscience, Inc., April 7, 1997.
- Report of Geotechnical Investigation Proposed Speedway Facility, Law/Crandall, Inc., March 10, 1998.
- Final Report Geotechnical Inspection Services Speedway Facility, Law/Crandall, Inc., March 19, 1999.
- City of Irwindale 2020 General Plan, Section 5, Resource Management Element, and Section 6, Public Safety Element, adopted June 2008 (City of Irwindale website accessed July 14, 2014, and not provided in Appendix C).

4.2.1 Existing Setting

The City of Irwindale, along with the larger South Coast Basin, is in a seismically active region located at the junction of the Transverse and Peninsular Ranges. These two physiographic provinces experience continuous seismic activity associated with the lateral movement of the North American and Pacific tectonic plates. The San Andreas Fault system, approximately 31 miles north of Irwindale, delineates the boundary where these two plates are joined. The City is within the Peninsular Range Geomorphic Province, one of the major geologic provinces of southern California (California Geologic Survey [CGS] 2002), a 900-mile long northwest-southeast trending structural block that extends from the tip of Baja California to the Transverse Ranges and includes the Los Angeles Basin. This region is characterized by a series of mountain ranges separated by northwest-trending valleys sub-parallel to faults branching from the San Andreas Fault.

The topography of the Irwindale area is a result of historical alluvial fan material deposited by the San Gabriel River. Generally, the Irwindale area slopes approximately 50 feet for every mile to the south. The surface area in the region has been dissected by a braided stream network with local relief of a few feet to a few tens of feet. This pattern of topography was most evident prior to the channelization of the San Gabriel River. Beneath the alluvial deposits, geologic materials consist of Cretaceous to Miocene sedimentary rock (e.g., sandstone, conglomerate, and shale), Cretaceous granitic and related igneous rock, and older metamorphic rock. No basement or bedrock is exposed in the City.[1]

The proposed project site is relatively flat with an approximate elevation of 380 feet above mean sea level (amsl). The site is the former Pacific Rock Quarry, which was backfilled from the mid-1970s to

[1] Irwindale Materials Recovery Facility and Transfer Station Recirculated Draft EIR, City of Irwindale, July 2014.

May 1993 with approximately 200 feet of non-hazardous debris. The description of debris and other fill material that was deposited in the Nu-Way Landfill is anecdotal and indicate the fill material may range from crushed concrete and brick to whole cars and layers of car tires.[1] Materials identified in the April 2014 subsurface exploration included a variety of soil, sands, and gravels; intact, crushed and powdered brick, asphalt, and concrete; and shredded tires.

The existing setting for geology and soils includes faulting and seismicity, soils, and geologic and seismic hazards, follows.

4.2.1.1 Faulting and Seismicity

Pursuant to Public Resources Code Section 2690 *et seq*. Shannon & Wilson, Inc. prepared a geotechnical investigation that analyzed the potential seismic hazards underlying the project site, which are summarized in this section. The project site, like the rest of southern California, is in a seismically active region because it is near the active margin between the North American and Pacific tectonic plates. Principal fault sources that would contribute to ground motion include the Raymond Fault, the Sierra Madre Fault, the Upper Elysian Park Fault, and the Puente Hills (Coyote Hills) Fault.

As shown in Figure 4.2.1, there is one fault in the City (Duarte Fault) and several within ten miles of the City (Elysian Park Fault Zone, Sierra Madre Fault, Whittier/Elsinore Fault, and Clamshell-Sawpit Fault). As detailed in Table 4.2.A, nearby faults could result in earthquakes with maximum credible magnitudes (based on the Richter scale) of 6.0 to 7.2.

Table 4.2.A: Major Active Faults in the Irwindale Region

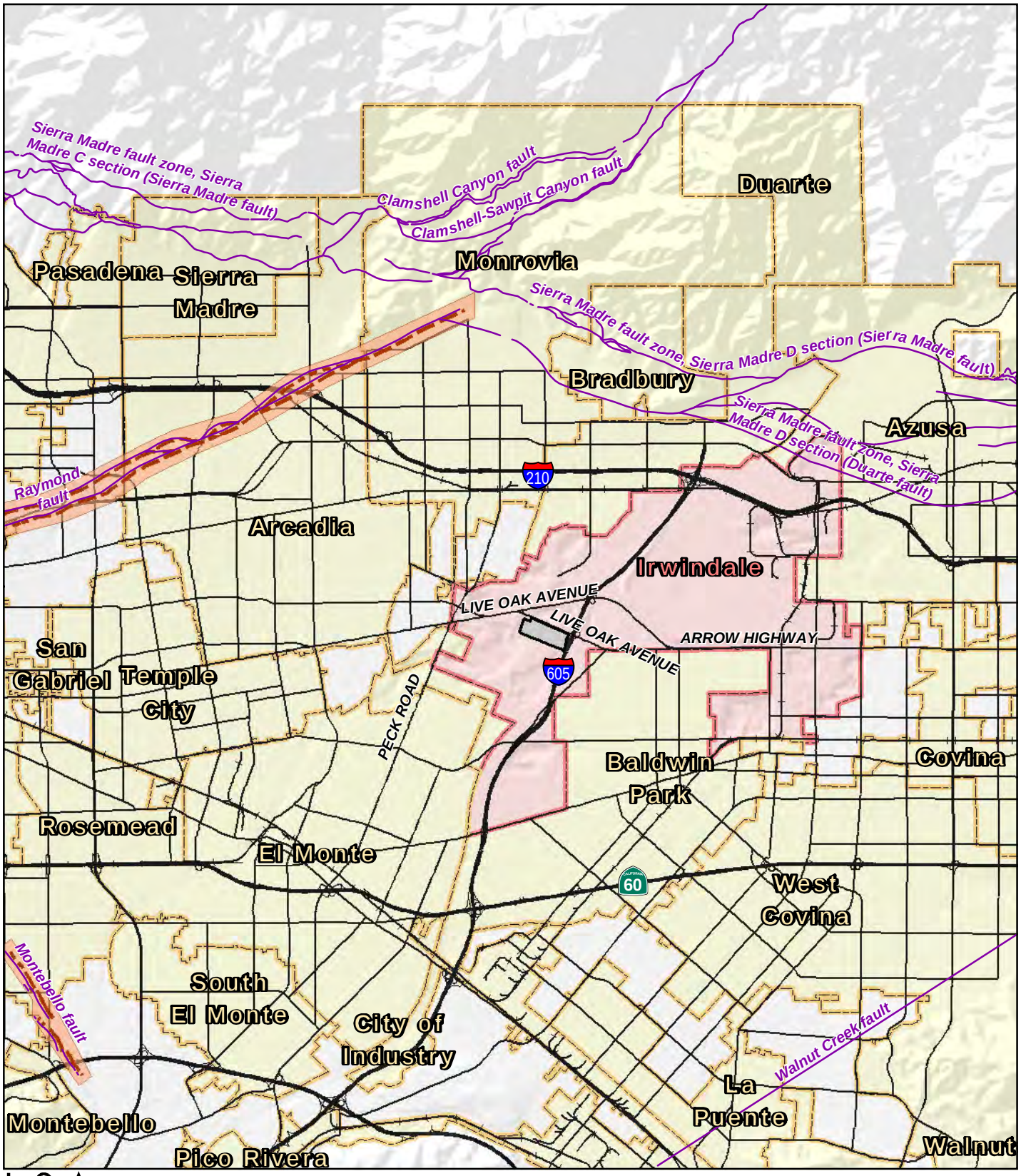
Fault Name	Distance from City	MCR[1]	Faulty Type	Most Recent Activity
Duarte	In the City	7.0	Reverse	n/a
Northridge	29 miles west	6.7	Reverse Oblique	1994
Elysian Park Zone	10 miles northeast	6.9	Blind Thrust Reverse	1987 (Whittier)
Sierra Madre	2 miles north	7.2	Reverse	1971
San Andreas	31 miles northwest	8.0	Strike Slip	1857
Newport-Inglewood	29 miles southwest	7.0	Strike Slip	n/a
Whittier/Elsinore	9 miles south	7.0	Strike Slip	1987
Raymond Hill	3.5 miles northwest	6.0–7.0	Left Lateral	Holocene
Clamshell-Sawpit	3 miles west	n/a	Reverse Thrust	1991

[1] MCR refers to a potential earthquake's maximum credible intensity as measured on the Richter scale.
Source: United States Geological Survey
Source: Table 6-1 Major Active Faults in the Irwindale Region, Public Safety Element, adopted June 2008.

4.2.1.2 Soils

Fill (geologic symbol: af) was deposited at the site during infilling of the Nu-Way Landfill. The fill generally consists of clayey to silty sand with variable amounts of gravel, demolition debris, and shredded tires. During on-site boring, alluvium (geologic symbol Qa) with variable amounts of silt and gravel was encountered below 170 feet to the bottom of the pit. The site's fill was placed in an uncontrolled manner (i.e., non-engineered and without compaction testing). Thin silt or clay layers subdivide the sand and act as barriers to groundwater. Lean clay caps the site at a depth from three to eight feet.

[1] Preliminary Geotechnical Engineering Report, Subsurface Characterization and Preliminary Settlement Proposed Irwindale Outlet Center, Irwindale, California, Shannon & Wilson, Inc., May 20, 2014, page 3.



LSA

FIGURE 4.2.1

Project Boundary
Irwindale
Other Cities
USGS Quaternary Faults, 2011

Alquist-Priolo Zone
Alquist-Priolo Zone
Fault, Inferred
Fault, Approximate
Fault, Certain

N

0 4,000 8,000
FEET

Irwindale Regional Shopping Center
Environmental Impact Report

Earthquake Faults and Alquist-Priolo Zones

SOURCE: Thomas Bros., 2009; USGS Quaternary Faults, 2011; California Geological Survey, 2003; Los Angeles County, 2012.

I:\COI1401\Reports\EIR\fig4-2-1_Faults.mxd (8/27/2014)

THIS PAGE INTENTIONALLY LEFT BLANK

4.2.1.3 Geologic and Seismic Hazards

Existing geologic and seismic hazards that could potentially affect the project site and/or the project structures discussed in this subsection are:

- Surface rupture;
- Ground shaking;
- Liquefaction;
- Subsidence and seismic settlement;
- Landslides/slope stability; and
- Compressible, expansive and collapsible soils.

Surface Rupture. Faults throughout southern California have formed over millions of years. Some of these faults are considered inactive under present geologic conditions, and other faults are known to be active. The Alquist-Priolo Earthquake Fault Zoning Act (A-P Act) identifies Earthquake Fault Zones within the State. The A-P Act defines *active faults* as those that show proven displacement of the ground surface within about the last 11,000 years. *Potentially active faults* are those that show evidence of movement within the last 1.6 million years. Faults that have moved in the relatively recent geological past are generally presumed to be the most likely candidates to generate damaging earthquakes.

Surface rupture refers to the actual tearing apart of the ground surface along a fault trace resulting from an earthquake. While damage from direct surface rupture generally represents a small percentage of total damage during an earthquake, the location of structures or facilities too close to a rupturing fault can cause substantial damage to those structures and facilities. It is difficult to reduce the hazards of surface rupture through structural design. The primary method to avoid this hazard is to either set structures and facilities away from active faults, or avoid their construction in proximity to an active fault. In California, placement of structures on or in proximity to known fault traces is prohibited under the A-P Act.

Ground Shaking. The majority of the damage during an earthquake is caused by ground shaking. The energy created from earthquakes moves out from the epicenter in waves that affect various rock and soil types differently. Source effects are based in part on the earthquake magnitude, the location of the earthquake relative to a project site, and the distance from the earthquake to the project site. The bigger and closer an earthquake is, the more severe the damage can be. The exact way that rocks and other earth materials move along subsurface orientation of the fault can also influence ground shaking. Ground shaking can also cause unconsolidated soils to settle, which can result in substantial damage to structures. The primary threat associated with the faults listed in Table 4.2.A and depicted in Figure 4.2.1 is the intensity of ground shaking that could be generated by those faults.

Liquefaction. Liquefaction occurs primarily in saturated, loose, fine-to-medium-grained soils in areas where the groundwater table is within 50 feet of the surface. Liquefaction occurs when ground shaking causes water-laden, cohesion-less soils to lose strength and behave as a liquid. Excess water pressure is vented upward through fissures and soil cracks, and a water-soil slurry bubbles onto the ground surface. The resulting features are called sand boils, sand blows, or sand volcanoes. Liquefaction-related effects include loss of bearing strength, ground oscillation lateral spreading, and flow failure or slumping, which can adversely affect the structural stability of buildings and other structures. The site's historic high groundwater depth is reported at approximately 70 to 80 feet below ground surface; however, current (2014) groundwater levels at 186 below ground surface were

identified in the project area. While Figure 6-2 of City's General Plan Public Safety Element indicates the project site is not located in an area identified as having liquefaction potential, during recent (2014) geotechnical investigations of the site, free groundwater was encountered at a depth of 194 feet. Perched groundwater table was encountered at a depth of 31 to 33 feet. Because there is potential for shallow groundwater and unconsolidated fill materials on the project site, a potential for on-site liquefaction exists.

Subsidence and Seismic Settlement. Ground subsidence is typically a gradual settling or sinking of the ground surface with little or no horizontal movement, although fissures (cracks and separations) can result from the lowering of the ground surface. Common causes of subsidence that can produce small or local collapses to broad regional subsidence include dewatering of peat or organic soils; dissolution in limestone aquifers; first-time wetting of moisture-deficient, low-density soils (hydrocompaction); natural compaction; liquefaction; crustal deformation; ground shaking; subterranean mining; and withdrawal of fluids (groundwater, petroleum, or geothermal).

Most of the damage caused by subsidence is the result of oil, gas, or groundwater extraction from below the ground surface, or the organic decomposition of peat deposits. Ground subsidence may occur as a response to natural forces such as earthquake movements, which can cause abrupt elevation changes of several feet or densification of low density granular soils during an earthquake event that may cause several inches of settlement. The preliminary geotechnical investigation determined that the site would likely experience settlement resulting from seismic and static (non-seismic) conditions.

Landslides/Slope Stability. Factors that contribute to slope failure include slope height and steepness, shear strength and orientation of weak layers in the underlying geologic units, and pore water pressures. The proposed project site is relatively flat with an approximate elevation of 380 feet amsl. There are no known landslides on or in the vicinity of the project site.

Compressible, Expansive, and Collapsible Soils. Expansive soils generally have a substantial amount of clay particles that can give up water (shrink) or take on water (swell). The change in volume exerts stress on buildings and other loads placed on these soils. The extent of shrink/swell is influenced by the amount and kind of clay in the soil. The occurrence of these soils is often associated with geologic units having marginal stability. The soils within the project site are expected to have a low expansive potential.

Hydroconsolidation, or soil collapse, typically occurs in recently deposited Holocene (less than 10,000 years before present time) soils that were deposited in a dry environment. Soils prone to collapse are commonly associated with man-made fill, wind-laid sands and silts, and alluvial fan and mudflow sediments deposited during flash floods. Particles of these soils, which typically contain minute pores and voids, may be partially supported by clay or silt, or chemically cemented with carbonates. When saturated, collapsible soils undergo a rearrangement of their grains and the water removes the cohesive (or cementing) material, and a rapid, substantial settlement may occur. An increase in surface water infiltration (such as from irrigation) or a rise in the groundwater table, combined with the weight of a building or structure, may initiate settlement, causing foundations and walls to crack.

4.2.1.4 NOP/Scoping Comments

No agencies or members of the general public expressed any concerns regarding geology and soils during the scoping meeting or during the NOP period.

4.2.2 Policies and Regulations

4.2.2.1 State Regulations

Alquist-Priolo Earthquake Fault Zoning Act. The major State legislation regarding earthquake fault zones is the Alquist-Priolo Earthquake Fault Zoning Act. The State has delineated Earthquake Fault Zones around and along faults that are sufficiently active and well defined to reduce fault-rupture risks to structures for human occupancy (California Public Resources Code Sections 2621–2630). The boundary of an Earthquake Fault Zone is generally defined as 500 feet from major active faults and from 200 to 300 feet from well-defined minor faults. The mapping of active faults has been completed by the State Geologist, and these maps are distributed to all affected cities, counties, and State agencies for their use in developing planning policies and controlling renovation or new construction. The A-P Act was most recently updated in 2007.

Before a project can be permitted within an identified Earthquake Fault Zone, local jurisdictions must require a geologic investigation to demonstrate that proposed buildings will not be constructed across active faults. A site-specific evaluation and written report must be prepared by a licensed geologist. If an active fault is identified, a structure intended for human occupancy cannot be placed over the trace of the fault and must be set back from the fault. The project site is not in a designated Earthquake Fault Zone.

The A-P Act addresses only the hazard of surface fault rupture and does not address other earthquake or seismic hazards.

Seismic Hazards Mapping Act. The 1990 Seismic Hazards Mapping Act (SHMA) addresses non-surface fault rupture earthquake hazards, including strong ground shaking, liquefaction, and seismically induced landslides. The CGS is the principal State agency charged with implementing the SHMA. Pursuant to the SHMA, the CGS is specifically directed to provide local governments with seismic hazard zone maps that identify areas susceptible to amplified shaking, liquefaction, earthquake-induced landslides, and other ground failures. The goal is to minimize loss of life and property by identifying and mitigating seismic hazards. The seismic hazard zones delineated by the CGS are referred to as zones of required investigation. Site-specific geotechnical hazard investigations are required by SHMA when construction projects would fall within designated zones of required investigation.

California Building Code. The California Building Code (CBC) specifies the acceptable design and construction requirements for various structures and facilities. The CBC provides the specific criteria for open excavation, seismic design, and other construction actions in the State. The CBC supplements the provisions in the Uniform Building Code (UBC), providing specific changes relative to conditions and requirements in the State. The seismic requirements detailed in the CBC are more stringent than those of the UBC.

4.2.2.2 City of Irwindale General Plan Policies

The City's 2020 General Plan Public Safety Element includes the following safety policy related to geologic and seismic hazards:

> *"Safety Element Policy 3.* The City of Irwindale will work to reduce potential hazards through conscientious land use planning. The City shall require liquefaction assessment studies as part of development proposals in areas identified by the California Geological Survey as susceptible to liquefaction. The studies shall be conducted in accordance with the California Geological Survey's Special Publication 117; Guidelines for Evaluating and Mitigating Seismic Hazards in California, and the Southern California Earthquake Center's (1999) procedures to implement

Special Publication 117 – Liquefaction Hazards (both documents are incorporated herein by reference [into the General Plan Public Safety Element). On sites shown to be susceptible to liquefaction, the City shall require the implementation of mitigation measures designed to reduce this hazard to an acceptable level. The City shall require a State-certified engineering geologist or registered civil engineer; have competence in the field of seismic hazard evaluation and mitigation, to review the study at the Applicant's expense. The review shall determine the adequacy of the hazard evaluation and proposed mitigation measures and determine whether the requirements of State law are satisfied, as described in Special Publication 117 by the California Geological Survey." (2020 General Plan Public Safety Element, pages 143-144.)

This Safety Element Policy is applicable to the proposed project. As mandated by the Public Safety Element, the following reports have been prepared to address site-specific geotechnical issues:

- *Preliminary Geotechnical Engineering Report, Subsurface Characterization and Preliminary Settlement Proposed Irwindale Outlet Center, Irwindale, California*, Shannon & Wilson, Inc., May 20, 2014.
- *Preliminary Geotechnical Review Proposed Irwindale Speedway Redevelopment Irwindale, California*, Shannon & Wilson, Inc., May 8, 2013.

To ensure consistency with this policy, these and subsequent reports have been (or will be) submitted to the City for review and approval.

4.2.2.3 County of Los Angeles/City of Irwindale Building Code

The County of Los Angeles has adopted the CBC. The City, with minor exceptions, has adopted the County's Code as its own Building Code (Irwindale Municipal Code 15.04.010 - Adoption of code). Chapter 15 of the Irwindale Municipal Code defines the City's Building and Construction Code. Section 15.4.010 states:

A. There is hereby adopted, as the city building code, except as provided in this chapter, that certain building code known and designated as the Los Angeles County Building Code, 2011 Edition (Title 26 of the Los Angeles County Code), which incorporates and amends the 2010 California Building Code, including all appendixes thereto and changes made by the county of Los Angeles and by the city of Irwindale, and such code shall be and become the building code of the city, regulating and controlling the design, construction, quality of materials, grading, use, occupancy, location and maintenance of all buildings or structures and prescribing conditions under which such work may be carried on within the city and providing for the issuance of permits and the collection of fees therefor.

B. Los Angeles County Ordinance No. 2010-0053, as adopted by county of Los Angeles, is adopted in its entirety, with City's Amendments to Appendix "J."

Section 111 of the Los Angeles County Code states:

"The Building Official may require an engineering geology or soils engineering report, or both, where in the Building Official's opinion, such reports are essential for the evaluation of the safety of the site. The engineering geology or soils engineering report or both shall contain a finding regarding the safety of the site of the proposed work against hazard from landslide, settlement or slippage and a finding regarding the effect that the proposed work will have on the geotechnical stability of the area outside of the proposed work. Any engineering geology report shall be prepared by a certified engineering geologist licensed in the State of California. Any soils engineering report shall be prepared by a civil engineer licensed in the State of California, experienced in the field of soil mechanics, or a geotechnical engineer licensed in the State of California. When both an engineering geology and soils engineering report are required for the

evaluation of the safety of a building site, the two reports shall be coordinated before submission to the Building Official."

4.2.3 Methodology

The analyses of potential geologic and soil-related impacts in this section are based on the preliminary site specific geotechnical studies prepared by Shannon & Wilson, Inc. (2013 and 2014.), previously prepared geotechnical investigations of the site, and the City's 2020 General Plan Public Safety Element In determining the level of significance of project effects related to geology and soils, the analyses assume that construction and operation of the proposed project would comply with relevant federal and State laws and regulations, the applicable City 2020 General Plan policy, the California Building Code, and/or the City/County Building Code.

4.2.4 Thresholds of Significance

The following thresholds of significance regarding potential impacts to geology and soils are based on Appendix G of the *CEQA Guidelines* (2014). A project would have a significant impact related to geology and soils if it would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zone Maps issued by the State Geologist for the area or based on other substantial evidence of a known fault.
  - Strong seismic ground shaking.
  - Seismic-related ground failure, including liquefaction.
  - Landslides.
- Result in substantial soil erosion or the loss of topsoil;
- 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-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994 or most current edition), creating substantial risks to life or property; and/or
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

4.2.5 Less than Significant Impacts

The following impacts of the proposed project were determined to be less than significant. For each of the following issues, either no impact would occur and, therefore, no mitigation would be required, or adherence to established regulations, standards, and policies would reduce potential impacts to a less than significant level.

4.2.5.1 Fault Rupture

Threshold	Would the proposed project expose persons or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zone Maps issued

	by the State Geologist for the area or based on other substantial evidence of a known fault?

The faults listed in previously referenced Table 4.2.A are each more than one mile from the project site. No Alquist-Priolo Earthquake Fault Zones are located in the City. In the absence of any on-site fault and Alquist-Priolo Earthquake Fault Zones, no impact related to on-site fault rupture would occur. No mitigation is required.

4.2.5.2 Ground Shaking

Threshold	Would the proposed project expose persons or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong ground shaking?

Southern California is a seismically active area and continues to be subject to ground shaking resulting from activity on regional faults. Ground shaking from earthquakes associated with nearby and more distant faults is expected to occur during the lifetime of the project. The level of potential ground motion is considered moderate to high in the City, including at the project site.

Peak ground acceleration (PGA) is a measure of earthquake acceleration on the ground. The peak ground acceleration expected to occur on-site is 0.73g (equivalent to 0.73 times the acceleration of gravity. Design and construction of the proposed project in accordance with the current California Building Code (CBC), and City/County of Los Angeles requirements is anticipated to appropriately address potential impacts associated with ground shaking. Adherence to these requirements is required of all development in the City; therefore, no significant ground shaking impact would occur and no mitigation is required.

4.2.5.3 Landslides

Threshold	Would the proposed project expose persons or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

The project site is located on the former Pacific Rock Quarry, which was backfilled from the mid-1970s to May 1993 with approximately 200 feet of debris. The site is relatively flat. Current on-site development consists of the Irwindale Speedway, parking areas, and Speedway associated features. Due to the absence of significant slopes within the project limits, no landslide hazard would occur; therefore, no mitigation is required.

4.2.5.4 Soil Erosion or Loss of Topsoil

Threshold	Would the proposed project result in substantial soil erosion or the loss of topsoil?

The proposed project includes the removal of existing on-site structures, grading of the approximately 63.5-acre site and the construction and operation of the proposed retail and parking uses, interior roadways, sidewalks, landscaping, and underground utilities. During construction activities, the placement and/or movement of soils will create the potential for erosion. Prior to the issuance of grading permits, the project proponent will be required to prepare and submit detailed grading plans as each phase is developed. These plans will be prepared in conformance with applicable standards of the City. Construction of the project would result in the disturbance of more than one acre of land. Therefore, the project would be required to obtain a National Pollutant Discharge Elimination System (NPDES) permit. A Storm Water Pollution Prevention Plan (SWPPP) will also be required to address erosion and discharge impacts associated with the grading on the project site. Compliance with storm

water regulations include minimizing storm water contact with potential pollutants by providing covers and secondary containment for construction materials, designating areas away from storm drain systems for storing equipment and materials, and implementing good housekeeping practices at the construction site.

Measures included in the SWPPP to reduce potential soil erosion impacts during project-related construction activities include (but shall not be limited to):

- Protect all storm drain inlets and streams located near the construction site to prevent sediment-laden water from entering the storm drain system.
- Prevent erosion by implementing one or more of the following soil stabilization practices: mulching, surface roughening, and/or permanent and/or temporary seeding.
- Limit vehicular access to and from the site. Stabilize construction entrances/exits to minimize the track out of dirt and mud onto adjacent streets. Conduct frequent street sweeping.
- Protect stockpiles and construction materials from winds and rain by storing them under a roof, secured impermeable tarp or plastic sheeting.
- Avoid storing or stockpiling materials near storm drain inlets, gullies, or streams.
- Phase grading operations to limit disturbed areas and duration of exposure.
- Perform major maintenance and repairs of vehicles and equipment off site.
- Wash out concrete mixers only in designated washout areas at the construction site.
- Set-up and operate small concrete mixers on tarps or heavy plastic drop cloths.
- Keep construction sites clean by removing trash, debris, wastes, etc. on a regular basis.
- Clean up spills immediately using dry clean-up methods (e.g., absorbent materials such as cat litter, sand or rags for liquid spills; sweeping for dry spills such as cement, mortar or fertilizer) and removing the contaminated soil from spills on dirt areas.
- Maintain all vehicles and equipment in good working condition. Inspect frequently for leaks, and repair all leaks promptly.
- Cover open dumpsters with secured tarps or plastic sheeting. Clean out dumpsters only in approved locations on the construction site.
- Arrange for an adequate debris disposal schedule to ensure that dumpsters do not overflow.

A preliminary Standard Stormwater Mitigation Plan (SUSMP) was prepared for the project site and is included in Appendix E. The preliminary SUSMP contains the following post-construction measures, which will help reduce potential erosion and storm water impacts by treating and/or limiting the entry of contaminants into the storm drain system:

- Installation of roof-filter drains;
- Installation of catch drain filters at each on-site catch drain, and where appropriate, all curb inlets; and
- Installation of two infiltration trenches allowing for the retention and infiltration of storm water runoff into the underlying soils and groundwater table.

The SUSMP will be included in the project's SWPPP as the Post-Construction Management Plan.

The project would be required to obtain an NPDES Permit, including the preparation of an SWPPP and an SUSMP. Adherence to the provisions and measures detailed in these plans will reduce the

potential construction and operational erosion impacts to a less than significant level; therefore, no further mitigation is required.

4.2.5.5 Septic Tanks

Threshold	Would the proposed project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

All proposed on-site structures will be connected to the existing wastewater (sewer) facilities, which are owned and maintained by the City. The proposed project does not include the installation of septic systems; therefore, no project-related impact would occur and no mitigation is necessary.

4.2.6 Potentially Significant Impacts

4.2.6.1 Seismic-Related Ground Failure and Liquefaction

Threshold	Would the proposed project expose persons or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic ground failure? Would the proposed project expose persons or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving liquefaction?

Seismic settlement may originate from seismic compression or liquefaction. The proposed project entails the construction and operation of an approximately 700,000-square foot shopping center with associated parking on the approximately 63.5-acre site. The project site is located within Seismic Zone 4 as defined by the UBC. The project site is located on the former Pacific Rock Quarry, which was backfilled from the mid-1970s to May 1993 with approximately 200 feet of debris. During the geotechnical investigations of the site, free groundwater was encountered at a depth of 194 feet. A perched[1] groundwater table was encountered at a depth of 31 to 33 feet. While not located in a mapped liquefaction hazard zone, the presence of high (albeit perched) groundwater, increases the potential for on-site liquefaction. Estimated settlement due to liquefaction will range from one to two inches.

Settlement generally occurs in areas of loose, granular soils with relatively low density. While the proposed project does not include any activity known to cause subsidence (e.g., oil, gas, or groundwater extraction), the existing on-site fill materials have been identified as being compressible and have a potential for hydro-collapse. Depending on the properties of soils, the consolidation settlement of on-site materials may occur over months or years. The magnitude and duration of settlement depends on soil plasticity, stress history, and permeability. The preliminary geotechnical investigation concluded the site would experience settlement of between seven to twelve inches during a peak seismic event (with the modeled PGA of 0.73g). Under static (non-seismic) conditions, settlement of between six to eight inches is anticipated.

The site's historic high groundwater depth is reported at approximately 70 to 80 feet below ground surface; however, current (2014) groundwater levels at 186 below ground surface were identified in the project area. While Figure 6-2 of City's General Plan Public Safety Element indicates the project site is not located in an area identified as having liquefaction potential, during recent (2014) geotechnical investigations of the site, free groundwater was encountered at a depth of 194 feet. Perched groundwater table was encountered at a depth of 31 to 33 feet. Because there is potential

[1] A perched water table occurs above the regional water table. This occurs when there is an impermeable layer of rock or sediment or relatively impermeable layer above the primarily water table, but below ground level.

for shallow groundwater and unconsolidated fill materials on the project site, a potential for on-site liquefaction exists and mitigation is required.

Project Design Features. The grading/soil work for the site and the construction of on-site structures and facilities may require the incorporation of site-specific project design features (PDFs) and/or practices identified in subsequent geotechnical investigations. The PDFs/practices identified in any such geotechnical/soils assessment may include, but shall not be limited to:

- *Surcharge fill:* The placement of material of a quantity greater than that required to induce stresses corresponding to structure-induced stresses. This process, following and/or in tandem with required soil improvement standards, can cause a given amount of settlement in shorter time than can the preloading fill alone. Thus, through the use of surcharge fills, the time required for preloading can be reduced significantly.[1]
- *Deep dynamic compaction:* A method that is used to increase the density of the soil when certain subsurface constraints make other methods inappropriate. It is a method that is used to increase the density of soil deposits. The process involves of dropping a heavy weight repeatedly on the ground at regularly spaced intervals. The weight and the height determine the amount of compaction that would occur.[2]
- *Geopiers:* A geopier system is a ground improvement method that prestrains and prestresses soil using soil "replacement" and soil "displacement" technology to strengthen soft and loose soil with very dense, stiff rock columns constructed by heavy equipment, crowd force and vertical impact ramming.[3]
- *Deep soil mixing:* A soil improvement technology used to treat soils in situ to improve strength and reduce compressibility. The process involves deep soil mixing of grout or binder with the soil to create cemented or improved soil. The wet method is where the binder is introduced in slurry form, as opposed to the dry method where the binder is introduced with air. With wet mixing, the most commonly used binder is cement.[4]
- *Densification:* The general process of improving on-site soils to reduce liquefaction hazards. As detailed, this process can be achieved through the various means[5].
- *Other ground improvement methods:* Other methods to prepare the on-site soils for the proposed development may be determined through detailed pre-construction geotechnical and/or engineering analysis.

Unless subsequent geotechnical, soils, and engineering studies are conducted to identify site-specific PDFs and the appropriate PDFs in any such studies are implemented, there is a potential that seismic-induced ground failure and liquefaction affecting structures and/or persons could occur during the occupation of the proposed on-site uses. This is a potentially significant impact requiring mitigation.

Mitigation Measures. Mitigation is required to identify and implement the site-specific geotechnical/ soils/engineering requirements for the proposed project. The following measures have incorporated the recommendations of previously prepared geotechnical investigations and have been identified to reduce potential soil-related hazards or conditions related to the proposed project:

4.2.6.1A Prior to the issuance of a building permit, the developer shall submit supplemental geotechnical/soils assessment(s) to the City of Irwindale for review and approval. The

[1] http://buildingcriteria1.tpub.com/ufc_3_220_01n/ufc_3_220_01n0127.htm, site accessed October 26, 2014.
[2] http://en.wikipedia.org/wiki/Dynamic_compaction, site accessed October 24, 2014.
[3] http://www.farrellinc.com/what-is-a-geopier.htm, site accessed October 24, 2014.
[4] http://www.deepsoilmixing.com/sites/deepsoilmixing/techoverview.aspx, site accessed October 26, 2014.
[5] http://www.ce.washington.edu/~liquefaction/html/how/soilimprovement.html, site accessed October 26, 2014.

assessment(s) shall address the potential for differential settlement and other on-site geologic/soil conditions including liquefaction and expansive soils, and shall identify site-specific grading techniques; required soil improvement efforts/methodology; foundation, utility, and storm drain design requirements; and building specifications to reduce the potential for differential settlement and other geotechnical hazards to levels within those specified in the California Green Building Code and/or other applicable Code(s).

4.2.6.1B Prior to the commencement of any on-site construction or earthmoving activity, the developer shall submit to the City of Irwindale for review and approval evidence that the specific grading techniques, foundation/utility/storm drain design, and building specifications detailed in any supplemental geotechnical/soil investigation required under **Mitigation Measure 4.2.6.1A,** have been appropriately incorporated into the project's construction documents.

Level of Significance after Mitigation. The project design features (PDFs) required for the proposed on-site development will be identified through the preparation, review, and appropriate approval of the geotechnical, soils assessment, and engineering specifications required under **Mitigation Measure 4.2.6.1A.** Through adherence with **Mitigation Measure 4.2.6.1B,** development of the proposed on-site structures and facilities will be required to adhere to the design specifications identified in the site-specific supplementary geotechnical investigation, as well as the applicable provisions of City, County, and State building codes; therefore, impacts associated with on-site settlement and other potential geotechnical issues will be reduced to a less than significant level.

4.2.6.2 Expansive Soils

Threshold	Would the proposed project be located on expansive soil, creating substantial risks to life or property?

As previously identified, expansive soils generally have a substantial amount of clay particles, which can give up water (shrink) or absorb water (swell). The change in the volume exerts stress on buildings and other loads placed on these soils. The extent or range of the shrink/swell is influenced by the amount and kind of clay present in the soil. Based on the preliminary geotechnical investigation of the project site, soil descriptions of the artificial fill in the first 25 feet of the on-site boring included: silty-sand, sandy lean clay, lean clay with sand, clayey sand, and silty sand with gravel. The presence of clay in the boring column may indicate an on-site potential for impacts related to expansive soils. Subsequent geotechnical investigation(s) and the incorporation of appropriate construction and building design features/requirements (as established in **Mitigation Measures 4.2.6.1A** and **4.2.6.1B**) will ensure that no significant impact will occur.

Level of Significance after Mitigation. Adherence to the design specifications identified in the site-specific supplementary geotechnical investigation, as well as the applicable provisions of City, County, and State building codes, impacts of expansive soils will be reduced to a less than significant level.

4.2.7 Cumulative Impacts

Because of the widespread nature of geologic features and seismic events, the cumulative area for geologic issues is the City, the San Gabriel Valley, and the larger southern California region. The entire southern California region contains a number of major regional and local faults (previously identified in Table 4.2.A and Figure 4.2.1) and their presence creates the potential for damage to structures or injury to persons during seismic events. However, City, County, and State regulations provide guidelines for development in areas with geologic constraints. Development per these

regulations ensures the incorporation of design requirement and/or features in accordance with the CBC and other applicable standards, which will, in turn, reduce potential property damage and human safety risks to less than significant levels.

The proposed project represents only an incremental part of this potential development in the region. It is reasonable to conclude that all development in seismically active areas or in areas of potential geologic hazard will be required to adhere to applicable State regulations, the CBC, and the design and siting standards required by local agencies. As design and engineering requirements are implemented based on required and available geotechnical data, and will be appropriately mitigated to address site-specific issues, development in the City and the surrounding areas will not have a cumulatively considerable impact relative to regional geotechnical constraints.

THIS PAGE INTENTIONALLY LEFT BLANK

4.3 GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

This section provides a discussion of global climate change, existing regulations pertaining to global climate change, and an analysis of greenhouse gas (GHG) emissions associated with the proposed project. This analysis examines the short-term construction and long-term operational impacts and evaluates the effectiveness of measures incorporated as part of the project design.

This section analyzes the proposed project's potential climate impacts based on the following technical study:

- *Air Quality and Greenhouse Gas Emissions Analysis,* LSA Associates, Inc., December 2014 (Appendix B).

4.3.1 Existing Setting

4.3.1.1 Global Climate Change

Global climate change is the change in average meteorological conditions on the earth with respect to temperature, precipitation, and storms. The term "global climate change" is often used interchangeably with the term "global warming," but "global climate change" is preferred by some scientists and policy makers to "global warming" because it helps convey the notion that there are other changes in addition to rising temperatures.

Climate change refers to any significant change in measures of climate such as temperature, precipitation, or wind, lasting for decades or longer (U.S. Environmental Protection Agency [EPA], 2007). Climate change may result from:

- Natural factors, such as changes in the sun's intensity or slow changes in the Earth's orbit around the sun;
- Natural processes within the climate system (e.g., changes in ocean circulation); and/or
- Human activities that change the atmosphere's composition (e.g., through burning fossil fuels) and the land surface (e.g., deforestation, reforestation, urbanization, and desertification).

The primary observed effect of global climate change has been a rise in the average global tropospheric[1] temperature of 0.36 degree Fahrenheit (°F) per decade, determined from meteorological measurements worldwide between 1990 and 2005. Climate change modeling shows that further warming could occur, which would induce additional changes in the global climate system during the current century. Changes to the global climate system, ecosystems, and the environment of California could include higher sea levels, drier or wetter weather, changes in ocean salinity, changes in wind patterns or more energetic aspects of extreme weather, including droughts, heavy precipitation, heat waves, extreme cold and increased intensity of tropical cyclones (hurricanes). Specific effects in California might include a decline in the Sierra Nevada snowpack, erosion of California's coastline, and seawater intrusion in the Delta.

Human activities, such as fossil fuel combustion and land use changes release carbon dioxide (CO_2) and other compounds, cumulatively termed greenhouse gases (GHGs). GHGs are effective in trapping infrared radiation that otherwise would have escaped the atmosphere, thereby warming the atmosphere, the oceans, and earth's surface (EPA, 2007). Many scientists believe that "most of the

[1] The troposphere is the zone of the atmosphere characterized by water vapor, weather, winds, and decreasing temperature with increasing altitude.

warming observed over the last 50 years is attributable to human activities."[1] The increased amounts of CO_2 and other GHGs are alleged to be the primary causes of the human-induced component of warming.

GHGs are present in the atmosphere naturally, released by natural sources, or formed from secondary reactions taking place in the atmosphere. They include CO_2, methane (CH_4), nitrous oxide (N_2O), and ozone (O_3). In the last 200 years, substantial quantities of GHGs have been released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere, enhancing the natural greenhouse effect, which is believed to be causing global climate change. While human-made GHGs include CO_2, CH_4, and N_2O, some (like chlorofluorocarbons [CFCs]) are completely new to the atmosphere.

GHGs vary considerably in terms of Global Warming Potential (GWP), which is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The global warming potential is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time that the gas remains in the atmosphere ("atmospheric lifetime"). The GWP of each gas is measured relative to CO_2, the most abundant GHG. The definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO_2 over a specified time period. GHG emissions are typically measured in terms of pounds or tons of "CO_2 equivalents" (CO_2e).

Natural sources of CO_2 include the respiration (breathing) of humans and animals and evaporation from the oceans. Together, these natural sources release approximately 150 billion metric tons[2] of CO_2 each year, far outweighing the 7 billion metric tons of human-made emissions from fossil fuel burning, waste incineration, deforestation, and cement manufacture. Nevertheless, natural removal processes such as photosynthesis by land- and ocean-dwelling plant species cannot keep pace with this extra input of human-made CO_2, and consequently the gas is building up in the atmosphere.[3]

Methane is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources include wetlands, termites, and oceans. Human-made sources include the mining and burning of fossil fuels; digestive processes in ruminant animals such as cattle; rice paddies; and the burying of waste in landfills. Total annual emissions of CH_4 are approximately 500 million metric tons, with human-made emissions accounting for the majority. As for CO_2, the major removal process of atmospheric CH_4—chemical breakdown in the atmosphere—cannot keep pace with source emissions, and CH_4 concentrations in the atmosphere are increasing.

4.3.1.2 Greenhouse Gases

The most common greenhouse gases include water vapor, carbon dioxide, methane, nitrous oxides, chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, ozone, and aerosols. Greenhouse gases defined by Assembly Bill (AB) 32 include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

Natural processes and human activities emit greenhouse gases. The presence of greenhouse gases in the atmosphere affects the earth's temperature. Many scientists believe that emissions from human activities, such as electricity production and vehicle use, have led to elevated concentrations of these gases in the atmosphere beyond the level of naturally occurring concentrations. Table 4.3.A lists greenhouse gases, the effects of each greenhouse gas, and sources for each of the greenhouse gases.

---

1 Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007: The Physical Science Basis*, http://www.ipcc.ch.
2 A tonne is a ton in the metric unit system, also called a metric ton, equal to 1,000 kilograms or about 2,204 pounds.
3 Enviropedia, http://www.enviropedia.org.uk/Global_Warming/Emissions.php.

Table 4.3.A: Greenhouse Gas Properties, Effects, and Sources

Constituent	Description and Physical Properties	Health Effects	Sources
Water Vapor	Water vapor (H_2O) is the most abundant, important, and variable greenhouse gas in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered to be a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization.	There are no health effects from water vapor. When some pollutants come in contact with water vapor, they can dissolve and then the water vapor can be a transport mechanism to enter the human body.	The main source of water vapor is evaporation from the oceans (approximately 85%). Other sources include evaporation from other water bodies, sublimation (change from solid to gas) from sea ice and snow, and transpiration from plant leaves.
Carbon Dioxide	Carbon dioxide (CO_2) is an odorless, colorless natural greenhouse gas.	Outdoor levels of carbon dioxide are not high enough to result in negative health effects.	Carbon dioxide is emitted from natural and anthropocentric (human) sources. Natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic out gassing. Anthropogenic sources are from burning coal, oil, natural gas, and wood.
Methane	Methane (CH_4) is an extremely effective absorber of radiation, though its atmospheric concentration is less than carbon dioxide and its lifetime in the atmosphere is brief (10–12 years) compared to other greenhouse gases.	There are no health effects from methane.	Methane has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of methane. Other anthropocentric sources include fossil-fuel combustion and biomass burning.
Nitrous Oxide	Nitrous oxide (N_2O), also known as laughing gas, is a colorless greenhouse gas.	Nitrous oxide can cause dizziness, euphoria, and sometimes slight hallucinations. In small doses it is harmless. In some cases, heavy and extended use can cause Olney's Lesions (brain damage).	Concentrations of nitrous oxide also began to rise at the beginning of the Industrial Revolution. In 1998, the global concentration was 314 ppb. Nitrous oxide is produced by microbial processes in soil and water, including those reactions that occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used as an aerosol spray propellant, e.g., in whipped cream bottles. It is also used in potato chip bags to keep chips fresh. It is used in rocket engines and in race cars.
Chloro-fluorocarbons	Chlorofluorocarbons (CFCs) are gases formed synthetically by replacing all hydrogen atoms in methane or ethane (C_2H_6) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface).	In confirmed indoor locations, working with CFC-113 or other CFCs is thought to have resulted in death by cardiac arrhythmia (heart frequency too high or too low) or asphyxiation.	CFCs have no natural source, but were first synthesized in 1928. They were used for refrigerants, aerosol propellants, and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and was extremely successful, so much so that levels of the major CFCs are now remaining level or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.
Hydro-fluorocarbons	Hydrofluorocarbons (HFCs) are synthetic man-made chemicals that are used as a substitute for CFCs. Out of all the greenhouse gases, they are one of three groups with the highest global warming potential. Prior to 1990, the only significant emissions were HFC-23. HFC-134a use is increasing due to its use as a refrigerant.	None.	HFCs are man-made for applications such as automobile air conditioners and refrigerants.
Per-fluorocarbons	Perfluorocarbons (PFCs) have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF_4) and hexafluoroethane (C_2F_6).	None.	The two main sources of PFCs are primary aluminum production and semiconductor manufacture.
Sulfur Hexafluoride	Sulfur hexafluoride (SF_6) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It also has the highest GWP of any gas evaluated, 23,900. Concentrations in the 1990s were about 4 ppt.	In high concentrations in confined areas, the gas presents the hazard of suffocation because it displaces the oxygen needed for breathing.	Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.
Aerosols	Aerosols are particles emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light. Cloud formation can also be affected by aerosols.	Similar health effects associated with particulate matter.	Sulfate aerosols are emitted when fuel containing sulfur is burned. Another source of aerosols (in the form of black carbon or soot) is the result of incomplete combustion or the incomplete burning of fossil fuels. Although particulate matter regulation has been lowering aerosol concentrations in the United States, global concentrations are likely increasing as a result of other sources around the world.

Source: LSA Associates, Inc. 2014

THIS PAGE INTENTIONALLY LEFT BLANK

In order to attempt to quantify the impact of greenhouse gases, the gases are assigned global warming potentials. Individual greenhouse gas compounds have varying global warming potential and atmospheric lifetimes. Carbon dioxide, the reference gas for global warming potential, has a global warming potential of one. The global warming potential of a greenhouse gas is a measure of how much a given mass of a greenhouse gas is estimated to contribute to global warming. To describe how much global warming a given type and amount of greenhouse gas may cause, the carbon dioxide equivalent is used. The calculation of the carbon dioxide equivalent is a consistent methodology for comparing greenhouse gas emissions since it normalizes various greenhouse gas emissions to a consistent reference gas, carbon dioxide. For example, methane's warming potential of 21 indicates that methane has 21 times greater warming effect than carbon dioxide on a molecule per molecule basis. A carbon dioxide equivalent is the mass emissions of an individual greenhouse gas multiplied by its global warming potential.

4.3.1.3 Greenhouse Gas Emission Sources and Inventories

An emissions inventory that identifies and quantifies the primary human-generated sources and sinks of GHGs is a well-recognized and useful tool for addressing climate change. This section summarizes the latest information on global, national, State, and local GHG emission inventories. However, because GHGs persist for a long time in the atmosphere (previously referenced Table 4.3.A), accumulate over time, and are generally well mixed, their impact on the atmosphere and climate cannot be tied to a specific point of emission.

Global Emissions. Worldwide emissions of GHGs in 2011 totaled 34.6 billion MT of CO_2e per year (CO2e/yr).[1] Global estimates are based on country inventories developed as part of the programs of the United Nations Framework Convention on Climate Change (UNFCCC).

United States Emissions. In 2012, the United States emitted approximately 6.5 billion MT of CO_2e, down from 7.3 billion MT in 2007. Of the six major sectors nationwide—electric power industry, transportation, industry, agriculture, commercial, and residential—the electric power industry and transportation sectors combined account for approximately 70 percent of the GHG emissions; the majority of the electric power industry and all of the transportation emissions are generated from direct fossil fuel combustion. In 2012, the total United States GHG emissions were approximately 5.3 percent greater than 1990 levels.[2]

State of California Emissions. According to California Air Resources Board (CARB) emission inventory estimates, California emitted approximately 448 MMT of CO_2e emissions in 2011.[3] This large number is due primarily to the sheer size of California compared to other states. By contrast, California has the fourth-lowest per-capita CO_2 emission rate from fossil fuel combustion in the country due to the success of its energy efficiency and renewable energy programs and commitments

1 United Nations Framework Convention on Climate Change (UNFCCC). Combined total of Annex I and Non-Annex I Country CO_2e emissions. 2014. Greenhouse Gas Inventory Data. Website: http://unfccc.int/ghg_data/ghg_data_unfccc/items/4146.php (accessed April 2014).

2 United States Environmental Protection Agency (EPA). 2014. The 2014 U.S. Greenhouse Gas Inventory Report. Website: http://www.epa.gov/climatechange/emissions/usinventoryreport.html (accessed April 2014).

3 CARB, Greenhouse Gas Inventory Data – 2000 to 2011. Website: http://www.arb.ca.gov/cc/inventory/data/data.htm (accessed April 2014).

that have lowered the State's GHG emissions rate of growth by more than half of what it would have been otherwise.[1]

4.3.1.4 NOP/Scoping Comments

During the NOP period and the scoping meetings, no residents expressed concerns regarding greenhouse gases and related topics. The South Coast Air Quality Management District (SCAQMD) submitted a letter during the NOP period requesting the air quality study examine potential greenhouse gas emission impacts of the project, and recommended their methodologies to follow (Refer to Appendix A of this EIR).

4.3.2 Regulatory Setting

4.3.2.1 International Regulation of Climate Change

Intergovernmental Panel on Climate Change (IPCC). In 1988, the United Nations created the IPCC to provide independent scientific information regarding climate change to policymakers. The IPCC does not conduct research itself, but rather compiles information from a variety of sources into reports regarding climate change and its impacts. The IPCC has thereafter periodically released reports on climate change, and in 2014 released its Fifth Assessment Report which concluded most global climate change was the result of human activity, mainly the burning of fossil fuels.

United Nations Framework Convention on Climate Change. On March 21, 1994, the United States joined a number of countries around the world in signing the UNFCCC. Under the UNFCCC, governments gather and share information on greenhouse gas emissions, national policies, and best practices; launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

Kyoto Protocol. The Kyoto Protocol is an international agreement linked to the UNFCCC. The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing greenhouse gas emissions an average of five percent against 1990 levels over the five-year period 2008–2012. The UNFCCC (discussed above) encouraged industrialized countries to stabilize emissions; however, the Protocol commits them to do so. Developed countries have contributed more emissions over the last 150 years; therefore, the Protocol places a heavier burden on developed nations under the principle of "common but differentiated responsibilities." The United States did not ratify the Kyoto Protocol.

Moreover, since the United States declined to ratify the Kyoto Protocol in 1995, it has become increasingly clear that global climate change cannot be addressed without limiting GHG emissions from developing, as well as developed, countries. According to many sources, China has already surpassed the United States as the world's largest GHG emitter and is building new coal-fired power plants at a rate of approximately one per week. A recent study conducted by economists at the UC Berkeley and UC San Diego estimated that China's CO_2 emissions are growing by as much as 11 percent annually. In 2007, China released its first national plan on climate change, which includes goals related to increasing energy efficiency and increasing use of renewable resources. The plan, however, makes no commitments regarding reduction of GHG emissions.

1 California Energy Commission (CEC), 2007. Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004 – Final Staff Report, publication # CEC-600-2006-013-sf, Sacramento, CA, December 22, 2006; and January 23, 2007, update to that report.

Like China, India is already one of the top emitters of GHGs and continues to grow rapidly. India has recently pledged to take more action to fight global warming, for example, by pursuing solar energy, urging energy efficiency, and conservation, but it has not set any concrete goals in these areas, let alone pledged to reduce its carbon emissions. To the contrary, India's emissions are projected to increase fourfold by 2030 (see "Melting Asia," *The Economist*, June 5, 2008). Similarly, Brazil, the largest economy in South America, and another rapidly developing country, has no national policy requiring it to reduce carbon emissions. Brazil's carbon emissions increased by more than 60 percent between 1990 and 2004, and are projected to continue to rise at a similar pace (see International Energy Agency, World Energy Outlook 2006).

The Kyoto Protocol expired in 2012. Formal negotiations to replace the protocol officially began in December 2007 at the UNFCCC Climate Change Conference in Bali, Indonesia (http://unfccc.int/2860.php). Whether a workable agreement can be reached, however, remains to be seen, as the United States continues to press for an agreement that requires firm commitments from developing nations, and countries like China and India continue to oppose binding targets (see http://news.bbc.co.uk/2/hi/science/nature/7145608.stm).

In addition, it should be noted that most mitigation measures that address greenhouse gas reduction typically parallel those that reduce the consumption of energy (i.e., electricity and natural gas). Reducing energy use in a market economy typically reduces the cost of energy. However, a reduced cost of energy can release pent-up demand (latent demand) for energy use, particularly in less developed portions of the world, such as Africa and Asia. As such, it is not clear how much energy use reduction in California or the U.S. would actually reduce worldwide energy use. The same would apply to measures to reduce greenhouse gas emissions.

4.3.2.2 Federal Regulations/Standards

The United States has historically had a voluntary approach to reducing GHG emissions. However, on April 2, 2007, the United States Supreme Court ruled that the EPA has the authority to regulate CO_2 emissions under the Clean Air Act (CAA). While there currently are no adopted Federal regulations for the control or reduction of GHG emissions, the EPA commenced several actions in 2009 that are required to implement a regulatory approach to Global Climate Change (GCC).

On September 30, 2009, the EPA announced a proposal that focuses on large facilities emitting over 25,000 tons of GHG emissions per year. These facilities would be required to obtain permits that would demonstrate they are using the best practices and technologies to minimize GHG emissions.

On December 7, 2009, the EPA Administrator signed a final action with two distinct findings regarding GHGs under Section 202(a) of the CAA:

- The Administrator is proposing to find that the current and projected concentrations of the mix of six key GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) in the atmosphere constitute a threat to public health and welfare of current and future generations. This is referred to as the endangerment finding.
- The Administrator is further proposing to find that the combined emissions of CO_2, CH_4, N_2O, and HFCs from new motor vehicles and motor vehicle engines contribute to the atmospheric concentrations of these key GHGs and hence to the threat of GCC. This is referred to as the cause or contribute finding.

This EPA action does not impose any requirements on industry or other entities. However, the findings are a prerequisite to finalizing the GHG emission standards for light-duty vehicles mentioned below.

On April 1, 2010, the EPA and the National Highway Traffic Safety Administration (NHTSA) announced a final joint rule to establish a national program consisting of new standards for model years 2012 through 2016 light-duty vehicles that will reduce GHG emissions and improve fuel economy. The EPA is finalizing the first-ever national GHG emissions standards under the CAA, and NHTSA is finalizing Corporate Average Fuel Economy (CAFE) standards under the Energy Policy and Conservation Act. The EPA GHG standards require these vehicles to meet an estimated combined average emissions level of 250 grams of CO_2 per mile in model year 2016, equivalent to 35.5 miles per gallon (mpg).

In October 2012 new fuel economy standards[1] for cars and light-duty trucks were adopted by the DOT and the EPA that will increase fuel economy to the equivalent of 54.5 mpg by model year 2025. When combined with previous standards, this will nearly double the fuel efficiency of those vehicles compared to new vehicles currently in use. The DOT and EPA are currently adopting amendments to the 2011 GHG emissions standards and fuel efficiency standards for medium- and heavy-duty engines and vehicles.

4.3.2.3 State Regulations/Standards

In 1988, AB 4420 directed the California Energy Commission (CEC) to report on "how global warming trends may affect California's energy supply and demand, economy, environment, agriculture, and water supplies" and offer "recommendations for avoiding, reducing and addressing the impacts."[2] This marked the first statutory direction to a California State agency to address climate change.

The California Climate Action Registry was created to encourage voluntary reporting and early reductions of greenhouse gas emissions with the adoption of Senate Bill (SB) 1771 in 2000. The CEC was directed to assist by developing metrics and identifying and qualifying third-party organizations to provide technical assistance and advice to greenhouse gas emission reporters. The next year, SB 527 amended SB 1771 to emphasize third-party verification.

SB 1711 also contained several additional requirements for the CEC including: updating the State's greenhouse gas inventory from an existing 1998 report, and continuing to update it every 5 years; acquiring, developing and distributing information on global climate change to agencies and businesses; establishing a State interagency task force to ensure policy coordination; and establishing a climate change advisory committee to make recommendations on the most equitable and efficient ways to implement climate change requirements. In 2006, AB 1803 transferred preparation of the inventory from the CEC to the CARB by AB 1803. The CARB updates the inventory annually.

AB 1493, authored by Assembly Member Fran Pavley in 2002, directed the CARB to adopt regulations to achieve the maximum feasible and cost-effective reduction of greenhouse gas emissions from motor vehicles. The so-called "Pavley" regulations, or Clean Car regulations, were approved by the CARB in 2004. The CARB submitted a request to the EPA to implement the regulations in December 2005. After several years of requests to the Federal Government, and accompanying litigation, this waiver request was granted on June 30, 2009. The CARB has since combined the control of smog-causing pollutants and greenhouse gas emissions to develop a single coordinated package of standards known as Low Emission Vehicles III. It is expected that these regulations will reduce greenhouse gas emissions from California passenger vehicles by about 30 percent in 2016, all while improving fuel efficiency and reducing motorists' costs. AB 1493 also directed the California Climate Action Registry to adopt protocols for reporting reductions in greenhouse emissions from mobile sources prior to the operative date of the regulations.

---

1 http://www.nhtsa.gov/About+NHTSA/Press+Releases/2012/Obama+Administration+Finalizes+Historic+54.5+mpg+Fuel+Efficiency+Standards.

2 2010 Climate Action Team Report – California Climate Action Milestones. Climate Action Team, December 2010.

SB 812 added forest management practices to the California Climate Action Registry members' reportable emissions actions. It also directed the Registry to adopt forestry procedures and protocols to monitor, estimate, calculate, report, and certify carbon stores and carbon dioxide emissions that resulted from the conservation and conservation-based management of forests in California.

Senate Bill 1078. Approved by Governor Davis in September 2002, Senate Bill (SB) 1078 established the Renewal Portfolio Standard program, which requires an annual increase in renewable generation by the utilities equivalent to at least 1 percent of sales, with an aggregate goal of 20 percent by 2017. This goal was subsequently accelerated; requiring utilities to obtain 20 percent of their power from renewable sources by 2010 (see SB 107 and Executive Order [EO] S-14-08).

In December 2004, Governor Arnold Schwarzenegger signed Executive Order (EO) S-20-04, which set a goal of reducing energy use in State-owned buildings by 20 percent by 2015 (from a 2003 baseline) and encouraged cities, counties, schools, and the private sector to take all cost-effective measures to reduce building electricity use. This action built upon the State's strong history of energy efficiency efforts that have saved Californians and California businesses energy and money for decades. They are a cornerstone of greenhouse gas reduction efforts.

Executive Order S-3-05. In June 2005, Governor Schwarzenegger established California's GHG emissions reduction targets in EO S-3-05. This EO established the following goals for the State of California: GHG emissions should be reduced to 2000 levels by 2010; GHG emissions should be reduced to 1990 levels by 2020; and GHG emissions should be reduced to 80 percent below 1990 levels by 2050. The Secretary of CalEPA is required to coordinate the efforts of various agencies in order to collectively and efficiently reduce GHGs.

Representatives from several state agencies compose the Climate Action Team, which is responsible for coordinating and implementing GHG emission reduction programs that fall outside of CARB's jurisdiction. The Climate Action Team fulfilled its report requirements through the March 2006 Climate Action Team Report to Governor Schwarzenegger and the legislature (California Environmental Protection Agency 2006) and has released subsequent reports for 2009 and 2010.

Assembly Bill 32. California's major initiative for reducing GHG emissions is outlined in AB 32, the "Global Warming Solutions Act," passed by the California State legislature on August 31, 2006. AB 32 required the CARB to take the following steps:

- Establish a statewide GHG emissions cap for 2020, based on 1990 emissions, by January 1, 2008;
- Adopt mandatory reporting rules for significant sources of GHG emissions by January 1, 2008;
- Adopt an emissions reduction plan by January 1, 2009, indicating how emissions reductions will be achieved via regulations, market mechanisms, and other actions;
- Adopt regulations to achieve the maximum technologically feasible and cost-effective reductions of GHGs by January 1, 2011; and
- Prepare a Scoping Plan outlining the State's strategy to achieve the 2020 GHG emissions limit.

The CARB has established that the level of annual GHG emissions in 1990 was 427 MMT CO_2e.[1] The emissions target of 427 MMT CO_2e requires the reduction of 80 MMT CO_2e from the State's

[1] CARB. California 1990 Greenhouse Gas Emissions Level and 2020 Limit. Available at: http://www.arb.ca.gov/cc/inventory/1990level/1990level.htm, last accessed August 2014.

projected business-as-usual 2020 emissions of 507 MMT CO_2e[1] (i.e., the 1990 levels are approximately 16 percent below "business-as-usual"). "Business-as-usual" is a forecast of the California economy in 2020 without implementation of any of the GHG reduction measures identified in the Scoping Plan. The Scoping Plan was approved by the CARB on December 11, 2008, and included measures to address GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among other measures.[2] More specifically, the Scoping Plan included aggressive energy efficiency goals and methods for increasing renewable energy use. Meeting the goals in the Scoping Plan required expanded utility-based energy efficiency programs, more stringent building and appliance standards, green building practices, waste reduction, and innovative strategies that went beyond traditional approaches. The Scoping Plan also relied on expanded efforts by the California Energy Commission (CEC) and California Public Utilities Commission (CPUC).

AB 32 requires that the Scoping Plan be updated at least every five years. The First Update to the Scoping Plan was approved by the Board on May 22, 2014, and builds upon the initial Scoping Plan with new strategies and recommendations. The First Update identifies opportunities to leverage existing and new funds to further drive GHG emission reductions through strategic planning and targeted low carbon investments.

As part of the update to the Scoping Plan, the emissions reductions required to meet the 2020 statewide GHG emissions limit were further adjusted. The primary reason for adjusting the 2020 statewide emissions limit was based on the fact that the original Scoping Plan relied on the IPCC's 1996 Second Assessment Report (SAR) to assign the GWPs of greenhouse gases. Recently, in accordance the UNFCCC, international climate agencies have agreed to begin using the scientifically updated GWP values in the IPCC's Fourth Assessment Report (AR4) that was released in 2007. Because the CARB has begun to transition to the use of the AR4 100-year GWPs in its climate change programs, the CARB recalculated the Scoping Plan's 1990 GHG emissions level with the AR4 GWPs. As the recalculation resulted in 431 MMT CO_2e, the 2020 GHG emissions limit established in response to AB 32 is now slightly higher than the 427 MMT CO_2e in the 2014 Scoping Plan. Considering that the proposed update also adjusted the 2020 BAU (Business As Usual) forecast of GHG emissions to 509 MMT CO_2e, a 15 percent reduction below the estimated BAU levels was determined to be necessary to return to 1990 levels by 2020 (CARB, 2014b). BAU is defined as emissions that would be generated prior to AB 32-related emission restrictions beginning in 2006 (e.g., Pavley standards).

The Scoping Plan includes a range of GHG reduction actions that may include direct regulations, alternative compliance mechanisms, monetary and nonmonetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system.

In addition to reducing GHG emissions to 1990 levels by 2020, AB 32 directed the CARB and the CAT[3] to identify a list of "discrete early action GHG reduction measures" that could be adopted and made enforceable by January 1, 2010. On January 18, 2007, Governor Schwarzenegger signed EO S-1-07, further solidifying California's dedication to reducing GHGs by setting a new Low Carbon Fuel Standard. This EO set a target to reduce the carbon intensity of California transportation fuels by at least 10 percent by 2020 and directed the CARB to consider the Low Carbon Fuel Standard as a discrete early action measure. The CARB adopted the implementing regulation in April 2009. The regulation was expected to increase the production of biofuels, including those from alternative sources such as algae, wood, and agricultural waste. In addition, the Low Carbon Fuel Standard would drive the availability of plug-in hybrid, battery electric, and fuel-cell power motor vehicles. The

1 CARB. Greenhouse Gas Inventory - 2020 Emissions Forecast. Available at: http://www.arb.ca.gov/cc/inventory/data/forecast.htm, last accessed August 2014.
2 CARB. 2014. *First Update to the Climate Change Scoping Plan: Building on the Framework*. May.
3 CAT is a consortium of representatives from State agencies who have been charged with coordinating and implementing GHG emission reduction programs that fall outside of the CARB's jurisdiction.

Low Carbon Fuel Standard is anticipated to replace 20 percent of the fuel used in motor vehicles with alternative fuels by 2020.

In June 2007, the CARB approved a list of 37 early action measures, including three discrete early action measures (Low Carbon Fuel Standard, Restrictions on High Global Warming Potential Refrigerants, and Landfill Methane Capture). The CARB adopted an additional six early action measures in October 2007.[1] These measures relate to truck efficiency, port electrification, reduction of PFCs from the semiconductor industry, reduction of propellants in consumer products, proper tire inflation, and SF_6 reductions from the non-electricity sector. The combination of early action measures is estimated to reduce statewide GHG emissions by nearly 16 MMT.[2]

Senate Bill 1368. In September 2006, Governor Schwarzenegger signed SB 1368, which requires the CEC to develop and adopt regulations for GHG emissions performance standards for the long-term procurement of electricity by local, publicly owned utilities. These standards must be consistent with the standards adopted by the CPUC. This effort will help to protect energy customers from financial risks associated with investments in carbon-intensive generation by allowing new capital investments in power plants whose GHG emissions are as low as or lower than new combined-cycle natural gas plants, by requiring imported electricity to meet GHG performance standards in California and requiring that the standards be developed and adopted in a public process.

Senate Bill 97. To assist public agencies in analyzing the effects of GHGs under CEQA, SB 97 (Chapter 185, 2007) required the Governor's Office of Planning and Research (OPR) to develop CEQA guidelines on how to minimize and mitigate a project's GHG emissions. On December 30, 2009, the Natural Resources Agency adopted CEQA Guideline Amendments related to climate change. These amendments became effective on March 18, 2010. The amended guidelines established several new State CEQA Guideline requirements concerning the analysis of GHGs, including:

- Requiring a lead agency to "make a good faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of GHG emissions resulting from a project" (§15064(a))
- Providing a lead agency with the discretion to determine whether to use quantitative or qualitative analysis or performance standards to determine the significance of GHG emissions resulting from a particular project (§15064.4(a))
- Requiring a lead agency to consider the following factors when assessing the significant impacts from GHG emissions on the environment:
    - The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting.
    - Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
    - The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional or local plan for the reduction or mitigation of GHG emissions. (§15064.4(b))

[1] CARB. 2007. *Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California Recommended for Board Consideration*. October.

[2] CARB. 2007. "ARB approves tripling of early action measures required under AB 32." News Release 07-46. http://www.arb.ca.gov/newsrel/nr102507.htm. October 25.

- Allowing lead agencies to consider feasible means of mitigating the significant effects of GHG emissions, including reductions in emissions through the implementation of project features or off-site measures, including offsets that are not otherwise required (§ 15126.4(c)).

The amended guidelines also established two new guidance questions regarding GHG emissions in the Environmental Checklist set forth in Appendix G of the State CEQA Guidelines, as stated later in this report.

The adopted amendments do not establish a GHG emission threshold, and instead allow a lead agency to develop, adopt, and apply its own thresholds of significance or those developed by other agencies or experts.[1] The Natural Resources Agency also acknowledges that a lead agency may consider compliance with regulations or requirements implementing AB 32 in determining the significance of a project's GHG emissions.[2]

Senate Bill 375. SB 375, signed into law on October 1, 2008, is intended to enhance the CARB's ability to reach AB 32 goals by directing the CARB to develop regional GHG emissions reduction targets to be achieved within the automobile and light truck sectors for 2020 and 2035. The targets are required to consider the emission reductions associated with vehicle emission standards (see SB 1493), the composition of fuels (see EO S-1-07), and other CARB-approved measures to reduce GHG emissions. In late September 2010, the CARB announced GHG reduction goals for implementation by regional land use and transportation agencies. The regional emissions reduction goal for Southern California is 8 percent by 2020 and 13 percent by 2035 compared to 2005 emissions levels.

The CARB will work with California's 18 Metropolitan Planning Organizations (MPOs) to align their regional transportation, housing, and land use plans and prepare a "Sustainable Communities Strategy" within the Regional Transportation Plan to reduce the number of vehicle miles traveled in their respective regions and demonstrate the region's ability to attain its GHG reduction targets. If a Sustainable Communities Strategy is unable to achieve the GHG reduction target, an MPO must prepare an Alternative Planning Strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies. SB 375 provides incentives for streamlining State CEQA Guideline requirements by substantially reducing the requirements for "transit priority projects," as specified in SB 375, and eliminating the analysis of the impacts of certain residential projects on global warming and the growth-inducing impacts of those projects when the projects are consistent with the Sustainable Communities Strategy or Alternative Planning Strategy.

Executive Order S-21-09. On September 15, 2009, Governor Schwarzenegger issued EO S-21-09. This EO directed the CARB to adopt a regulation consistent with the goal of EO S-14-08 by July 31, 2010. On September 23, 2010, the CARB adopted the "Renewable Electricity Standard" (RES) to require a 33 percent by 2020 renewable energy procurement mandate for most retail sellers of electricity in California.[3]

---

1 The State CEQA Guidelines do not establish thresholds of significance for other potential environmental impacts, and SB97 did not authorize the development of a statement threshold as part of this State CEQA Guidelines update. Rather, the proposed amendments recognize a lead agency's existing authority to develop, adopt, and apply its own thresholds of significance or those developed by other agencies or experts." Final Statement of Reasons for Regulatory Action, Amendments to the State CEQA Guidelines, p. 84.

2 "A project's compliance with regulations or requirements implementing AB 32 or other laws and policies is not irrelevant. Section 15064.4(b)(3) would allow a lead agency to consider compliance with requirements and regulations in the determination of significance of a project's greenhouse gas emissions." Final Statement of Reasons, p. 100.

3 CARB. *News Release: California commits to more clean, green energy.* Available at: http://www.arb.ca.gov/newsrel/newsrelease.php?id=155, last accessed November 2012. Also refer to Title 17, Cal. Code Regs., § 97004(a).

California Green Building Code and California 2013 Building Energy Efficiency Standards. California Green Buildings Standards Code (Cal Green Code) (California Code of Regulations [CCR], Title 24, part 11) was adopted by the California Building Standards Commission in 2010 and became effective in January, 2011. The Code applies to all newly constructed residential, nonresidential, commercial, mixed-use, and State-owned facilities, as well as schools and hospitals. Cal Green Code is comprised of Mandatory Residential and Nonresidential Measures and more stringent Voluntary Measures (TIERs I and II).

Mandatory Measures are required to be implemented on all new construction projects and consist of a wide array of green measures concerning project site design, water use reduction, improvement of indoor air quality, and conservation of materials and resources. The Cal Green Building Code refers to Title 24, Part 6 compliance with respect to energy efficiency; however, it encourages 15 percent energy use reduction over that required in Part 6. Voluntary Measures are optional, more stringent measures that may be used by jurisdictions that strive to enhance their commitment toward green and sustainable design and achievement of AB 32 goals. Under TIERs I and II, all new construction projects are required to reduce energy consumption by 15 percent and 30 percent, respectively, below the baseline required under the CEC, as well as implement more stringent green measures than those required by mandatory code.

In early 2013 the California Building Standards Commission adopted the 2013 California Building Standards Code that also included the latest 2013 Cal Green Code, which became effective on January 1, 2014. The mandatory provisions of the code are anticipated to reduce 3 MMT of GHG emissions by 2020, reduce water use by 20 percent or more, and divert 50 percent of construction waste from landfills. The 2013 California Energy Code (Title 24, Part 6), which is also part of the Cal Green Code (Title 24, Part 11, Chapter 5.2), became effective on July 1, 2014.

California Code of Regulations Title 24, Part 6. Enacted in 1978, this part of the California Code established energy efficiency standards for residential and nonresidential buildings in response to a legislative mandate to reduce California's energy consumption. These standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The most recent standards were adopted and went into effect January 1, 2010.[1] The 2013 standards are expected to be considered for adoption in July 1, 2014. Such standards include the provision of cool roofs, demand control ventilation, skylights for day-lighting in buildings, thermal breaks for metal building roofs, and lighting power limits. These standards are expected to reduce the growth in electricity use of residential and non-residential buildings. Continual updates to Title 24 along with the State's implementation of AB 1493 and SB 1368 will have a major impact on the State's attainment of the AB 32 goals.

California Code of Regulations Title 24, Part 11. This part of the Cal Green Code and was enacted to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts with positive environmental impacts and through encouragement of sustainable construction practices. The Cal Green Code is not intended to substitute for or be identified as meeting the certification requirements of any green building program that is not established and adopted by the California Building Standards Commission (CBSC). This update to Part 11 of Title 24 of the California Code of Regulations was effective January 1, 2011. Key provisions of the Cal Green Code that apply to the type of new non-residential development proposed for the project site are as follows:

Division 5.1—Planning and Design

[1] *Nonresidential Compliance Manual for California's 2008 Energy Efficiency Standards*, California Energy Commission, effective January 1, 2010, http://www.energy.ca.gov/title24/2008standards/index.html, website accessed on March 4, 2010.

Section 5.106 Site Development

5.106.4 Bicycle Parking and Changing Rooms:

Short-term bicycle parking. If the new project or an addition or alteration is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5 percent of new visitor motorized vehicle parking spaces being added, with a minimum of one two-bike capacity rack (5.106.4.1).

Long-term bicycle parking. For buildings with over 10 tenant-occupants or alterations that add 10 or more tenant vehicular parking spaces, provide secure bicycle parking for 5 percent of tenant vehicular parking spaces being added, with a minimum of one space. Acceptable parking facilities shall be convenient from the street and shall meet the following: 1. Covered, lockable enclosures with permanently anchored racks for bicycles; 2. Lockable bicycle rooms with permanently anchored racks; or 3. Lockable, permanently anchored bicycle lockers (5.106.4.2).

5.106.5 Clean Air Vehicle Parking: For new projects or additions or alterations that add 10 or more vehicular parking spaces, provide designated parking for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles [201 spaces and over require at least 8 percent] (5.106.5.2).

5.106.8 Light Pollution Reduction (specific backlight, uplight, and glare ratings)

5.106.10 Grading and Paving: Construction plans shall indicate how site grading or a drainage system will manage all surface water flows to keep water from entering buildings.

Division 5.2—Energy Efficiency

Section 5.201.1 Energy Efficiency (Mandatory energy efficiency standards through California Code of Regulations, Title 24, Part 6)

Division 5.3—Water Efficiency and Conservation

Section 5.303 Indoor Water Use

5.303.1 Meters: Separate water meters for buildings in excess of 50,000 sq ft or buildings projected to consume more than 1,000 gallons per day.

5.303.2 Twenty Percent Savings: Use of plumbing fixtures and fittings that will reduce the overall use of potable water within the building by 20 percent, based on the maximum allowable water use per fixture and fitting as required by the California Building Code (California Code of Regulations, Title 24, Part 2)

5.304.3 Irrigation design: Automatic irrigation system controllers installed at the time of final inspection shall be weather- or soil moisture-based controllers that adjust irrigation in response to changes in plant needs; weather-based controllers.

5.303.4 Wastewater Reduction: Each building shall reduce by 20 percent wastewater by one of the following methods: 1. The installation of water-conserving fixtures or 2. Use of non-potable water systems (5.303.4).

5.303.6 Plumbing Fixtures and Fittings

Section 5.304 Outdoor Water Use

5.304.1 Water Budget: A water budget shall be developed for landscape irrigation use that conforms to the local water efficient landscape ordinance or to the California Department of Water Resources Model Water Efficient Landscape Ordinance where no local ordinance is applicable.

5.304.2 Outdoor Water Use (separate submeters or metering devices)

5.304.3 Irrigation Design (irrigation controllers and sensors)

Division 5.4—Material Conservation and Resource Efficiency

Section 5.407 Water Resistance and Moisture Management

Section 5.408 Construction Waste Reduction, Disposal and Recycling

5.408.1 and 5.408.3 Construction Waste Diversion: Recycle and/or salvage for reuse a minimum 50 percent of the nonhazardous construction and demolition waste. 100 percent of trees, stumps, rocks and associated vegetation and soils resulting from land clearing shall be reused or recycled.

5.408.2 Construction Waste Management Plan

Section 5.410 Building Maintenance and Operation

5.410.1 and 5.713.10 Recycling by Occupants: Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of non-hazardous materials for recycling.

Division 5.5—Environmental Quality

Section 5.504 Pollutant Control

5.504.3 Covering of Duct Openings and Protection of Mechanical Equipment During Construction

5.504.4 Finish Material Pollutant Control: Low-pollutant emitting interior finish materials such as adhesives, paints, carpet, and flooring

5.404.5.3 Filters: Minimum Efficiency Reporting Value (MERV) of 8 or higher in mechanically ventilated buildings.

California Code of Regulations Titles 14 and 27. These parts of the California Code require energy-efficient practices as part of solid and hazardous waste handling and disposal.

Senate Bill X1-2. On April 12, 2011, California Governor Jerry Brown signed SB X1-2. This bill supersedes the 33 percent by 2020 Renewables Portfolio Standard (RPS), created by EO S-14-08 that Governor Arnold Schwarzenegger previously signed. The RPS requires that all retail suppliers of electricity in California serve 33 percent of their load with renewable energy by 2020.

Cap and Trade. The development of a cap-and-trade program was included as a key reduction measure of the CARB's AB 32 Climate Change Scoping Plan. The cap-and-trade emissions trading program developed by the CARB took effect on January 1, 2012, with enforceable compliance obligations beginning January 1, 2013. The cap-and-trade program aims to regulate GHG emissions from the largest producers in the state by setting a statewide firm limit, or cap, on allowable annual GHG emissions. The cap contains three compliance phases. In compliance phase one, large emitters from the electricity and industrial sector come under the cap. In compliance phase two, which commences in 2015, fuels will be subject to the cap. Compliance phase three will include all three sectors (electricity, industry, fuels) and run until 2020. The CARB administered the first auction on November 14, 2012, with many of the qualified bidders representing corporations or organizations that produce large amounts of GHG emissions, including energy companies, agriculture and food industries, steel mills, cement companies, and universities (CARB 2012). California is working closely with British Columbia, Ontario, Quebec, and Manitoba through the Western Climate Initiative to develop harmonized cap-and-trade programs that will deliver cost-effective emission reductions. Two lawsuits have been filed against cap-and-trade, but the cap-and-trade program will be implemented as is until further notice.

4.3.2.4 Regional Regulations: Southern California Association of Governments (SCAG)

Sustainable Communities Strategy (SCS) within Regional Transportation Plan (RTP) demonstrates the region's ability to attain and exceed the GHG emission reduction targets set by the CARB. The SCS outlines the plan for integrating the transportation network and related strategies with an overall land use pattern that responds to projected growth, housing needs, changing demographics, and transportation demands. The regional vision of the SCS maximizes current voluntary local efforts that support the goals of SB 375, as evidenced by several Compass Blueprint Demonstration Projects and various county transportation improvements. The SCS focuses the majority of new housing and job growth in high-quality transit areas and other opportunity areas in existing main streets, downtowns, and commercial corridors, resulting in an improved jobs-housing balance and more opportunity for transit-oriented development. This overall land use development pattern supports and complements the proposed transportation network, which emphasizes system preservation, active transportation, and transportation demand management measures. The RTP/SCS exceeds its greenhouse gas emission-reduction targets set by the CARB by achieving a 9 percent reduction by 2020 and 16 percent reduction by 2035 compared to the 2005 level on a per capita basis.

South Coast Air Quality Management District. In April 2008 the SCAQMD convened a GHG CEQA Significance Threshold Working Group in order to provide guidance to local lead agencies on determining the significance of GHG emissions identified in CEQA documents.[1] The goal of the working group was to develop and reach consensus on an acceptable CEQA significance threshold for GHG emissions that would be used on an interim basis until the CARB (or some other State agency) developed statewide guidance on assessing the significance of GHG emissions under CEQA.

Initially, SCAQMD staff presented the working group with a significance threshold that could be applied to various types of projects—residential; nonresidential; industrial; etc. However, the threshold is still under development. In December 2008, staff presented the SCAQMD Governing Board with a significance threshold for stationary source projects in which it is the lead agency. This threshold uses a tiered approach to determine a project's significance, with 10,000 metric tons of carbon dioxide equivalent (MT CO_2e) as a screening numerical threshold.

In September 2010, the Working Group released additional revisions, which recommended a project-level efficiency target of 4.8 MT CO_2e per service population (SP) as a 2020 target and 3.0 MT CO_2e, per SP as a 2035 target. The recommended plan-level target for 2020 was 6.6 MT CO_2e and the plan level target for 2035 was 4.1 MT CO_2e. The SCAQMD has not announced when staff is expecting to present a finalized version of these thresholds to the Governing Board. The SCAQMD has also adopted Rules 2700, 2701, and 2702 that address GHG reductions; however, these rules are currently applicable to boilers and process heaters, forestry, and manure management projects.

4.3.2.5 City General Plan Policies

The City's General Plan does not contain any policies directly related to greenhouse gases, climate change, energy conservation, and sustainability, nor does it have any thresholds established for environmental review purposes.

4.3.3 Methodology

A fundamental difficulty in the analysis of GHG emissions is the global nature of the existing and cumulative future conditions. Changes in GHG emissions can be difficult to attribute to a particular planning program or project because the planning effort or project may cause a shift in the locale for

[1] For more information see: http://www.aqmd.gov/ceqa/handbook/GHG/GHG.html.

some type of GHG emissions, rather than causing "new" GHG emissions. Whether this represents a net global increase, reduction, or no change depends on the GHG that would exist if the project were not implemented. Additionally, due to the complex physical, chemical, and atmospheric mechanisms involved in global climate change, it is speculative to identify the specific impact, if any, to global climate change from one project's incremental increase in global greenhouse gas emissions. As such, a project's greenhouse gas emissions and the resulting significance of potential impacts are more properly assessed on a cumulative basis. The State CEQA Guideline Amendments also clarify "that the effects of greenhouse gas emissions are cumulative, and should be analyzed in the context of State CEQA Guidelines' requirements for cumulative impact analysis."[1]

As described above in the discussion of AB 32, to determine if a project's cumulative contribution to the overall climate change effect of GHG emissions, a 15 percent reduction below the estimated BAU levels was determined to be sufficient. BAU is defined as emissions that would be generated prior to AB 32-related emission restrictions beginning in 2006 (e.g., Pavley standards). This analysis compares the proposed project GHG emissions with the BAU emissions to determine the cumulative significance.

4.3.4 Thresholds of Significance

As described above, the May 22, 2014 update to the CARB Scoping Plan determined that in order to achieve 1990 level of emissions statewide to satisfy the requirements of AB 32, California would need to reduce its overall 2020 emissions for all sectors by 15 percent below the BAU 2020 projection. BAU is defined as emissions that would be generated prior to AB 32-related emission restrictions beginning in 2006 (e.g., Pavley standards). A project would be consistent with the CARB's Scoping Plan (as of May 22, 2014) if it is constructed and operated in a manner that would result in 15 percent less GHG emissions than the BAU 2020 projection.

While an individual project's emissions would amount to a small fraction of statewide GHG emissions, AB 32's assessment of global warming as posing a "serious threat" warrants consideration of the impact of emissions from the project on climate change as cumulatively considerable, and triggers compliance with the 15 percent reduction from BAU 2020 requirement under AB 32.

Thresholds of Significance

Criteria for determining the significance of impacts related to GHG emissions are based on criteria contained in Appendix G of the State CEQA Guidelines. The proposed project could have a significant impact on the environment if it would result in either of the following:

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

SCAQMD and CEQA. As the SCAQMD has recognized, the analysis of GHGs is a much different analysis than that of criteria pollutants for the following reasons. For criteria pollutants, significance thresholds are based on daily emissions because attainment or nonattainment is based on daily exceedances of applicable AAQS. Further, several AAQS are based on relatively short-term exposure effects on human health (e.g., 1-hour and 8-hour). Since the half-life of CO_2 is approximately 100 years, for example, the effects of GHGs are longer-term, affecting global climate

[1] Letter from Cynthia Bryant, Director of the Office of Planning and Research to Mike Chrisman, Secretary for Natural Resources (April 13, 2009).

over a relatively long time frame. As a result, the SCAQMD's current position is to evaluate GHG effects over a longer time frame than a single day.

The recommended approach for GHG analysis included in OPR's June 2008 release is to: (1) identify and quantify GHG emissions, (2) assess the significance of the impact on climate change, and (3) if significant, identify alternatives and/or mitigation measures to reduce the impact below a level of significance.[1] The June 2008 OPR guidance provides some additional direction regarding planning documents as follows: "CEQA can be a more effective tool for GHG emissions analysis and mitigation if it is supported and supplemented by sound development policies and practices that will reduce GHG emissions on a broad planning scale and that can provide the basis for a programmatic approach to project-specific CEQA analysis and mitigation. … For local government lead agencies, adoption of general plan policies and certification of general plan EIRs that analyze broad jurisdiction-wide impacts of GHG emissions can be part of an effective strategy for addressing cumulative impacts and for streamlining later project-specific CEQA reviews."

The State CEQA Guidelines include the following direction regarding determination of significant impacts from GHG emissions (§ 15064.4):

(a) The determination of the significance of greenhouse gas emissions calls for a careful judgment by the Lead Agency consistent with the provisions in section 15064. A lead agency should make a good-faith effort, based on available information, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:

  (1) Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; or

  (2) Rely on a qualitative analysis or performance based standards.

(b) A lead agency may consider the following when assessing the significance of impacts from greenhouse gas emissions on the environment:

  (1) The extent to which the project may increase or reduce greenhouse gas 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 a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of greenhouse gas 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.

CEQA Guidelines Section 15064(b) provides that the "determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency

[1] State of California, 2008. Governor's Office of Planning and Research. *CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act Review*. June 19.

involved, based to the extent possible on scientific and factual data," and further, states that an "ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting."

While individual projects are unlikely to measurably affect GCC, each project incrementally contributes toward the potential for GCC on a cumulative basis, in concert with all other past, present, and probable future projects.

Despite this, the CEQA statutes, and OPR guidelines do not prescribe thresholds of significance (what amount of GHG emissions would constitute a significant impact on the environment) or a particular methodology for performing an impact analysis; as with most environmental topics, significance criteria are left to the judgment and discretion of the Lead Agency as supported by substantial evidence.

CARB Scoping and AB 32. As described above, the methodology used to analyze the project's compliance with the CARB Scoping Plan's requirement of a 15 percent reduction from BAU 2020 under AB 32 includes a calculation of the project's construction and operational GHG emissions under both a BAU scenario and a present conditions scenario. The emissions generated for the BAU scenario does not take into account any GHG emissions reductions that would result from any AB 32-related emission restrictions (i.e., Pavley standards or LCFS), while the present conditions scenario takes these emission restrictions into account. The significance analysis compares the numeric level of emissions generated by the proposed project under these two scenarios to determine whether the project complies with the required reductions in GHG emissions under AB 32, which would be a 15 percent reduction below BAU conditions.

4.3.5 Less than Significant Impacts

The evaluation of the proposed project did not identify less than significant impacts from greenhouse gas emissions on climate change. Impacts of greenhouse gas emissions and climate change have been determined to be cumulative and not project-specific.

4.3.6 Potentially Significant Impacts

4.3.6.1 Short-term and Long-Term Cumulative Greenhouse Gas Emissions and Conflicts with a Policy Plan or Regulation Reducing Greenhouse Gas Emissions

Threshold	Would the proposed project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

GHG emissions associated with the project would occur over the short term from construction activities and would consist primarily of emissions from equipment exhaust. Construction of project development would generate GHG emissions, with the majority of energy consumption (and associated generation of GHG emissions) occurring during the project's operation (as opposed to during its construction). Typically, more than 80 percent of the total energy consumption takes place during the use of buildings, and less than 20 percent of energy is consumed during construction.[1]

1 United Nations Environment Programme (UNEP), 2007. Buildings and Climate Change: Status, Challenges and Opportunities, Paris, France.

Table 4.3.B lists the annual GHG emissions for the single highest year of each of the planned construction phases. In other words, the multi-year building construction phase would emit 3,000 MT of CO_2e during the peak year and something less for the other years of building construction. Total construction GHG emissions over the entire construction period are estimated to be 10,500 MT of CO_2e. Details of the emission factors and other assumptions are included in Appendix B.

Table 4.3.B: Short-Term Regional Emissions During Construction

Construction Phase	Total Regional Pollutant Emissions (MT/yr)			
	CO_2	CH_4	N_2O	CO_2e
Demolition	160	0.022	0	160
Site Preparation	29	0.0084	0	30
Grading	30	0.0088	0	31
Building Construction	3,000	0.17	0	3,000
Architectural Coating	310	0.018	0	310
Paving	83	0.024	0	83

Source: LSA Associates, Inc. (December 2014).

CH_4 = methane
CO_2 = carbon dioxide
CO_2e = carbon dioxide equivalent
MT/yr = metric tons per year
N_2O = nitrous oxide

Based on SCAQMD guidance, rather than consider construction emissions alone, the overall project emissions summary should include construction emissions amortized over a 30-year span, as shown in Table 4.3.C. Long-term operation of the proposed project would generate GHG emissions from area and mobile sources and indirect emissions from stationary sources associated with energy consumption. As the CalEEMod model has not been updated to include the changes to energy use resulting from compliance with the new 2013 Title 24 building standards, it was assumed compliance with those standards would result in a 25 percent improvement over the energy and water used by projects only complying with the 2008 Title 24 standards (the level built into the CalEEMod model).

Table 4.3.C: Long-Term Operational Greenhouse Gas Emissions without Mitigation

Source	Pollutant Emissions (MT/yr)					
	Bio-CO_2	NBio-CO_2	Total CO_2	CH_4	N_2O	CO_2e
Construction emissions amortized over 30 years	0	350	350	0.021	0	350
Operational Emissions						
Area	0	0.0186	0.0186	0.00005	0	0.0196
Energy	0	2,700	2,700	0.123	0.0261	2,710
Workers, customers & misc. vehicles	0	10,900	10,900	0.424	0	10,900
Delivery trucks	0	7,800	7,800	0.302	0	7,800
Waste	149	0	149	8.8	0	334
Water	15	259	274	1.5	0.0384	318
Total Project Emissions	**164**	**22,010**	**22,170**	**11.2**	**0.065**	**22,410**

Source: LSA Associates, Inc. (November 2014).
Note: Numbers in table may not appear to add up correctly due to rounding of all numbers to two significant digits.
Bio-CO_2 = biologically generated CO_2
CH_4 = methane
CO_2 = carbon dioxide
CO_2e = carbon dioxide equivalent
MT/yr = metric tons per year
N_2O = nitrous oxide
NBio-CO_2 = Non-biologically generated CO_2

As shown in Table 4.3.C, the GHG emissions without mitigation would be substantial and primarily from mobile sources. As such, the following CalEEMod mitigation measures were activated:

- Mobile sources would be affected by the:
  - Increased density created by the project;
  - Improved pedestrian network;
  - Implementation of a trip reduction program;
  - The use of telecommuting and alternative work schedules; and
  - Employee vanpool/shuttle use.

The GHG emission estimates presented in Table 4.3.D show the GHG emissions that would result with the above mitigation implemented. The emissions reduction would be from 22,410 MT/yr of CO_2e to 22,200 MT/yr of CO_2e, or about 0.94 percent. Appendix B includes the worksheets for the GHG emissions.

Table 4.3.D: Long-Term Operational Greenhouse Gas Emissions – As Proposed with Mitigation

Source	Pollutant Emissions (MT/yr)					
	Bio-CO_2	NBio-CO_2	Total CO_2	CH_4	N_2O	CO_2e
Construction emissions amortized over 30 years	0	350	350	0.021	0	350
Operational Emissions						
Area	0	0.0186	0.0186	0.00005	0	0.0196
Energy	0	2,700	2,700	0.123	0.0261	2,710
Workers, customers & misc. vehicles	0	10,800	10,800	0.419	0	10,800
Delivery trucks	0	7,700	7,700	0.299	0	7,700
Waste	149	0	149	8.8	0	334
Water	15	259	274	1.5	0.0384	318
Total Project Emissions	**164**	**21,800**	**22,000**	**11**	**0.064**	**22,200**

Source: LSA Associates, Inc. (December 2014).
Note: Numbers in table may not appear to add up correctly due to rounding of all numbers to two significant digits. Also, the table shows the amount of operational GHG emission that would result with all AB 32 emission restrictions implemented.
Bio-CO_2 = biologically generated CO_2
CH_4 = methane
CO_2 = carbon dioxide
CO_2e = carbon dioxide equivalent
MT/yr = metric tons per year
N_2O = nitrous oxide
NBio-CO_2 = Non-biologically generated CO_2

Area Sources. Area sources of GHG emissions include architectural coatings, carpet systems, resilient flooring, composite wood, consumer products, and landscaping. The project would result in a negligible amount of GHG emissions from area sources due to the building design requiring little architectural coating and the anticipated light use of consumer products and landscaping.

Energy/Natural Gas Use. Buildings represent 39 percent of the United States' primary energy usage and 70 percent of electricity consumption.[1] The proposed project would increase the demand for electricity and natural gas due to the increased building area. The project would indirectly result in increased GHG emissions from off-site electricity generation at power plants and on-site natural gas consumption (2,710 MT of CO_2e/yr).

1 United States Department of Energy. 2003. Buildings Energy Data Book.

Mobile Sources. Mobile sources (vehicle trips and associated miles traveled) are the largest source of GHG emissions in California and represent approximately 38 percent of annual CO_2 emissions generated in the State. Like most land use development projects, Vehicle Miles Traveled (VMT) is the most direct indicator of CO_2 emissions from the proposed project, and associated CO_2 emissions function as the best indicator of total GHG emissions. Emissions from vehicle exhaust would comprise approximately 80 percent of the project's total CO_2e emissions. Emissions from vehicle exhaust are controlled by the State and Federal governments and are outside the control of the City.

Solid Waste Disposal. The proposed project would also generate solid waste during the operation phase of the project. Average waste generation rates from a variety of sources are available from the California Integrated Waste Management Board (CIWMB).[1] The project would indirectly result in increased GHG emissions from solid waste treatment at treatment plants (334 MT of CO_2e/yr).

Water Use. Water-related energy use consumes 19 percent of California's electricity every year.[2] Energy use and related GHG emissions are based on electricity used for water supply and conveyance, water treatment, water distribution, and wastewater treatment. The project would indirectly result in increased GHG emissions from the off-site electricity generation at power plants and on-site natural gas consumption (318 MT of CO_2e/yr).

As shown in previously referenced Table 4.3.D, the project will produce 22,200 MT of CO_2e/yr, which is 0.0222 MMT of CO_2e/yr. For comparison, the existing emissions from the entire SCAG region are estimated to be approximately 176.79 MMT of CO_2e/yr, and the existing emissions for the entire State are estimated at approximately 496.95 MMT of CO_2e/yr.

At present, there is a Federal ban on chlorofluorocarbons (CFCs); therefore, it is assumed the project would not generate emissions of CFCs. The project may emit a small amount of HFCs from leakage and service of refrigeration and air-conditioning equipment and from disposal at the end of the life of the equipment. However, the details regarding refrigerants to be used at the project site are unknown at this time. PFCs and SF_6 are typically used in industrial applications, none of which would be used on the project site. Therefore, it is not anticipated that the project would contribute significant emissions of these additional GHGs.

The CAT and the CARB have developed several reports to achieve the Governor's GHG targets that rely on voluntary actions of California businesses, local government and community groups, and State incentive and regulatory programs. These include the CAT's 2010 "*Report to Governor Schwarzenegger and the Legislature*," the CARB's 2007 "*Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California,*" and the CARB's "*First Update to the Climate Change Scoping Plan: Building on the Framework."*

The reports identify strategies to reduce California's emissions to the levels proposed in EO S-3-05 and AB 32 that are applicable to the proposed project. The Scoping Plan is the most recent document, and the strategies included in the Scoping Plan that apply to the project are contained in Table 4.3.E, which also summarizes the extent to which the project would comply with the strategies to help California reach the emission reduction targets.

The strategies listed in Table 4.3.E are either part of the project design, requirements under local or State ordinances, or measures identified the CARB Scoping Plan, AB 32, and the Governor's EO S-

1 California Integrated Waste Management Board (CIWMB), 2009. Estimated Solid Waste Generation Rates for Residential Developments. Website: http://www.ciwmb.ca.gov/wastechar/wastegenrates/Residential.htm.
2 CEC, 2005. California's Water-Energy Relationship. November.

3-05. As described, the proposed project would be compliant with all of the reduction strategies listed, and conflict with these requirements would not occur.

Table 4.3.E: Project Compliance with Greenhouse Gas Emission Reduction Strategies

Strategy	Project Compliance
Mandatory Code	
California Green Building Code. The Cal Green Code prescribes a wide array of measures that would directly and indirectly result in reduction of GHG emissions from the Business as Usual Scenario (California Building Code). The mandatory measures that are applicable to non-residential projects include site selection, energy efficiency, water efficiency, materials conservation and resource efficiency, and environmental quality measures.	**Compliant.** The proposed project will comply with the 2013 Title 24 and Cal Green standards, including the 2013 CBC. The project would meet or exceed requirements of the Cal Green Code.
Energy Efficiency Measures	
Energy Efficiency. Maximize energy efficiency building and appliance standards, and pursue additional efficiency efforts including new technologies, and new policy and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California (including both investor-owned and publicly owned utilities). **Renewables Portfolio Standard.** Achieve a 33 percent renewable energy mix statewide. **Green Building Strategy.** Expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings.	**Compliant.** The proposed project will comply with the 2013 Title 24 and Cal Green standards, including the 2013 CBC. In addition, the project would implement Project Feature GCC-1 and Mitigation Measures 4.3.6.1A–G, identified later, including measures to incorporate energy-efficient building design features.
Water Conservation and Efficiency Measures	
Water Use Efficiency. Continue efficiency programs and use cleaner energy sources to move and treat water. Approximately 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce GHG emissions.	**Compliant.** The project would implement Project Feature GCC-1 and Mitigation Measure 4.3.6.1F, the Cal Green Code and 2013 Title 24 measures that would develop green buildings and require measures to increase water use efficiency.
Solid Waste Reduction Measures	
Increase Waste Diversion, Composting, and Commercial Recycling, and Move Toward Zero-Waste. Increase waste diversion from landfills beyond the 50 percent mandate to provide for additional recovery of recyclable materials. Composting and commercial recycling could have substantial GHG reduction benefits. In the long term, zero-waste policies that would require manufacturers to design products to be fully recyclable may be necessary.	**Compliant with Mitigation Incorporated.** Data available from the CIWMB indicates that the City of Irwindale (Los Angeles County) has not achieved the 50 percent diversion rate. The proposed project would implement Mitigation Measure 4.3.6.1A, identified later, including measures to increase solid waste diversion, composting, and recycling.
Transportation and Motor Vehicle Measures	
Vehicle Climate Change Standards. AB 1493 (Pavley) required the State to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of GHG emissions from passenger vehicles and light-duty trucks. Regulations were adopted by the CARB in September 2004. **Light-Duty Vehicle Efficiency Measures.** Implement additional measures that could reduce light-duty GHG emissions. For example, measures to ensure that tires	**Compliant.** The project does not involve the manufacture of vehicles. However, vehicles that are purchased and used within the project site would comply with any vehicle and fuel standards that the CARB adopts.

Table 4.3.E: Project Compliance with Greenhouse Gas Emission Reduction Strategies

Strategy	Project Compliance
are properly inflated can both reduce GHG emissions and improve fuel efficiency. **Adopt Heavy- and Medium-Duty Fuel and Engine Efficiency Measures.** Regulations to require retrofits to improve the fuel efficiency of heavy-duty trucks that could include devices that reduce aerodynamic drag and rolling resistance. This measure could also include hybridization of and increased engine efficiency of vehicles. **Low Carbon Fuel Standard.** The CARB identified this measure as a Discrete Early Action Measure. This measure would reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020.	
Regional Transportation-Related Greenhouse Gas Targets. Develop regional GHG emissions reduction targets for passenger vehicles. Local governments will play a significant role in the regional planning process to reach passenger vehicle GHG emissions reduction targets. Local governments have the ability to directly influence both the siting and design of new residential and commercial developments in a way that reduces GHGs associated with vehicle travel.	**Compliant.** Specific regional emission targets for transportation emissions do not directly apply to this project; regional GHG reduction target development is outside the scope of this project. The project will comply with any plans developed by the City of Irwindale, the County of Los Angeles, SCAG, the State, and the EPA.
Measures to Reduce High-GWP Gases. The CARB has identified Discrete Early Action measures to reduce GHG emissions from the refrigerants used in car air conditioners, semiconductor manufacturing, and consumer products. The CARB has also identified potential reduction opportunities for future commercial and industrial refrigeration, changing the refrigerants used in auto air conditioning systems, and ensuring that existing car air conditioning systems do not leak.	**Compliant.** New products used or serviced on the project site (after implementation of the reduction of GHGs) would comply with CARB rules and regulations.

Source: LSA Associates, Inc. (December 2014).

AB = Assembly Bill
CARB = California Air Resources Board
Cal Green Code = California Green Buildings Standards Code
CBC = California Building Code
CIWMB = California Integrated Waste Management Board
GHG = greenhouse gas
GWP = Global Warming Potential

As described above in the Thresholds for Global Climate Change Section, the CARB Scoping Plan states that a 15 percent reduction below the estimated BAU levels was determined to be necessary to return to 1990 levels by 2020. BAU is defined as emissions that would be generated prior to AB 32-related emission restrictions beginning in 2006 (e.g., Pavley standards). The GHG emission estimates presented in Table 4.3.F show the amount of operational GHG emissions that would result without any mitigation and without AB 32 emission restrictions.

Comparing these BAU emissions with those shown in Table 4.3.D (representing the proposed project emissions that include all AB 32-related emission restrictions), the project would achieve an approximately 3.9 percent reduction below BAU. As described above for the regional emissions, 83 percent of the GHG emissions are from mobile sources, which are all private vehicles used for employees and customers of the project and delivery trucks. While some influence could be made on the employees, the project operators have no control or means of influencing how the customer private vehicles are used. By comparing the worker, customer, miscellaneous, and delivery truck emissions shown in Tables 4.3.D and 4.3.F, even when implementing all feasible mobile source emissions reduction measures, the emissions are only reduced 1 to 2 percent. Thus, there are no feasible mitigation measures that would increase the BAU-proposed project reduction from 3.9 to more than 15 percent. Therefore, as the project would conflict with and impede implementation of

reduction goals identified in AB 32, the Governor's EO S-3-05, and other strategies to help reduce GHG emissions to the level proposed by the Governor, project GHG emissions would be significant. Appendix B includes the CalEEMod modeling output for these GHG emissions.

Table 4.3.F: Long-Term Operational Greenhouse Gas Emissions – Business As Usual

Source	Pollutant Emissions (MT/yr)					
	Bio-CO_2	NBio-CO_2	Total CO_2	CH_4	N_2O	CO_2e
Construction emissions amortized over 30 years	0	350	350	0.021	0	350
Operational Emissions						
Area	0	0.0186	0.0186	0.00005	0	0.0196
Energy	0	3,380	3,380	0.154	0.033	3,390
Workers, customers & misc. vehicles	0	10,900	10,900	0.424	0	10,900
Delivery trucks	0	7,800	7,800	0.302	0	7,800
Waste	149	0	149	8.8	0	334
Water	16	294	311	1.7	0.043	360
Total Project Emissions	**165**	**22,700**	**22,900**	**11**	**0.076**	**23,100**

Source: LSA Associates, Inc. (December 2014).
Note: Numbers in table may not appear to add up correctly due to rounding of all numbers to two significant digits.
Bio-CO_2 = biologically generated CO_2
CH_4 = methane
CO_2 = carbon dioxide
CO_2e = carbon dioxide equivalent
MT/yr = metric tons per year
N_2O = nitrous oxide
NBio-CO_2 = Non-biologically generated CO_2

Mitigation Measures. To ensure that the proposed project complies with and would not conflict with or impede the implementation of reduction goals identified in AB 32, EO S-3-05, and other strategies to help reduce GHGs to the level proposed by the Governor, the project will implement a variety of measures that will reduce its GHG emissions.

4.3.6.1A **Construction and Building Materials.** Prior to issuance of the first certificate of occupancy for each phase of development, the project applicant shall demonstrate that the following activities have been incorporated into the project and are shown as appropriate in the project plan:

- Divert by recycling at least 50 percent of the demolished and/or grubbed construction materials (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard).
- Use locally produced and/or manufactured building materials for construction of the project;
- Recycle/reuse demolished construction material; and
- Use "Green Building Materials," such as those materials which are resource efficient, and recycled and manufactured in an environmentally friendly way, including low Volatile Organic Compound (VOC) materials.

4.3.6.1B **Passive Solar Design Elements.** Prior to final development map/plan approval, the applicant shall submit to the Irwindale Planning Department for review and approval a building plan which incorporates the following passive solar design elements:

- Proper building orientation to take advantage of the sun, shade, and wind;

- Thermal mass materials, such as tile or brick, used in flooring or walls, especially south-facing walls, to store the sun's heat during the day and release it back into the building at night or when the temperature drops;
- Insulation of both the ceilings and walls;
- Passive solar design techniques such as large south and west-facing windows with proper window overhangs and/or reflective window film to improve heating and cooling of the building naturally, reducing the need for artificial heating or cooling mechanisms; and
- A daylighting system to effectively integrate daylight with electrical lighting systems to reduce electricity consumption when sufficient daylight is present within the building.

4.3.6.1C **Energy Efficiency Measures**. Prior to the final development map/plan approval, the applicant shall submit to the Irwindale Planning Department for review and approval a building plan which requires and/or incorporates the following:

- Water heating equipment which includes integral automatic temperature controls and circulating service water system controls such as geothermal heat pumps - Geothermal heat pumps provide heating, cooling, and hot water, and are generally more efficient and less expensive to operate and maintain than conventional systems.
- The installation of lighting systems with automatic time switch controls, occupant-sensing devices such as motion detectors, automatic daylighting controls, dimmers, indoor photosensors, and efficient security, street, and parking lot lighting (e.g. high pressure low sodium fixtures)
- The use of alternative energy sources such as photovoltaic (i.e., solar electric) systems on all building rooftops to reduce the projects electrical energy consumption.
- The use of alternative building materials that contain post-consumer recycled materials to the greatest extent possible

4.3.6.1D **Energy Management Design Systems.** Prior to final development map/plan approval, the applicant shall submit to the Irwindale Planning Department for review and approval a building plan which incorporates energy management systems to control space conditioning or HVAC systems including operating hours, set point, scheduling of chillers, etc.

4.3.6.1E **Landscape Design Plan.** Prior to final development map/plan approval, the applicant shall submit to the Irwindale Planning Department for review and approval a landscape design plan which integrates heat island minimization, xeriscape principals (i.e., landscaping that reduces or eliminates the need for supplemental water), and native drought-tolerant plants.

4.3.6.1F **Water Conservation and Efficiency Measures.** To the satisfaction of the City, the following measures shall be incorporated into the design and construction of the project:

- Devise a comprehensive water conservation strategy appropriate for the project and location. The strategy may include the following, plus other innovative measures that might be appropriate:
- Install water-efficient irrigation systems and devices, such as soil moisture-based irrigation controls;
- Design buildings to be water-efficient. Install water-efficient fixtures and appliances, including low-flow faucets, dual-flush toilets and waterless urinals;
- Restrict watering methods (e.g., prohibit systems that apply water to non-vegetated surfaces) and control runoff; and

- Install a separate, non-potable distribution system to accommodate the potential future use of recycled water for landscape irrigation needs of large areas with irrigated landscaping.

4.3.6.1G **LEED Certification.** As defined by the LEED Program of the United States Green Building Council, the project design shall qualify for a minimum of "LEED Certified" designation. Prior to occupancy or use of the new project buildings, the applicant shall provide evidence to the Irwindale Planning Department that an LEED Certified designation has been met.

Level of Significance After Mitigation. With implementation of **Mitigation Measures 4.3.6.1A–G**, GHG emissions would be reduced to the extent feasible by implementing transportation demand management measures and by reducing energy and water use. However, the implementation of Air Quality **Mitigation Measures 4.1.6.1A–F,** which include a trip reduction program with the appropriate incentives for non-auto travel can reduce vehicle GHG emissions by approximately 1 percent. However, even a reduction of this magnitude would not reduce all emissions to below the SCAQMD significance threshold. There is no mitigation available with currently feasible technology to reduce the project's GHG impact to the extent required to reduce the project's cumulative impacts to a less-than-significant level. Therefore, the project's GHG impacts would remain significant and unavoidable.

4.3.7 Cumulative Impacts

The project would contribute GHGs to the area during temporary project construction. A number of individual projects in the area may be under construction simultaneously with the proposed project. Depending on construction schedules and actual implementation of projects in the area, generation of GHG emissions during construction could result in substantial short-term increases in GHG levels. However, each project would be required to comply with the SCAQMD's standard construction measures. The proposed project's short-term construction emissions would not exceed the significance thresholds. Therefore, it will not have a significant short-term cumulative impact.

The project's long-term operational emissions would result in significant impacts on global climate change. Therefore, the proposed project would potentially also result in a significant long-term cumulative impact.

THIS PAGE INTENTIONALLY LEFT BLANK

4.4 HAZARDS AND HAZARDOUS MATERIALS

This section describes and analyzes the potential impact to human health and the environment due to the exposure to hazardous materials or conditions that could be encountered as a result of the construction activities related to the proposed project and also the operational activities of the project. Potential effects include those associated with the routine transport, use, or disposal of hazardous materials; reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment; safety hazards associated with the project's existing use (Irwindale Speedway), impairment/interference with adopted emergency response plans or emergency evacuation plans, and exposure of people or structures to risks involving wildland fires.

This section is based in part on the following reports, which are included as Appendix D of this EIR:

- Phase I Environmental Site Assessment 500 Speedway Drive, Irwindale, California 91706, S&S Commercial Environmental Services, August 28, 2013.

In addition, information from the Public Safety Element of the General Plan was used in some of the sections.

4.4.1 Existing Setting

4.4.1.1 Project Site History

The project site is generally located west of I-605, south of I-210, and north of I-10 in the northwestern portion of the City of Irwindale in the County of Los Angeles. The project site is specifically located at the southwest corner of the I-605/Live Oak Avenue interchange. The project site is currently occupied by the Irwindale Event Center (aka Irwindale Speedway) with an address of 500 Speedway Drive on 63.5 acres. The project site is bordered by Live Oak Avenue and a landfill to the north, an active quarry to the south, I-605 to the east, and a trucking and distribution center to the west.

Prior to the Irwindale Speedway (Speedway), the project site was used as an outdoor swap meet for several years and prior to the swap meet, a landfill. The Irwindale Speedway was opened in 1999 and includes a one-half oval, third-mile oval, and a one-eighth mile drag strip. The speedway includes a large parking area that can accommodate over 3,000 cars, stadium lighting around the track, perimeter landscaping, and 6,000 stadium style bleacher seats. The Speedway also includes ancillary administration and concessions buildings east of the grandstands and repair and service structures west of the racetrack. The facility is used nearly every day for race training, fire and police training, filming of commercials, television programming, and for racing. The eastern portion of the project site is also used for swap meets, special event operations, and vehicle and trailer shows.

A Phase I Environmental Site Assessment (Phase I ESA) was prepared for the project site in August of 2013. As noted in the Phase I ESA, the project site lies in the northern edge of the San Gabriel Valley in Los Angeles County. The soil profile consists mainly of Pleistocene and younger Alluvium deposits. These are primarily unconsolidated gravel, boulders, cobbles, sand, silt, and clay sediments. In the general area of the site, these sediments overlay the Puente and Topanga Formations that consist of interbedded marine siltstone, sandstone, conglomerate, and shale.

The site is located within the Main San Gabriel Groundwater Basin, which underlies most of the San Gabriel Valley. The basin has a storage capacity of approximately 8.6 million acre-feet of water, with the subsurface drainage going through the Whittier Narrows into the Los Angeles Coastal Plain. The surface drainage also travels through the Whittier Narrows via the Rio Hondo and San Gabriel Rivers. According to Los Angeles County Department of Public Works (LACDPW) records, groundwater in the general area of the site is anticipated to exist at approximately 200 feet. Data from water well

#4289 near Irwindale Avenue and Arrow Highway measures well elevation at 471 feet above mean sea level and groundwater depth at 208.7 feet as of March 1994. The San Gabriel Valley Groundwater Basin has been designated as a Federal Superfund site. The basin has limited plumes of chlorinated solvent, including (but not limited to) trichloromethane (TCE), tetrachloromethane (PCE), chloroform, and methyl chloride.

Surface water runoff is collected and transported by concrete gutters into storm drains located along major streets in the site area. The San Gabriel River Recharge Basin is located approximately one-quarter mile west of the project site. This river is nearly dry for much of the year, as the water is collected in dams in the mountains. This river channels rainwater to the ocean during the rainy season and is a recharge basin for the San Gabriel Valley groundwater aquifers.

The area of the subject property in the City of Irwindale receives its water supply from freshwater wells in aquifers 200 to 1,000 feet deep. This water is not polluted and is a good source of 100 percent of the water for much of the area. There are impermeable clay layers separating the upper groundwater aquifers, which result from surface drainage from the deeper freshwater aquifers. There was nothing in the history of the subject site to indicate that it had ever affected the underground aquifers. Water is purchased from the Metropolitan Water District on an emergency basis only.

There were no tests found of the groundwater directly under the subject property. Based upon the lack of activity noted to have been on the subject property and the recent businesses and buildings surrounding, contamination of the groundwater relative to the subject property does not appear to be a concern relative to ownership of the subject property. There is no evidence in the records researched concerning the subject property or its adjoining properties that the groundwater is contaminated under the subject property. There is evidence of groundwater contamination in the general area and possibly under the subject property. Aerojet, Huffy, OSCO, and Win Oil have been named as the primary Potentially Responsible Parties (PRPs), along with 16 lesser PRPs. Among them is the landfill operated by BFI north and of the subject property named the Azusa Land Reclamation Company. The local groundwater basin contamination plume will be remediated and the final selection of responsible parties will pay for some or all of the cost to remediate. The subject property is not a known party to this action as it was a sand and gravel quarry and later a landfill for solid and inert materials.

The subject property is constructed over a former landfill. A permanent methane gas mitigation and monitoring program is in place on site. There is a possibility of vapor issues on the northwest side of the property due to 55-gallon drums of performance fuel being used and underground tanks on and adjacent to that area of the west parcel based upon a Vapor Encroachment Screen (VES).

4.4.1.2 Surrounding Area

The major roadways that currently provide access to the project area are I-605 to the east, Live Oak Avenue to the north, and Graham Access Road to the south. Developed properties in the vicinity of the project site include an active landfill to the north (operated by Waste Management) as well as a filled-in closed quarry and open quarry with water to the northwest, an active sand and gravel quarry operation to the south, a truck distribution center to the west, and a Southern California Edison (SCE) electrical substation and equipment yard to the east beyond I-605. Beyond the adjacent land uses are residential neighborhoods. The Santa Fe Dam is located approximately 0.8 mile northeast of the project site and the San Gabriel River is located approximately 0.25 mile east of the project site. Figure 3.3 in Section 3.0 *Project Description*, shows the existing surrounding land uses as well as other land uses on and around the project site. There are no airports in the vicinity of the project area. The nearest airport to the project site is El Monte Airport, approximately 3.0 miles to the southwest. There are no existing or proposed school facilities within one-quarter of a mile of the project area. The nearest schools to the project site are Olive Middle School in the City of Baldwin Park located approximately 0.6 mile to the southeast; Walnut Elementary School in the City of Baldwin Park located approximately 0.7 mile to the southeast; Pearl Preparatory School (private) located in the City

of Arcadia approximately 0.9 mile to the west; and Plymouth Elementary School in the City of Monrovia approximately 1.0 mile to the west. There were no visible emissions that would be of concern for the subject property noted during the site inspection in the Phase I ESA from any of the adjacent or adjoining properties.

4.4.1.3 NOP/Scoping Comments

No residents commented during the NOP period about hazards or hazardous materials. One comment provided by the County of Los Angeles Fire Department Health Hazardous Materials Division indicated the project would require approval by the Los Angeles County Regional Water Quality Control Board (RWQCB) prior to any ground disturbance occurring at the project site due to the presence of potentially hazardous materials associated with the former use of the site (former landfill).

4.4.2 Existing Policies and Regulations

4.4.2.1 Federal Regulations

Comprehensive Environmental Response, Compensation, and Liability Act. Discovery of environmental health damage from disposal sites prompted the U.S. Congress to pass the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund). The purpose of the CERCLA is to identify and clean up chemically contaminated sites that pose a significant environmental health threat. The Hazard Ranking System is used to determine whether a site should be placed on the National Priorities List for cleanup activities.

Superfund Amendments and Reauthorization Act. The Superfund Amendments and Reauthorization Act (SARA) pertain primarily to emergency management of accidental releases. It requires formation of State and local emergency planning committees, which are responsible for collecting, material handling, and transportation data for use as a basis for planning. Chemical inventory data are made available to the community at large under the “right-to-know” provision of the law. In addition, SARA also requires annual reporting of continuous emissions and accidental releases of specified compounds. These annual submissions are compiled into a nationwide Toxics Release Inventory (TRI).

Resource Conservation and Recovery Act. The Resource Conservation and Recovery Act (RCRA) Subtitle C addresses hazardous waste generation, handling, transportation, storage, treatment, and disposal. It includes requirements for a system that uses hazardous waste manifests to track the movement of waste from its site of generation to its ultimate disposition. The 1984 amendments to the RCRA created a national priority for waste minimization. Subtitle D establishes national minimum requirements for solid waste disposal sites and practices. It requires states to develop plans for the management of wastes within their jurisdictions. Subtitle I requires monitoring and containment systems for underground storage tanks that hold hazardous materials. Owners of tanks must demonstrate financial assurance for the cleanup of a potential leaking tank.

Hazardous Materials Transportation Act. The Hazardous Materials Transportation Act is the statutory basis for the extensive body of regulations aimed at ensuring the safe transport of hazardous materials on water, rail, highways, in the sky, or in pipelines. It includes provisions for materials classification, packaging, marking, labeling, placarding, and shipping documentation.

4.4.2.2 State Regulations

California Code of Regulations. Most State and Federal regulations and requirements that apply to generators of hazardous waste are spelled out in the California Code of Regulations (CCR), Title 22, Division 4.5. Title 22 contains the detailed compliance requirements for hazardous waste generators, transporters, treatment, storage, and disposal facilities. Because California is a fully authorized State according to RCRA, most RCRA regulations (those contained in 40 Code of Federal Regulations [CFR] 260, et seq.) have been duplicated and integrated into Title 22. However, because the Department of Toxic Substance Control (DTSC) regulates hazardous waste more stringently than the U.S. EPA, the integration of California and Federal hazardous waste regulations that make up Title 22 do not contain as many exemptions or exclusions as does 40 CFR 260. As with the California Health and Safety Code, Title 22 also regulates a wider range of waste types and waste management activities than do the RCRA regulations in 40 CFR 260. To aid the regulated community, California compiled the hazardous materials, waste and toxics-related regulations contained in CCR, Titles 3, 8, 13, 17, 19, 22, 23, 24, and 27 into one consolidated CCR, Title 26 "Toxics." However, the California hazardous waste regulations are still commonly referred to as Title 22. For the purposes of clarity, because of the extensive reach of Title 22 and Title 26, many common household products sold in grocery stores and home improvement warehouses qualify as hazardous materials. These items include household cleaners, detergents, paint, motor oil, lubricants, glues, pesticides, etc. The term "hazardous materials" is also defined to include many on site materials as well, such as lubricants, fuel, etc. Thus, when this section of the EIR discusses the transport and storage of "hazardous materials," it is referring to the potential transport of bulk products to the project locations and to the temporary storage of such materials at the project sites prior to re-package and transport to subsequent destinations.

Cortese List: Section 65962.5(a). Government Code Section 65962.5 requires the California Environmental Protection Agency (CalEPA) to develop at least annually an updated Hazardous Waste and Substances Sites list (Cortese List). The Cortese List is a planning document used by the State, local agencies, and developers to comply with CEQA requirements in providing information about the location of hazardous materials release sites. Release sites include or hazardous materials release sites may include the following:

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

The California DTSC is responsible for a portion of the information contained in the Cortese List. Other State and local government agencies are required to provide additional hazardous material release information for the Cortese List.

California Emergency Services Act. Government Code 8550–8692 provides for the assignment of functions to be performed by various agencies during an emergency so that the most effective use may be made of all manpower, resources, and facilities for dealing with any emergency that may occur. The coordination of all emergency services is recognized by the State to mitigate the effects of natural, man-made, or war-caused emergencies which result in conditions of disaster or extreme peril to life, property, and the resources of the State, and generally, to protect the health and safety and preserve the lives and property of the people of the State.

State Fire Plan. The State Board of Forestry and the California Department of Forestry and Fire Protection have drafted a comprehensive update of the State Fire Plan for wildland fire protection in California. The planning process defines a level of service measurement, considers assets at risk, incorporates the cooperative interdependent relationships of wildland fire protection providers, provides for public stakeholder involvement, and creates a fiscal framework for policy analysis.

4.4.2.3 Local Regulations, City of Irwindale

The Public Safety Element of the General Plan identifies policies focusing on issues related to hazards, such as emergency preparedness; however, none is applicable to the proposed project. (General Plan policies related to geological and seismic hazards are addressed in Section 4.6.2.2.)

4.4.3 Methodology

Evaluation of hazards and hazardous material impacts associated with the proposed project included a focus on the use, generation, management, transport, and disposal of hazardous or potentially hazardous materials on the project site. A Phase I ESA was prepared to document existing site conditions involving the presence or absence of hazardous materials that may have been deposited through previous land uses. In addition, the City's General Plan Public Safety Element was consulted to identify existing known hazards that may affect the project area. For airport hazards, the Los Angeles County ALUC was consulted to determine if the proposed project would increase air hazards. In determining the level of significance, the analysis assumes that construction and operation of the proposed project would be in compliance with relevant local, State, and Federal laws and regulations pertaining to the use, storage, and disposal of hazardous materials.

4.4.4 Thresholds of Significance

Based on Appendix G of the *CEQA Guidelines*, the proposed project would result in a significant adverse impact with regard to hazards if it were to:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- 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;
- Create hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment;
- 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, result in a safety hazard for people residing or working in the project area;
- For a project located within the vicinity of a private airstrip, result in a safety hazard for people working in the project area;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation; and/or
- Result in the exposure of 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.

4.4.5 Less than Significant Impacts

In each of the following issues, either no impact would occur (therefore, no mitigation would be required) or adherence to established regulations, standards, and policies would reduce potential impacts to a less than significant level.

4.4.5.1 Routine Transport, Use, or Disposal of Hazardous Materials

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

The proposed Irwindale Regional Shopping Center consists of an approximately 700,000-square foot shopping center and associated parking on an approximately 63.5-acre site. In addition to the primary function of the shopping center to provide commercial space for shopping opportunities, the project includes ancillary amenities including a central plaza for public gatherings, entryway features, an outdoor entertainment/performance area, and a food court. The proposed project will include related improvements, including, but not limited to parking, landscape planters, fencing, and walls. The project site is generally level and fully developed with the Irwindale Speedway. The Irwindale Speedway would be demolished and the concrete and asphalt would be used as on-site fill for the proposed project's construction. A Phase 1 ESA was completed by S&S Commercial Environmental Services in August 2013 for the proposed project site to determine the potential impacts of the former landfill that the existing Speedway is built upon. While it is expected that on-site soils will likely need to be over-excavated and re-compacted or replaced with suitable soils, the Phase I Environmental Site Assessment (ESA) prepared for the project site concluded that there are no areas of concern regarding the current or former use of the project site. No recommendations for subsurface remediation were identified within the Phase I ESA.

Potentially hazardous materials such as fuel, paint products, lubricants, solvents, and cleaning products may be used and/or stored on site during the construction and/or occupancy of the proposed commercial facilities. The transport, use, and storage of hazardous materials during the construction and operation of the site would be required to be conducted in accordance with all applicable State and Federal laws. Compliance with all applicable Federal, State, and local laws and regulations would reduce the potential impact associated with the routine transport, use, storage, or disposal of hazardous materials to a less than significant level. No mitigation is required.

The act of regulating the transport of hazardous materials on State highways is governed by the United States Department of Transportation (USDOT), as described in Title 49 of the Code of Federal Regulations[1] and by Title 13 of the California Code of Regulations. The State Office of Hazardous Materials Safety enforces regulations for the safe transportation of hazardous materials. It is possible that vendors may bring hazardous materials to and from the project site. Appropriate documentation for all hazardous waste that is transported in connection with project site activities would be provided as required by hazardous materials regulations. Hazardous waste produced on site is subject to requirements associated with accumulation time limits, proper storage locations and containers, and proper labeling. Additionally, for removal of hazardous waste from the site, hazardous waste generators are required to use a certified hazardous waste transportation company, which must ship hazardous waste to a permitted facility for treatment, storage, recycling, or disposal. Compliance with applicable regulations would reduce impacts associated with the use, transport, storage, and sale of hazardous materials.

The enforcement of applicable local, State, and Federal standards, ordinances, and regulations will ensure that potential impacts associated with environmental and health hazards related to the

[1] Code of Federal Regulations, Title 49—Transportation, Pipeline and Hazardous Materials Safety Administration, Department of Transportation, http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title49/49tab_02.tpl, site accessed July 16, 2014.

transport, use, or storage of hazardous materials are less than significant and no mitigation is required.

4.4.5.2 Within Two Miles of a Private Airport or Within an Airport Land Use Plan or Within Two Miles of a Public Airport

Threshold	For a project located within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the proposed project area? Would the project be 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, resulting in a safety hazard for people residing or working in the project area?

The proposed project site is not within two miles of any airport or private airstrip. The site is located approximately three miles from the closest airport (El Monte Airport to the west). Given the distance of the project area to the closest airport, the development of the project area as proposed would not result in private airport safety hazards for people working in the project area. No impacts associated with this issue would occur and no mitigation is required.

4.4.5.3 Existing or Proposed School

Threshold	Would the proposed project create hazardous emissions or handle acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

As previously noted, there are no existing or proposed school facilities within one-quarter of a mile of the project area. The nearest schools to the project site are Olive Middle School in the City of Baldwin Park located approximately 0.6 mile to the southeast; Walnut Elementary School in the City of Baldwin Park located approximately 0.7 mile to the southeast; Pearl Preparatory School (private) located in the City of Arcadia approximately 0.9 mile to the west; and Plymouth Elementary School in the City of Monrovia approximately 1.0 mile to the west. Three public schools, Merwin Elementary School and Opportunities for Learning – Baldwin Park II (Charter School) and Options for Youth (Charter School), are located within the City limits. Merwin Elementary School is located approximately 3.0 miles east of the proposed project site on E. Cypress Street, while Opportunities for Learning – Baldwin Park II is located approximately 2.0 miles southeast of the project site on Ramona Boulevard. Options for Youth is located approximately 2.79 miles northeast of the project site on Irwindale Avenue, north of Arrow highway. Irwindale public schools students belong to two districts, Baldwin Park Unified School District and Covina-Valley Unified School District. A review of the websites for these two school districts did not identify any proposed schools within a quarter mile of the project site. The City does not have jurisdiction with respect to the location, design, or construction of public school facilities. The City works with the local school districts concerning the design of roads and other public improvements in and around school sites, and is responsible for fire, police, and public safety concerns involving all facilities within the City, including schools. To date there are no known schools planned in the City.

The amount and type of hazardous materials that would be used during project construction is unknown at this time, but since this is a commercial retail project, it would most likely be limited to vehicle fuels and fluids, cleaning chemicals, and small amounts of landscaping chemicals. The emission of air pollutants is discussed in Section 4.1, *Air Quality*. While the proposed commercial uses are not expected to utilize acutely hazardous materials, the possibility exists that such materials could be stored or transported to and from the project site. For the purposes of this analysis, it is assumed that the project will not handle substances that may be acutely hazardous. However, the handling of hazardous materials or emission of hazardous substances, if present, would have to be in accordance with the Hazardous Materials Business Emergency Plan as required by applicable local,

State, and Federal standards, ordinances, and regulations. Compliance will ensure that impacts associated with environmental and health hazards related to an accidental release of hazardous materials or emissions of hazardous substance near existing or proposed schools are less than significant and no mitigation is required.

4.4.5.4 Conflict with Emergency Response Plans

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

The proposed project will be designed, constructed, and maintained in accordance with applicable standards associated with vehicular access, ensuring that adequate emergency access and evacuation will be provided. Construction activities that may temporarily restrict vehicular traffic would be required to implement appropriate measures to facilitate the passage of persons and vehicles through/around any required road closures. The construction contractor retained for the construction of the proposed project would be required to obtain an encroachment permit from the City's Public Works Department prior to the commencement of construction activities within the City's right-of-way. The encroachment permit procedures require that the construction contractor show evidence of a Certificate of Liability, Certificate of Workers' Compensation, a current Business License, a Traffic Control Plan in conformance with the Caltrans Manual of Traffic Control for Construction and Maintenance Work Zones (latest edition), distribution of bilingual notices to residents and business owners within a 300-foot radius of the job site no less than 48 hours before commencement of work, the posting of "No Parking Anytime" signs no less than 48 hours prior to the commencement of work, a work schedule, and payment of permit fees. The proposed project is consistent with the General Plan Circulation Element. Adherence to these measures would reduce potential impacts related to this issue to a less than significant level, and no mitigation is required. Compliance with existing regulations for emergency access and evacuation will ensure that impacts related to this issue are less than significant and no mitigation is required.

4.4.5.5 Wildland Fire Risks

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

The Irwindale General Plan does not identify any areas that are subject or at risk to wildland fires. The project area is not within a Fire Hazard Severity Zone as identified on Fire Hazard Severity Zone maps created by the California Department of Forestry and Fire Protection's Fire Resources Assessment Program. The project site is not within any designated fire hazard zone. Additionally, the project site is in developed, urbanized areas, and is not adjacent to or near wildlands that could be subject to wildland fires. The project would not increase risks related to wildland fires or expose people or structures to significant risk of wildland fires. No impacts related to wildland fires would occur.

4.4.6 Potentially Significant Impacts

4.4.6.1 Upset and Accident Conditions Involving Hazardous Materials

Threshold	Would the proposed project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment?

Exposure to hazardous materials during the construction and operation of the proposed on-site uses would result from (1) the improper handling or use of hazardous substances; (2) transportation accident; or (3) an unforeseen event (e.g., fire, flood, or earthquake). The severity of any such exposure is dependent upon the type, amount, and characteristic of the hazardous material involved; the timing, location, and nature of the event; and the sensitivity of the individual or environment affected.

As previously noted, the transport, storage, and handling of hazardous material is governed by existing local, State, and Federal regulations, including applicable sections of the California Code of Regulations. The proposed project is required to meet all City and County Hazard Materials Management Plans and regulations. As with any operation in which hazardous materials are utilized, any on-site activity involving hazardous substances must adhere to applicable local, State, and Federal safety standards, ordinances, or regulations. Businesses engaged in the use, storage, or transportation of hazardous substances are monitored by various local and State (e.g., Department of Toxic Substance Control) entities. Adherence to regulatory requirements would ensure that impacts in this regard are less than significant and no mitigation is required.

As previously identified, a Phase 1 ESA was completed by S&S Commercial Environmental Services in August 2013 for the proposed project site to determine the potential impacts of the former landfill that the existing Speedway is built upon. The Phase 1 ESA determined that due to the compaction of the landfill, potential methane gas impacts could occur. The assessment also determined that, although the roofing material of on-site structures associated with the speedway is unlikely to contain asbestos-containing material, sampling should be completed during on-site demolition of existing structures. This is a potentially significant impact and mitigation measures are required.

The Irwindale Speedway is the site of a former Class III landfill that was operated from 1969 to 1993. Although the landfill accepted mainly construction waste, it is likely that some organic materials (e.g., native and landscaping plant materials) were deposited along with inert building materials. Over time, organic materials decompose and form methane (CH_4), a lighter-than-air flammable gas that can be explosive in concentrations of 5 percent or above in air and ignited by a flame or spark. Methane can migrate slowly upward from a landfill and would typically dissipate as it reaches the ground surface. However, methane can concentrate in enclosed buildings if they are located over a closed landfill. For that reason, landfills typically have a methane containment and monitoring system installed when they are closed, especially when occupied buildings may be placed above them in the future.

From July 1998 to January 1999, a methane monitoring system was installed beneath the seven operating buildings of the Irwindale Speedway to prevent the buildup of explosive methane gas beneath or within the on-site buildings. The system consisted of a gas impermeable layer of high density polyethylene plastic membrane gas barrier, perforated vent lines, and 24 electronic methane probes above and beneath the membrane to monitor methane levels. The system was approved by the Los Angeles County Department of Public Works (LACDPW) and has been monitored regularly since its installation. Through June 18, 2014 the results of the monitoring system methane probes indicate that none of the locations appears to have had a dangerous buildup of methane inside any of the buildings, except for one instance in March 2013 when the concentration in one building (elevator tower) appeared to reach 0.05 percent by volume and again in June 2014 when the concentration in one of the office buildings appeared to reach 0.05 percent by volume.[1] See Appendix D. However, further testing indicated problems with the probe, and all other readings during that time and before and after that time have indicted no detectable methane (0 percent measured by the probes). There are indications that water may be seeping into some of the probe locations as more recent monitoring reports have indicated methane levels cannot be measured due to water in the probe. This condition does not appear to represent a public health hazard at present since the former raceway buildings are not currently occupied. However, any new construction of occupied buildings on the project site would need to have methane gas protection systems installed and regularly monitored, similar to that

[1] *Closed Disposal Site Inspection Report (188)*, Los Angeles County Local Enforcement Agency, March 1, 2013.

currently in place on the site, to adequately protect the public from the potentially dangerous buildup of methane in occupied buildings. Such systems would need to be installed and monitored under the oversight of LACDPW. Additionally, in accordance with SCAQMD Rule 1150.1, a site-specific gas collection and gas control systems design plan would be required. The purpose of SCAQMD Rule 1150.1 is to reduce non-methane organic compounds (NMOC), volatile organic compound (VOC), and toxic air contaminant (TAC) emissions from Municipal Solid Waste (MSW) landfills to prevent public nuisance and possible detriment to public health caused by exposure to such emissions. This rule also reduces methane emissions, a greenhouse gas. This is a potentially significant impact and mitigation measures are required.

The Phase 1 ESA determined that there is a possibility of vapor issues on the northwest side of the property. There is a fueling station located outside the northwestern corner of the project site for the neighboring logistics company that contains underground tanks containing gasoline and diesel fuel, which appear to have been installed in 1995 with upgrades since that time. Additionally, there is a fueling station within the project site at the northwestern corner with underground tanks and 55-gallon drums of performance fuels on the existing asphalt. Given the August 2013 EPA approval of the ASTM 1527 - Revisions and the CERCLA inclusion of vapor as a release to the environment, the Phase 1 ESA determined that to complete due diligence at a minimum for ASTM ES2600, a six-point vapor sampling at 5 and 10 feet on the northwest side of the parcel may need to be completed. All hazardous materials and facilities, including but not limited to, underground tanks, aboveground tanks, and storage drums related to current Speedway activities would be required to be removed from the site prior any project-related construction activities. Mitigation measures are identified below to reduce this potential impact to a less than significant level.

Project Design Features. The project has no features that specifically deal with hazards or hazardous wastes.

Mitigation Measures. The site has potentially significant impacts involving asbestos, methane gas, and fuel vapor. Therefore, the following measures are recommended:

4.4.6.1A Prior to the demolition of any structure that has the potential to contain asbestos-containing materials, an inspection for Asbestos Containing Building Materials (ACM) shall be conducted by a California Site Surveillance Technician (CSST) registered by the California Division of Occupational Health and Safety (CalOSHA) for ACM. The purpose of the ACM inspection is to locate and identify suspected ACM that will be affected during the demolition portion of the project. Once a visual inspection is performed, representative asbestos samples (if present) shall be collected in accordance with the U.S. EPA established guidelines document, “Guidance for Controlling Asbestos-Containing Materials in Buildings” (U.S. EPA 560/5-85-024, 1985) and U.S. EPA 40 CFR Part 763, “Asbestos-Containing Materials in Schools, Final Rule.” After sampling, ACM shall be abated/removed from the project site by a California State Registered Asbestos Abatement Contractor registered by the Division of Occupational Health and Safety (OSHA) in accordance with the California Administrative Code, Title 8, and article 2.5. and in adherence to the South Coast Air Quality Management District (SCAQMD) Asbestos Hazard Emergency Response Act (AHERA) pursuant to CFR Chapter 40, Part 763, subpart E.

4.4.6.1B Prior to issuance of a grading permit, the applicant and the City shall meet with representatives of the Los Angeles County Department of Public Works (LACDPW) and South Coast Air Quality Management District (SCAQMD) to develop an appropriate methane gas protection system for the new commercial uses proposed on the project site. This system shall be designed by a qualified civil engineer with experience designing such systems, to the satisfaction of the LACDPW and SCAQMD. The protection system

shall be approved by the LACDPW and SCAQMD prior to issuance of a grading permit for the proposed project, to the satisfaction of the City Public Works Department.

4.4.6.1C During grading, a methane gas protection and monitoring system shall be installed beneath each new commercial building of the project. This system shall be designed and installed to the satisfaction of the Los Angeles County Department of Public Works (LACDPW) and South Coast Air Quality Management District (SCAQMD) per **Mitigation Measure 4.4.6.1B**.

4.4.6.1D Prior to issuance of the first occupancy permit, the applicant shall demonstrate that the methane gas protection system has been installed and is operating per design specifications.

4.4.6.1E After issuance of an occupancy permit for all buildings within the project, the methane gas system shall be monitored regularly (at least weekly for the first two months, then at least monthly for the first year, then at least quarterly) and written results provided to the City Public Works Department. Any measurements over 1 percent shall be reported immediately to the City, the Los Angeles County Department of Public Works (LACDPW), and South Coast Air Quality Management District (SCAQMD) for appropriate action and additional monitoring. Any measurements over 3 percent shall be reported immediately to the City, the LACDPW, and SCAQMD, and the City shall take appropriate action, which may include but not be limited to temporary evacuation or limited occupancy of the building or buildings with elevated methane readings. Elevated methane readings over more than 2 monitoring periods will be grounds to require inspection and possible repair of the methane monitoring system, to the satisfaction of the City, LACDPW, and SCAQMD.

4.4.6.1F Prior to issuance of a grading permit, the applicant shall retain a certified hazardous materials waste hauler to collect, haul away, and dispose of all on-site materials that may be potentially hazardous including, but not limited to, underground tanks, aboveground tanks, and storage drums related to current Speedway activities. The disposal of these materials and facilities shall be conducted in accordance with all Federal, State, and local regulations associated with the removal, hauling, and disposal of hazardous materials.

Level of Significance after Mitigation. With implementation of **Mitigation Measures 4.4.6.1A** through **4.4.6.1F,** potential on-site conditions involving hazardous materials impacts of the proposed project will be reduced to less than significant levels.

4.4.6.2 Located on a List of Hazardous Materials Sites

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

A Phase 1 Environmental Site Assessment (Appendix D) was completed for the project site by S & S Commercial Environmental Services in August 2013. S & S Commercial Environmental Services reviewed a record search performed by Environmental Data Resources that covered a 1.0-mile radius from the project. This included a review of Federal, State, and local environmental databases for information pertaining to documented and/or suspected contaminated sites, known handlers or generators of hazardous waste, waste disposal facilities, releases of regulated hazardous substances and/or petroleum products within specified search distances. Table 4.4.A provides a summary of the types of properties within the project radius.

Table 4.4.A: Hazardous Materials Property Categories

Category	Description	Project Relevance
Category 1	This category is composed of lists compiled by the *U.S. Environmental Protection Agency* and the State of California Equivalency lists. This category includes National Priority List sites, RCRA Corrective Actions by the EPA, and EPA permitted treatment, permitted solid waste landfills, incinerator sites or transfer stations, storage and disposal facilities within a one-mile radius of the project property.	There are four Category 1 sites listed as being within one mile of the project site. The project site is included as one of these four Category 1 sites as it is the former Nuway landfill. Although the project site is on the Category 1 list, a permanent methane gas monitoring system is in place and no problems are noted. The other three sites within vicinity of the project are not a concern for migratory contamination to the project site due to distance and the sites containing inert materials.
Category 2	The sites within this category include sites selected for possible placement on the Federal NPL list or the State risks to human health and the environment. This category also includes leaking underground tank sites from both the *Regional Water Quality Control Board* and the State mandated CORTESE lists of properties with hazardous wastes, sites with DEED restrictions and Toxic Pits Cleanup facilities. Sites within this category are provided on this list within a one-half mile of the project site.	There are five Category 2 sites listed involved with leaking underground tanks. All of those sites are within one-half mile of the project site. However, all five sites have been closed with no further action or are too far away to affect the project site. The project site is not included on any of the Category 2 lists.
Category 3	Sites in this list are the result of RCRA enforcement actions, the Toxic Release Inventory base, registered aboveground or underground tanks, and the result of searches of any unique county data bases. The databases range from 1994 information for underground tanks to the date of this report for information for RCRA actions and registered aboveground storage tanks.	There are two Category 3 sites listed within a one-quarter mile of the project site. One site is located on the northwest side of the project site and one site is just outside the northwest corner of the project site. The underground tanks are newer tanks with modern leak detection systems.
Category 4	Sites in this category include ERNS, which is a national database retrieval system of Incident-Notification information as initially reported by any party regarding incidents of reported releases of oil and hazardous substances. The information in this report combines data from the *United States Coast Guard National Response Center* data base with data from the 10 *EPA* regions. ERNS/SPILLS - ERNS/SPILLS supports the release notification requirements of Section 103 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended; Section 311 of the Clean Water Act; and Sections 300.51 and 300.65 of the National Oil and Hazardous Substances Contingency Plan.	There are no ERNS/SPILLS sites listed within one-eighth mile of the project site.
RCRA	Sites that generate regulated hazardous waste above a certain quantity are required to use EPA identification numbers and are called RCRA sites. An EPA identification number does not indicate a problem with a site, but merely that they use or dispose of a minimum quantity of a hazardous waste.	There are no RCRA sites listed within a one-eighth mile radius of the project site. The project site is not an RCRA site but is a CalEPA registered site as it disposes of regulated waste oil, used oil filters, and engine fluids.

Source: *Phase 1 Environmental Site Assessment for 500 Speedway Drive, Irwindale, California 91706*, S&S Commercial Environmental Services, August 2013.

Based on the records search conducted, the project site is included on the Local Lists of Landfill/Solid Waste Disposal Sites maintained by State Water Resources Control Board. The project site was included on this list due to its previous use as the former Nuway landfill. As noted in Section 4.4.6.1, a permanent methane gas monitoring system is in place on the project site to prevent the buildup of explosive methane gas beneath or within the on-site buildings. However, any new construction of occupied buildings on the project site would need to have methane gas protection systems installed and regularly monitored, similar to that currently in place on the site, to adequately protect the public from the potentially dangerous buildup of methane in occupied buildings. Such systems would need to be installed and monitored under the oversight of LACDPW. With the implementation of previously identified **Mitigation Measures 4.4.6.1B** through **4.4.6.1.F**, impacts associated with this issue would be reduced to a less than significant level.

4.4.7 Cumulative Impacts

The use of hazardous materials in the City of Irwindale is controlled and permitted by LACFD, a State-designated CUPA, whose responsibilities include inspecting hazardous material handlers and hazardous-waste generators to ensure compliance with laws and regulations; ensuring the preparation and implementation of Business Plans, emergency response plans, and accident prevention plans for businesses that handle hazardous materials; providing 24-hour response to emergency incidents involving hazardous materials or wastes; and conducting investigations and taking enforcement action as necessary against anyone who disposes of hazardous waste illegally or otherwise manages hazardous materials or wastes in violation of Federal, State, or local laws and regulations. The hazardous materials control and safety programs and available emergency-response resources of Los Angeles County Fire Department, along with periodic inspections to ensure regulatory compliance, reduce the potential risk of upset and exposure to hazardous materials associated with nearby businesses. Similar to the proposed project, development of other planned projects within the City of Irwindale would be required to adhere to the existing laws and regulations regarding the use, storage, transport, or disposal of hazardous materials and waste. Moreover, the proposed project would not result in any safety hazards related to nearby airports, airstrips, adopted emergency response plans, or wildland fire hazards. The project would not combine with other projects to result in a cumulatively considerable impact with respect to these potential hazards. In addition the project would be consistent with General Plan policies as shown in Table 4.4.A. Therefore, the proposed project will not have impacts that are cumulatively considerable impacts related to hazardous materials, hazardous waste, or the creation of any health hazards.

THIS PAGE INTENTIONALLY LEFT BLANK

4.5 HYDROLOGY AND WATER QUALITY

This section describes the hydrologic conditions on and adjacent to the project site and evaluates potential impacts related to surface and groundwater resources associated with the proposed project.

The analysis contained in this section is based on the following technical studies prepared for the proposed project, which are included as Appendices E and H of this EIR:

- *Preliminary Standard Urban Stormwater Mitigation Plan,* JR Miller & Associates, Inc., Revised November 25, 2014. (Appendix E-1);
- *Stormwater Hydrology Report, International Outlet Center, Irwindale, CA,* JR Miller & Associates, Inc., November 24, 2014 (Appendix E-2);
- *Water Supply Assessment for the Irwindale Outlet Center Project,* Stetson Engineers, Inc., October 2014 (Appendix H).

In addition to this project-specific technical study, the following references were consulted in the development of the analysis contained in this section:

- *Final Report, 2010 Urban Water Management Plan – South Arcadia, Golden State Water Company,* August 2011.
- *Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties,* June 1994 (as amended).
- *Annual Report 2012–2013,* Main San Gabriel Basin Watermaster.
- *Los Angeles County Hydrology Manual,* Los Angeles County Public Works, 2006.
- *2014 San Gabriel Basin Groundwater Quality Management and Remediation Plan*, San Gabriel Basin Water Quality Authority, January 21, 2014.

4.5.1 Existing Setting

4.5.1.1 Surface Drainage

The City is located in the Los Angeles-San Gabriel Hydrologic Unit, bounded on the north by the San Gabriel Mountain Range, which is the origin for most of the region's surface runoff. The San Gabriel River Watershed is located in the eastern portion of Los Angeles County. It is bounded by the San Gabriel Mountains to the north, most of San Bernardino/Orange County to the east, the division of the Los Angeles River from the San Gabriel River to the west, and the Pacific Ocean to the south.[1]

The San Gabriel River, with an overall watershed area of approximately 690 square miles, drains the eastern and central portions of the City. This river, generally paralleling I-605 and flowing in a northeast to southwest direction, is the region's major distributor of runoff from the nearby San Gabriel Mountains. Other surface water bodies/ways in the vicinity include the Big Dalton Wash and a 70-acre recreational lake within the Santa Fe Dam Flood Control Basin and Recreation Area. The San Gabriel River flows 75 miles southwest from the San Gabriel Mountains, then southward from the Whittier Narrows to its ocean discharge at the City of Seal Beach. Due to favorable soil conditions, the San Gabriel River has a natural bed for most of its length, although the banks are lined with riprap and concrete for flood control purposes. The river is fed by storm water, base flow from the San Gabriel Mountains, dry weather urban runoff and effluent from wastewater treatment plants. The upper reaches of the San Gabriel River watershed consist largely of undisturbed riparian and

[1] *Water Quality Control Plan Los Angeles Region Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties*, Los Angeles Regional Water Quality Control Board, 1994 (as amended).

woodland habitats, while the quarry operations and spreading grounds utilized for groundwater recharge dominate the river's middle reaches. In general, operation of the spreading grounds occurs from mid-November through mid-April when runoff from the mountains is the greatest.[1]

4.5.1.2 Groundwater

Water resources in the City and throughout the San Gabriel Valley are sustained by substantial groundwater basins, which are used as reservoirs to store water during wet years. These underground reservoirs are tapped throughout the year according to the demand for water. Groundwater conditions in these basins are influenced by natural hydrologic conditions such as percolation of precipitation, groundwater seepage, and ephemeral stream flow within the watershed areas. Groundwater supplies are also augmented with recharged surface water purchased through the State Water Project.

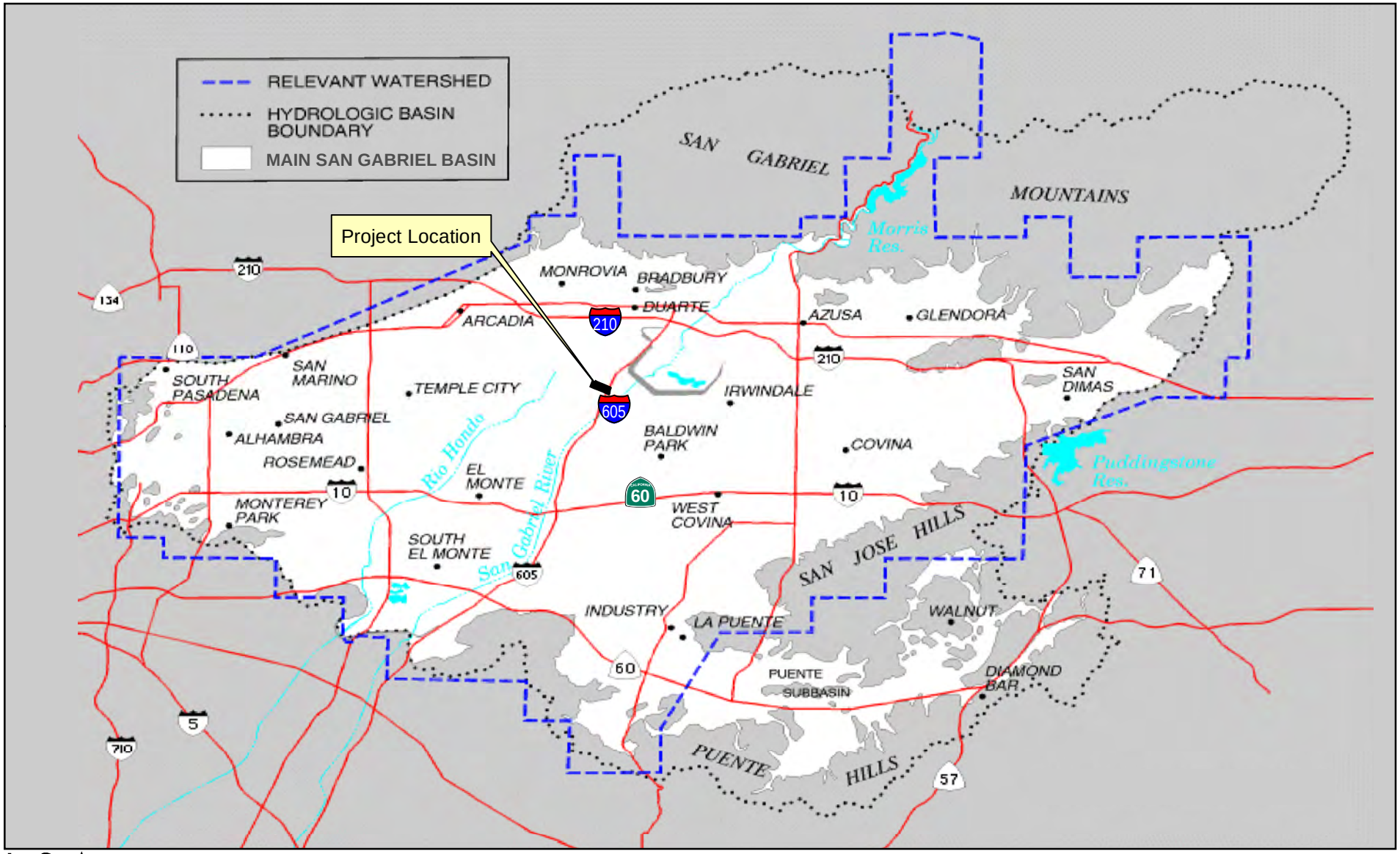
The San Gabriel Valley Groundwater Basin is located in eastern Los Angeles County and includes the water-bearing sediments underlying most of the San Gabriel Valley and includes a portion of the upper Santa Ana Valley that lies in Los Angeles County. This basin is bounded on the north by the Raymond Fault and the contact between Quaternary sediments and consolidated basement rocks of the San Gabriel Mountains. Exposed consolidated rocks of the Repetto, Merced, and Puente Hills bound the basin on the south and west, and the Chino Fault and the San Jose Fault form the eastern boundary.[2]

The project site is located within the Main San Gabriel Basin (MSGB) (Figure 4.5.1). Beginning in the 1940s, urbanization in the San Gabriel Valley increased the demand for water drawn from MSGB, resulting in a state of overdraft, a condition where water production from the Basin exceeded the amount that could be replaced. As a result of the decrease in available water supply, parties downstream who relied on the MSGB for a large portion of their natural water supply, legal action was initiated on behalf of the downstream users resulting in a court decision requiring the MSGB users to guarantee a source of water to downstream users. The January 1973 judgment defined water rights of 190 original parties to the action, created a new governing body (the Main San Gabriel Basin Watermaster) and described a program for management of water in the Basin. Amongst its duties, the Watermaster determines annually the Operating Safe Yield (the amount of groundwater that can safely be extracted) for the succeeding fiscal year and notifies pumpers of their allotted shares.[3] Total water demand in the MSGB rose to approximately 260,000 acre-feet during the latest reporting period (2012–2013.) This demand is still below the ten-year average demand of 276,417 acre-feet per year.[4]

The major sources of recharge to the MSGB Basin are direct penetration of rainfall on the valley floor, percolation of runoff from the mountains, percolation of imported water and return flow from applied water. Rainfall occurs predominantly in the winter months and is more intense at higher elevations and closer to the San Gabriel Mountains. The Watermaster uses the groundwater level in the Baldwin Park Key Well to monitor changes in groundwater supply for the basin. The maximum and minimum groundwater level at the Baldwin Park Key Well is 329 and 189 feet (amsl) in 1916 and 2009, respectively.[5] Groundwater levels generally follow topographic slope, with groundwater flow from the edges of the basin toward the center of the basin, then southwestward to exit through the Whittier Narrows (DWR 1966), which is a structural and topographic low.

---

1 Section 4, Infrastructure Element, *City of Irwindale 2020 General Plan*, June 2008.
2 http://www.water.ca.gov/pubs/groundwater/bulletin_118/basindescriptions/4-13.pdf, site accessed August 21, 2014.
3 http://watermaster.org/geninfo.html, site accessed August 21, 2014.
4 http://watermaster.org/web%20WM%20B&W%20annual%2010_28_13.+Appendices.FINAL_LR.pdf, site accessed August 22, 2014.
5 Ground level at the Baldwin Park Key Well is 386.7 feet amsl.



LSA

FIGURE 4.5.1

N

0 1.75 3.5

Miles

SOURCE: http://www.watermaster.org/basinmap.html

Irwindale Regional Shopping Center
Environmental Impact Report

Main San Gabriel Basin

I:\COI1401\Reports\EIR\fig4-5-1_MSGB.mxd (8/27/2014)

THIS PAGE INTENTIONALLY LEFT BLANK

Currently, the Irwindale Speedway, its ancillary structures, and impervious parking areas occupy the project site. Because of the previous use as a landfill, the site is permanently capped by an impervious membrane that eliminates percolation of surface water through the underlying waste materials so that contaminants are not leached into the groundwater. For this reason, no groundwater recharge features are located within the project limits.

4.5.1.3 Water Quality

The project area is within the Los Angeles Region of the State Regional Water Quality Control Board (RWQCB), which encompasses the coastal watersheds of Los Angeles and Ventura Counties. The *Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties*[1] (Basin Plan) is designed to preserve and enhance water quality and protect the beneficial uses of all regional waters. Specifically, the Basin Plan designates beneficial uses for surface and ground waters; sets narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state's anti-degradation policy; and describes implementation programs to protect all waters in the Region. In addition, the Basin Plan incorporates (by reference) all applicable State and Regional Board plans and policies and other pertinent water quality policies and regulations. Those of other agencies are referenced in appropriate sections throughout the Basin Plan.

The Basin Plan is a resource for the Los Angeles RWQCB and others who use water and/or discharge wastewater in the Los Angeles Region. Other agencies and organizations involved in environmental permitting and resource management activities also use the Basin Plan. The Basin Plan is reviewed and updated as necessary. Following adoption by the RWQCB, the Basin Plan and subsequent amendments are subject to approval by the State Board, the State Office of Administrative Law (OAL), and the United States Environmental Protection Agency (EPA).

Surface water quality within the San Gabriel River is seasonally variable. During the start of the rainy season (October/November), the main contaminant sources for the river are sediment from runoff in the San Gabriel Mountains and storm water runoff from local streets. Storm water may contain organic (e.g., gasoline, oil, lubricants) and inorganic (e.g., dirt and dust) pollutants as well as other waste material (e.g., paper, plastic, metal). Generally, the amount of such material in the storm water runoff is reduced after the "first flush" (the first few rains of the season. Table 4.5.A details the pollutants potentially associated with the project.

Table 4.5.A: Pollutants and General Water Quality Impacts

Pollutant	Water Quality Impact
Bacterial Indicators	May result in water body impairments, can exceed public health standards for water contact recreation, creating a harmful environment. Can alter the aquatic habitat and create a harmful environment for aquatic life.
Metals	Bio-available forms of trace metals are toxic to aquatic life, potential of groundwater contamination, bio-accumulation in aquatic life, affect beneficial uses of a water body.
Nutrients	Elevated nutrient levels in surface waters cause algal blooms, excessive vegetative growth, and dissolved oxygen levels, which is detrimental to aquatic life.
Pesticides	Elevated levels can indirectly or directly constitute a hazard to life or health. During cleaning activities, these compounds can be washed off into storm drains creating runoff containing toxic levels of the pesticides active component. Dirt, grease, and grime may adsorb concentrations that are harmful or hazardous to aquatic life.

[1] *Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties*, June 1994 (as amended), www.waterboards.ca.gov/rwqcb4/water_issues/programs/basin_plan/basin_plan_documentation.shtml, site accessed August 20, 2014.

Table 4.5.A: Pollutants and General Water Quality Impacts

Pollutant	Water Quality Impact
Toxic Organic Compounds	May contain levels that are harmful or hazardous to aquatic life.
Sediments	Excessive sediment can be detrimental to aquatic life by interfering with photosynthesis, respiration, growth, and reproduction.
Trash and Debris	Detrimental effect on recreational value of a water body and aquatic habitat; interferes with aquatic life respiration and can be harmful or hazardous to aquatic animals that mistakenly ingest floating debris.
Oil and Grease	Can accumulate in aquatic life from contaminated water, sediments, and food and are toxic at low concentrations. Can persist in sediments for long periods of time and result in adverse impacts on the diversity and abundance of existing bio-communities and can affect the aesthetic value of a water body.

Significant groundwater contamination in the MSGB resulting from industrial and agricultural activities and improper disposal of solvents was identified in the late 1970s and early 1980s. Investigation of the MSGB revealed widespread VOC contamination leading the EPA to place four areas on the National Priorities Listing (NPL) under authority of Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), also known as the Superfund program. In 1997, perchlorate, a contaminant derived from solid rocket fuel was identified in local groundwater. The project site is not located with the limits of any known ground contamination (Figure 4.5.2).[1]

4.5.1.4 Water Sources

Water service to the City of Irwindale is provided by six different retail water companies. The project site is located in the service area of the Golden State Water Company (GSWC) – South Arcadia System. GSWC is an investor-owned utility in California that provides water service to residents across 75 communities throughout California. The company is regulated by the EPA, the California Department of Public Health, and the California Public Utilities Commission (CPUC). As a result of a 1973 adjudication, GSWC has pumping rights to 4.66 percent[2] of the operating safe yield (OSY) of the MSGB. GSWC uses this groundwater allocation to supply water to both its South San Gabriel and South Arcadia Systems. Depending on the OSY determined by the Watermaster, GSWC's total pumping rights have ranged from 4,089 to 7,011 acre-feet per year.

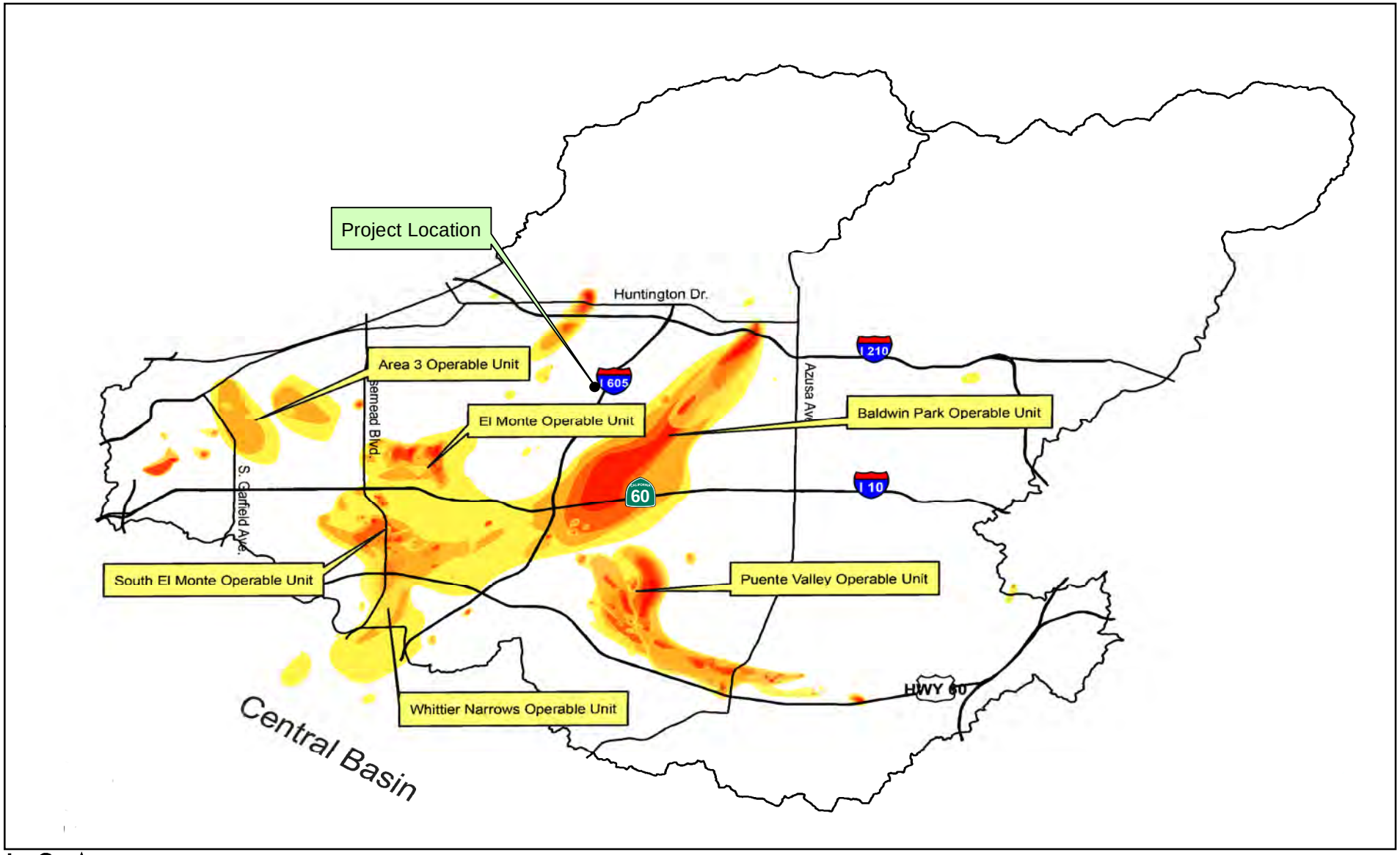
As stated previously, no groundwater recharge occurs on the project site. GSWC's South Arcadia System has the ability to purchase water from the City of Arcadia. This source of water typically makes up less than 1 percent of the total supply for the South Arcadia System; however, this connection and connections to three other adjacent systems are maintained for emergency purposes. One reservoir with a volume of 1.0 million gallons serves as storage in the South Arcadia System.[3]

As the proposed project envisions the development of approximately 700,000 square feet of commercial uses, it exceeds the thresholds established by California Water Code (§§ Sections 10910 through 10915) requiring preparation of a Water Supply Assessment (WSA). The WSA prepared by the provider of the proposed project's water is included as Appendix H.

1 http://www.wqa.com/wp-content/uploads/2011/07/2014-406-Plan-Final-Approved-by-Board-on-012414.pdf, site accessed August 25, 2014.

2 2.92 percent from GSWC San Gabriel District (shared between the GSWC-SAS and GSWC-South San Gabriel System) and 1.74 percent from GSWC San Dimas District. GSWC maintains the ability to transfer/lease pumping rights between its systems in the MSGB.

3 *Final Report, 2010 Urban Water Management Plan – South Arcadia*, Golden State Water Company, August 2011.



LSA

Major Roadways
Groundwater Basin
2008 VOC Contamination
Detection to MCL
MCL to 10 X MCL
10 X MCL to 20 X MCL
20 X MCL to 100 X MCL
100 X MCL to 1000 X MCL
> 1000 X MCL

N

0 1.75 3.5
MILES

SOURCE: 2014 San Gabriel Basin Water Quality Management and Remediation Plan "§406 Plan".

I:\COI1401\Reports\EIR\fig4-5-2_GroundwaterContam.mxd (8/27/2014)

FIGURE 4.5.2

Irwindale Regional Shopping Center
Environmental Impact Report

Groundwater Contamination

THIS PAGE INTENTIONALLY LEFT BLANK

4.5.1.5 NOP/Scoping Comments

No residents expressed concerns regarding impacts the project might have related to local drainage, localized flooding, groundwater, or water quality. In addition, no letters were submitted by agencies that referred to hydrology or water quality during the NOP period.

4.5.2 Existing Policies and Regulations

4.5.2.1 Federal Regulations

Clean Water Act. The Clean Water Act (CWA) was amended in 1972 to prevent discharge of pollutants to waters of the United States from any point source unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. The 1987 amendments to the CWA added Section 402(p), which establishes the NPDES, a permitting system for the regulation of discharges of any pollutant into waters of the United States. RWQCBs administer this permitting program in California. In November 1990, the EPA published final regulations that establish application requirements for storm water permits. The regulations require NPDES permits for discharges of storm water from industrial/construction and Municipal Separate Storm Sewer Systems (MS4s). The NPDES Permit applies to all construction activities that result in the disturbance of at least one acre of total land area, or activity that is part of a larger common plan of development of one acre or greater. The NPDES Permit deals with both the construction phase and operational phase of development projects. To comply with the permits, storm water pollution controls must be implemented for construction and industrial activity that discharges either directly to surface waters or indirectly through separate municipal storm drains. Pollution control is achieved by establishing engineering measures that have been designed, tested, and successfully implemented throughout the past decades, such as detention basins and sediment traps, during both the construction period and the operational phases of a project. For the construction phase of a project, the NPDES Permit identifies the preparation of a Storm Water Pollution Prevention Plan (SWPPP). An SWPPP is a written document that describes the construction operator's activities to comply with the requirements in the NPDES Permit. The SWPPP establishes a process whereby the operator evaluates potential pollutant sources at the site and implements Best Management Practices (BMPs) designed to prevent or control the discharge of pollutants in storm water runoff.

Additionally, pursuant to Section 404 of the CWA, the U.S. Army Corps of Engineers (USACE) regulates discharges of dredged or fill material into waters of the United States. These waters include wetlands and non-wetland bodies of water that meet specific criteria, including a direct or indirect connection to interstate commerce. No USACE jurisdictional wetland or non-wetland body of water is located within the project limits.

California Toxics Rule. This rule is a Federal regulation issued by EPA providing water quality criteria for potentially toxic constituents in receiving waters with designated human or aquatic life uses in the State for inland surface waters, enclosed bays, and estuaries for all purposes and programs under the CWA.

4.5.2.2 State Regulations

Porter-Cologne Water Quality Control Act. The California Water Code (CWC) is the principal State law regulating water quality in California. The CWC contains provisions regulating water and its use. This portion of the CWC, Division 7 (Porter-Cologne Act), establishes a program to protect water quality and beneficial uses of the State water resources and includes groundwater and surface water. The State Water Resources Control Board (SWRCB) is the principal State agency responsible for control of water quality. It establishes waste discharge requirements, water quality control planning and monitoring, enforcement of discharge permits, and ground and surface water quality objectives. It

also prevents waste and unreasonable use of water, and adjudicates water rights. Enforcement of specific NPDES Permit requirements is performed by local RWQCBs.

California Code of Regulations. The California Code of Regulations (CCR) contains administrative procedures for the State and the nine RWQCBs in Title 23, and for water quality for domestic uses, wastewater reclamation, and hazardous waste management in Title 22.

Groundwater Management Act (AB 3030) [Sections 10750–10756 of the California Water Code]. The availability of groundwater and issues involving the adequacy of recharge capability are regional in nature. The Groundwater Management Act (AB 3030)[1] provides a systematic procedure for an existing local agency to develop a groundwater management plan. AB 3030 allows a local agency whose service includes a groundwater basin that is not already subject to groundwater management pursuant to law or court order to adopt and implement a groundwater management plan and includes plans to mitigate overdraft conditions, control brackish water, and to monitor and replenish groundwater.

4.5.2.3 Local Regulations

City of Irwindale. The City relies on regulations established by the State Department of Water Resources (DWR), the SWRCB, and the Los Angeles RWQCB for ordinances and code related to water quality and water rights regulation. The City has also adopted the Los Angeles County Building Code, which in turn is based on State's Uniform Building Code.

The City is a co-permittee under the NPDES MS4 Permit No. CAS 004001 (Order RA-2012-0175), adopted in 2012. The NPDES MS4 permit is intended to regulate the discharge of urban runoff from the MS4 within Los Angeles County. Under the NPDES MS4 permit, the City is responsible for the management of storm drain systems within its jurisdiction. Cities are required to implement management programs, monitoring programs, implementation plans, and all applicable BMPs outlined in the Los Angeles County NPDES MS4 permit.

The NPDES permit requires implementation of a Standard Urban Stormwater Mitigation Plan (SUSMP). Therefore, the proposed development is subject to the Los Angeles County Department of Public Works (LACDPW) SUSMP requirements under the "Redevelopment" category, which, according to the LACDPW, is defined as land-disturbing activity that result in the creation, addition, or replacement of 5,000 square feet or more of impervious surface area on an already developed site.

4.5.2.4 City General Plan Policies

The following General Plan objectives, policies, and programs are applicable to the proposed project.

Issue Area: Maintenance of Service Standards. City of Irwindale will continue to maintain the highest levels of public service to respond to the existing and future demand for such services.

Infrastructure Element Policy 1. The City will continue to support the efforts of the City of Irwindale Public Works Department in maintaining the highest service standards feasible.

Infrastructure Element Policy 2. The City will continue to cooperate with those utility providers in the City to ensure that sufficient infrastructure capacity is available to meet current and future service demands.

[1] Sections 10750–10756 of the California Water Code.

4.5.3 Methodology

Drainage patterns were evaluated against the CEQA significance criteria for runoff, flooding, and water quality to determine the potential for significant impacts. The design guidelines for this project are in accordance with Los Angeles County Flood Control District and LACDPW requirements and City guidelines. The design guidelines and local flood protection requirements are summarized as detailed in the next section.

4.5.4 Thresholds of Significance

The following thresholds of significance regarding potential impacts to hydrology and water quality are based on *CEQA Guidelines*. A project would have a significant impact on surface hydrology, water quality, and/or groundwater if it would:

- Result in violations of any water quality standards or waste discharge requirements of the City of Irwindale or the Regional Water Quality Control Board;
- 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;
- 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 substantial erosion, siltation on site or off site;
- 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, which would result in on-site or off-site flooding;
- Create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;
- 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;
- Place within a 100-year flood hazard area structures that would impede or redirect flood flows;
- 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; and/or
- Expose people or structures to inundation by seiche, tsunami, or mudflow.

4.5.5 Less than Significant Impacts

The following potential impacts were determined to be less than significant. In each of the following issues, either no impact would occur (therefore, no mitigation would be required) or adherence to established regulations, standards, and policies would reduce potential impacts to a less than significant level.

4.5.5.1 Drainage Pattern and Capacity-Related Impacts

Threshold	Would the proposed project substantially alter the existing local drainage patterns of the site and substantially increase the rate or amount of surface runoff in a manner which would result in substantial erosion, siltation, or flooding on site or off site?

	Would the proposed project create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?

Existing drainage areas and their drainage patterns are described in Table 4.5.B. The majority of the project site (Drainage Area 1) drains from southeast to northwest, discharging into a curb inlet near the most westerly driveway. The race track in-field (Drainage Area 2) drains to an inlet that is connected to a pipeline discharging into an existing pump station near the northwest corner of the site. Drainage Area 3 drains to the southwest corner of the site to an inlet that is piped to the pump station. The pump station discharges the runoff on the westerly driveway, after which is flow northerly and discharges out onto Live Oak Avenue. During heavy storm events, Live Oak Avenue experiences flooding when the storm drain system backs up and due to its flat nature the water tends to pond. The existing on-site drainage pattern is depicted in Figure 4.5.3.

Table 4.5.B: Existing Drainage Sub-Area Profiles

Sub-Area	Area (acres)	Description
1	42.3	Encompasses the eastern portion of the project site and includes parking areas north of the existing race track in-field. Drains from southwest to northeast to curb inlet near the westernmost driveway located on Live Oak Avenue.
2	12.2	Encompasses the race track in-field. Stormwater drains to an existing inlet and is transported to an existing pump station near the northeast corner of the project site.
3	8.8	Encompasses the western portion of the project site. Stormwater drains to the southwest corner of the project site and is transported to an existing pump station on site. The pump station discharges the storm water onto the westerly driveway and ultimately discharges out onto Live Oak Avenue.

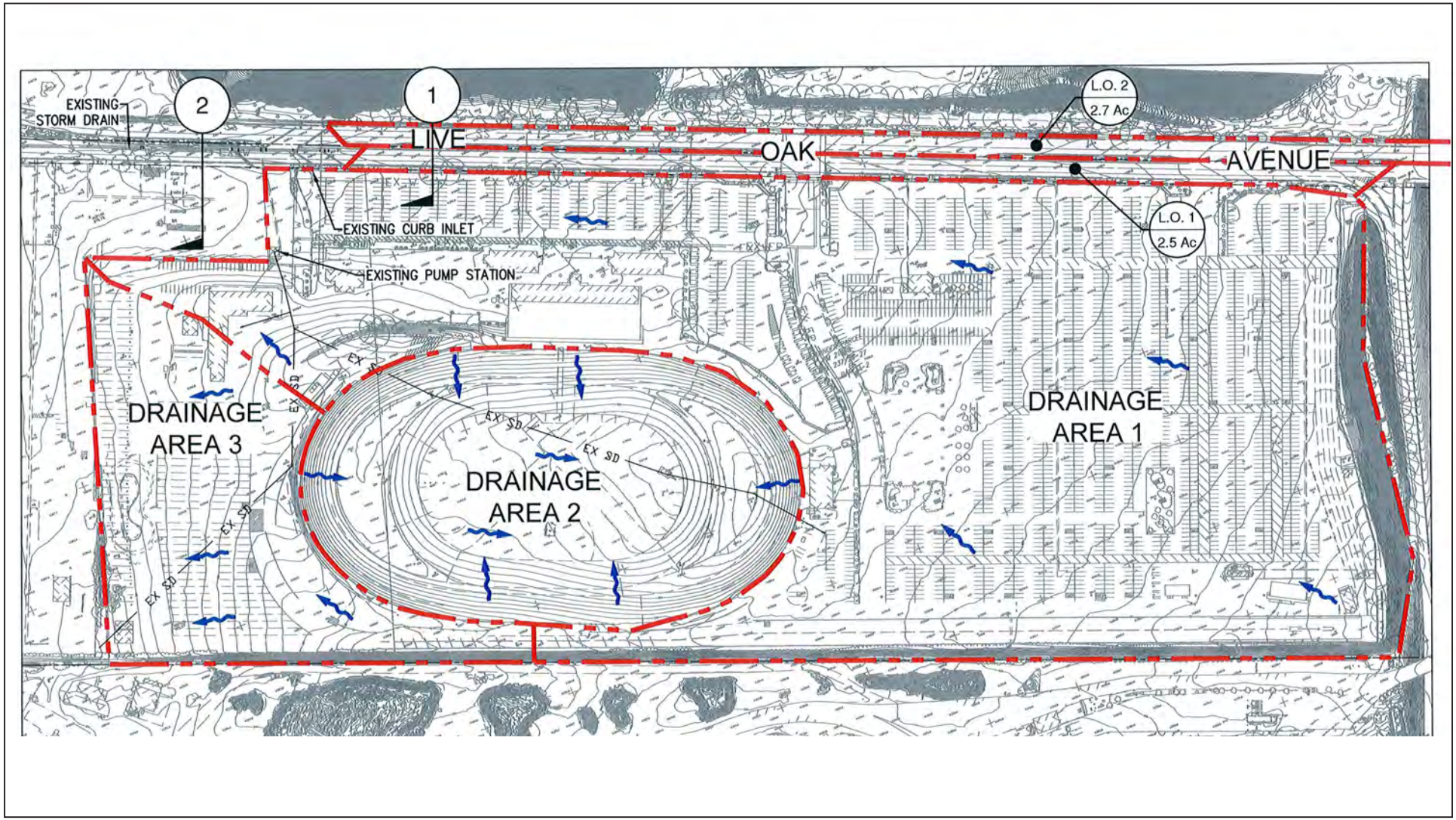
Source: *Preliminary Standard Urban Stormwater Mitigation Plan for Irwindale International Retail Outlet,* JR Miller & Associates, Inc., Revised November 25, 2014.

The project proposes to capture on-site runoff in catch basins and inlets and discharge it directly into the existing storm drainage system on Live Oak Avenue. The three subareas will drain into three separate connections, as described in Table 4.5.C. On each of the connection lines, the project proposes to install media filter devices. The filters will capture and retain sediment, oils, metals, and other targeted constituents. Curb inlets, if utilized, will also have media filters and curb guard installed. If roof drains are connected directly into the storm drain system, roof drain filters will be installed on the roof leaders. A trench drain will be constructed across the westerly driveway intercepting flows and directing the run-off into a drainage collection line. Trench drain filters will be installed in this feature. The post-development drainage pattern is depicted in Figure 4.5.4.

Table 4.5.C: Post-Development Drainage Sub-Area Profiles

Sub-Area	Area (acres)	Description
1	24.4	Encompasses the south half of the outlet center buildings, truck docks, employee parking and walkways of the outlet center and the west parking field. The runoff is collected in a series of catch basins, collected into a storm drain pipe and directed to a collector pipe (Lateral “D”) on Live Oak Avenue.
2	16.7	Encompasses the northwest quarter of the outlet center buildings and the northwest parking field. The runoff drains via sheet flow through a series of catch basins, collected into a storm drain pipe and connected to a connector pipe (“A-19”) on Live Oak Avenue.
3	22.2	Encompasses the northeast quarter of the outlet center buildings and the northeast and east parking fields. The runoff is collected in a series of catch basins and pipelines, collected into a storm drain pipe and connected into the back of an existing catch basin (“CB A-21”) on Live Oak Avenue.

Source: *Preliminary Standard Urban Stormwater Mitigation Plan for Irwindale International Retail Outlet,* JR Miller & Associates, Inc., Revised November 25, 2014.



LSA

FIGURE 4.5.3

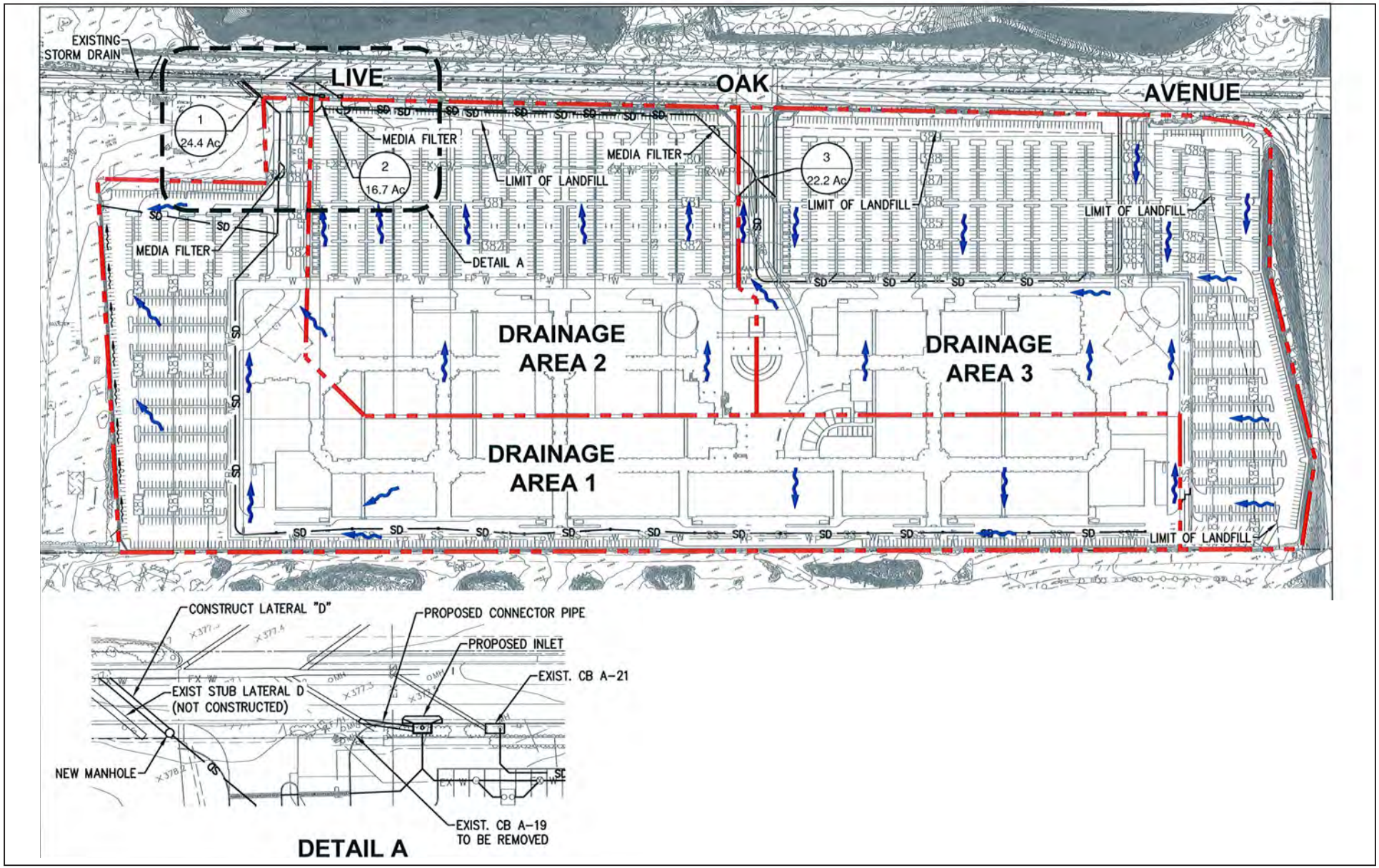
Irwindale Regional Shopping Center
Environmental Impact Report

Existing Drainage Pattern

SOURCE: JR Miller & Associates, 11/24/14.

I:\COI1401\Reports\EIR\fig4.5.3_ExDrainPattern.cdr (12/17/2014)

THIS PAGE INTENTIONALLY LEFT BLANK



LSA

0 160 320
FEET

SOURCE: JR Miller & Associates, 11/24/14.

I:\COI1401\Reports\EIR\fig4.5.34_ProDrainPattern.cdr (12/17/2014)

FIGURE 4.5.4

Irwindale Regional Shopping Center
Environmental Impact Report

Proposed Drainage Pattern

THIS PAGE INTENTIONALLY LEFT BLANK

Impervious surfaces currently cover a majority of the project site. As detailed in Table 4.5.D, upon development, the pervious area within the project limits will more than double.

Table 4.5.D: Existing and Post-Development Pervious Conditions

Site Condition	Pervious surfaces (acres)	Impervious surfaces (acres)	Percentage Pervious	Percentage Impervious
Existing	3.0	63.3	4.7	95.3
Post-Development	6.6	63.3	10.4	89.6

Source: *Preliminary Standard Urban Stormwater Mitigation Plan for Irwindale International Retail Outlet,* JR Miller & Associates, Inc., Revised November 25, 2014.

Existing and post-development storm water flows were calculated for a variety of storm events. As presented in Table 4.5.E, compared to existing conditions, the volume of post-development discharge flows are reduced in each of the modeled storm events. County of Los Angeles requirements dictate that drainage facilities not already covered under its Capital Flood protection conditions meet the Urban Flood level of protection. The Urban Flood is runoff from a 25-year frequency design storm falling on a saturated watershed. A 25-year frequency design storm has a probability of 1/25 of being equaled or exceeded in any year. While Urban Flood runoff may flow into the street, it must remain below the property line and all storm drains must have the capacity to carry flow from the 10-year frequency storm. Peak flows rates for the 25-year storm with project implementation are listed in Table 4.5.F.

Table 4.5.E: Project Site Runoff Flow Comparison

Storm Event	Flow Discharge (cubic foot per second)		
	Existing	Post- development	Change in flow
2-year/24-hour	43.9	37.8	-6.1
10-year/24-hour	94.9	75.7	-19.2
100-year/24-hour	171.4	132.7	-38.7

Source: *Preliminary Standard Urban Stormwater Mitigation Plan for Irwindale International Retail Outlet,* JR Miller & Associates, Inc., Revised November 25,2014.

Table 4.5.F: Project Site Peak Flows, 25-Year Storm

Area	Peak Flow Rate (cubic feet per second)
1	33.1
2	31.5
3	30.2

Source: *Stormwater Hydrology Report, International Outlet Center, Irwindale CA,* JR Miller & Associates, Inc., November 24, 2014.

The project hydrology study, based on flow calculations for the 25-year storm, found that the existing storm drain system, including existing inlets, on Live Oak Avenue has sufficient capacity for project runoff flows. During the 25-year storm the depth of water outside the existing inlets will reach approximately 4.5 inches deep; one lane will be inundated and one lane will be clear. By intercepting and directing on-site flows directly to the existing storm drainage system, street flows on Live Oak Avenue are within the criteria established by the Los Angeles County Hydrology Manual. In addition the project's proposed pre-treatment and treatment BMPs will remove pollutants from stormwater prior to their discharge into public storm drain facilities. As a result, no substantial additional sources of polluted runoff will be generated, and no significant impact to drainage capacity will occur, and no mitigation is required.

While the proposed project would alter the existing drainage patterns of the site, it would not increase the rate or amount of surface runoff in a manner that would result in substantial erosion, siltation, or flooding on site or offsite. As displayed in Table 4.5.E, peak flow rates during various storm events would be reduced after project implementation. In addition, there will greater pervious cover with the project. As a result, the project would not increase rate or amount of runoff at the site. Therefore, impacts to local drainage patterns as they relate to erosion, siltation, and flooding are less than significant, and no mitigation is required.

4.5.5.2 Dam Inundation Impacts

Threshold	Would the project expose people or structure to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?

The Santa Fe Dam, a flood-control dam on the San Gabriel River, is located approximately one mile northeast of the project site. For most of the year, the 92-foot high dam and its reservoir lie empty, but can hold more than 45,000 acre-feet of water during major storm events. During the dry season, the basin behind the dam is used for groundwater recharge, as well as various recreational activities. No other large impounded bodies of water are located within the City.

The project site is not located in the inundation area of the Santa Fe Dam; therefore, the proposed project would not result in the exposure of people or structures to risk of loss, injury, or death involving flooding as a result of failure of a nearby dam or other water retention facility. Impacts related to this issue would be less than significant, and no mitigation is required.

4.5.5.3 Seismic-Related Impacts

Threshold	Would the project expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche, tsunami, or mudflow?

A tsunami is a series of waves generated in a body of water by a pulsating or abrupt disturbance that vertically displaces water. Seiches are oscillations in enclosed bodies of water (e.g., lakes/reservoirs, or water tanks) most often caused by seismic activity. A mudslide (also known as a mudflow) occurs when there is fast-moving water and a great volume of sediment and debris that surges down a slope, stream, canyon, arroyo, or gulch. Mudslides are similar to flash floods and can occur suddenly without time for adequate warning. Mudflows can ruin substantial improvements with the force of the flow itself and the burying or erosion of improvements by mud and debris.

The project area is not at risk of inundation by a tsunami as it is located at least 25 miles from the Pacific Ocean. Enclosed water is located in quarried areas in north and south of the project site. Due to the depth of these quarried areas, impounded water in these areas would not overlap the quarry walls during a seismic event. Given these factors, impacts associated with seiche and tsunami events are less than significant for the proposed project, and no mitigation is required.

The site is essentially flat. Due to the absence of hilly or mountainous terrain in the project area, there is no potential for on-site landslides, rockfalls, or mudslide. No mitigation is required, and no mitigation is required.

4.5.5.4 Groundwater

Threshold	Would the proposed project 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?

As previously stated, water to the project site is provided by the GSWC, an investor-owned utility in California that provides water service to residents across within 75 communities throughout California. The project site is serviced by GSWC's South Arcadia System (GSWC-SAS), an area of approximately four square miles which includes portions of the cities of Temple City, Arcadia, El Monte, Irwindale, and Monrovia, as well as unincorporated areas of Los Angeles County. Currently, GSWC-SAS provides water service to a population of approximately 29,500 persons. The amount of groundwater pumped from the MSGB is regulated by the court appointed Watermaster. As a result of the adjudication, GSWC has pumping rights to 4.66 percent of OSY of the MSGB.

The GSWC-SAS obtains potable water primarily from the San Gabriel Basin. The GSWC-SAS currently operates seven groundwater wells within the MSGB. Table 4.5.G provides a summary of current and historic water production and demand. While the GSWC-SAS' production capacity for these wells is approximately 15,100 acre feet per year (AFY), over the past twenty years (1994-2013), the GSWC-SAS's water production averaged 3,902 AFY. The most recent (2013) annual production of the GSWC-SAS was 3,652 acre feet (af). Water demand over the same time period ranged from 3,382 to 4,321 AFY, with an average of 3,924 AFY. The most recent annual demand (2013) was 3,652 af (Table 4.5.F). Over the past 20 years, purchases through the connection to the City of Arcadia have averaged 22 AFY

Table 4.5.G: GSWC-SAS Historic Production and Water Demand (AFY)

Period	Production	Demand
1994-2013 (range)	3,382 – 4297	3,382 - 4,321
1994-2013 (average)	3,902	3,924
2013	3,652	3,652

Source: Tables 1 and 3, *Water Supply Assessment for the Irwindale Outlet Center Project, Stetson Engineers, Inc., October 2014.*

The existing water demand for the project site for the past five years has averaged approximately 20 AFY. The estimated water demand for the retail uses and proposed on-site landscaping is approximately 141 and 19 AFY, respectively (160 AFY total). The project specific WSA assumed that the water demand for the existing Speedway uses has been incorporated into the GSWC-SAS's 2010 UWMP. As the proposed project will replace existing uses, the net increase in annual water demand will be approximately 140 AFY (160 AFY – 20 AFY = 140 AFY). With the inclusion of the proposed project, GSWC-SAS' estimated water demand in 2035 will total approximately 4,955 AFY. The water demand required by the proposed project represents 3.3 and 2.8 percent, respectively of the total projected year 2020 and 2035. Table 4.5.H provides a summary of projected GSWC-SAS water demand.

Table 4.5.H: Projected GSWC-SAS Water Use (AFY)

	2015	2020	2025	2030	2035
Projected GSWC Water Demand	4,235	4,414	4,557	4,698	4,815
Project Water Demand	0	140	140	140	140
Total Water Demand	4,235	4,554	4,697	4,838	4,955

Source: Table 2, *Water Supply Assessment for the Irwindale Outlet Center Project, Stetson Engineers, Inc., October 2014.*

The GSWC-SAS's UWMP projects the water consumption demands of existing and future development based on rates of growth assumed by regional planning organizations (i.e., SCAG) and

estimates water demand versus available supply under different water supply scenarios (e.g., multiple dry years).

GSWC-SAS's UWMP states its connection with the City of Arcadia will be maintained for emergency use only. GSWC maintains the ability to transfer/lease pumping rights between its systems in the MSGB. The adjudication of the MSGB allows the operation of the basin storage to meet water demands and provide a mechanism to fund the recharge of imported water. Through the management of the basin and the use of supplemental imported recharge water, the available groundwater basin water supply can be expanded and increased. If demands increase beyond the allocated GSWC adjudicated water right, GSWC can either obtain additional water rights or purchase replenishment water. Groundwater pumping in excess of the OSY and any additional purchased or leased rights is permitted when replaced in-kind with available replenishment water that is purchased from the MSGB's responsible agency (the Upper San Gabriel Valley Municipal Water District (Upper District)).[1] The management of the MSGB achieved through the adjudication of the basin and requirements for the purchase of replacement water in excess of allotted OSY, ensures no significant impact on existing groundwater supplies would result from the development of the proposed project.

Currently the project site is predominantly developed with impermeable surfaces. Because of the previous use as a landfill, the site is permanently capped by an impervious membrane that eliminates percolation of surface water through the underlying waste materials so that contaminants are not leached into the groundwater. No groundwater recharge features are currently located within the project limits. The proposed project includes the development of commercial uses and associated parking areas. The development of the proposed retail uses and associated parking areas would not substantially alter the amount of impermeable surface area in the region available for groundwater recharge. The water consumed by the proposed on-site uses will not exceed existing or projected GSWC–SAS supplies; would not exceed the adjudicated rights established in the 1973 judgment, or the annual OSY identified by the Watermaster; would not substantially deplete groundwater supplies in the MSGB; or interfere with groundwater recharge in the MSGB. Potential project-specific and cumulative water supply impacts are discussed in Section 4.8.

Based on this analysis, the proposed project is not expected to interfere with groundwater recharge activities or groundwater supplies, either directly or through the use of imported water. Impacts associated with this issue are less than significant and no mitigation is required.

4.5.5.5 100-Year Flooding-Related Impacts

Threshold	Would the proposed project place within a 100-year flood hazard area structures that would impede or redirect flood flows? Would the proposed project 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?

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) identify areas subject to flooding during the 100-year storm.[2] Based on the most current FIRM map for this area (Panel 06037C1700F), the project site is classified as Flood Zone X (unshaded)[3] and is not

[1] http://www.gswater.com/san-gabriel/files/2012/12/SoArcadia_2010_UWMP.pdf, site accessed August 21, 2014.
[2] The term "100-year" is a measure of the size of the flood, not how often it occurs. The "100-year flood" is a flooding event that has a one percent chance of occurring in any given year.
[3] Flood Zone X (unshaded): Areas determined to be outside the 0.2% annual chance floodplain.

located within a 100-year flood zone.[1] Because the project site does not lie within an identified 100-year floodplain, no impact related to this issue would occur. No mitigation is warranted.

4.5.6 Potentially Significant Impacts

4.5.6.1 Construction-Related Water Quality Impacts

Impact 4.5.6.1: *The project may cause surface water pollution during construction.*

Threshold	Would the proposed project violate any water quality standards or waste discharge requirements during construction phases of the project in form of increased soil erosion, sedimentation, or storm water discharges?

The grading phases of any portion of the project will require temporary disturbance of surface soils which could potentially result in erosion, sedimentation and, major visible water quality impacts. Stockpiles and excavated areas could be susceptible to high rates of erosion from wind and rain and, if not managed properly, could result in increased sedimentation.

By volume, sediment is the principal component in most storm runoff. The delivery, handling, and storage of construction materials and wastes, as well as the use of on-site construction equipment will also introduce a risk for storm water contamination. Spills and leaks could occur from the use of construction equipment and could originate from construction staging areas. Once released, substances such as fuels, oils, paints, and solvents can be transported to nearby surface waterways and/or to groundwater in storm water runoff, wash water, and dust control water, potentially reducing the quality of the receiving waters. The anticipated and potential pollutants in storm water or urban runoff for various land uses are reflected in previously referenced Table 4.5.A.

Short-term storm water pollutant discharges from each development site within the project will be mitigated through compliance with the required NPDES permits, resulting in a less than significant impact. The NPDES permit program was established under Section 402 of the CWA, which prohibits the unauthorized discharge of pollutants, including municipal, commercial, and industrial wastewater discharges, from point sources to U.S. waters. Permittees must verify compliance with permit requirements by monitoring their effluent, maintaining records, and filing periodic reports. An NPDES permit specifies an acceptable level of a pollutant or pollutant parameter in a discharge (for example, a certain level of bacteria) and the permittee selects an appropriate process or technology to achieve that level. Some permits, however, do contain certain generic BMPs. These construction site BMPs are only examples of what should be considered and should not preclude new or innovative approaches currently available or being developed. Typical[2] BMPs include but are not limited to:

- Temporary detention basins for runoff and silt containment;
- Regular street-sweeping and truck washing prior to exiting construction areas;
- Covering of soil hauling trucks to minimize dust generation (and silt buildup on project roads;
- Dirt rockers at project exits to reduce soil transported out of construction areas;
- Monitoring of runoff and protection devices during storm events;
- Use of silt fencing, gravel bags, and/or straw bales to channel runoff to temporary basins; and

[1] Flood Insurance Rate Map, Panel 06037C1700F, Federal Emergency Management Agency, effective September 26, 2008.

[2] http://water.epa.gov/polwaste/npdes/swbmp/Construction-Site-Stormwater-Run-Off-Control.cfm, site accessed August 22, 2014.

- Identification of emergency procedures in case of hazardous materials spills.

Construction of the proposed uses will increase the potential for short-term storm water pollutant discharges. This would be a significant impact requiring mitigation. The project proponent will be required to obtain a construction NPDES permit prior to any site grading. The implementation of NPDES permits ensures that the Federal and State standards for clean water are met. Enforcement of NPDES permit requirements will prevent sedimentation and soil erosion through implementation of an SWPPP and periodic inspections by RWQCB staff. An SWPPP is a written document that describes the construction operator's activities to comply with the requirements in the NPDES Permit. Required elements of an SWPPP include (1) site description addressing the elements and characteristics specific to the project site; (2) descriptions of BMPs for erosion and sediment controls; (3) BMPs for construction waste handling and disposal; (4) implementation of approved local plans; and (5) proposed post-construction controls, including a description of local post-construction erosion and sediment control requirements. The SWPPP establishes a plan whereby the operator evaluates potential pollutant sources at the site and selects and implements BMPs designed specifically to prevent or control the discharge of the identified pollutants into storm water.

Mitigation Measures. Although adherence to NPDES requirements is required of all development within the City, the incorporation of these requirements as **Mitigation Measures 4.5.6.1A** and **4.5.6.1B** would ensure on-site development obtains and complies with the NPDES General Construction permit, through the project's Mitigation Monitoring and Reporting Plan or Program (MMRP):

4.5.6.1A Prior to issuance of any grading permit, the project developer shall file a Notice of Intent (NOI) with the Los Angeles Regional Water Quality Control Board (LARWQCB) to be covered under the National Pollutant Discharge Elimination System (NPDES) General Construction Permit for discharge of storm water associated with construction activities. The project developer shall submit to the City the Waste Discharge Identification Number issued by the State Water Quality Control Board (SWQCB) as proof that the project's NOI is to be covered by the General Construction Permit that has been filed with the SWQCB. This measure shall be implemented to the satisfaction of the City Engineer.

4.5.6.2B Prior to issuance of a grading permit, the developer shall submit to the Los Angeles Regional Water Quality Control Board (LARWQCB) and receive approval for a project-specific Storm Water Pollution Prevention Plan (SWPPP). The SWPPP shall include a surface water control plan and erosion control plan citing specific measures to control on-site and off-site erosion during the entire grading and construction period. In addition, the SWPPP shall emphasize structural and nonstructural best management practices (BMPs) to control sediment and non-visible discharges from the site. BMPs to be implemented may include (but shall not be limited to) the following:

- Sediment discharges from the site may be controlled by the following: sandbags, silt fences, straw wattles and temporary debris basins (if deemed necessary), and other discharge control devices. The construction and condition of the BMPs are to be periodically inspected by the RWQCB during construction and repairs would be made as required.
- Materials that have the potential to contribute non-visible pollutants to storm water must not be placed in drainage ways and must be placed in temporary storage containment areas.
- All loose soil, silt, clay, sand, debris, and other earthen material shall be controlled to eliminate discharge from the site. Temporary soil stabilization measures to be considered include: covering disturbed areas with mulch, temporary seeding, soil stabilizing binders, fiber rolls or blankets, temporary vegetation, and permanent seeding. Stockpiles shall be surrounded by silt fences and covered with plastic tarps.

- The SWPPP shall include inspection forms for routine monitoring of the site during the construction phase.
- Additional required BMPs and erosion control measures shall be documented in the SWPPP.
- The SWPPP would be kept on site for the duration of project construction and shall be available to the local Regional Water Quality Control Board for inspection at any time.

The developer and/or construction contractor for each development area shall be responsible for performing and documenting the application of BMPs identified in the project-specific SWPPP. Regular inspections shall be performed on sediment control measures called for in the SWPPP. Monthly reports shall be maintained and available for City inspection. An inspection log shall be maintained for the project and shall be available at the site for review by the City of San Gabriel and the Regional Water Quality Control Board.

Level of Significance after Mitigation. While on-site grading and development activities will increase the potential for the erosion of soils, adherence to **Mitigation Measures 4.5.6.1A** and **4.5.6.1B** will reduce impacts associated with short-term (construction) storm water discharges during project construction to a less than significant level.

4.5.6.2 Operational-Related Water Quality Impacts

Impact 4.5.6.2: *The project may result in surface water pollution during occupancy.*

Threshold	Would the proposed project violate any water quality standards or waste discharge requirements during the operational phases of the project in the form of increased soil erosion, sedimentation, or urban runoff?

During the operational phase of any urban use, the major source of pollution in storm water runoff will be contaminants that have accumulated on the land surface over which runoff passes. Storm runoff from the roadways, parking lots, and commercial and industrial buildings can carry a variety of pollutants such as sediment, petroleum products, commonly utilized construction materials, landscaping chemicals, and (to a lesser extent) trace metals such as zinc, copper, lead, cadmium, and iron, which may lead to the degradation of storm water in downstream channels. Runoff from landscaped areas may contain elevated levels of phosphorus, nitrogen, and suspended solids. Oil and other hydrocarbons from vehicles are also expected in storm water runoff.

Pollutant concentrations in urban runoff are variable depending on storm intensity, land use, elapsed time since previous storms, and the volume of runoff generated in a given area that reaches receiving waters. Pollutant concentrations are typically highest during the first major rainfall event after the dry season, known as the “first-flush.” The pollutants associated with the operations of the proposed land uses may include sediments, nutrients, toxic organic compounds, trash and debris, bacterial indicators, oil and grease, pesticides, and metals. The selection of treatment controls for the project shall be based primarily on the potential pollutants associated with the project that are also present in impaired receiving waters.

The NPDES permit issued to Los Angeles County and 85 cities (including Irwindale) requires the development and implementation of a program addressing storm water pollution issues in development planning for private projects. The Standard Urban Stormwater Mitigation Plan (SUSMP)

has been developed to address stormwater pollution from new developments and redevelopment projects. Projects are required to prepare and implement a SUSMP under the following conditions:

- Single-family hillside residential developments
- Housing developments of 10 or more dwelling units (including single family tract developments)
- Industrial /Commercial developments with one acre or more of impervious surface area
- Automotive service facilities
- Retail gasoline outlets
- Restaurants
- Parking lots of 5,000 square feet or more of surface area or with 25 or more parking spaces
- Projects with 2,500 square feet or more of impervious area that are located in, adjacent to, or draining directly to designated Environmentally Sensitive Areas (ESA)

The SUSMP will contain a list of the minimum required Best Management Practices (BMPs) that must be implemented to reduce stormwater pollution. Additional BMPs may be required by ordinance or code adopted by the individual Permittee (in this case the City of Irwindale) and applied generally or on a case by case basis. Developers must incorporate appropriate SUSMP requirements into their project plans. Each Permittee will approve the SUSMP requirements as part of the development plan approval process prior to issuing building and grading permits for the project. Relative to the SUSMP, BMP is defined as, "…any program, technology, process, siting criteria, operational methods or measures, or engineered systems, which when implemented prevent, control, remove, or reduce pollution."

Site Design BMPs. Standard site design BMPs are implemented to create a hydrologically-functional project design that attempts to mimic the natural hydrologic regime. In accordance with the Los Angeles County SUSMP as implemented by the City, projects shall incorporate measures that achieve the following:

- Minimize Urban Runoff:
  - Maximize the permeable area.
  - Incorporate landscaped buffer areas between sidewalks and streets.
  - Maximize canopy interception and water conservation by planting native or drought-tolerant trees and large shrubs.
  - Use natural drainage systems.
  - Where soil conditions are suitable, use perforated pipe or gravel filtration pits for low flow infiltration.
  - Construct on-site ponding areas or retention facilities to increase opportunities for infiltration consistent with vector control objectives.
- Minimize Impervious Footprint:
  - Maximize the permeable area.
  - Construct streets, sidewalks and parking lot aisles to the minimum widths necessary, provided that public safety and a walkable environment for pedestrians are not compromised.
  - Reduce widths of streets where off-street parking is available.
  - Minimize the use of impervious surfaces such as decorative concrete, in the landscape design.
- Conserve Natural Areas:

  - Maximize canopy interception and water conservation by planting native or drought-tolerant trees and large shrubs.
  - Use natural drainage systems.
- Minimize Directly Connected Impervious Areas (DCIAs):
  - Runoff from impervious areas will sheet flow or be directed to treatment control BMPs.
  - Streets, sidewalks, and parking lots will sheet flow to landscaping/bioretention areas.

Source Control BMPs. Typical source control BMPs are implemented to eliminate the presence of pollutants through prevention. Such measures can be both non-structural and structural.

- Non-structural operational source control BMPs include:
  - Education for property owners and visitors;
  - Activity restrictions;
  - Irrigation system and landscape maintenance;
  - Common area litter control;
  - Street sweeping streets and parking lots; and
  - Drainage facility inspection and maintenance.
- Structural source control BMPs include:
  - MS4 stenciling and signage;
  - Landscape and irrigation system design; and
  - Protect slopes and channels.

Project Design Features. The SUSMP prepared for the project (Appendix E) identifies the following BMPs that will minimize the project's effects related to site hydrology, urban runoff flow rates, and pollutant loads.

- Pre-Treatment Trains
  - Installation of catch basin filters at each catch basin within the project area;
  - Installation of filters at curb inlets;
  - Installation of roof drain filters in places where roof drains connect directly into the storm drain system; and
  - Installation of trench drain filter(s) in drains intercepting flows across the westerly driveway.
- Treatment Control BMP System: Installation of storm water filtration devices in drainage lines prior to their connection to the public storm drain system.

Specific treatment devices for post-development drainage areas include:

- Runoff from Area 1 will be collected in a series of catch basis and directed to Lateral D. A Media Filter Device and by-pass will be installed on the line prior to its connection to the public storm drain system.

- Runoff from Area 2 will sheet flow to a series of catch basins and drains and then conveyed to Connect Pipe A-19 located in Live Oak Avenue. A Media Filter Device and by-pass will be installed in the line prior to its connection to the public storm drain system.

- Runoff from Area 3 will be collected in a series of catch basins and pipes and conveyed to the existing catch basin CB A-21 located in Live Oak Avenue. A Media Filter Device will be installed on the line prior to its connection to the public storm drain system.

Unless the operational project-specific BMPs from the SUSMP are implemented as proposed, there is a potential that long-term water quality impacts could occur during project occupancy. This is a potentially significant impact requiring mitigation.

Mitigation Measures. To address potential impacts to water quality during operation of the proposed project, the following measure has been identified:

4.5.6.2A Upon completion of each phase of development within the project, the developer shall provide evidence that the long-term BMPs outlined in the project's SUSMP have been fully implemented. As determined appropriate by the City, the applicant shall include information related to planned maintenance of BMP features. This measure shall be implemented to the satisfaction of the City Public Works Department and Planning Division.

Level of Significance after Mitigation. The proposed project incorporates on-site drainage control structures and programs sufficient to meet the applicable Federal, State, and local water quality requirements. Through the use of site design BMPs, source control BMPs (e.g., street and parking lot sweeping and vacuuming), and treatment control BMPs (e.g., media filters in drainage features) the pollutant loads will be reduced resulting in a reduction of pollutants discharged from urban storm water runoff to surface water bodies. Compliance with the requirements of the NPDES permit, which include implementation of the BMPs outlined in the SUSMP, will be enforced by the City during the ongoing occupancy of the project, reducing this impact to a less than significant level.

4.5.7 Cumulative Impacts

Cumulative water supply impacts are addressed in Section 4.8. Cumulatively, development within the watershed will result in an increase in impervious surfaces in addition to changes in land use and associated pollutant runoff characteristics. Increased impervious surfaces are likely to alter existing hydrology and increase potential pollutant loads. However, all future development in the City and throughout the Los Angeles RWQCB will be required to comply with the requirements of the NPDES permit program, including the measures set forth in the required SUSMP. Continued growth is anticipated to occur in the City and surrounding areas and all new development and significant redevelopment will be required to minimize its individual impacts to water quality and pollutant transport through implementation of BMPs. Therefore, since all new developments will be required to mitigate for impacts to water quality, a less than significant cumulative impact to water quality will occur and no additional mitigation is required.

Cumulatively, continued development within the San Gabriel Valley will put additional pressure on water supplies from the MSGB. However, the groundwater basin is adjudicated so the Basin Watermaster will manage groundwater supplies in these basins consistent with the UWMPs for the various serving agencies that utilize these sources of groundwater.

The proposed project will make an incremental contribution to production of urban pollutants, but the site-specific water quality BMPs will help ensure that these contributions will not make a significant

contribution to any cumulatively considerable regional water quality impacts and no additional mitigation is required.

The drainage system for the proposed project will be designed so that peak flows from post-development runoff are equal to or less than historic conditions at any given off-site discharge location. This same requirement is typically placed on all other development in the vicinity of the project site by the City and adjacent jurisdictions; therefore, the proposed project will not make a significant contribution to any cumulatively considerable drainage or water quality impact and no additional mitigation is required.

THIS PAGE INTENTIONALLY LEFT BLANK

4.6 NOISE

This section of the EIR is intended to satisfy the City's requirements for a project-specific noise impact analysis by examining the short-term and long-term noise impacts of the proposed project on sensitive uses adjacent to the proposed project area and by evaluating the effectiveness of mitigation measures identified for the proposed project. This includes the potential for the proposed project to result in impacts associated with a substantial temporary and/or permanent increase in ambient noise levels in the vicinity of the project area; exposure of people to excessive noise levels, groundborne vibration, or groundborne noise levels.

CEQA requires an analysis of the proposed project's impacts on the existing environment; not an analysis on the existing environment's impacts on the proposed project. However, the following analysis evaluated both the project's impacts on the existing environment and the potential impacts from the existing environment on the proposed project.

The analysis contained in this section is based on the following reference documents:

- *Transit Noise and Vibration Impact Assessment,* Federal Transit Authority (FTA), May 2006.
- *California Noise Insulation Standards,* California Code of Regulations, Title 24, Part 2, §3501;
- *Highway Traffic Noise Prediction Model (FHWA-RD-77-108)*, Federal Highway Administration (FHWA);
- *City of Irwindale 2020 General Plan*, City of Irwindale, June 2008; and
- *Irwindale Municipal Code*.
- Noise Impact Analysis, LSA Associates, Inc., August 2014 (EIR Appendix F).

4.6.1 Existing Setting

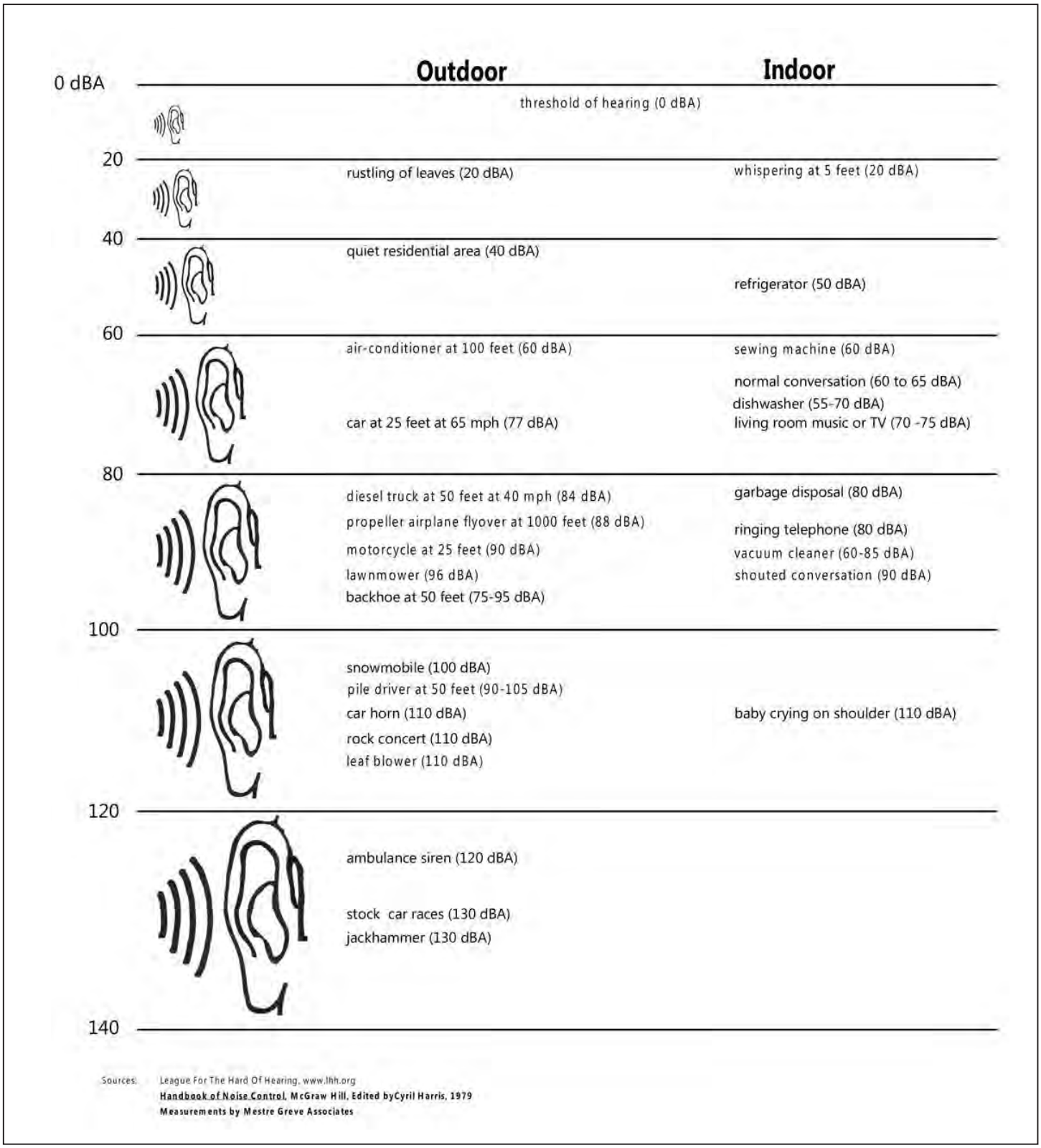
4.6.1.1 Background

Characteristics of Noise. To the human ear, sound is technically described in terms of its loudness (amplitude) and pitch (frequency). Pitch is generally an annoyance, while loudness can affect our ability to hear. Noise is usually defined as unwanted sound; it consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, and sleep.

Measurement of Noise. The standard unit of measurement of the loudness of sound is the decibel (dB). Decibels are based on a logarithmic scale. The logarithmic scale compresses the wide range in sound levels resulting in a more usable range of sound level values, similar to the Richter scale used to measure earthquakes. To humans, a sound 10 dB higher than another is considered to be twice as loud; a sound 20 dB higher than another is considered four times as loud; etc. Typical daily sounds in the environmental range from 30 dB (very quiet) to 100 dB (very loud).

Since the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel (dBA) scale performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear. Community noise levels are measured in terms of the dBA. Figure 4.6.1 shows examples of various noises sources and their typical dBA noise level.

THIS PAGE INTENTIONALLY LEFT BLANK



LSA

FIGURE 4.6.1

Irwindale Regional Shopping Center
Environmental Impact Report

Typical A-Weighted Noise Levels

THIS PAGE INTENTIONALLY LEFT BLANK

There are two categories of noise that are measured to characterize noise conditions: single-event noise and community, or cumulative, noise. Single-event measurements describe the noise levels from an individual event such as a passing airplane or a heavy-duty truck. Cumulative measurements average the total noise in a community over a specific time period, which is typically 1 or 24 hours. The noise impact analysis performed for this EIR is based on assessment of both single-event noise and community or cumulative noise.

Several rating scales have been developed for measurement of community noise. These account for: (1) the parameters of noise that have been shown to contribute to the effects of noise on humans; (2) the variety of noises found in the environment; (3) the variations in noise levels that occur as a person moves through the environment; and (4) the variations associated with the time of day. They are designed to account for the known health effects of noise on people described previously. Based on these effects, the observation has been made that the potential for a noise to affect people is dependent on the total acoustical energy content of the noise. A number of noise scales have been developed to account for this observation. Two of the predominant noise scales are the Equivalent Noise Level (L_{eq}) and the Community Noise Equivalent Level (CNEL). L_{eq} is the sound level corresponding to a steady-state sound level containing the same total energy as a time-varying signal over a given sample period. L_{eq} is the "energy" average noise level during the time period of the sample. L_{eq} can be measured for any time period, but is typically measured for 1 hour. This 1-hour noise level can also be referred to as the Hourly Noise Level (HNL). It is the energy sum of all the events and background noise levels that occur during that time period.

CNEL is the predominant rating scale now in use in California for land use noise compatibility assessment. The CNEL scale represents a time weighted 24-hour average noise level based on the dBA. Time weighted refers to the inclusion of penalties for noise that occurs during certain noise-sensitive time periods. The evening time period (7 p.m. to 10 p.m.) penalizes noises by 5 dBA, while nighttime (10 p.m. to 7 a.m.) noises are penalized by 10 dBA, reflecting people's increased sensitivity to noise during these time periods. A CNEL noise level may be reported as a CNEL of 60 dBA, 60 dBA CNEL, or simply 60 CNEL.

L(%) is a statistical method of describing noise which accounts for variance in noise levels throughout a given measurement period. L(%) is a way of expressing the noise level exceeded for a percentage of time in a given measurement period, or percentile exceedance level. For example, since 5 minutes is 25 percent of 20 minutes, L(25) is the noise level that is exceeded for five minutes in a twenty-minute measurement period. It is L(%) that is used for most Noise Ordinance standards. For example, most daytime County, State, and City noise ordinances use a standard of 55 dBA for 30 minutes per hour, or an L(50) level of 55 dBA. In other words, the noise ordinance may state that no noise level should exceed 55 dBA for more than 50 percent of a given period.

The maximum noise level (L_{max}) is the highest exponential time averaged sound level that occurs during a stated time period. The noise levels discussed in this analysis for short-term noise impacts are specified in terms of maximum levels denoted by L_{max}, which reflects peak noise conditions and addresses the annoying aspects of intermittent noise. It is often used together with the percentile exceedance levels, or noise standards in terms of percentile noise levels, in noise ordinances for enforcement purposes. For example, the L_{10} noise level represents the noise level exceeded 10 percent of the time during a stated period. The L_{50} noise level represents the median noise level. Half the time the noise level exceeds this level, and half the time it is less than this level. The L_{90} noise level represents the noise level exceeded 90 percent of the time and is considered the background noise level during a monitoring period. For a relatively constant noise source, the L_{eq} and L_{50} are approximately the same.

Fundamentals of Groundborne Vibration. Vibration refers to groundborne noise and perceptible motion of the earth. Similar to noise, vibration is transmitted through the earth and solid objects. There are several ways to categorize vibration sources. One way is to divide vibration into natural

sources (e.g., earthquakes, volcanic eruptions, sea waves, and landslides) and human sources (e.g., explosions, machinery, traffic, trains, and construction equipment). Similar to noise sources, vibration sources can also be described as continuous (e.g., operating factory machinery) or transient (e.g., explosions).

As with noise, ground vibrations can be described by amplitude and frequency. Vibration amplitude is characterized by its displacement, velocity, and acceleration. Displacement is the distance that soil particles travel from their original location as a result of vibration, as measured in inches or millimeters. Velocity is the speed of the soil particles measured in inches per second or millimeters per second. Acceleration of the soil particles is measured in inches per second per second or millimeters per second per second. Particle velocity is the most commonly used vibration attribute used to describe vibration. Table 4.6.A presents the human reaction to various levels of peak particle velocity. Vibrations also vary in frequency. Traffic vibrations generally range in frequencies from 10 to 30 hertz (Hz), and tend to average around 15 Hz. As a point of reference, city buses often generate frequencies around 3 Hz at high vehicle speeds, due to their suspension systems.

Table 4.6.A: Human Reaction to Typical Vibration Levels

Vibration Level Peak Particle Velocity (inches/second)	Human Reaction
0.0059–0.0188	Threshold of perception, possibility of intrusion.
0.0787	Vibrations readily perceptible.
0.0984	Level at which continuous vibrations begin to annoy people.
0.1968	Vibrations annoying to people in buildings.
0.3937–0.5905	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges.

Source: Caltrans 1992.

Groundborne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors, where the motion may be discernible. However, without the effects associated with the shaking of a building, there is less adverse reaction. Building vibration may be perceived by the occupants as motion of building surfaces, rattling of items on shelves or hanging on walls, or as a low-frequency rumbling noise. Building damage is not a factor for normal projects, with the occasional exception of blasting and pile driving during construction or mining. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by up to 10 decibels. This is an order of magnitude below the damage threshold for normal buildings.

Typical sources of groundborne vibration are construction activities (e.g., blasting, pile driving, and operating heavy-duty earthmoving equipment), steel-wheeled trains, and occasional traffic on rough roads. Problems with groundborne vibration and noise from these sources are usually localized to within about 100 feet of the vibration source, although there are examples of groundborne vibration causing interference out to distances greater than 200 feet.[1] When roadways are smooth, vibration from traffic, even heavy trucks, is rarely perceptible.

Factors that influence groundborne vibration and noise include the following:

- *Vibration Source:* Vehicle suspension, wheel types and condition, track/roadway surface, track support system, speed, transit structure, and depth of vibration source.
- *Vibration Path:* Soil type, rock layers, soil layering, depth to water table, and frost depth.
- *Vibration Receiver:* Foundation type, building construction, and acoustical absorption.

[1] "Transit Noise and Vibration Impact Assessment" prepared by the Federal Transit Authority (FTA), May 2006.

Among the factors listed above, there are significant differences in the vibration characteristics when the source is underground versus at ground surface. In addition, soil conditions are known to have a strong influence on the levels of groundborne vibration. Among the most important factors are the stiffness and internal damping of the soil and the depth to bedrock. Vibration propagation is more efficient in stiff clay soils than in loose sandy soils, and shallow rock concentrates the vibration energy close to the surface and can result in groundborne vibration problems at a great distance from the track. Factors such as layering of the soil and depth to water table can have significant effects on the propagation of groundborne vibration. Soft, loose, sandy soils tend to attenuate more vibration energy than hard, rocky materials. Vibration propagation through groundwater is more efficient than through sandy soils.

4.6.1.2 Sensitive Land Uses in the Project Vicinity

Certain land uses are considered more sensitive to noise than others. Examples include residential areas, educational facilities, hospitals, childcare facilities, and senior housing. The project vicinity consists of a residential neighborhood to the north approximately 0.4 mile (2,112 feet) from the project site, two schools (Olive Junior High and Walnut Elementary School) approximately 0.5 mile (2,640 feet) to the southeast of the project site, and City of Hope Helford Clinical Research Hospital approximately 1.3 miles (6,864 feet) to the northeast of the project site. These are the nearest land uses that would be considered sensitive receptors.

4.6.1.3 Existing Noise Environment

Existing noise levels in the vicinity of the proposed project are from transportation and industrial sources. The primary sources of noise and vibration in the project area include an active quarry and Graham Access Road to the south, I-605 to the east, Live Oak Avenue and a landfill to the north, and a truck distribution center to the west.

4.6.1.4 NOP and Scoping Comments

No comments were received from the public regarding noise impacts of the project, and no agencies submitted comment letters regarding noise during the NOP period.

4.6.2 Existing Policies and Regulations

4.6.2.1 Federal Guidelines

There are no regulatory requirements for noise or vibration levels relative to commercial uses. For train vibration, the typical criteria are those in the Transit Noise and Vibration Impact Assessment by the Federal Transit Administration (FTA, May 2006).[1] The criterion presented in Table 8-1 of that report for infrequent events (defined as fewer than 30 per day) in Institutional land uses with primarily daytime use is that the vibration levels not exceed 83 VdB. (VdB is a measurement of ground velocity relative to 10^{-6} inches per second.) Note that the threshold of perception is usually taken to be approximately 65 VdB. Therefore, even if the requirements are met, vibration from trains passing by or other vibration sources will be felt if the threshold of vibration is exceeded.

4.6.2.2 State Noise Compatibility Guidelines

The State of California Noise Compatibility Guidelines, published by the Department of Health Services provides guidance for use when siting land uses. Figure 4.6.2 shows the compatibility

[1] "Transit Noise and Vibration Impact Assessment" report from the Federal Transit Administration, U.S. Department of Transportation. May 2006.

guidelines. The guidelines will be used to evaluate the compatibility of the proposed land uses with the noise environment. The guidelines show compatibility of various land uses with different noise environments and demonstrate that commercial uses are normally acceptable in noise environments up to 75 CNEL.

4.6.2.3 City General Plan

The applicable noise standards governing the project site are the criteria in the City of Irwindale 2020 General Plan Noise Element and Municipal Code (Noise Ordinance, see Chapter 9.28). The General Plan noise policies cite to applicable State standards including the California Administrative Code, Section 1092 of Title 25, Chapter 1, Subchapter 1, Article 4 and Section 5014 of Title 21, Subchapter 6, Article 2. The City's General Plan Noise Element has not adopted any specific noise policies that can be used in the CEQA review process.

4.6.2.4 City Municipal Code

The City of Irwindale Municipal Code (Chapter 9.28 - Noise Regulation) has established ambient base noise levels. Where the ambient noise level is less than designated, the ambient base noise level in the Municipal Code shall govern. Table 4.6.B outlines these criteria.

Table 4.6.B: Irwindale Municipal Code Ambient Base Noise Level

Zone	Ambient Base Noise Level (dB)	
	10 p.m. to 7 a.m.	7 a.m. to 10 p.m.
Residential	45	50
Commercial	50	55
Industrial	60	70

Source: Irwindale Municipal Code Chapter 9.28.

Daytime hours are defined as 7 a.m. to 10 p.m. Nighttime hours are defined as 10 p.m. to 7 a.m. The criteria in Table 4.6.B are assumed to be A-weighted levels (dBA).

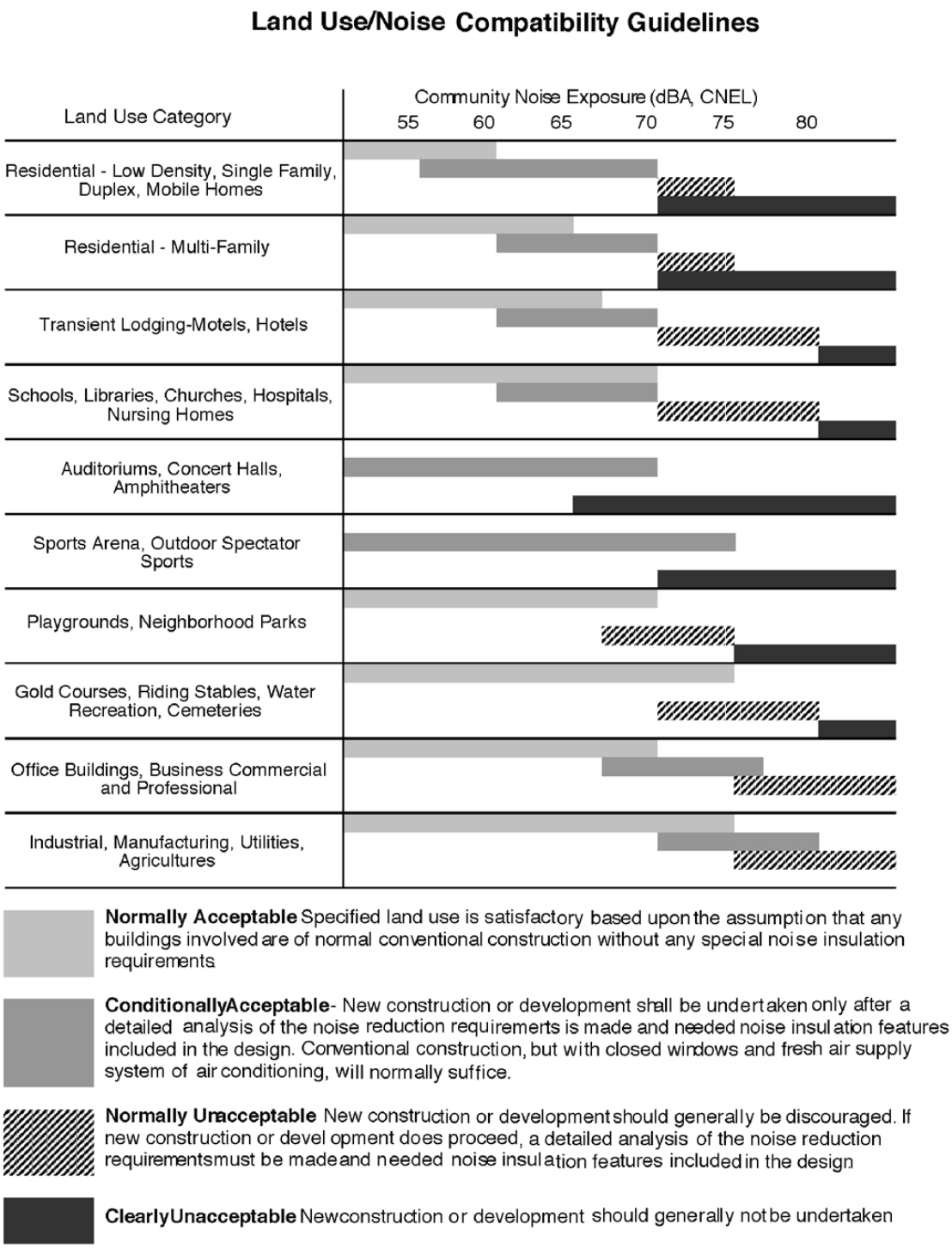
Any noise at a level that exceeds the ambient or the ambient base level as set forth above, whichever is greater, by more than 10 dB when measured at any boundary line of the property from which the noise emanates shall constitute sufficient proof of a violation.

Construction authorized by the Municipal Code Chapter 9.28 shall be limited to 7 a.m. to 7 p.m. from Monday through Saturday. No construction shall be allowed during any hours on Sunday without a permit by the City.

4.6.3 Methodology

The evaluation of noise impacts associated with the proposed project includes the following:

- Determination of the short-term construction noise impacts on off-site noise-sensitive uses;
- Determination of the long-term noise impacts, including vehicular traffic and stationary noise sources, on on-site and off-site noise-sensitive uses; and
- Determination of the required mitigation measures to reduce long-term noise impacts from all sources.



LSA

FIGURE 4.6.2

Irwindale Regional Shopping Center
Environmental Impact Report

California Noise Compatibility Guidelines

SOURCE: Mestre Greve Associates, 2012

I:COI1401\Reports\EIR\fig4-6-2_CANoiseCompatibilityGuied.cdr (08/27/14)

THIS PAGE INTENTIONALLY LEFT BLANK

4.6.4 Thresholds of Significance

A project would have a significant effect on the environment related to noise if it would substantially increase the ambient noise levels for adjoining areas or if it would conflict with adopted environmental plans and goals of the community in which it is located.

The applicable noise standards and guidelines governing the project are those specified previously in Sections 4.6.2.1 through 4.6.2.4. In summary, these criteria are contained within the City's Noise Elements of the General Plan, the City Municipal Code, the California Vehicle Code, and the State Noise Compatibility Guidelines.

For this project, a noise impact is considered significant if the project would result in:

- Exposure of persons to or generation of noise levels in excess of standards established in the *City of Irwindale 2020 General Plan*, *Municipal Code*, or applicable standards of other agencies;
- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;
- A substantial temporary, periodic, and/or permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- 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, expose people residing or working in the project area to excessive noise levels; and/or
- For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

The following standard within the *City of Irwindale 2020 General Plan* and *Municipal Code* determines the acceptable noise environment for proposed project and its vicinity:

- Ensure through the design review process that exterior noise levels at adjacent residential areas, schools, and hospitals do not exceed the City's daytime ambient base noise level of 50 dBA.

4.6.5 Less than Significant Impacts

The following impacts were identified as having a less than significant impact or no impact on the environment with implementation of the proposed project.

4.6.5.1 Airport Noise Impacts

Impact 4.6.5.1: *The proposed project would not result in people being subjected to significant noise levels due to airport operations.*

Threshold	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, results in exposure of people residing or working in the project area to excessive noise levels. For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

The project area is not located within two miles of an airport or private airstrip. The closest airport to the project site is the El Monte Airport approximately 2.2 miles southwest of the project, and there are no private airstrips in this portion of the San Gabriel Valley. Therefore, the proposed project would not have the potential to expose people to excessive noise levels from airport operations. Therefore, no

significant noise impacts would occur regarding these issues from implementation of the proposed project, and no mitigation is required.

Mitigation Measures. The proposed project is not near an airport and therefore would not expose people to excessive noise levels from airport operations. Therefore, no mitigation is required.

Level of Significance after Mitigation. No mitigation is required.

4.6.5.2 Short-Term Construction Noise Impacts

Impact 4.6.5.2: *The proposed project would not result in significant noise impacts during construction.*

Threshold	Would the project result in a substantial temporary, periodic, and/or permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Short-term noise would occur during the construction of the proposed project. First, construction crew commutes and the transport of construction equipment and materials to the site for the proposed project would incrementally increase noise levels on access roads in the project area. In addition, noise would be generated during excavation, grading, and building construction on various portions of the site. Construction will be completed in discrete steps, each of which has its own mix of equipment, and consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on the site and, therefore, the noise levels surrounding the site as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. The site preparation phase, which includes excavation and grading of the site, tends to generate the highest noise levels, because the noisiest construction equipment is earthmoving equipment, which includes excavating machinery such as backfillers, bulldozers, draglines, and front loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve one or two minutes of full-power operation followed by three to four minutes at lower power settings. Implementation of the proposed project would result in construction activities that would require the use of scrapers, bulldozers, and water and pickup trucks on the project site.

Table 4.6.C presents construction noise levels measured at 50 feet, taken from the FHWA Roadway Construction Noise Model (FHWA Highway Construction Noise Handbook, August 2006). The peak noise level for the majority of the equipment that will be used during construction of the proposed project will range from 70 to 95 dBA. Based on the fact that noise levels dissipate with increases in distance from the noise source due to noise divergence, noise levels at greater distances are less than those presented in Table 4.6.C. Typical construction noise measurements for this type of project demonstrate that the noise levels generated by commonly used grading equipment (e.g., loaders, graders, and trucks) generate noise levels that typically do not exceed the middle of the range shown in Table 4.6.C. However, the noise levels shown in Table 4.6.C have been used as the basis for the noise analysis estimates presented in this EIR.

Table 4.6.C: Roadway Construction Noise Model (RCNM) Default Noise Emission Reference Levels and Usage Factors

Equipment Description	Impact Device?	Acoustical Usage Factor	Spec. 721.560 L_{max} at 50 ft (dBA, slow)	Actual Measured L_{max} at 50 ft (dBA, slow)	Number of Actual Data Samples (Count)
Auger Drill Rig	No	20	85	84	36
Backhoe	No	40	80	78	372
Blasting	Yes	N/A	94	N/A	0
Chainsaw	No	20	85	84	46
Compactor (ground)	No	20	80	83	57
Compressor (air)	No	40	80	78	18
Concrete Mixer Truck	No	40	85	79	40
Crane	No	16	85	81	405
Dozer	No	40	85	82	55
Dump Truck	No	40	84	76	31
Excavator	No	40	85	81	170
Flat Bed Truck	No	40	84	74	4
Front End Loader	No	40	80	79	96
Generator	No	50	82	81	19
Generator (< 25 kVA, VMS Signs)	No	50	70	73	74
Grader	No	40	85	N/A	0
Jackhammer	Yes	20	85	89	133
Paver	No	50	85	77	9
Pickup Truck	No	40	55	75	1
Pneumatic Tools	No	50	85	85	90
Pumps	No	50	77	81	17
Refrigerator Unit	No	100	82	73	3
Rock Drill	No	20	85	81	3
Roller	No	20	85	80	16
Sand Blasting (single nozzle)	No	20	85	96	9
Scraper	No	40	85	84	12
Tractor	No	40	84	N/A	0
Vacuum Excavator (Vac-Truck)	No	40	85	85	149
Vibratory Concrete Mixer	No	20	80	80	1
Vibratory Pile Driver	No	20	95	101	44
Warning Horn	No	5	85	83	12
Welder/Torch	No	40	73	74	5

Source: Federal Highway Administration Highway Construction Noise Handbook (2006).

dBA = A-weighted decibels
ft-lb/blow = foot-pounds per blow
N/A = Not Applicable
ft = foot/feet
HP = horsepower
RCNM = Roadway Construction Noise Model

Based on these projections, and due to the lack of sensitive receptors in the project vicinity, it is not anticipated that worst-case project construction noise levels would exceed City standards. In addition, the proposed project will be required to comply with the City's Municipal Code Chapter 9.28 which limits construction to 7 a.m. to 7 p.m. from Monday through Saturday with no construction allowed on Sundays without a permit by the City. Therefore, construction noise impacts are less than significant and mitigation is not required.

Project Design Features. The project does not contain any design features that specifically address noise. Other features, such as perimeter setback requirements, will have the effect of reducing noise.

Mitigation Measures. Construction of the proposed project would not result in noise levels at the closest residences (2,112 feet away) exceeding the maximum noise level allowed under the City's Municipal Code. Therefore, no mitigation is required.

Level of Significance after Mitigation. No mitigation is required.

4.6.5.3 Long-Term Noise Impacts

Impact 4.6.5.3: *The project would not result in significant noise impacts to existing sensitive receptors from new commercial activity including vehicular traffic noise and stationary noise sources.*

Threshold	Would the project result in a substantial temporary, periodic, and/or permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Long-Term Noise Levels. The noise analysis for this EIR examined potential long-term noise impacts of the project by comparing calculated traffic noise levels to the baseline without project noise levels and comparing them to established noise standards. The analysis uses a traffic noise model based on the guidelines established by the FHWA to predict traffic noise levels along the affected roadway segments.

Vehicular Traffic Noise Impacts

Exterior Noise Levels: The noise analysis for this EIR estimated exterior noise levels within the project using the FHWA noise assessment model. Based on the proposed project's site plan, the existing and future CNEL noise levels along the affected roadway segments are presented. The predicted sound levels are listed in Tables 4.6.D through 4.6.K for existing and future opening year/cumulative scenarios for both weekdays and weekends. These tables show that project-related traffic noise level increases would be 0.8 dBA or less. This range of traffic noise level changes is small and not discernible to the human ear. Therefore, project-related traffic noise impacts to off-site land uses would be small and less than significant. No mitigation measures would be required.

Since the proposed commercial uses are not considered noise-sensitive, no traffic noise impacts would occur for the proposed on-site land uses. No mitigation measures would be required.

Table 4.6.D: Existing Weekday Traffic Noise Levels Without the Project

Roadway Segment	ADT	Centerline to 70 CNEL (Feet)	Centerline to 65 CNEL (Feet)	Centerline to 60 CNEL (Feet)	CNEL (dBA) 50 Feet from Centerline of Outermost Lane
E. Live Oak Ave west of Peck Rd	22,300	63	129	274	68.9
E. Live Oak Ave between Peck Rd and Arrow Hwy	28,900	74	152	325	70.0
Live Oak Ave between Arrow Hwy and Rivergrade Rd	28,600	73	151	323	69.9

Table 4.6.D: Existing Weekday Traffic Noise Levels Without the Project

Roadway Segment	ADT	Centerline to 70 CNEL (Feet)	Centerline to 65 CNEL (Feet)	Centerline to 60 CNEL (Feet)	CNEL (dBA) 50 Feet from Centerline of Outermost Lane
Live Oak Ave between Rivergrade Rd and Baldwin Park	27,600	72	148	315	69.8
Myrtle Ave north of Longden Ave	23,800	54	110	235	68.3
Myrtle Ave between Longden Ave and E. Live Oak Ave	18,500	< 50	94	199	67.2
Peck Rd south of E. Live Oak Ave	19,600	59	119	251	68.3
Longden Ave west of Myrtle Ave	22,300	< 50	66	141	66.1
Arrow Hwy from Baldwin Park to Maine Ave	29,900	75	156	332	70.1
Arrow Hwy east of Maine Ave	30,300	76	157	335	70.2
Stewart Ave south of Live Oak Ave	5,000	< 50	< 50	52	59.6
Baldwin Park south of Live Oak Ave	9,700	< 50	62	130	64.4
Maine Ave south of Arrow Hwy	9,000	< 50	60	124	64.1

Source: LSA Associates, Inc., August 2014.
Note: Traffic noise within 50 feet of the roadway centerline should be evaluated with site-specific information.

Table 4.6.E: Existing Weekday Traffic Noise Levels With Project

Roadway Segment	ADT	Center-line to 70 CNEL (Feet)	Center-line to 65 CNEL (Feet)	Center-line to 60 CNEL (Feet)	CNEL (dBA) 50 Feet from Centerline of Outermost Lane	Increase CNEL (dBA) 50 Feet from Centerline of Outermost Lane
E. Live Oak Ave west of Peck Rd	22,300	63	129	274	68.9	0.0
E. Live Oak Ave between Peck Rd and Arrow Hwy	30,100	76	156	334	70.2	0.2
Live Oak Ave between Arrow Hwy and Rivergrade Rd	29,300	74	154	328	70.0	0.1
Live Oak Ave between Rivergrade Rd and Baldwin Park	27,400	72	147	314	69.8	0.0
Myrtle Ave north of Longden Ave	23,900	54	111	236	68.3	0.0
Myrtle Ave between Longden Ave and E. Live Oak Ave	18,400	< 50	93	198	67.2	0.0

Table 4.6.E: Existing Weekday Traffic Noise Levels With Project

Roadway Segment	ADT	Center-line to 70 CNEL (Feet)	Center-line to 65 CNEL (Feet)	Center-line to 60 CNEL (Feet)	CNEL (dBA) 50 Feet from Centerline of Outermost Lane	Increase CNEL (dBA) 50 Feet from Centerline of Outermost Lane
Peck Rd south of E. Live Oak Ave	19,700	59	119	252	68.3	0.0
Longden Ave west of Myrtle Ave	22,300	< 50	66	141	66.1	0.0
Arrow Hwy from Baldwin Park to Maine Ave	29,600	75	155	330	70.1	0.0
Arrow Hwy east of Maine Ave	30,100	76	156	334	70.2	0.0
Stewart Ave south of Live Oak Ave	5,200	< 50	< 50	54	59.7	0.1
Baldwin Park south of Live Oak Ave	9,700	< 50	62	130	64.4	0.0
Maine Ave south of Arrow Hwy	9,000	< 50	60	124	64.1	0.0

Source: LSA Associates, Inc., August 2014.
Note: Traffic noise within 50 feet of the roadway centerline should be evaluated with site-specific information.

Table 4.6.F: Existing Saturday Traffic Noise Levels Without Project

Roadway Segment	ADT	Centerline to 70 CNEL (Feet)	Centerline to 65 CNEL (Feet)	Centerline to 60 CNEL (Feet)	CNEL (dBA) 50 Feet from Centerline of Outermost Lane
E. Live Oak Ave west of Peck Rd	11,300	< 50	84	175	65.9
E. Live Oak Ave between Peck Rd and Arrow Hwy	14,300	< 50	97	204	66.9
Live Oak Ave between Arrow Hwy and Rivergrade Rd	12,600	< 50	90	188	66.4
Live Oak Ave between Rivergrade Rd and Baldwin Park	11,000	< 50	83	172	65.8
Myrtle Ave north of Longden Ave	16,400	< 50	87	184	66.7
Myrtle Ave between Longden Ave and E. Live Oak Ave	12,900	< 50	75	157	65.6
Peck Rd south of E. Live Oak Ave	14,200	< 50	97	203	66.9
Longden Ave west of Myrtle Ave	11,500	< 50	< 50	91	63.2
Arrow Hwy from Baldwin Park to Maine Ave	15,400	< 50	102	214	67.3

Table 4.6.F: Existing Saturday Traffic Noise Levels Without Project

Roadway Segment	ADT	Centerline to 70 CNEL (Feet)	Centerline to 65 CNEL (Feet)	Centerline to 60 CNEL (Feet)	CNEL (dBA) 50 Feet from Centerline of Outermost Lane
Arrow Hwy east of Maine Ave	16,500	< 50	106	224	67.6
Stewart Ave south of Live Oak Ave	2,300	< 50	< 50	< 50	56.2
Baldwin Park south of Live Oak Ave	4,600	< 50	< 50	80	61.2
Maine Ave south of Arrow Hwy	5,700	< 50	< 50	92	62.1

Source: LSA Associates, Inc., August 2014.
Note: Traffic noise within 50 feet of the roadway centerline should be evaluated with site-specific information.

Table 4.6.G: Existing Saturday Traffic Noise Levels With Project

Roadway Segment	ADT	Center-line to 70 CNEL (Feet)	Center-line to 65 CNEL (Feet)	Center-line to 60 CNEL (Feet)	CNEL (dBA) 50 Feet from Centerline of Outermost Lane	Increase CNEL (dBA) 50 Feet from Centerline of Outermost Lane
E. Live Oak Ave west of Peck Rd	11,700	< 50	86	179	66.1	0.2
E. Live Oak Ave between Peck Rd and Arrow Hwy	16,900	< 50	108	228	67.7	0.8
Live Oak Ave between Arrow Hwy and Rivergrade Rd	14,900	< 50	100	210	67.1	0.7
Live Oak Ave between Rivergrade Rd and Baldwin Park	11,600	< 50	85	178	66.0	0.2
Myrtle Ave north of Longden Ave	16,500	< 50	87	185	66.7	0.0
Myrtle Ave between Longden Ave and E. Live Oak Ave	12,800	< 50	74	156	65.6	0.0
Peck Rd south of E. Live Oak Ave	14,400	< 50	98	205	67.0	0.1
Longden Ave west of Myrtle Ave	12,000	< 50	< 50	94	63.4	0.2
Arrow Hwy from Baldwin Park to Maine Ave	15,600	< 50	103	216	67.3	0.0
Arrow Hwy east of Maine Ave	16,700	< 50	107	226	67.6	0.0
Stewart Ave south of Live Oak Ave	2,700	< 50	< 50	< 50	56.9	0.7
Baldwin Park south of Live Oak Ave	4,700	< 50	< 50	82	61.3	0.1

Table 4.6.G: Existing Saturday Traffic Noise Levels With Project

Roadway Segment	ADT	Center-line to 70 CNEL (Feet)	Center-line to 65 CNEL (Feet)	Center-line to 60 CNEL (Feet)	CNEL (dBA) 50 Feet from Centerline of Outermost Lane	Increase CNEL (dBA) 50 Feet from Centerline of Outermost Lane
Maine Ave south of Arrow Hwy	5,800	< 50	< 50	93	62.2	0.1

Source: LSA Associates, Inc., August 2014.
Note: Traffic noise within 50 feet of the roadway centerline should be evaluated with site-specific information.

Table 4.6.H: Opening Year Weekday Traffic Noise Levels Without Project

Roadway Segment	ADT	Centerline to 70 CNEL (Feet)	Centerline to 65 CNEL (Feet)	Centerline to 60 CNEL (Feet)	CNEL (dBA) 50 Feet from Centerline of Outermost Lane
E. Live Oak Ave west of Peck Rd	24,700	67	138	293	69.3
E. Live Oak Ave between Peck Rd and Arrow Hwy	32,100	79	163	349	70.4
Live Oak Ave between Arrow Hwy and Rivergrade Rd	33,400	81	167	358	70.6
Live Oak Ave between Rivergrade Rd and Baldwin Park	30,900	77	159	340	70.3
Myrtle Ave north of Longden Ave	25,900	56	117	249	68.7
Myrtle Ave between Longden Ave and E. Live Oak Ave	20,000	< 50	99	210	67.5
Peck Rd south of E. Live Oak Ave	21,200	62	125	265	68.6
Longden Ave west of Myrtle Ave	24,700	< 50	70	151	66.5
Arrow Hwy from Baldwin Park to Maine Ave	34,100	82	170	363	70.7
Arrow Hwy east of Maine Ave	35,100	83	173	370	70.8
Stewart Ave south of Live Oak Ave	5,600	< 50	< 50	57	60.1
Baldwin Park south of Live Oak Ave	10,700	< 50	66	139	64.8
Maine Ave south of Arrow Hwy	9,900	< 50	63	132	64.5

Source: LSA Associates, Inc., August 2014.
Note: Traffic noise within 50 feet of the roadway centerline should be evaluated with site-specific information.

Table 4.6.I: Opening Year Weekday Traffic Noise Levels With Project

Roadway Segment	ADT	Center-line to 70 CNEL (Feet)	Center-line to 65 CNEL (Feet)	Center-line to 60 CNEL (Feet)	CNEL (dBA) 50 Feet from Centerline of Outermost Lane	Increase CNEL (dBA) 50 Feet from Centerline of Outermost Lane
E. Live Oak Ave west of Peck Rd	24,800	68	138	294	69.3	0.0
E. Live Oak Ave between Peck Rd and Arrow Hwy	33,200	80	167	356	70.6	0.2
Live Oak Ave between Arrow Hwy and Rivergrade Rd	34,000	81	169	362	70.7	0.1
Live Oak Ave between Rivergrade Rd and Baldwin Park	30,700	77	159	338	70.3	0.0
Myrtle Ave north of Longden Ave	25,900	56	117	249	68.7	0.0
Myrtle Ave between Longden Ave and E. Live Oak Ave	20,000	< 50	99	210	67.5	0.0
Peck Rd south of E. Live Oak Ave	21,300	62	125	266	68.7	0.1
Longden Ave west of Myrtle Ave	24,800	< 50	71	152	66.5	0.0
Arrow Hwy from Baldwin Park to Maine Ave	33,800	81	169	361	70.7	0.0
Arrow Hwy east of Maine Ave	34,900	83	172	368	70.8	0.0
Stewart Ave south of Live Oak Ave	5,800	< 50	< 50	58	60.2	0.1
Baldwin Park south of Live Oak Ave	10,700	< 50	66	139	64.8	0.0
Maine Ave south of Arrow Hwy	9,900	< 50	63	132	64.5	0.0

Source: LSA Associates, Inc., August 2014.
Note: Traffic noise within 50 feet of the roadway centerline should be evaluated with site-specific information.

Table 4.6.J: Opening Year Saturday Traffic Noise Levels Without Project

Roadway Segment	ADT	Centerline to 70 CNEL (Feet)	Centerline to 65 CNEL (Feet)	Centerline to 60 CNEL (Feet)	CNEL (dBA) 50 Feet from Centerline of Outermost Lane
E. Live Oak Ave west of Peck Rd	12,400	< 50	89	186	66.3
E. Live Oak Ave between Peck Rd and Arrow Hwy	15,600	< 50	103	216	67.3

Table 4.6.J: Opening Year Saturday Traffic Noise Levels Without Project

Roadway Segment	ADT	Centerline to 70 CNEL (Feet)	Centerline to 65 CNEL (Feet)	Centerline to 60 CNEL (Feet)	CNEL (dBA) 50 Feet from Centerline of Outermost Lane
Live Oak Ave between Arrow Hwy and Rivergrade Rd	14,100	< 50	96	202	66.9
Live Oak Ave between Rivergrade Rd and Baldwin Park	12,300	< 50	88	185	66.3
Myrtle Ave north of Longden Ave	17,700	< 50	91	193	67.0
Myrtle Ave between Longden Ave and E. Live Oak Ave	13,900	< 50	78	165	66.0
Peck Rd south of E. Live Oak Ave	15,400	< 50	102	214	67.3
Longden Ave west of Myrtle Ave	12,700	< 50	< 50	97	63.6
Arrow Hwy from Baldwin Park to Maine Ave	17,700	56	111	235	67.9
Arrow Hwy east of Maine Ave	19,400	59	118	250	68.3
Stewart Ave south of Live Oak Ave	2,700	< 50	< 50	< 50	56.9
Baldwin Park south of Live Oak Ave	5,200	< 50	< 50	87	61.7
Maine Ave south of Arrow Hwy	6,400	< 50	< 50	99	62.6

Source: LSA Associates, Inc., August 2014.
Note: Traffic noise within 50 feet of the roadway centerline should be evaluated with site-specific information.

Table 4.6.K: Opening Year Saturday Traffic Noise Levels With Project

Roadway Segment	ADT	Center-line to 70 CNEL (Feet)	Center-line to 65 CNEL (Feet)	Center-line to 60 CNEL (Feet)	CNEL (dBA) 50 Feet from Centerline of Outermost Lane	Increase CNEL (dBA) 50 Feet from Centerline of Outermost Lane
E. Live Oak Ave west of Peck Rd	13,100	< 50	92	193	66.6	0.3
E. Live Oak Ave between Peck Rd and Arrow Hwy	18,700	58	115	244	68.1	0.8
Live Oak Ave between Arrow Hwy and Rivergrade Rd	16,700	< 50	107	226	67.6	0.7
Live Oak Ave between Rivergrade Rd and Baldwin Park	13,000	< 50	92	192	66.5	0.2
Myrtle Ave north of Longden Ave	18,000	< 50	92	196	67.1	0.1

Table 4.6.K: Opening Year Saturday Traffic Noise Levels With Project

Roadway Segment	ADT	Center-line to 70 CNEL (Feet)	Center-line to 65 CNEL (Feet)	Center-line to 60 CNEL (Feet)	CNEL (dBA) 50 Feet from Centerline of Outermost Lane	Increase CNEL (dBA) 50 Feet from Centerline of Outermost Lane
Myrtle Ave between Longden Ave and E. Live Oak Ave	13,900	< 50	78	165	66.0	0.0
Peck Rd south of E. Live Oak Ave	15,600	< 50	103	216	67.3	0.0
Longden Ave west of Myrtle Ave	13,400	< 50	< 50	105	63.9	0.3
Arrow Hwy from Baldwin Park to Maine Ave	18,000	56	112	238	67.9	0.0
Arrow Hwy east of Maine Ave	19,600	59	119	251	68.3	0.0
Stewart Ave south of Live Oak Ave	3,100	< 50	< 50	< 50	57.5	0.6
Baldwin Park south of Live Oak Ave	5,300	< 50	< 50	88	61.8	0.1
Maine Ave south of Arrow Hwy	6,500	< 50	< 50	100	62.7	0.1

Source: LSA Associates, Inc., August 2014.
Note: Traffic noise within 50 feet of the roadway centerline should be evaluated with site-specific information.

Stationary Sources Noise Impacts

There would be stationary sources associated with the proposed project such as parking lot activities and loading/unloading of goods from trucks.

Truck Idling and Loading/Unloading: Delivery trucks for the proposed on-site uses would result in a maximum noise level of 75 dBA L_{max} at 50 feet. At a distance of 2,112 feet (0.4 mile) to the nearest sensitive receptors, this noise level will be reduced by 32.5 dBA when compared to the noise level measured at 50 feet. With intervening natural berms or man-made structures, more noise attenuation would be expected. Therefore, loading/unloading activity noise would be reduced to below 42 dBA L_{max}. This level of exterior noise is below the ambient noise in the project area and would not result in any significant noise impact.

Parking Lot Noise: The proposed commercial uses would result in noise associated with parking lot activity. Representative parking activities, such as employees or customers conversing and slamming doors, would generate approximately 60 to 70 dBA L_{max} at 50 ft. The closest on-site parking spaces are located more than 2,112 feet from the nearest off-site sensitive receptors (residences). At this distance, the residences would be exposed to noise levels of up to 37.5 dBA L_{max}. Noise levels generated by parking lot activities would not exceed the City's daytime exterior noise standard of 75 dBA L_{max} or the nighttime exterior noise standard of 65 dBA L_{max}. Therefore, no significant noise impacts would occur on off-site noise-sensitive land uses from parking lot activities associated with the proposed on-site commercial uses. No mitigation measures are required.

HVAC Equipment Noise: The proposed project would potentially expose its HVAC equipment noise to closest sensitive receptors at 2,112 feet from the project site. HVAC equipment generates a sound pressure level (SPL) of up to 95 dBA at 1 foot. The closest residences are more than 2,112 feet from the on-site noise-generating HVAC source. With the effect of distance divergence, noise generated by HVAC equipment would be reduced to 28.5 dBA L_{max} at the closest sensitive receptors to the project site. Noise levels generated by HVAC equipment would not exceed the City's daytime exterior noise standard of 75 dBA L_{max} or the nighttime exterior noise standard of 65 dBA L_{max}. Therefore, no significant noise impacts would occur on on-site noise-sensitive land uses from the HVAC equipment. No mitigation measures are required.

Potential Mitigation Measures. The analysis of noise impacts above indicates long-term noise levels would be within acceptable levels. No mitigation measures would be required.

Level of Impact After Mitigation. No mitigation is required.

4.6.5.4 Groundborne Vibration Impacts

Impact 4.6.5.4: *The project would not introduce new significant vibration sources to the area where sensitive uses are located.*

Threshold	Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Vibration refers to groundborne noise and perceptible motion. Groundborne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors, where the motion may be discernible, but without the effects associated with the shaking of a building there is less adverse reaction. Construction on the project site would result in the exposure of persons to excessive groundborne vibration or groundborne noise levels. Groundborne vibration during construction activity is temporary and would cease to occur after project construction is completed.

The proposed project would require the use of excavators, scrapers, and graders, as well as a bulldozer and other construction equipment. As shown in Table 4.6.L, a large bulldozer would generate approximately 0.089 PPV (in/sec) when measured at 25 feet, while a loaded truck would generate 0.076 PPV (in/sec) at 25 feet. Table 4.6.L also shows that caisson drilling and a jackhammer would generate approximately 0.035 to 0.089 PPV (in/sec) when measured at 25 feet.

Experience with groundborne vibration indicates that vibration propagation is more efficient in stiff clay soils than in loose sandy soils. Shallow rock concentrates the vibration energy close to the surface and can result in groundborne vibration problems at some distance from the source. Factors such as layering of the soil and depth to the water table can have significant effects on the propagation of groundborne vibration. Soft, loose, sandy soils tend to attenuate more vibration energy than hard, rocky materials. Vibration propagation through groundwater is more efficient than through sandy soils.

Table 4.6.L: Vibration Source Amplitudes for Construction Equipment

Equipment	Reference PPV at 25 ft (in/sec)
Pile Driver (impact), typical	0.644
Pile Driver (sonic), typical	0.170
Vibratory roller	0.210
Large bulldozer	0.089
Caisson drilling	0.089

Table 4.6.L: Vibration Source Amplitudes for Construction Equipment

Equipment	Reference PPV at 25 ft (in/sec)
Loaded trucks	0.076
Jackhammer	0.035
Small bulldozer	0.003
Crack-and-seat operations	2.400

Sources: Federal Transit Administration, 2006 (except Hanson 2001 for vibratory rollers); and California Department of Transportation, 2000 (for crack-and-seat-operations).
ft = feet in/sec = inches per second
PPV = peak particle velocity

Regarding the potential for building damage, Table 4.6.L shows that vibration levels from construction equipment and activities, including bulldozers, drilling, trucks, and jackhammers, would be less than 0.1 in/sec at 25 feet from the project site and lower than the PPV of 0.2 in/sec vibration damage criteria at the nearest sensitive uses for non-engineered timber and masonry buildings (FTA 2006). For new residential buildings, the vibration damage potential threshold recommended by Caltrans is 1 in/sec from transient sources such as pile driving and blasting. Caltrans also states that it takes at least 0.9 in/sec of PPV for the human response to be strongly perceptible, or 0.25 in/sec to be distinctly perceptible (Caltrans 1992). The nearest residences are more than 2,000 feet to the north, and no commercial or industrial buildings are within 100 feet of the project construction area. None of the predicted vibration levels (all below 0.1 in/sec) for sensitive uses in the vicinity of the project site would reach either of these two threshold levels. Thus, no significant vibration impacts are anticipated, and no mitigation is required.

Similarly, regarding human perception of vibration, bulldozers and other heavy-tracked construction equipment generate approximately 92 VdB of groundborne vibration when measured at 50 feet, based on the FTA's Transit Noise and Vibration Impact Assessment (2006). Based on the Caltrans 1992 Transportation-Related Earthborne Vibrations, Technical Advisory, the vibration level at 100 feet is approximately 6 VdB lower than the vibration level at 50 ft. Vibration at 200 feet from the source is more than 6 VdB lower than the vibration level at 100 feet, or more than 12 VdB lower than the vibration level at 50 feet. Therefore, receptors at 25, 100, 200, and 300 feet from construction activity may be exposed to groundborne vibration up to 98, 86, 80, and 76 VdB, respectively. However, the nearest residential uses are more than 100 feet to the north of the project site, and would not be exposed to vibration levels exceeding 30 VdB. This range of groundborne vibration levels would not exceed the 80 VdB threshold for residences due to infrequent events but would not result in any potential vibration damage impacts at the nearest residences in the project site vicinity. No mitigation measures are required.

Tables 4.6.M (criteria in terms of VdB) and 4.6.N (criteria in terms of in/sec and VdB) are used to evaluate the effects of vibration on human response and structural damage. For example, for a building that is constructed with reinforced concrete with no plaster, the FTA guidelines show that a vibration level of up to 102 VdB (0.5 in/sec) (FTA 2006) is considered safe and would not result in any construction vibration damage. For a non-engineered timber and masonry building, the construction vibration damage criterion is 94 VdB (0.2 in/sec).

Table 4.6.M: Groundborne Vibration and Noise Impact Criteria

Land Use Category	Groundborne Vibration Impact Levels (VdB re 1 micro in/sec)		Groundborne Noise Impact Levels (dB re 20 micropascals)	
	Frequent[1] Events	Infrequent[2] Events	Frequent[1] Events	Infrequent[2] Events
Category 1: Buildings where low ambient vibration is essential for interior operations.	65 VdB[3]	65 VdB[3]	[4]	[4]

Table 4.6.M: Groundborne Vibration and Noise Impact Criteria

Land Use Category	Groundborne Vibration Impact Levels (VdB re 1 micro in/sec)		Groundborne Noise Impact Levels (dB re 20 micropascals)	
	Frequent[1] Events	Infrequent[2] Events	Frequent[1] Events	Infrequent[2] Events
Category 2: Residences and buildings where people normally sleep.	72 VdB	80 VdB	35 dBA	43 dBA
Category 3: Institutional land uses with primarily daytime use.	75 VdB	83 VdB	40 dBA	48 dBA

Source: Federal Transit Administration (2006).
1 "Frequent Events" is defined as more than 70 events per day.
2 "Infrequent Events" is defined as fewer than 70 events per day.
3 This criterion limit is based on levels that are acceptable for most moderately sensitive equipment, such as optical microscopes. Vibration-sensitive manufacturing or research requires detailed evaluation to define the acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the HVAC systems and stiffened floors.
4 Vibration-sensitive equipment is used in buildings where sufficient noise attenuation is provided; additionally, such equipment is not sensitive to either airborne or groundborne noise.
dB = decibels
dBA = A-weighted decibels
HVAC = heating, ventilation, and air-conditioning
in/sec = inches per second
VdB = vibration velocity decibels

Table 4.6.N: Construction Vibration Damage Criteria

Building Category	PPV(in/sec)	Approximate Lv[1]
Reinforced concrete, steel, or timber (no plaster)	0.5	102
Engineered concrete and masonry (no plaster)	0.3	98
Non-engineered timber and masonry buildings	0.2	94
Buildings extremely susceptible to vibration damage	0.12	90

Source: Federal Transit Administration, May 2006.
1 RMS VdB re 1 micro-inch/second.
in/sec = inches per second
Lv = 20 log10 (V/Vref) is the vibration velocity in decibels
PPV = peak particle velocity
RMS = root mean square
VdB = vibration velocity decibels

The project noise analysis evaluated vibration impacts on sensitive receptors for both construction (which includes demolition of the speedway) and operation of the proposed project. The closest sensitive receptors are residences located approximately 2,112 feet north of the project site. While it is difficult to predict vibration propagation as it depends strongly on the subsurface soil properties, it is estimated the vibration levels would be reduced drastically outside of 100 feet from the vibration source. Smaller lighter buildings move more in response to ground vibration than larger heavier buildings. In addition, the vibration level typically increases on the upper floors of the building due to building resonances, especially in lightweight wood-framed construction. As noted previously, the FTA criterion for infrequent events is 80 VdB. Vibration levels above 80 VdB can clearly be felt and are objectionable to a large percentage of the population. Note that these vibration levels can also result in secondary effects such as the rattling of dishes, etc. The nearest residences are located at a distance more than 2,000 feet from the project site, and vibration associated with project construction/ demolition would be reduced to less than 30 VdB and would not be perceptible by the residents inside these nearest residences. Other sensitive uses such as the school 0.5 mile from the project site would be exposed to even smaller vibration levels from the project construction/demolition and operation of the proposed project.

In summary, the project would not expose sensitive receptors to significant vibration impacts and mitigation is not required.

Potential Mitigation Measures. As previously stated, the analysis of vibration impacts indicates both short-term construction and long-term ground vibration would be within acceptable levels. No mitigation measures would be required.

Level of Impact After Mitigation. No mitigation is required.

4.6.6 Potentially Significant Impacts

No significant short-term or long-term noise impacts were identified for the proposed project.

4.6.7 Cumulative Impacts

The cumulative area for noise impacts is the City of Irwindale. Implementation of the project would result in the introduction of new noise sources and levels from on-site activities and from increased traffic volumes on vicinity roadway and freeways.

Construction crew commutes and the transport of construction equipment, and materials to the project area would incrementally increase noise levels on access roads leading to the site. Secondary sources of noise would include noise generated during demolition, excavation, grading, and building erection on the project site. The net increase in project site noise levels generated by these activities and other sources has been quantitatively estimated and compared to the applicable noise standards and thresholds of significance. Although it is not possible to predict if contiguous properties may be constructed at the same time and create cumulative noise impacts that would be greater than if developed at separate times, it is unlikely that adjacent properties will be developed at the same time as the project area since the adjacent sites currently contain a mining operation and trucking facility. However, in the unlikely event that adjacent properties are developed at the same time as the proposed project, adherence to the City's Municipal Code provisions that regulate construction activities and other development standards would render the cumulative impacts of the proposed project less than significant.

The noise analysis contained in this section also provides an assessment of on-site operational noise level impacts on sensitive receptors, both existing and future. Additionally, on-site operational noises are individual noise occurrences and are not typically additive in nature. It is extremely unlikely that adjacent properties will generate noises that would be additive in nature because of two important reasons. First, the noise sources would have to be adjacent or in close proximity to one another in order for the noises to intermingle. Second, the sensitive receptor or receptors would also have to be adjacent to or in close proximity to the noise generators. Although it is not possible to predict if contiguous or proximate properties may generate noise at the same time that would be additive in nature and thus create a significant cumulative noise impact at sensitive receptors, adherence to the City's Municipal Code provisions that regulate nuisance noise from land uses and other development standards would reduce contributions of the project to potential cumulative impacts to less than significant levels.

THIS PAGE INTENTIONALLY LEFT BLANK

4.7 TRANSPORTATION AND TRAFFIC

This section analyzes the potential traffic and circulation impacts of the proposed project based on a *Traffic Impact Analysis* (TIA),[1] prepared by LSA Associates, Inc. (Appendix G). The TIA examines baseline and with-project traffic conditions for the existing (2014) conditions, as well as for the future baseline and future baseline with cumulative projects.

The TIA was prepared in accordance with the objectives and methodologies set forth in the City of Irwindale's Policy Guidelines for Traffic Impact Reports (August 2004), 2010 Congestion Management Program (CMP) for Los Angeles County, California Department of Transportation (Caltrans) Guide for the Preparation of Traffic Impact Studies, and applicable provisions of the California Environmental Quality Act (CEQA).

4.7.1 Existing Setting

4.7.1.1 Existing Intersection Conditions

An inventory of the existing study area intersections was conducted, and the existing intersection geometrics and stop control are illustrated in Figure 4.7.1. The TIA examined twenty-one (21) intersections in the general area, including:

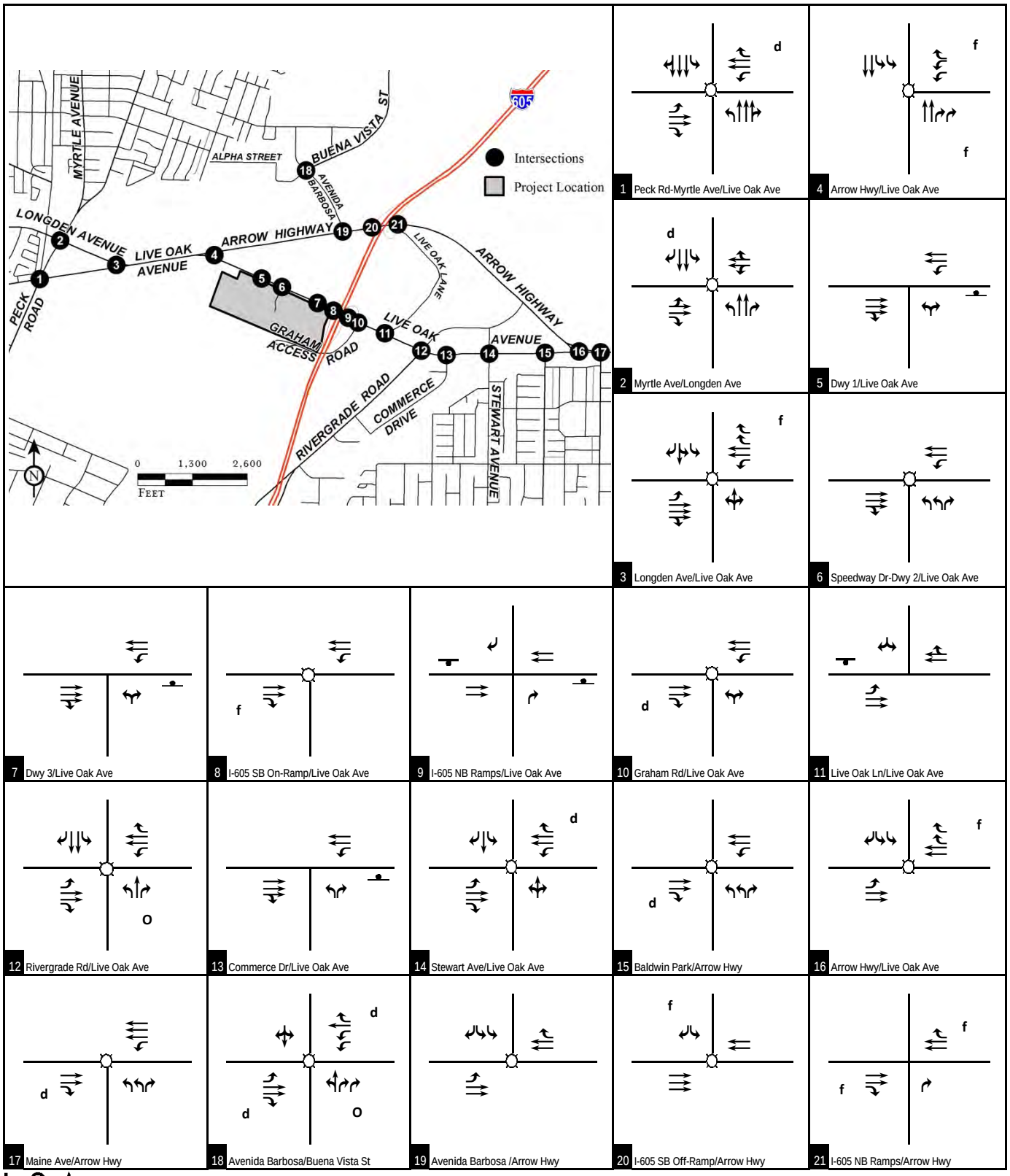
- Peck Rd-Myrtle Ave/Live Oak Ave
- Myrtle Ave/Longden Ave
- Longden Ave/Live Oak Ave
- Arrow Hwy/Live Oak Ave (west)
- Dwy 1/Live Oak Ave
- Speedway Dr-Dwy[2] 2/Live Oak Ave
- Dwy 3/Live Oak Ave
- Interstate 605 (I-605) SB On-Ramp/Live Oak Ave*
- I-605 NB Off-Ramp/Live Oak Ave*
- Graham Rd/Live Oak Ave
- Live Oak Ln/Live Oak Ave
- Rivergrade Rd/Live Oak Ave
- Commerce Dr/Live Oak Ave
- Stewart Ave/Live Oak Ave
- Baldwin Park/Arrow Hwy
- Arrow Hwy/Live Oak Ave (east)
- Maine Ave/Arrow Hwy
- Avenida Barbosa/Buena Vista St
- Avenida Barbosa St/Arrow Hwy
- I-605 SB Off-Ramp/Arrow Hwy*
- I-605 NB On-Ramp/Arrow Hwy*

***** State (Caltrans) Facility

The project would be completed in two phases; however the second phase will be built immediately after the first phase. As a result, LSA has evaluated the shopping center in one phase as there would not be a significant length of time between construction of Phase I and Phase II. Access to the project will be provided by three full access driveways on Live Oak Avenue. It is anticipated that construction of the entire project would be completed by the year 2018.

[1] *Traffic Impact Analysis, Irwindale Regional Shopping Center, City of Irwindale,* prepared by LSA Associates, Inc., November, 2014
[2] Dwy = driveway

THIS PAGE INTENTIONALLY LEFT BLANK



LSA

FIGURE 4.7.1

Legend

- Signal
- Stop Sign
- **O** Overlap
- **f** free right-turn
- **d** de-facto right turn

Irwindale Regional Shopping Center
Environmental Impact Report

Existing (2014) Intersection Geometrics and Stop Control

R:\COI1401_Irwindale Outlet Center\Traffic\g30- Geo_Exist 11/11/2014

THIS PAGE INTENTIONALLY LEFT BLANK

4.7.1.2 Existing Roadway Conditions

The study area examined in this EIR included intersections and ramp termini on major roadways and freeways as discussed below. Within the project study area, the major roadways and freeways and the number of through lanes are as follows:

- **Interstate 605.** Interstate 605 (I-605), also known as the San Gabriel River Freeway, is located east of the project site. I-605 is a major north-south interstate highway, and runs from Seal Beach to Irwindale parallel to the San Gabriel River. Access to and from the project site from south on the I-605 Freeway is provided via a northbound off-ramp and southbound on-ramp at Live Oak Avenue. Access to and from the project site from north on the I-605 Freeway is provided via a northbound on-ramp and southbound off-ramp at Arrow Highway.
- **Live Oak Avenue.** This roadway is designated as an east-west major arterial highway in the City's General Plan. Live Oak Avenue is currently a five-lane facility with a center divider. This major arterial highway is located adjacent to the project and has two eastbound lanes and three westbound lanes with the exception of a six-lane stretch between Longden Avenue and Arrow Highway that is considered a secondary highway. The approximate curb-to-curb width of this facility ranges from 75 to 80 feet. The speed limit is 45 mph. This roadway provides access to the project site via all three project driveways. Foothill Transit bus stops are located along eastbound and westbound Live Oak Avenue, adjacent to the project site. The road is served by Foothill Transit Routes 272 and 492.
- **Arrow Highway.** Arrow Highway is designated as an east-west major arterial highway between Live Oak Avenue and the eastern boundary of the City of Irwindale in the City's General Plan. Arrow Highway is a secondary arterial highway between the northwest end of Live Oak Avenue and the southeast end of Live Oak Avenue. This roadway is currently a four-lane facility with two lanes in each direction and a center divider. The approximate curb-to-curb width of this facility is approximately 70 feet. The posted speed limit is 45 mph.
- **Myrtle Avenue.** This roadway is designated as a north-south primary arterial road in the City of Monrovia Circulation Element. This roadway is currently a four-lane facility with two lanes in each direction and a center divider. The approximate curb-to-curb width of this facility is approximately 70 feet. The posted speed limit is 40 mph.
- **Longden Avenue.** This roadway is designated as a north-south secondary arterial highway in the City's General Plan. This roadway is currently a four-lane facility with two lanes in each direction and a center divider. The approximate curb-to-curb width of this facility is approximately 75 feet. The posted speed limit is 40 mph. Foothill Transit bus stops are located along the northern end of Longden Avenue. The road is served Foothill Transit Routes 78, 79, 270, and 378.
- **Avenida Barbosa.** This roadway is designated as a north-south collector street in the City's General Plan. This roadway is currently a four-lane facility with two lanes in each direction and a center divider. The approximate curb-to-curb width of this facility is approximately 70 feet. The posted speed limit is 40 mph.

4.7.1.3 Traffic Level of Service Definitions

Level of service (LOS) will be referred to frequently in this section. Roadway operations and the relationship between capacity and traffic volumes are generally expressed in LOS, which are defined using the letter grades A through F (Table 4.7.A) and reflect the reality that conditions rapidly deteriorate as traffic approaches the absolute capacity of the roadway facility.

Table 4.7.A: Traffic Level of Service (LOS) Definitions

LOS	Description
A	No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication. The approach appears quite open, turns are made easily, and nearly all drivers find freedom of operation.

Table 4.7.A: Traffic Level of Service (LOS) Definitions

LOS	Description
B	This service level represents stable operation, where an occasional approach phase is fully utilized and a substantial number approach full use. Many drivers begin to feel restricted within platoons of vehicles.
C	This level still represents stable operating conditions. Occasionally drivers may have to wait through more than one red signal indication, and backups may develop behind turning vehicles. Most drivers feel somewhat restricted, but not objectionably so.
D	This level encompasses a zone of increasing restriction approaching instability at the intersection. Delays to approaching vehicles may be substantial during short peaks within the peak period; however, enough cycles with lower demand occur to permit periodic clearance of developing queues, thus preventing excessive backups.
E	Capacity occurs at the upper end of this service level. It represents the most vehicles that any particular intersection approach can accommodate. Full utilization of every signal cycle is seldom attained no matter how great the demand.
F	This level describes forced flow operations at low speeds, where volumes exceed capacity. These conditions usually result from queues of vehicles backing up from a restriction downstream. Speeds are reduced substantially and stoppages may occur for short or long periods of time due to the congestion. In the extreme case, both speed and volume can drop to zero.

Source: *Highway Capacity Manual, Special Report 209,* Transportation Research Board, Washington, DC, 1985.

The Intersection Capacity Utilization (ICU) methodology was used to determine LOS for the signalized study area intersections in the City of Irwindale. This methodology compares the volume-to-capacity (v/c) ratios of conflicting turn movements at an intersection, sums these critical conflicting v/c ratios for each intersection approach, and determines the overall ICU. The resulting ICU is expressed in terms of LOS as shown in Table 4.7.A, where LOS A represents free-flow activity, and LOS F represents overcapacity operation. LOS is a qualitative assessment of the quantitative effects of such factors as traffic volume, roadway geometrics, speed, delay, and maneuverability on roadway and intersection operations. The LOS criteria for signalized intersections using the ICU methodology are presented below. Table 4.7.B shows the relationship between LOS and the ICU value (i.e., v/c ratio).

Table B: ICU Level of Service

LOS	Intersection Capacity Utilization
A	< 0.600
B	0.610–0.700
C	0.710–0.800
D	0.810–0.900
E	0.910–1.000
F	> 1.000

The 2000 Highway Capacity Manual (HCM) methodology was used to determine intersection levels of service at signalized intersections under the jurisdiction of Caltrans. The HCM intersection methodology describes level of service in terms of overall control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The relationship of delay and level of service at signalized intersections is summarized in Table 4.7.C.

Table 4.7.C: HCM Level of Service Criteria for Intersections and Freeway Facilities

LOS	Unsignalized Intersection Average Delay per Vehicle (sec.)	Signalized Intersection Average Delay per Vehicle (sec.)	V/C Ratio for Mainline Freeway Facilities at a Free Flow Speed of 70 mph	Density (pc/mi/ln) for Merge-Diverge Areas
A	≤ 10	≤ 10	0.32	0-10
B	> 10 and ≤ 15	> 10 and ≤ 20	0.53	10-20
C	> 15 and ≤ 25	> 20 and ≤ 35	0.74	20-28

Table 4.7.C: HCM Level of Service Criteria for Intersections and Freeway Facilities

LOS	Unsignalized Intersection Average Delay per Vehicle (sec.)	Signalized Intersection Average Delay per Vehicle (sec.)	V/C Ratio for Mainline Freeway Facilities at a Free Flow Speed of 70 mph	Density (pc/mi/ln) for Merge-Diverge Areas
D	> 25 and ≤ 35	> 35 and ≤ 55	0.9	28-35
E	> 35 and ≤ 50	> 55 and ≤ 80	1.0	>35 (35-43 for weaving segments)
F	> 50	> 80	> 1.0	Demand Exceeds Capacity (>43 for weaving segments)

The HCM methodology was used to determine intersection levels of service at unsignalized intersections. As previously discussed, the HCM intersection methodology describes level of service in terms of overall control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. At all-way stop controlled intersections, the average control delay is reported; and at two-way stop controlled intersections, the worst-case movement delay is reported. The relationship of delay and level of service at unsignalized intersections is summarized in previously referenced Table 4.7C.

4.7.1.4 Existing Traffic Volumes

Existing traffic conditions are based on a.m. and p.m. peak hour, vehicle classification, intersection turning movement counts collected by National Data and Surveying Services, Inc. on a weekday and Saturday. Local schools were in session at the time the counts were collected.

4.7.1.5 Existing Intersection and Freeway Levels of Service

Existing (2014) Weekday Intersection LOS. As stated previously, the ICU methodology was used to determine the Levels of Service for the non-state signalized intersections and the HCM methodology was used to determine the Levels of Service at Caltrans and unsignalized intersections. For this reason, the existing Levels of Service are presented in two separate tables, ICU and HCM, as well as for weekday and Saturday conditions.

An intersection level of service analysis was conducted for existing weekday conditions. Tables 4.7.D (Table E in the TIA) and 4.7.E (Table F in the TIA) summarize the results of this analysis for the ICU and HCM methodologies, respectively. As shown in these tables, the following two study intersections currently do not meet the level of service standard during weekday conditions:

- Driveway 1/Live Oak Avenue (LOS F in the p.m. peak hour); and
- I-605 Northbound Off-Ramps/Live Oak Avenue (LOS F in the p.m. peak hour).

Although the unsignalized intersection of Commerce Drive/Live Oak Avenue operates at LOS F in the p.m. peak hour, it is considered acceptable operation based on the City of Irwindale's Policy Guidelines for Traffic Impact Reports. As stated in the policy, an unsignalized intersection traffic movement at a stop-controlled approach can be deemed to have acceptable operation if the total delay is less than 4.0 vehicle-hours for single lane movement with low volume. Since the total delay at Commerce Drive/Live Oak Avenue is less than 4.0 vehicle-hours, the LOS is considered acceptable.

Existing (2014) Weekend Intersection LOS. An intersection level of service analysis was conducted for existing Saturday conditions. Tables 4.7.F and 4.7.G (Tables G and H in the TIA) summarize the

results of this analysis for the ICU and HCM methodologies, respectively. As shown in these tables, all study intersections currently meet the level of service standard during weekday conditions.

Existing (2014) Weekday Freeway LOS. A level of service analysis was conducted to evaluate freeway segment and ramp junctions based on HCM 2000 methodologies. Table 4.7.H (Table BB in the TIA) summarizes the a.m. and p.m. peak hour freeway mainline and ramp junction traffic volumes and levels of service under existing weekday conditions. As shown in the table, all freeway segments and ramp junctions currently meet the level of service standard during weekday conditions.

Existing (2014) Weekend Freeway LOS. Table 4.7.I (Table CC in the TIA) summarizes the a.m. and p.m. peak hour freeway mainline and ramp junction traffic volumes and levels of service under existing weekend conditions. As shown in these tables, all freeway segments and ramp junctions currently meet the level of service standard during weekend conditions.

4.7.1.6 NOP and Scoping Comments

During the NOP period, Caltrans submitted a letter requesting the project traffic study be prepared consistent with Caltrans' Traffic Impact Study Guide and identified key methodological requirements that should be included in the traffic analysis. In addition, the Los Angeles County Metropolitan Transportation Authority submitted a letter stating the CMP arterial monitory intersections and mainline freeway-monitoring study area determination process and identified analytical methodologies for the transportation impact analysis. The scope of the traffic study prepared for the project was modified to accommodate these requests (refer to Appendix A of the EIR for the letters).

4.7.2 Existing Policies and Regulations

4.7.2.1 California Department of Transportation

Caltrans publishes a document entitled *Guide for the Preparation of Traffic Impact Studies* for use in preparing a traffic study undergoing State-level review. The objective of the guide is to provide: 1) guidance in determining if and when a traffic impact study (TIS) is needed; 2) consistency and uniformity in the identification of traffic impacts generated by local land use proposals; 3) consistency and equity in the identification of measures to mitigate the traffic impacts generated by land use proposals; 4) lead agency officials with the information necessary to make informed decisions regarding the existing and proposed transportation infrastructure; 5) TIS requirements early in the planning phase of a project to eliminate potential delays later; 6) a quality TIS by agreeing to the assumptions data requirements, study scenarios, and analysis methodologies prior to beginning the TIS; and 7) early coordination during the planning phases of a project to reduce the time and cost of preparing a TIS.

4.7.2.2 Los Angeles County Metropolitan Transportation Authority

The Los Angeles County Metropolitan Transportation Authority (LACMTA or Metro) serves as transportation planner and coordinator, designer, builder and operator for Los Angeles County. Metro is responsible for the continuous improvement of an efficient and effective transportation system for Los Angeles County. One of Metro's Programs is the Congestion Management Program (CMP).

The Proposed Project site is located within the jurisdiction of the City of Irwindale in Los Angeles County. Therefore, the *Traffic Impact Analysis* is required to address all requirements of the Los Angeles County Congestion Management Program. The CMP is a mandated program that was enacted by the State Legislature with the passage of Proposition 111 in 1990. The purpose of the CMP is to address the impact of local growth on the regional transportation system. The goals of the CMP are summarized below:

Table 4.7.D - Existing Intersection Levels of Service Summary (ICU Methodology)

Intersection	Control	Without Project Conditions				With Project Conditions				Exceeds City Significance Threshold	
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour			
		ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	AM Peak Hour	PM Peak Hour
1 . Peck Road-Myrtle Avenue/Live Oak Avenue	Signal	0.786	C	0.804	D	0.787	C	0.804	D	N	N
2 . Myrtle Avenue/Longden Avenue	Signal	0.815	D	0.829	D	0.820	D	0.830	D	N	N
3 . Longden Avenue/Live Oak Avenue	Signal	0.675	B	0.721	C	0.680	B	0.714	C	N	N
4 . Arrow Highway/Live Oak Avenue	Signal	0.824	D	0.680	B	0.827	D	0.763	C	N	N
6 . Speedway Drive-Driveway 2/Live Oak Avenue	Signal	0.454	A	0.593	A	0.489	A	0.840	D	N	N
10 . Graham Road/Live Oak Avenue	Signal	0.632	B	0.669	B	0.632	B	0.679	B	N	N
12 . Rivergrade Road/Live Oak Avenue	Signal	0.570	A	0.809	D	0.572	A	0.816	D	N	N
14 . Stewart Avenue/Live Oak Avenue	Signal	0.815	D	0.795	C	0.816	D	0.801	D	N	N
15 . Baldwin Park/Arrow Highway	Signal	0.686	B	0.735	C	0.683	B	0.737	C	N	N
16 . Arrow Highway/Live Oak Avenue	Signal	0.713	C	0.870	D	0.710	C	0.872	D	N	N
17 . Maine Avenue/Arrow Highway	Signal	0.789	C	0.798	C	0.787	C	0.797	C	N	N
18 . Avenida Barbosa/Buena Vista Street	Signal	0.370	A	0.525	A	0.371	A	0.527	A	N	N
19 . Avenida Barbosa/Arrow Highway	Signal	0.771	C	0.551	A	0.818	D	0.626	B	N	N

Notes:

LOS = Level of Service

ICU = Intersection Capacity Utilization

THIS PAGE INTENTIONALLY LEFT BLANK

Table 4.7.E - Existing Intersection Levels of Service (HCM Methodology)

Intersection	Control	Without Project Conditions							With Project Conditions							Exceeds City Significance Threshold	
		AM Peak Hour			PM Peak Hour				AM Peak Hour			PM Peak Hour					
		V/C	Delay	LOS	V/C	Delay	LOS		V/C	Delay	LOS	V/C	Delay	LOS		AM Peak Hour	PM Peak Hour
5 . Driveway 1/Live Oak Avenue	TWSC	-	19.5	C	-	64.0	F	*	-	34.3	D	-	>100	F	*	N	**Y**
7 . Driveway 3/Live Oak Avenue	TWSC	-	9.8	A	-	18.1	C		-	34.1	D	-	>100	F	*	N	**Y**
8 . Interstate 605 Southbound On-Ramp/Live Oak Avenue	Signal	0.57	6.6	A	0.76	11.5	B		0.57	6.5	A	0.88	11.6	B		N	N
9 Interstate 605 Northbound Ramps/Live Oak Avenue	TWSC	-	16.5	C	-	50.5	F	*	-	24.3	C	-	>100	F	*	N	**Y**
11 . Live Oak Lane/Live Oak Avenue	TWSC	-	28.9	D	-	23.1	C		-	29.2	D	-	22.6	C		N	N
13 . Commerce Drive/Live Oak Avenue	TWSC	-	23.7	C	-	55.3	F	†	-	23.8	C	-	56.3	F	†	N	N
20 . Interstate 605 Southbound Off-Ramp/Arrow Highway	Signal	0.71	15.3	B	0.41	15.2	B		0.70	15.4	B	0.46	13.2	B		N	N
21 Interstate 605 Northbound Ramps/Arrow Highway	TWSC	-	10.4	B	-	10.3	B		-	10.3	B	-	10.0	A		N	N

Notes: "*" = Exceeds Levels of Service

TWSC = Two-Way Stop Control

V/C = Volume/capacity ratio

Delay = Average control delay in seconds. At TWSC intersections, worst-case approach is reported.

LOS = Level of Service

†= Based on City of Irwindales Policy Guidelines for Traffic Impact Reports, an intersection traffic movement at a stop-controlled approach can be deemed to have acceptable operation under the following: Total delay less than 4.0 vehicle-hours for sinlge lane movement with low volume.

THIS PAGE INTENTIONALLY LEFT BLANK

Table 4.7.F - Existing (Saturday) Intersection Levels of Service Summary (ICU Methodology)

Intersection	Control	Without Project Conditions Peak Hour ICU	Without Project Conditions Peak Hour LOS	With Project Conditions Peak Hour ICU	With Project Conditions Peak Hour LOS	Exceeds City Significance Threshold AM Peak Hour	Exceeds City Significance Threshold PM Peak Hour
1 . Peck Road-Myrtle Avenue/Live Oak Avenue	Signal	0.514	A	0.517	A	N	N
2 . Myrtle Avenue/Longden Avenue	Signal	0.546	A	0.552	A	N	N
3 . Longden Avenue/Live Oak Avenue	Signal	0.403	A	0.416	A	N	N
4 . Arrow Highway/Live Oak Avenue	Signal	0.411	A	0.584	A	N	N
6 . Speedway Drive-Driveway 2/Live Oak Avenue	Signal	0.321	A	0.807	D	N	N
10 . Graham Road/Live Oak Avenue	Signal	0.312	A	0.325	A	N	N
12 . Rivergrade Road/Live Oak Avenue	Signal	0.306	A	0.329	A	N	N
14 . Stewart Avenue/Live Oak Avenue	Signal	0.347	A	0.365	A	N	N
15 . Baldwin Park/Arrow Highway	Signal	0.444	A	0.449	A	N	N
16 . Arrow Highway/Live Oak Avenue	Signal	0.424	A	0.426	A	N	N
17 . Maine Avenue/Arrow Highway	Signal	0.437	A	0.442	A	N	N
18 . Avenida Barbosa/Buena Vista Street	Signal	0.323	A	0.329	A	N	N
19 . Avenida Barbosa/Arrow Highway	Signal	0.405	A	0.561	A	N	N

Notes:

LOS = Level of Service

ICU = Intersection Capacity Utilization

THIS PAGE INTENTIONALLY LEFT BLANK

Table 4.7.G - Existing (Saturday) Intersection Levels of Service (HCM Methodology)

Intersection	Control	Without Project Conditions Peak Hour V/C	Delay	LOS	With Project Conditions Peak Hour V/C	Delay	LOS		Exceeds City Significance Threshold AM Peak Hour	PM Peak Hour
5 . Driveway 1/Live Oak Avenue	TWSC	-	12.5	B	-	>100	F	*	N	**Y**
7 . Driveway 3/Live Oak Avenue	TWSC	-	9.1	A	-	>100	F	*	N	**Y**
8 . Interstate 605 Southbound On-Ramp/Live Oak Avenue	Signal	0.41	4.2	A	0.70	4.3	A		N	N
9 Interstate 605 Northbound Ramps/Live Oak Avenue	TWSC	-	15.8	C	-	>100	F	*	N	**Y**
11 . Live Oak Lane/Live Oak Avenue	TWSC	-	10.8	B	-	11.0	B		N	N
13 . Commerce Drive/Live Oak Avenue	TWSC	-	11.9	B	-	12.3	B		N	N
20 . Interstate 605 Southbound Off-Ramp/Arrow Highway	Signal	0.23	14.6	B	0.51	10.9	B		N	N
21 Interstate 605 Northbound Ramps/Arrow Highway	Signal	-	9.1	A	-	9.6	A		N	N

Notes: "*" = Exceeds Levels of Service

TWSC = Two-Way Stop Control

V/C = Volume/capacity ratio

Delay = Average control delay in seconds. At TWSC intersections, worst-case approach is reported.

LOS = Level of Service

THIS PAGE INTENTIONALLY LEFT BLANK

Table 4.7.H - Existing Freeway Segment and Ramp Junction Levels of Service Analysis

			Without Project								With Project							
			AM Peak Hour				PM Peak Hour				AM Peak Hour				PM Peak Hour			
I-605 Freeway	Type	Mainline Lanes	PCE Vol.	Speed (m/hr)	Density (pc/m/ln)	LOS	PCE Vol.	Speed (m/hr)	Density (pc/m/ln)	LOS	PCE Vol.	Speed (m/hr)	Density (pc/m/ln)	LOS	PCE Vol.	Speed (m/hr)	Density (pc/m/ln)	LOS
Northbound																		
1 North of Arrow Highway	Basic	4	4902	70	19.0	C	4298	70	16.7	B	4949	70	19.2	C	4523	70	17.6	B
2 . Arrow Highway Slip On-Ramp	1 Lane On	4	382	61	17.9	B	232	61	16.1	B	382	61	18.0	B	232	61	16.8	B
3 . Arrow Highway Loop On-Ramp to Arrow Highway Slip On-Ramp	Basic	4	4520	70	17.5	B	4066	70	15.8	B	4567	70	17.7	B	4291	70	16.7	B
4 . Arrow Highway Loop On-Ramp	1 Lane On	4	312	61	16.8	B	94	61	15.4	B	359	61	16.9	B	319	61	16.1	B
5 . Live Oak Avenue Off-Ramp to Arrow Highway Loop On-Ramp	Basic	4	4208	70	16.3	B	3972	70	15.4	B	4208	70	16.9	B	3972	70	15.4	B
6 . Live Oak Avenue Off-Ramp	1 Lane Off	4	750	56	27.1	C	1302	55	31.3	D	881	56	28.3	D	1463	54	32.8	D
7 . South of Live Oak Avenue	Basic	4	4958	70	19.2	C	5274	70	20.5	C	5089	70	19.8	C	5435	70	21.1	C
Southbound																		
8 . North of Arrow Highway	Basic	4	6341	69	25.1	C	5041	70	19.6	C	6468	68	25.7	C	5244	70	20.4	C
9 . Arrow Highway Slip Off-Ramp	1 Lane Off	4	896	56	31.7	D	584	56	24.7	C	1023	55	32.9	D	787	56	26.6	C
10 . Arrow Highway Slip Off-Ramp to Live Oak Avenue Slip On-Ramp	Basic	4	5445	70	21.2	C	4457	70	17.3	B	5445	70	21.2	C	4457	70	17.3	B
11 . Live Oak Canyon On-Ramp	1 Lane On	4	1209	60	23.2	C	1551	61	22.0	C	1257	60	23.3	C	1792	60	22.7	C
12 . South of Arrow Highway	Basic	4	6654	68	26.7	D	6008	69	23.6	C	6702	68	26.9	D	6249	69	24.7	C

Notes:
m/hr : miles per hour
pc/m/ln: passanger cars per hour per lane

THIS PAGE INTENTIONALLY LEFT BLANK

Table 4.7.I - Existing Freeway Segment and Ramp Junction Levels of Service Analysis

			Saturday Peak Hour							
			Without Project				With Project			
I-605 Freeway	Type	Mainline Lanes	PCE Vol.	Speed (m/hr)	Density (pc/m/ln)	LOS	PCE Vol.	Speed (m/hr)	Density (pc/m/ln)	LOS
Northbound										
1 North of Arrow Highway	Basic	4	4814	70	18.7	C	5195	70	20.2	C
2 . Arrow Highway Slip On-Ramp	1 Lane On	4	228	61	17.6	B	228	61	18.7	B
3 . Arrow Highway Loop On-Ramp to Arrow Highway Slip On-Ramp	Basic	4	4586	70	17.8	B	4967	70	19.3	C
4 . Arrow Highway Loop On-Ramp	1 Lane On	4	176	61	16.9	B	557	61	18.1	B
5 . Live Oak Avenue Off-Ramp to Arrow Highway Loop On-Ramp	Basic	4	4410	70	17.1	B	4410	70	17.1	B
6 . Live Oak Avenue Off-Ramp	1 Lane Off	4	786	56	28.2	D	1193	55	32.0	D
7 . South of Live Oak Avenue	Basic	4	5196	70	20.2	C	5603	70	21.8	C
Southbound										
8 . North of Arrow Highway	Basic	4	5152	70	20.0	C	5587	70	21.8	C
9 . Arrow Highway Slip Off-Ramp	1 Lane Off	4	509	57	24.8	C	944	55	28.8	D
10 . Arrow Highway Slip Off-Ramp to Live Oak Avenue Slip On-Ramp	Basic	4	4643	70	18.0	C	4643	70	18.0	C
11 . Live Oak Canyon On-Ramp	1 Lane On	4	1031	61	21.0	C	1457	61	22.1	C
12 . South of Arrow Highway	Basic	4	5674	70	22.1	C	6100	69	24.0	C

Notes:
m/hr : miles per hour
pc/m/ln: passanger cars per hour per lane

THIS PAGE INTENTIONALLY LEFT BLANK

- To link local land use decisions with their impacts on regional transportation, and air quality;
- To develop a partnership among transportation decision makers on devising appropriate transportation solutions that include all modes of travel; and
- To provide transportation projects which are eligible to compete for state gas tax funds.

The CMP offers the following mechanisms to meet these goals:

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

4.7.2.3 City of Irwindale General Plan

The *City's General Plan, Infrastructure Element* complies with the State requirements for a Circulation Element. This element provides information on the location and extent of existing and proposed streets and roadways, intersection improvements, public transit facilities, railroads, transportation terminals, and other transportation facilities. The Infrastructure Element is responsive to regional transportation plans, such as the County's CMP, which focus on the development of a regional transportation system to accommodate the future traffic demands within the greater metropolitan area. Applicable issue areas and policies from the *General Plan Infrastructure Element* include the following:

Issue Area – Traffic and Circulation

The City of Irwindale will strive to improve safe and efficient circulation in the City. Irwindale will continue to develop and enhance the existing streets and intersections in the City.

Infrastructure Element Policy 4

The City of Irwindale will strive to ensure that all new development implements its "fair-share" of infrastructure improvements to offset the potential adverse impacts associated with the additional traffic that will be generated by the new development.

Infrastructure Element Policy 5

The City of Irwindale will continue to support the development and expansion of the region's public and mass transit system.

Caltrans Coordination

The City continues to coordinate efforts with Caltrans to upgrade area freeways. The purpose of this undertaking is to ensure that the City is fully appraised of roadway and facility improvement efforts in the early stages of planning and design. The City will continue to work with Caltrans and Metro.

Signalization

The City will strive to provide optimum signalization on major thoroughfares to maximize circulation efficiency, such as participation in a regional signalization program. City staff will outline both the need and strategy for improved signalization. Coordination with Caltrans, the Department of Public Works, Los Angeles County, and Metro will be emphasized.

Environmental Review

The City shall continue to evaluate the environmental impacts of new development and provide mitigation measures prior to development approval, as required by CEQA.

4.7.2.4 City of Irwindale Capital Improvement Program

The City's Capital Improvement Program (CIP) is a five-year plan that indicates the timing of major capital expenditures. Individual projects are reviewed and ranked on an annual basis, and may include streetscape upgrades, installation of traffic signals, resurface slurry seal for streets, sidewalk repair, sewer line upgrades, and storm drain upgrades. The City will continue to update, review, and implement the CIP to consider transportation-related improvements.

4.7.3 Methodology

4.7.3.1 Traffic Analysis Scenarios

LSA has prepared this analysis in accordance with the objectives and methodologies set forth in the City of Irwindale's Policy Guidelines for Traffic Impact Reports (August 2004), Los Angeles County Metropolitan Transportation Authority "2010 Congestion Management Project," Caltrans Guide for the Preparation of Traffic Impact Studies, and applicable provisions of the California Environmental Quality Act (CEQA).The scope of work for the TIA, including trip generation, trip distribution, study area, and analysis methodologies, was based on consultation with City staff. The TIA examines traffic operations in the vicinity of the proposed project under the following seven traffic analysis scenarios:

1. Existing Conditions;
2. Existing Conditions plus Any Required Mitigation;
3. Existing with Project Conditions;
4. Future Baseline without Project Conditions;
5. Future Baseline with Project Conditions;
6. Future Baseline plus Cumulative Projects without Project Conditions; and
7. Future Baseline plus Cumulative Projects with Project Conditions.

Because the Existing Baseline and Future Baseline plus Cumulative Projects time horizons take care of the project direct (existing) and cumulative traffic analysis requirements per the CEQA, the Future Baseline With and Without Project analysis scenarios are not reported in this EIR. The interim year (Future Baseline) analysis time horizon is included in the project TIA in accordance with the City's traffic study guidelines. Please see the TIA (Appendix G) for a detailed discussion of the Future Baseline analysis scenario. The analysis scenarios from the TIA that are summarized in this EIR include the following five traffic analysis scenarios:

1. Existing Conditions;
2. Existing Conditions plus Any Required Mitigation;
3. Existing with Project Conditions;
4. Future Baseline plus Cumulative Projects without Project Conditions; and
5. Future Baseline plus Cumulative Projects with Project Conditions.

The analysis provides an assessment of traffic impacts and makes a determination of traffic mitigation as required for CEQA compliance. For each scenario, traffic operations at study intersections,

freeway segments, and freeway ramp merge/diverge locations are evaluated for the a.m. and p.m. peak hours. The a.m. peak hour is defined as the one hour of highest traffic volumes occurring between 7:00 and 9:00 a.m. The p.m. peak hour is defined as the one hour of highest traffic volumes occurring between 4:00 and 6:00 p.m.

4.7.3.2 Traffic Analysis Study Area

The study area includes intersections where the project would add 50 or more trips during the a.m., p.m., or Saturday peak hours. The study area analyzed in this report includes the following 21 intersections.

- Peck Rd-Myrtle Ave/Live Oak Ave
- Myrtle Ave/Longden Ave
- Longden Ave/Live Oak Ave
- Arrow Hwy/Live Oak Ave (west)
- Dwy 1/Live Oak Ave
- Speedway Dr-Dwy 2/Live Oak Ave
- Dwy 3/Live Oak Ave
- I-605 SB On-Ramp/Live Oak Ave*
- I-605 NB Off-Ramp/Live Oak Ave*
- Graham Rd/Live Oak Ave
- Live Oak Ln/Live Oak Ave
- Rivergrade Rd/Live Oak Ave
- Commerce Dr/Live Oak Ave
- Stewart Ave/Live Oak Ave
- Baldwin Park/Arrow Hwy
- Arrow Hwy/Live Oak Ave (east)
- Maine Ave/Arrow Hwy
- Avenida Barbosa/Buena Vista St
- Avenida Barbosa St/Arrow Hwy
- I-605 SB Off-Ramp/Arrow Hwy*
- I-605 NB On-Ramp/Arrow Hwy*

***** State (Caltrans) Facility

A freeway segment and ramp junction analysis was conducted. The analysis addresses the Caltrans NOP comments, dated July 18, 2014; and is in accordance with the Los Angeles County Metropolitan Transportation Authority “2010 Congestion Management Project” (CMP). The study area includes freeway locations where the project would add 150 or more trips during the a.m., p.m., or Saturday peak hours. The following freeway segments and ramp junctions were analyzed:

<u>I-605 Northbound:</u>

1. North of Arrow Highway;
2. Arrow Highway Slip On-Ramp;
3. Arrow Highway Loop On-Ramp to Arrow Highway Slip On-Ramp;
4. Arrow Highway Loop On-Ramp;
5. Live Oak Avenue Off-Ramp to Arrow Highway Loop On-Ramp;
6. Live Oak Avenue Off-Ramp; and
7. South of Live Oak Avenue.

<u>I-605 Southbound</u>

8. North of Arrow Highway;
9. Arrow Highway Slip Off-Ramp;
10. Arrow Highway Slip Off-Ramp to Live Oak Avenue Slip On-Ramp;
11. Live Oak Canyon On-Ramp; and
12. South of Arrow Highway.

4.7.3.3 Future Traffic Volume Methodology

Construction of the entire project would be completed by the year 2018. To develop the future baseline conditions, a growth rate of 2 percent per year was added to the existing traffic volumes, which is consistent with the City of Irwindale's Policy Guidelines for Traffic Impact Reports (August 2004).

Because growth on freeways is generally dependent on characteristics of the entire region, growth forecasts from the 2010 CMP were used to develop future baseline conditions on freeway segments. Based on the 2015–2020 growth factors contained in the CMP, a 0.4 percent per annum growth was applied to existing without project traffic volumes to develop future baseline without project conditions. Conservation of flow at study area freeway segments was maintained using volumes at Arrow Highway and Live Oak Canyon Road under future baseline conditions.

Traffic volumes for other committed and/or approved (cumulative) developments were added to the future baseline traffic volumes. LSA contacted all cities within a 5-mile radius of the project to obtain a list of cumulative projects. Cumulative project trips were added to future baseline conditions traffic volumes for freeway mainlines.

4.7.3.4 Trip Generation, Distribution and Assignment

Trip generation for the proposed project was developed using trip rates for Land Use 823 "Factory Outlet Center" as contained in the Institute of Traffic Engineers (ITE) Trip Generation, 9th Edition. The trip generation also includes applicable adjustments for pass-by and diverted-linked trips using rates for Land Use 820 "Shopping Center." Diverted linked trips are those trips already traveling on I-605, who are diverted from the freeway to patronize the project. Pass-by trips are those trips already traveling on Live Oak Avenue who would then stop at the project. Table 4.7.J (Table Q in the TIA) summarizes the a.m., p.m., and Saturday peak hour and daily project trip generation. As shown in Table 4.7.J, the project is expected to generate a total of 469 net new a.m. peak hour trips, 778 net new p.m. peak hour trips, 1,272 net new Saturday peak hour trips, and 17,788 net new weekday daily trips.

Traffic volumes at the project driveways were collected during a typical Thursday on June 26, 2014. The Thursday Night Thunder drag racing event was scheduled for the evening of the counts. Events at the speedway are held two to three nights per week and during some seasons, there is only one event per week. On a typical weekday and Saturday, the existing land use generated nominal trips during the peak hours. Therefore, no trip credit from the existing use was applied to the net trip generation of the proposed project.

Trip distribution for the proposed project was developed based on generalized trip distribution factors contained in the 2010 CMP, discussion with City staff, and the location of the project in relation to the surrounding roadway network and land uses. The CMP generalized trip distribution factors are based on the regional travel demand model and reflect work and non-work trip interactions broken down to the Regional Statistical Area (RSA) level. The generalized trip distribution factors where then used to develop the trip assignments at the study area intersections and freeway locations.

4.7.4 Thresholds of Significance

It was concluded that the proposed project could create potentially significant traffic impacts associated with the following CEQA traffic impact thresholds of significance if it would: *Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections).*

Table 4.7.J - Project Trip Generation

Land Use	Units	A.M. Peak Hour In	A.M. Peak Hour Out	A.M. Peak Hour Total	P.M. Peak Hour In	P.M. Peak Hour Out	P.M. Peak Hour Total	Saturday Peak Hour In	Saturday Peak Hour Out	Saturday Peak Hour Total	Daily
Factory Outlet Center[2]	700 TSF[1]										
Trips/Unit		*0.49*	*0.18*	*0.67*	*1.08*	*1.21*	*2.29*	*1.93*	*1.86*	*3.79*	*26.59*
Gross Trip Generation		342	127	469	753	850	1,603	1,353	1,300	2,653	18,613
Pass-By Trips[3]	(34% P.M., 26% Saturday)	0	0	0	(273)	(273)	(545)	(345)	(345)	(690)	(545)
Diverted Linked Trips[4]	(26.4% P.M., 35.2% Saturday)	0	0	0	(140)	(140)	(280)	(345)	(345)	(691)	(280)
Total Net New Trips		**342**	**127**	**469**	**341**	**438**	**778**	**663**	**610**	**1,272**	**17,788**

Notes:

[1] TSF = Thousand Square Feet

[2] Trip generation based on rates for Land Use 823 - "Factory Outlet Center" from ITE *Trip Generation* (9th Edition).

[3] Pass-by rates based on rates for Land Use 820 - "Shopping Center" from ITE Trip Generation Handbook (9th Edition). Since there is no data available on a.m. and daily pass-by trips, no reduction has been taken for the a.m. The p.m. pass-by rates have been applied to the daily traffic.

[4] Diverted Linked Trips are based on rates for Land Use 820 - "Shopping Center" from ITE Trip Generation Handbook (9th Edition). Since there is no data available for a.m. and daily diverted linked trips, no reduction has been taken for the a.m. The p.m. diverted link rate has been applied to the daily traffic.

THIS PAGE INTENTIONALLY LEFT BLANK

4.7.4.1 City of Irwindale Intersections

The City considers intersections with an ICU of 0.90 (LOS D) as the upper limit of satisfactory operations. A project impact at an intersection is considered significant:

- When a signalized intersection operates at mid-range LOS D or better under existing or future baseline conditions and the addition of the project trips degrades the intersection operations to LOS E or F. The project mitigation should bring the facility to operate at mid-range LOS D at minimum.
- When a signalized intersection operates at mid-range LOS E or better under existing or future baseline conditions and the addition of project trips degrades the intersection operations to LOS F. The project mitigation should bring the facility to operate at mid-range LOS E at minimum.
- When a signalized intersection operates at LOS F under existing or future baseline conditions and the addition of more than 50 peak hour project trips contributes to the continuing operational failure at the intersection. The project mitigation should bring the facility to pre-project conditions, which typically are defined as existing conditions.
- At an un-signalized intersection, when the minor stop-controlled approach operates at LOS F and does not have acceptable operation in terms of total control delay, and the addition of project trips increases the total control delay to more than 4.0 vehicle hours for a single lane approach or 5.0 vehicle hours for a multilane approach. The project mitigation should bring the facility to operate at LOS E minimum or to bring the total control delay to less than 4.0 vehicle hours for a single lane approach or 5.0 vehicle hours for a multilane approach at a minimum.
- At an un-signalized intersection, when the minor stop-controlled approach operates at LOS F and does not have an acceptable operation in terms of total control delay, and the addition of more than 50 peak hour project trips contributes to the continuing operational failure at the minor approach. The project mitigation should bring the facility to pre-project or existing conditions.

4.7.4.2 City of Baldwin Park Intersections

Five of the study area intersections are located in the City of Baldwin Park, which also utilizes a significance threshold of LOS D. A significant impact occurs if the project causes LOS to degrade from LOS D or better to LOS E or F, or if an intersection in Baldwin Park is operating at LOS E or F in the no project condition and the project adds 0.01 or greater to the v/c ratio.

4.7.4.3 Caltrans Intersections

Caltrans considers acceptable level of service to be between C and D for all intersections under its jurisdiction; therefore, all Caltrans facilities are considered to be operating at satisfactory LOS when the weighted average delay is 45 seconds or less (middle of LOS D).

4.7.4.4 Freeway Methodology

As previously discussed, a freeway segment and ramp junction analysis was conducted. The analysis addresses Caltrans NOP comments, dated July 18, 2014; and is in accordance with the Los Angeles County Metropolitan Transportation Authority “2010 Congestion Management Project” (CMP). A copy of the Caltrans NOP comment letter is included in Appendix A. The CMP requires the analysis of freeway segments at mainline monitoring locations where the project will add 150 or more trips (in either direction) during either the a.m. or p.m. weekday peak hours.

For freeway segments and ramp junctions, the Caltrans Guide for the Preparation of Traffic Impact Studies (December 2002) states that Caltrans endeavors to maintain a target LOS at transition between LOS C and LOS D; however, Caltrans has acknowledged that this may not always be

feasible. Therefore, for the purposes of this report, LOS D is used as the minimum level of service standard.

- *Exceed, either individually or cumulatively, a level of service standard established by the County's Congestion Management Plan (CMP) for designated roads or highways.*
  - The Los Angeles County CMP specifies a LOS standard of E for all roadways and highways on the designated CMP roadway system. The LOS standards adopted by the City and Caltrans are more stringent than the CMP standard; therefore, the analysis according to the City and Caltrans standards would satisfy CMP standards as well.
- *Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).*
- *Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).*
- *Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in increased safety risks.*
- *Result in inadequate emergency access.*

4.7.5 Less than Significant Impacts

The following potential impacts were determined to be less than significant. In each of the following issues, either no impact would occur (therefore, no mitigation would be required) or adherence to established regulations, standards, and policies would reduce potential impacts to a less than significant level.

4.7.5.1 Air Traffic Patterns

Threshold	Would the proposed project 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?

The project site is located approximately 2.8 miles north of El Monte Airport. The proposed onsite uses (retail and associated parking) will not be located in a flight safety hazard zone of the airport. The uses proposed by the project will not result in an adverse amount of light and glare that would result in a safety hazard to aircraft. Therefore, the proposed project will have no impact on air traffic pattern or will result in a substantial safety risk at the airport and no mitigation is required.

4.7.5.2 Design Features or Incompatible Uses

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

The design of roadways must provide adequate sight distance and traffic control measures. This provision is normally realized through roadway design to facilitate roadway traffic flows. Roadway improvements in and around the project site would be designed and constructed to satisfy all City requirements for street widths, corner radii, intersection control as well as incorporate design standards tailored specifically to site access requirements. Adherence to applicable City requirements would make it unlikely that the proposed development would include any sharp curves or dangerous intersections. The proposed project would have a less than significant impact and no mitigation is required.

4.7.5.3 Inadequate Emergency Access

Threshold	Would the proposed project result in inadequate emergency access?

The developer of the proposed project would be required to design, construct, and maintain structures, roadways, and facilities to provide for adequate emergency access and evacuation. Construction activities, which may temporarily restrict vehicular traffic, would be required to implement measures to facilitate the passage of persons and vehicles through/around any required road closures. The proposed project design would be submitted to and approved by the City's Fire and Police Departments prior the issuance of building permits and a Construction Traffic Mitigation Plan would be prepared and implemented with each phase of project development. Adherence to applicable existing requirements of the City of Irwindale and other agencies would reduce impacts associated with this issue to a less than significant level and no mitigation is required.

4.7.5.4 Existing Conditions (2014) With Project Freeway LOS Impacts

Threshold:	Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system?
Threshold:	Exceed, either individually or cumulatively, the City's LOS D criteria at all study area intersections.

The project would add traffic volumes to regional freeways under Existing Plus Project conditions. Previously referenced Tables 4.7.H and 4.7.I summarize the results of the existing with project a.m. and p.m. peak hour LOS analysis for all study area freeway segments and ramps utilizing the HCM methodology, for weekdays and weekends respectively. As shown in Tables 4.7.H and 4.7.I, all study area freeway segments and ramps are projected to operate at satisfactory LOS resulting in a less than significant impact and no mitigation is required.

4.7.5.5 Future Baseline Plus Cumulative Projects With Project Freeway LOS Impacts

Threshold:	Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system?
Threshold:	Exceed, either individually or cumulatively, the City's LOS D criteria at all study area intersections.

The project would add traffic volumes to regional freeways under Future Baseline Plus Cumulative Projects With Project conditions. Tables 4.7.K and 4.7.L (Tables FF and GG in the TIA) summarize the results of the cumulative with project a.m. and p.m. peak hour LOS analysis for all study area freeway segments and ramps utilizing the HCM methodology, for weekdays and weekends respectively. As shown in Tables 4.7.K and 4.7.L, all study area freeway segments and ramps are projected to operate at satisfactory LOS resulting in a less than significan impact and no mitigation is required.

4.7.6 Potentially Significant Impacts

4.7.6.1 Existing Conditions (2014) With Project Intersection LOS Impacts

Impact 4.7.6.1: *The project may result in significant project direct traffic impacts to local intersections based on analysis of Existing Plus Project Intersection LOS.*

THIS PAGE INTENTIONALLY LEFT BLANK

Table 4.7.K - Future Baseline Plus Cumulative Projects Segment and Ramp Junction Levels of Service Analysis

			Without Project								With Project							
			AM Peak Hour				PM Peak Hour				AM Peak Hour				PM Peak Hour			
I-605 Freeway	Type	Mainline Lanes	PCE Vol.	Speed (m/hr)	Density (pc/m/ln)	LOS	PCE Vol.	Speed (m/hr)	Density (pc/m/ln)	LOS	PCE Vol.	Speed (m/hr)	Density (pc/m/ln)	LOS	PCE Vol.	Speed (m/hr)	Density (pc/m/ln)	LOS
Northbound																		
1 North of Arrow Highway	Basic	4	4979	70	19.3	C	4332	70	16.8	B	5026	70	19.5	C	4557	70	17.7	B
2 . Arrow Highway Slip On-Ramp	1 Lane On	4	579	61	18.1	B	417	61	16.3	B	579	61	18.2	B	417	61	16.9	B
3 . Arrow Highway Loop On-Ramp to Arrow Highway Slip On-Ramp	Basic	4	4400	70	17.1	B	3915	70	15.2	B	4447	70	17.3	B	4140	70	16.1	B
4 . Arrow Highway Loop On-Ramp	1 Lane On	4	348	61	16.4	B	128	61	14.9	B	395	61	16.6	B	353	61	15.7	B
5 . Live Oak Avenue Off-Ramp to Arrow Highway Loop On-Ramp	Basic	4	4052	70	15.7	B	3787	70	14.7	B	4052	70	15.7	B	3787	70	14.7	B
6 . Live Oak Avenue Off-Ramp	1 Lane Off	4	997	55	28.7	D	1583	54	33.1	D	1128	55	30.0	D	1744	53	34.6	D
7 . South of Live Oak Avenue	Basic	4	5049	70	19.6	C	5370	70	20.9	C	5180	70	20.1	C	5531	70	21.5	C
Southbound																		
8 . North of Arrow Highway	Basic	4	6463	68	25.7	C	5065	70	19.7	C	6590	68	26.4	D	5268	70	20.5	C
9 . Arrow Highway Slip Off-Ramp	1 Lane Off	4	1146	55	33.5	D	809	56	26.8	C	1273	55	34.7	D	1012	55	27.9	C
10 . Arrow Highway Slip Off-Ramp to Live Oak Avenue Slip On-Ramp	Basic	4	5317	70	20.7	C	4256	70	16.5	B	5317	70	20.7	C	4256	70	16.5	B
11 . Live Oak Canyon On-Ramp	1 Lane On	4	1458	60	23.4	C	1861	60	22.6	C	1506	60	23.5	C	2102	60	23.3	C
12 . South of Arrow Highway	Basic	4	6775	67	27.3	D	6117	69	24.1	C	6823	67	27.6	D	6358	69	25.2	C

Notes:
m/hr : miles per hour
pc/m/ln: passanger cars per hour per lane

THIS PAGE INTENTIONALLY LEFT BLANK

Table 4.7.L - Future Baseline Plus Cumulative Projects Segment and Ramp Junction Levels of Service Analysis

			Saturday Peak Hour							
			Without Project				With Project			
I-605 Freeway	Type	Mainline Lanes	PCE Vol.	Speed (m/hr)	Density (pc/m/ln)	LOS	PCE Vol.	Speed (m/hr)	Density (pc/m/ln)	LOS
Northbound										
1 North of Arrow Highway	Basic	4	4156	70	16.1	B	4537	70	17.6	B
2 . Arrow Highway Slip On-Ramp	1 Lane On	4	273	61	15.7	B	273	61	16.8	B
3 . Arrow Highway Loop On-Ramp to Arrow Highway Slip On-Ramp	Basic	4	3883	70	15.1	B	4264	70	16.6	B
4 . Arrow Highway Loop On-Ramp	1 Lane On	4	225	61	14.9	B	606	61	16.3	B
5 . Live Oak Avenue Off-Ramp to Arrow Highway Loop On-Ramp	Basic	4	3658	70	14.2	B	3658	70	14.2	B
6 . Live Oak Avenue Off-Ramp	1 Lane Off	4	900	56	26.2	C	1307	54	30.0	D
7 . South of Live Oak Avenue	Basic	4	4558	70	17.7	B	4965	70	19.3	C
Southbound										
8 . North of Arrow Highway	Basic	4	4807	70	18.7	C	5242	70	20.4	C
9 . Arrow Highway Slip Off-Ramp	1 Lane Off	4	591	56	23.8	C	1026	55	27.9	C
10 . Arrow Highway Slip Off-Ramp to Live Oak Avenue Slip On-Ramp	Basic	4	4216	70	16.4	B	4216	70	16.4	B
11 . Live Oak Canyon On-Ramp	1 Lane On	4	1156	61	20.3	C	1582	61	21.6	C
12 . South of Arrow Highway	Basic	4	5372	70	20.9	C	5797	70	22.6	C

Notes:
m/hr : miles per hour
pc/m/ln: passanger cars per hour per lane

THIS PAGE INTENTIONALLY LEFT BLANK

Threshold:	Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system?
Threshold:	Exceed, either individually or cumulatively, the City's LOS D criteria at all study area intersections.

Previously referenced Table 4.7.D summarizes the results of the existing with project a.m. and p.m. peak hour LOS analysis for all signalized study area intersections utilizing the ICU methodology. As shown in Table 4.7.D, all intersections are projected to operate at acceptable LOS.

Previously referenced Table 4.7.E summarizes the results of the existing with project a.m. and p.m. peak hour LOS analysis for Caltrans facilities and unsignalized intersections utilizing the HCM methodology. As shown in Table 4.7.E, all intersections are projected to operate at satisfactory LOS, with the exception of the following intersections:

- Driveway 1/Live Oak Avenue (LOS F in the p.m. peak hour);
- Driveway 3/Live Oak Avenue (LOS F in the p.m. peak hour); and
- I-605 Northbound Off-Ramps/Live Oak Avenue (LOS F in the p.m. peak hour).

The project contributes to the less than standard LOS at these three intersections, resulting in a significant impact requiring mitigation.

The unsignalized intersection of Commerce Drive/Live Oak Avenue operates at LOS F in the p.m. peak hour; however, based on the City of Irwindale's Policy Guidelines for Traffic Impact Reports, an unsignalized intersection traffic movement at a stop-controlled approach can be deemed to have acceptable operation if the total delay is less than 4.0 vehicle-hours for single lane movement with low volume. Since the total delay at Commerce Drive/Live Oak Avenue is less than 4.0 vehicle-hours, the LOS is considered acceptable.

Previously referenced Table 4.7.F summarizes the results of the existing with project Saturday peak hour LOS analysis for all signalized study area intersections utilizing the ICU methodology. As shown in Table F, all intersections are projected to operate at satisfactory LOS.

Previously referenced Table 4.7.G summarizes the results of the existing with project Saturday peak hour LOS analysis for Caltrans facilities and unsignalized intersections utilizing the HCM methodology. As shown in Table G, all study intersections are currently operating at acceptable LOS with the exception of the following intersections:

- Driveway 1/Live Oak Avenue (LOS F in the Saturday peak hour);
- Driveway 3/Live Oak Avenue (LOS F in the Saturday peak hour); and
- I-605 Northbound Off-Ramps/Live Oak Avenue (LOS F in the p.m. peak hour).

The project contributes to the less than standard LOS at these three intersections, resulting in a significant impact requiring mitigation.

Mitigation Measures. Implementation of the following measure will help ensure that significant project direct traffic impacts to local intersections will remain at less than significant levels:

4.7.6.1A Prior to issuance of certificates of occupancy for the first phase of development, the project applicant shall install a traffic signal at the Driveway 1/Live Oak Avenue intersection. The traffic signal improvement plans shall be reviewed and approved by the

City of Irwindale Public Works Department. This measure shall be implemented to the satisfaction of the City Public Works Director.

4.7.6.1B Prior to issuance of certificates of occupancy for the first phase of development, the project applicant shall install a traffic signal at the Driveway 3/Live Oak Avenue intersection. The traffic signal improvement plans shall be reviewed and approved by the City of Irwindale Public Works Department. This measure shall be implemented to the satisfaction of the City Public Works Director.

4.7.6.1C Prior to the issuance of the first certificate of occupancy for the first phase of development, the project applicant shall make a fair-share contribution to the following circulation improvements and these improvements shall be in place:

- I-605 Northbound Off-Ramps/Live Oak Avenue: Install a traffic signal and add a second northbound right-turn lane. It should be noted that these improvements are a joint improvement project between Caltrans and the City of Irwindale and preparation of the engineering design and environmental documentation is currently underway. It is anticipated that these improvements will be completed in 2016 and in operation prior to the opening year of the project.

The fair-share contribution shall be calculated based on the project's share of the existing plus project traffic volume during the peak hour on a weekday or weekend. The highest fair-share percentage is 25.4 percent during the Saturday peak hour. This measure shall be implemented to the satisfaction of the City Public Works Department.

Level of Significance After Mitigation. With implementation of improvements defined in **Mitigation Measures 4.7.6.1A, 4.7.6.1B,** and **4.7.6.1C**, potential project direct traffic-related impacts of the proposed project at Driveway 1/Live Oak Avenue, Driveway 3/Live Oak Avenue, and I-605 Northbound Off-Ramps/Live Oak Avenue, would be reduced to less than significant levels and no additional mitigation is required. However, the improvements to the I-605 Northbound Off-ramps/Live Oak Avenue intersection are currently part of an improvement project jointly being undertaken by Caltrans and the City. At this time, the City anticipates construction of the improvement project will start in November 2015 and finish by July 2016. However, the City cannot control the precise timing of when the improvements will be constructed and operational. For this reason, the impact remains significant and unavoidable even with mitigation.

4.7.6.2 Future Baseline Plus Cumulative Projects With Project Intersection LOS Impacts

Impact 4.7.6.2: *The project may result in significant cumulative impacts to local intersections based on analysis of Future Baseline Plus Cumulative Projects with Project Intersection LOS.*

Threshold:	Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system?
Threshold:	Exceed, either individually or cumulatively, the City's LOS D criteria at all study area intersections.

Table 4.7.M (Table M in the TIA) summarizes the results of the Future Baseline Plus Cumulative Projects with Project a.m. and p.m. peak hour LOS analysis for all signalized study area intersections utilizing the ICU methodology. As shown in Table 4.7.M, all intersections are projected to operate at acceptable LOS, with the exception of the following intersections:

- Arrow Highway/Live Oak Avenue (LOS E in the p.m. peak hour); and
- Avenida Barbosa/Arrow Highway (LOS E in the a.m. peak hour).

Table 4.7.M - Future Baseline Plus Cumulative Projects Intersection Levels of Service Summary (ICU Methodology)

Intersection	Control	Without Project Conditions				With Project Conditions				Exceeds City Significance Threshold	
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour			
		ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	AM Peak Hour	PM Peak Hour
1 . Peck Road-Myrtle Avenue/Live Oak Avenue	Signal	0.847	D	0.869	D	0.848	D	0.868	D	N	N
2 . Myrtle Avenue/Longden Avenue	Signal	0.878	D	0.897	D	0.883	D	0.897	D	N	N
3 . Longden Avenue/Live Oak Avenue	Signal	0.731	C	0.778	C	0.737	C	0.770	C	N	N
4 . Arrow Highway/Live Oak Avenue	Signal	0.892	D	0.762	C	0.895	D	0.845	D	N	N
6 . Speedway Drive-Driveway 2/Live Oak Avenue	Signal	0.501	A	0.644	B	0.535	A	0.886	D	N	N
10 . Graham Road/Live Oak Avenue	Signal	0.716	C	0.763	C	0.715	C	0.773	C	N	N
12 . Rivergrade Road/Live Oak Avenue	Signal	0.741	C	0.883	D	0.742	C	0.889	D	N	N
14 . Stewart Avenue/Live Oak Avenue	Signal	0.887	D	0.869	D	0.887	D	0.875	D	N	N
15 Baldwin Park/Arrow Highway	Signal	0.780	C	0.800	D	0.777	C	0.801	D	N	N
16 Arrow Highway/Live Oak Avenue	Signal	0.803	D	0.970	E *	0.799	C	0.972	E *	N	N
17 Maine Avenue/Arrow Highway	Signal	0.874	D	0.897	D	0.871	D	0.896	D	N	N
18 Avenida Barbosa/Buena Vista Street	Signal	0.433	A	0.602	B	0.434	A	0.604	B	N	N
19 Avenida Barbosa/Arrow Highway	Signal	0.919	E *	0.675	B	0.967	E *	0.749	C	N	N

Notes: "*" = Exceeds Levels of Service

LOS = Level of Service

ICU = Intersection Capacity Utilization

THIS PAGE INTENTIONALLY LEFT BLANK

Table 4.7.N (Table N in the TIA) summarizes the results of the Future Baseline Plus Cumulative Projects with Project a.m. and p.m. peak hour LOS analysis for Caltrans facilities and unsignalized intersections utilizing the HCM methodology. As shown in Table 4.7.N, all intersections are projected to operate at satisfactory LOS, with the exception of the following intersections:

- Driveway 1/Live Oak Avenue (LOS F in the p.m. peak hour);
- Driveway 3/Live Oak Avenue (LOS F in the p.m. peak hour); and
- I-605 Northbound Off-Ramps/Live Oak Avenue (LOS F in the p.m. peak hour).

The project contributes to the less than standard LOS at these five intersections, resulting in a significant impact requiring mitigation.

Table 4.7.O (Table O in the TIA) summarizes the results of the Future Baseline Plus Cumulative Projects with Project Saturday peak hour LOS analysis for all signalized study area intersections utilizing the ICU methodology. As shown in Table 4.7.O, all intersections are projected to operate at satisfactory LOS.

Table 4.7.P (Table P in the TIA) summarizes the results of the Future Baseline Plus Cumulative Projects with Project Saturday peak hour LOS analysis for Caltrans facilities and unsignalized intersections utilizing the HCM methodology. As shown in Table 4.7.P, all study intersections are currently operating at acceptable LOS with the exception of the following intersections:

- Driveway 1/Live Oak Avenue (LOS F in the Saturday peak hour);
- Driveway 3/Live Oak Avenue (LOS F in the Saturday peak hour); and
- I-605 Northbound Off-Ramps/Live Oak Avenue (LOS F in the Saturday peak hour).

The project contributes to the less than standard LOS at these three intersections, resulting in a significant impact requiring mitigation.

Mitigation Measures. Implementation of the following measures will help ensure that significant project cumulative traffic impacts to local intersections will remain at less than significant levels:

4.7.6.2A Prior to the issuance of the first certificate of occupancy for the project, the developer shall make fair-share contributions to the following circulation improvements:

- Arrow Highway/Live Oak Avenue: Add an eastbound through lane. It should be noted, to accommodate a third eastbound through lane, on-street parking will be prohibited.

The fair-share contribution shall be calculated based on the project's share of the existing plus project traffic volume during the peak hour on a weekday or weekend. The highest fair-share percentage is 1.9 percent during the Saturday peak hour. This measure shall be implemented to the satisfaction of the City Public Works Department.

4.7.6.2B Prior to the issuance of the first certificate of occupancy for the project, the developer shall make fair-share contributions to the following circulation improvements:

- Avenida Barbosa/Arrow Highway: Add a second eastbound left-turn lane.

The fair-share contribution shall be calculated based on the project's share of the existing plus project traffic volume during the peak hour on a weekday or weekend. The highest fair-share percentage is 41.1 percent during the Saturday peak hour. This measure shall be implemented to the satisfaction of the City Public Works Department.

THIS PAGE INTENTIONALLY LEFT BLANK

Table 4.7.N - Future Baseline Plus Cumulative Projects Intersection Levels of Service (HCM Methodology)

		Without Project Conditions							With Project Conditions							Exceeds City Significance Threshold	
		AM Peak Hour			PM Peak Hour				AM Peak Hour			PM Peak Hour					
Intersection	**Control**	**V/C**	**Delay**	**LOS**	**V/C**	**Delay**	**LOS**		**V/C**	**Delay**	**LOS**	**V/C**	**Delay**	**LOS**		**AM Peak Hour**	**PM Peak Hour**
5 . Driveway 1/Live Oak Avenue	TWSC	-	25.7	D	-	>100	F	*	-	46.2	E	*	-	>100	F	*	**Y**	**Y**
7 . Driveway 3/Live Oak Avenue	TWSC	-	10.4	B	-	20.9	C		-	46.4	E	*	-	>100	F	*	**Y**	**Y**
8 . Interstate 605 Southbound On-Ramp/Live Oak Avenue	Signal	0.70	7.3	A	0.87	16.4	B		0.70	7.5	A		0.88	15.8	B		N	N
9 Interstate 605 Northbound Ramps/Live Oak Avenue	TWSC	-	19.9	C	-	>100	F	*	-	75.8	F	*	-	>100	F	*	**Y**	**Y**
11 . Live Oak Lane/Live Oak Avenue	TWSC	-	83.3	F	†	-	69.4	F	†	-	84.0	F	†	-	65.2	F	†	N	N
13 . Commerce Drive/Live Oak Avenue	TWSC	-	30.8	D		-	97.6	F	†	-	31.0	D		-	98.8	F	†	N	N
20 . Interstate 605 Southbound Off-Ramp/Arrow Highway	Signal	0.92	26.3	C		0.59	19.7	B		0.91	25.4	C		0.64	18.5	B		N	N
21 Interstate 605 Northbound Ramps/Arrow Highway	TWSC	-	10.9	B		-	10.9	B		-	11.0	B		-	10.1	B		N	N

Notes: "*" = Exceeds Levels of Service

TWSC = Two-Way Stop Control

V/C = Volume/capacity ratio

Delay = Average control delay in seconds. At TWSC intersections, worst-case approach is reported.

LOS = Level of Service

†= Based on City of Irwindales Policy Guidelines for Traffic Impact Reports, an intersection traffic movement at a stop-controlled approach can be deemed to have acceptable operation under the following: Total delay less than 4.0 vehicle-hours for sinlge lane movement with low volume.

THIS PAGE INTENTIONALLY LEFT BLANK

Table 4.7.O - Future Baseline Plus Cumulative Projects (Saturday) Intersection Levels of Service Summary (ICU Methodology)

Intersection	Control	Without Project Conditions Peak Hour ICU	Without Project Conditions Peak Hour LOS	With Project Conditions Peak Hour ICU	With Project Conditions Peak Hour LOS
1 . Peck Road-Myrtle Avenue/Live Oak Avenue	Signal	0.549	A	0.559	A
2 . Myrtle Avenue/Longden Avenue	Signal	0.589	A	0.595	A
3 . Longden Avenue/Live Oak Avenue	Signal	0.439	A	0.451	A
4 . Arrow Highway/Live Oak Avenue	Signal	0.457	A	0.630	B
6 . Speedway Drive-Driveway 2/Live Oak Avenue	Signal	0.355	A	0.826	D
10 . Graham Road/Live Oak Avenue	Signal	0.344	A	0.357	A
12 . Rivergrade Road/Live Oak Avenue	Signal	0.329	A	0.356	A
14 . Stewart Avenue/Live Oak Avenue	Signal	0.380	A	0.397	A
15 Baldwin Park/Arrow Highway	Signal	0.479	A	0.484	A
16 Arrow Highway/Live Oak Avenue	Signal	0.464	A	0.466	A
17 Maine Avenue/Arrow Highway	Signal	0.482	A	0.487	A
18 Avenida Barbosa/Buena Vista Street	Signal	0.362	A	0.368	A
19 Avenida Barbosa/Arrow Highway	Signal	0.476	A	0.632	B

Notes: "*" = Exceeds Levels of Service
LOS = Level of Service
ICU = Intersection Capacity Utilization

THIS PAGE INTENTIONALLY LEFT BLANK

Table 4.7.P - Future Baseline Plus Cumulative Projects (Saturday) Intersection Levels of Service (HCM Methodology)

Intersection	Control	Without Project Conditions Peak Hour V/C	Delay	LOS	With Project Conditions AM Peak Hour V/C	Delay	LOS		Exceeds City Significance Threshold AM Peak Hour	PM Peak Hour
5 . Driveway 1/Live Oak Avenue	TWSC	-	13.7	B	-	>100	F	*	N	**Y**
7 . Driveway 3/Live Oak Avenue	TWSC	-	9.5	A	-	>100	F	*	N	**Y**
8 . Interstate 605 Southbound On-Ramp/Live Oak Avenue	Signal	0.45	4.3	A	0.75	4.5	A		N	N
9 Interstate 605 Northbound Ramps/Live Oak Avenue	TWSC	-	21.9	C	-	>100	F	*	N	**Y**
11 . Live Oak Lane/Live Oak Avenue	Signal	0.15	12.5	B	0.15	12.9	B		N	N
13 . Commerce Drive/Live Oak Avenue	TWSC	-	12.3	B	-	12.7	B		N	N
20 . Interstate 605 Southbound Off-Ramp/Arrow Highway	Signal	0.29	16.0	B	0.53	12.5	B		N	N
21 Interstate 605 Northbound Ramps/Arrow Highway	TWSC	-	9.3	A	-	9.5	A		N	N

Notes: "*" = Exceeds Levels of Service

TWSC = Two-Way Stop Control

V/C = Volume/capacity ratio

Delay = Average control delay in seconds. At TWSC intersections, worst-case approach is reported.

LOS = Level of Service

THIS PAGE INTENTIONALLY LEFT BLANK

Level of Significance After Mitigation. With implementation of improvements defined in **Mitigation Measures 4.7.6.2A and 4.7.6.2B**, potential traffic-related impacts of the proposed project would be reduced to less than significant levels. However, these improvements are not currently programmed by the City, and therefore the City can not guarantee that the improvements will be put in place prior to when the imact would occur. For this reaon, the impacts remain significant and unavoidable even with mitigation.

With implementation of previously defined **Mitigation Measures 4.7.6.1A, 4.7.6.1B,** and **4.7.6.1C**, the project's cumulative traffic impacts at these locationswould be reduced to less than significant levels and no additional mitigation is required.

4.7.6.3 Alternative Transportation

Impact 4.7.6.3: *The project may conflict with adopted policies, plans, or programs supporting alternative transportation.*

Threshold	Would the proposed project conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts or bicycle racks)?

The proposed project plans are not detailed, and therefore amenities that would promote the use of alternative modes of transportation are not shown on the conceptual site plan. This could conflict with applicable policies, plans, or programs supporting alternative transportation resulting in a significant impact requiring mitigation.

Mitigation Measures. Implementation of the following measures will help ensure that the proposed project is consistent with applicable policies, plans, or programs supporting alternative transportation:

4.7.6.3A Prior to issuance of occupancy permits, the developer shall install bike racks and provide showers and locker rooms for employees who wish to ride bicycles to work. Bike racks shall also be installed for retail customers in appropriate locations. An appropriate number of bike racks shall be located near each building to serve the anticipated number of employees and customers. This measure shall be implemented to the satisfaction of the City Engineer.

4.7.6.3B Prior to issuance of the first building permit, the project plans shall be circulated to Foothill Transit (FT) and the Metropolitan Transit Authority (MTA) to determine if there is a need for a bus stop on the south side of Live Oak Avenue in front of the project site (i.e., for either FT Route 270, 272 and 492). If either agency determines a need for such a stop, the developer shall install a bus stop to agency specifications prior to issuance of occupancy permits. This measure shall be implemented for each phase to the satisfaction of the City Engineer.

4.7.6.3C Prior to issuance of the first building permit, the project proponent shall prepare and receive approval from the City Community Development Department of a pedestrian and bicycle circulation plan. The intent of the plan shall be to accommodate the on-site circulation needs of pedestrians and bicyclists in a safe manner, as well as to provide safe and adequate pedestrian and bicycle connections to and from Live Oak Avenue.

Level of Significance After Mitigation. With implementation of **Mitigation Measures 4.7.6.3A and 4.7.6.3B,** potential traffic-related impacts associated with consistency with applicable policies, plans, or programs supporting alternative transportation would be reduced to less than significant levels and no additional mitigation is required.

4.7.7 Cumulative Impacts

Cumulative impacts refer to incremental effects of an individual project when viewed in connection with the effects of past projects, current projects, and probable future projects. Cumulative projects are identified in the previously referenced Table 2.A, Section 2.0, *Introduction*. Cumulative traffic volumes were developed based on the addition of traffic volumes from approved and pending projects in the area (i.e., consistent with CEQA Guidelines section 15120(b)(1)(A) "list of projects method") and projected traffic growth to existing traffic volumes (i.e., consistent with CEQA Guidelines section 15120(b)(1)(B) "projections method"). A radius of approximately 2 miles around the project site was determined to be the cumulative affected area and was used to develop the cumulative project list. This radius and cumulative projects within this area were chosen based on future projects that would impact intersections included in the proposed project's traffic study. With the project-specific mitigation outlined in Section 4.7.6, project-related direct and cumulative impacts will be reduced to less than significant levels, and thus the project will only make incremental (i.e., less than significant) cumulative traffic impacts on local and regional intersections and roadways, and no additional mitigation is required.

4.8 WATER SUPPLY

This section analyzes the existing water supply for the project site and the surrounding area, and evaluates the potential impacts to water providers and water supplies that could result from demand for water generated by the construction and operation of the proposed project. A detailed discussion of impacts to groundwater resources can be found in Section 4.5.5.3, located in the Hydrology and Water Quality Chapter of this EIR. Water service to the City of Irwindale is provided by a number of different water purveyors. The project site is served by the Golden State Water Company (GSWC). The City of Irwindale requested that the GSWC conduct a Water Supply Assessment (WSA) for the existing and proposed land uses on the project site. The WSA is summarized in this section and a copy of the WSA is provided in Appendix H.

4.8.1 Existing Setting

Water to the project site is provided by the GSWC, an investor-owned utility in California that provides water service to residents across within 75 communities throughout California. The company is regulated by the EPA, the California Department of Public Health, and the CPUC. The project site is served by GSWC's South Arcadia System (GSWC-SAS). The GSWC-SAS service area is approximately four square miles and includes portions of the cities of Temple City, Arcadia, El Monte, Irwindale, and Monrovia, as well as unincorporated areas of Los Angeles County. Currently, GSWC-SAS provides water service to a population of approximately 29,500. GSWC-SAS's Urban Water Management Plan (UWMP) states its connection with the City of Arcadia will be maintained for emergency use only. GSWC maintains the ability to transfer/lease pumping rights between its systems in the Main San Gabriel Basin (MSGB).

GSWC-SAS currently operates seven groundwater wells in the MSGB. While GSWC-SAS's production capacity for these wells is aproximately 15,100 acre-feet per year (AFY), over the past twenty years (1994–2013), GSWC-SAS water production averaged 3,902 AFY. The most recent (2013) annual production of the GSWC-SAS was 3,652 AFY. Water demand over the same time period ranged from 3,382 to 4,321 AFY, with an average of 3,924 AFY. The most recent annual demand (2013) was 3,652 AFY (Table 4.8.A). Over the past 20 years, purchases through the connection to the City of Arcadia have averaged 22 AFY.

Table 4.8.A: GSWC-SAS Historic Production and Water Demand (AFY)

Period	Production	Demand
1994–2013 (range)	3,382–4297	3,382–4,321
1994–2013 (average)	3,902	3,924
2013	3,652	3,652

Source: Tables 1 and 3, *Water Supply Assessment for the Irwindale Outlet Center Project, Stetson Engineers, Inc., October 2014.*

NOP/Scoping Comments. No agencies or members of the general public expressed any concerns regarding water demand and/or supply issues related to the proposed project during the scoping meetings or during the NOP period.

4.8.2 Policies and Regulations

4.8.2.1 Water Conservation in Landscaping Act

To ensure adequate supplies are available for future uses and to promote the conservation and efficient use of water, local agencies are required to adopt water-efficient landscape ordinances. When such an ordinance has not been adopted, a finding as to why such an ordinance is not

necessary (based on the climatic, geologic, or topographical conditions) must be adopted. In the absence of such, an ordinance drafted by the State of California applies within the affected jurisdiction. The City of Irwindale does not have an adopted water efficient landscape ordinance and, as a result, the model water efficient landscape ordinance adopted by the California Department of Water Resources would apply within the City of Irwindale.

4.8.2.2 Water Recycling in Landscaping Act

The Water Recycling in Landscaping Act requires that a water producer capable of providing recycled water that meets certain conditions notify local agencies eligible to receive the recycled water. It also requires necessary infrastructure be provided to support the delivery of recycled water. The Los Angeles County Sanitation District (LACSD) is the recycled water wholesaler in the service area. While GSWC does not currently have access to recycled water, it plans to coordinate with the LACSD in planning a recycled water distribution system and identifying potential recycled water customers. Since the LACSD is the owner and operator of water recycling facilities in the South Arcadia area, it is responsible for determining the feasibility of extending the recycled water distribution network.

4.8.2.3 Sections 13550–13556 of the California Water Code (CWC)

These sections of the CWC state that local, regional, or State agencies shall not use water from any quality source of potable water for non-potable uses if suitable recycled water is available as provided in Section 13550 of the CWC.

4.8.2.4 Urban Water Management Planning Act (CWC Section 10631, 1984)

The Urban Water Management Planning Act requires urban water suppliers to develop written urban water management plans (UWMPs). While generally aimed at encouraging water suppliers to implement water conservation measures, it also created long-term planning obligations. In preparing urban water management plans, urban water suppliers must describe the following: (a) existing and planned water supply and demand; (b) water conservation measures and a schedule for implementing and evaluating such measures; and (c) water shortage contingency measures. The Urban Water Management Planning Act requires that urban water suppliers use a 20-year planning horizon and update the data in the urban water plans every five years. In preparing their 20-year management plans, water suppliers must directly address the subject of future population growth. The suppliers must also identify sources of supply to meet demand. The plan must “identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier.” In identifying these future water sources, the suppliers need not conduct environmental review.

4.8.2.5 Senate Bill (SB) 901: Water Supply and Demand Reliability Assessment (CWC Section 10910, 1995)

SB 901 requires every urban water supplier to identify as part of its UWMP the existing and planned sources of water available to the supplier over a prescribed five-year period. SB 901 requires additional information to be included as part of an urban water management plan if groundwater is identified as a source of water available to the supplier. Provisions of SB 901 would require an urban water supplier to include in the plan a description of all water supply projects and programs that may be undertaken to meet total project water use. A city or county shall request each public water system serving a project to assess the projected water demand associated with said project and an assessment of whether the projected water demand associated with selected projects was included as part of the most recent UWMP. As part of this assessment, the public water system is required to indicate whether its total projected water supplies available during normal, single-dry, and multiple-dry water years will meet the project demand associated with the proposed project, in addition to the public water system’s existing and planned uses.

Pursuant to Section 10912 of the CWC, a "project" is specifically defined as development meeting any of the following criteria:

- 500 or more dwelling units;
- Commercial center employing more than 1,000 persons or having more than 500,000 square feet;
- Office building employing more than 1,000 persons or having more than 250,000 square feet;
- A hotel/motel with 500 or more rooms;
- An industrial, manufacturing, processing plant, or industrial park employing more than 1,000 persons or occupying more than 40 acres, or having more than 650,000 square feet of floor area;
- A mixed-use project that would demand an amount of water equal to the amount of water required by a 500-dwelling unit project; or
- In areas where the public water system has fewer than 5,000 service connections, any development that would increase water demand by 10 percent or greater in the number of existing service connections, or in the case of a mixed-use development, an increase in water required by residential development representing a 10 percent or greater increase in the number of existing service connections.

After receiving such information, cities and counties may agree or disagree with the conclusions of the water purveyors, but cannot approve projects in the face of documented water shortfalls without first making certain findings.

4.8.2.6 Senate Bill 610: Water Supply Planning (CWC Sections 10910 through 10915, 2001)

SB 610 amended Section 21151.9 of the Public Resources Code and several sections of the CWC were amended, one was repealed, and parts of one section were added and/or repealed. Revising provisions established by SB 901 and SB 610 requires that any city or county having determined that a project is subject to CEQA identify any public water systems that may supply water for the project and to request those public water systems to prepare a specified WSA if the project exceeds the specified threshold for a WSA. Such a WSA would include, among other information, the following:

- Identification of existing water entitlements, water rights, or water service contracts relevant to the water supply identified for a proposed project; and
- The amount of water received pursuant to such entitlements, rights, or contracts.

SB 610 requires the public water system, city, or county to submit plans for acquiring the required water supply for the proposed project if the WSA concludes that water supplies are or will become insufficient. Any such WSA and other information would be included in the environmental document prepared for the project pursuant to CEQA.

4.8.2.7 Senate Bills 1168 and 1319

As summarized in the legislative digest, in March 2014 the Governor's Office released a draft framework soliciting input on actions that can be taken to ensure local groundwater managers have the tools and authority to sustainably manage groundwater. In response, SB 1168 and AB 1739 were introduced. These bills moved through the legislation process in nearly identical form while the authors and administration convened multiple stakeholder meetings and further developed the provisions of the bills. On August 22, 2014, both bills were amended to divide the provisions between the two bills. In tandem, SB 1168 and AB 1739 provide a comprehensive groundwater sustainability

management program.[1] In September 2014, Senate Bills 1168 and 1319, and Assembly Bill 1739 were enacted, amending and adding to the State's Government and Water Codes relative to the management of groundwater resources. As an adjudicated basin specifically cited in amended California Water Code Section 10720.8(a)(9), the Main San Gabriel Basin is exempted from certain provisions of recent groundwater management legislation.

4.8.2.8 Assembly Bill 1739

This bill provides specific authority to a groundwater sustainability agency (GSA), as defined in SB 1168 (Pavley 2014), to impose certain fees. AB 1739 establishes groundwater reporting requirements, whereby local agencies were given certain powers to manage and regulate groundwater basins. AB 1739 also allows for state intervention when local management is deemed insufficient. This bill authorizes the Department of Water Resources (DWR) or a GSA to provide technical assistance to entities that extract or use groundwater to promote water conservation and protect groundwater resources.

4.8.2.9 Senate Bill 1319

This bill amends selected portions of AB 1739, addresses some concerns of agricultural interests by delaying the State's intervention in certain places where surface water has been affected by groundwater pumping.

4.8.2.10 Senate Bill 1168

SB 1168 requires adoption of a sustainable groundwater sustainability plan (GSP) by January 31, 2020, for all high or medium priority basins that are subject to critical conditions of overdraft and by January 31, 2022, for all other high and medium priority basins unless the basin is legally adjudicated or the local agency establishes it is otherwise being sustainably managed.

4.8.2.11 City of Irwindale 2020 General Plan

The City's General Plan does not contain any policies regarding water that are applicable to the proposed project.

4.8.3 Methodology

The WSA evaluated the potential consumption of water by the project compared to available water supplies. The analysis also identifies water conservation measures that would be incorporated in the proposed project to reduce the project's total water demand, with special reference to outdoor water use and associated landscaping systems.

4.8.4 Thresholds of Significance

The following thresholds of significance regarding impacts to water supply and demand are based on the questions in Appendix G in the *CEQA Guidelines*. A project would have a significant impact on the provision of utilities or service systems related to water supply if it would result in the following:

- Have insufficient water supplies available to serve the project from existing entitlements and resources, or need new or expanded entitlements.

[1] http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml;jsessionid=e250edbc60087c25cd0fb2dd2578, site accessed, October 29, 2014.

For this EIR, significant and unavoidable impacts would occur if the condition cited above cannot be overcome by reasonable design, construction, and maintenance practices.

4.8.5 Less than Significant Impacts

4.8.5.1 Availability of Service Supplies/Need for New or Expanded Entitlements/Construction or Expansion of Water Treatment Facilities

Threshold	Would the proposed project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?
Threshold	Would the proposed project require the construction of new water treatment facilities or expansion of existing facilities, the construction of which would cause significant environment effects?

GSWC-SAS currently operates seven groundwater wells within the MSGB. While GSWC-SAS's production capacity for its wells in the MSGB is approximately 15,100 AFY, the amount of groundwater pumped from the basin is regulated by the court-appointed Watermaster. As a result of the adjudication, GSWC has pumping rights to 4.66 percent[1] of operating safe yield (OSY) of the MSGB. Depending on the OSY determined by the Watermaster, GSWC-SAS's total pumping rights have ranged from 4,089 to 7,011 AFY. The 20-year (1994–2013) average GSWC-SAS production was 3,902 AFY, with a most recent (2013) production of 3,652 AFY from the MSGB. In the past 20 years, purchases from Arcadia have averaged 22 AFY.

The existing water demand for the project site for the past five years has averaged approximately 20 AFY. The estimated water demand for the retail uses and proposed on-site landscaping is approximately 141 and 19 AFY, respectively (160 AFY total). The project-specific WSA assumed that the water demand for the existing Speedway uses has been incorporated into the GSWC-SAS's 2010 UWMP. As the proposed project will replace existing uses, the net increase in annual water demand will be approximately 140 AFY (160 AFY – 20 AFY = 140 AFY).

The GSWC-SAS projected water demand for 2015 through 2035 is shown in Table 4.8.B. With the inclusion of the proposed project, GSWC-SAS's estimated water demand in 2035 will total approximately 4,955 AFY.[2] The water demand of the proposed project represents 3.0 and 2.8 percent, respectively, of the total GSWC-SAS year 2020 and 2035 demand.

Table 4.8.B: Projected GSWC-SAS Water Use (AFY)

	2015	2020	2025	2030	2035
Projected Water Demand	4,235	4,414	4,557	4,698	4,815
Water Demand from Proposed Project	0	140	140	140	140
Total Water Demand	4,235	4,554	4,697	4,838	4,955

Source: Table 2, *Water Supply Assessment for the Irwindale Outlet Center Project, Stetson Engineers, Inc., October 2014.*

Groundwater supply in the MSGB is reliable through adherence to the 1973 adjudication and the resultant management of water supplies. Producers in the MSGB obtain water supplies from groundwater extraction, surface water diversions, and direct delivery of treated imported water. Three wholesale municipal water districts provide imported water for direct use and for replacement/ recharge. Table 4.8.C details the projected demand from the MSGB. The 140 AFY required by the

[1] 2.92 percent from GSWC San Gabriel District shared between the GSWC-SAS and GSWC- South San Gabriel System, and 1.74 percent from GSWC San Dimas District. GSWC maintains the ability to transfer/lease pumping rights between its systems in the MSGB.

[2] Table 2, WSA.

proposed project represents approximately 0.054 and 0.050 percent, respectively, of the total projected MSGB demand for years 2020 and 2035.

Table 4.8.C: Projected MSGB Water Demand (AFY)

Year	Population	Demand from Population	Exports	Industrial Demands	Total
2015	1,273,602	203,780	40,790	5,786	250,356
2020	1,316,250	210,600	41,290	5,786	257,676
2025	1,359,597	217,450	41,790	5,786	265,026
2030	1,399,597	223,940	42,290	5,786	272,016
2035	1,439,835	230,370	42,790	5,786	278,946

Source: Table 6, *Water Supply Assessment for the Irwindale Outlet Center Project, Stetson Engineers, Inc., October 2014.*

Over the past five fiscal years (2008–2009 through 2012–2013), the average OSY for the MSGB has been 186,000 AFY.[1] Water production, including surface water diversion, over previous five-year time period was approximately 241,985 AFY; therefore, the average replacement water requirement for the period has been approximately 45,000 AFY. Based on the average total direct delivery of treated imported water of approximately 11,820 AFY and the estimated 2015 replacement water requirement of approximately 41,600 AFY, the total current imported water demand is approximately 53,740 AFY. Total imported water requirements are projected to increase to approximately 81,964 AFY in 2035. As established in the WSA, GSWC-SAS has sufficient future supplies through 2035 for average, single-dry, and multiple-dry years (Table 4.8.D).

Table 4.8.D: GSWC-SAS Water Supply and Demand in Normal, Single-Dry, and Multiple-Dry Years (AFY)

			Multiple Dry Years		
2015	**Normal Year Demand**	**Single Dry Year**	**Dry Year 1**	**Dry Year 2**	**Dry Year 3**
Demand without Project	4,235	4,235	3,899	4,067	4,235
Demand with Project	4,235	4,.235	3,899	4,067	4,235
Supply	4,235	4,.235	3,899	4,067	4,235
2035					
Demand without Project	4,815	4,815	4,769	4,792	4,815
Demand with Project	4,955	5,253	5,203	5,228	5,253
Supply	1,955	5,253	5,203	5,228	5,253

Source: Tables 13–14, *Water Supply Assessment for the Irwindale Outlet Center Project, Stetson Engineers, Inc., October 2014.*

The Metropolitan Water District of Southern California (MWD) is a consortium of 26 cities and water districts that provides drinking water to nearly 19 million people in parts of Los Angeles, Orange, San Diego, Riverside, San Bernardino and Ventura Counties. The MWD provides approximately 95 percent of the imported water delivered to the MSGB and has addressed the reliability of water delivery through the State Water Project (SWP) and the Colorado River Aqueduct. The MWD's Integrated Resources Plan (IRP) and 2010 Regional UWMP conclude that the MWD will have a reliable source of water to serve its member agencies needs through 2035 in average, single-dry, and multiple-dry years (Table 4.8.E).

[1] The Watermaster has established an OSY of 180,000 AFY for the fiscal year 2013–2014, 150,000 AFY fiscal year 2014–2015, and 130,000 AFY for fiscal years 2015–2016 through 2018–2019, *Main San Gabriel Basin Watermaster Report on Final Determination of Safe Yield for 2014–2015 through 2018–2019*, Stetson Engineering, May 14, 2014.

Table 4.8.E: MWD's Project Average Year Water Supply and Demand (AFY)

Average Year	2015	2020	2025	2030	2035
Supply (Current Programs)	3,485,000	3,810,000	4,089,000	3,947,000	3,814,000
Demand	2,006,000	1,933,000	1,985,000	2,049,000	2,106,000
Surplus	1,479,000	1,877,000	1,985,000	2,049,000	2,106,000
Supply (Proposed Programs)	588,000	689,000	1,051,000	1,051,000	1,051,000
Potential Surplus	2,067,000	2,566,000	3,155,000	2,949,000	2,759,000
Single Dry Year					
Supply (Current Programs)	2,457,000	2,782,000	2,977,000	2,823,000	2,690,000
Demand	2,171,000	2,162,000	2,2001,000	2,254,000	2,319,000
Surplus	286,000	620,000	776,000	569,000	371,000
Supply (Proposed Programs)	762,000	862,000	1,036,000	1,036,000	1,036,000
Potential Surplus	1,048,000	1,482,000	1,812,000	1,605,000	1,407,000
Multiple Dry Years					
Supply (Current Programs)	2,248,000	2,417,000	252,000	2,459,000	2,415,000
Demand	2,236,000	2,188,000	2,283,000	2,339,000	2,399,000
Surplus	12,000	229,000	237,000	120,000	16,000
Supply (Proposed Programs)	404,000	553,000	733,000	755,000	755,000
Potential Surplus	416,000	782,000	970,000	875,000	771,000

Source: Tables 8–10, *Water Supply Assessment for the Irwindale Outlet Center Project, Stetson Engineers, Inc., October 2014.*

The Department of Water Resources (DWR) has estimated the reliability of SWP delivery to be 62 during long-term average conditions. Even with variable import of SWP water for basin recharge, all of GSWC-SAS's future water demands can be supplied by groundwater from the MSGB. The large storage capacity of the MSGB provides the flexibility for replacement water deliveries to be made during the times when supplemental water is available to the MWD and San Gabriel Valley Municipal Water District (SGVMWD) for groundwater recharge. Even during periods of drought, GSWC can rely on increased production from the basin. Effective court-supervised management of groundwater supplies in the basin allows GSWC-SAS to meet its groundwater pumping requirements from the Main San Gabriel Basin. Based on the demonstrated reliability of water resources available to GSWC-SAS, including GSWC-SAS's access to the MSGB and imported replacement water, GSWC-SAS has sufficient and reliable potable water supplies to meet its future demands with the project from 2015 through 2035, including during single and multiple dry years. The proposed project will not have a significant impact on water supplies or availability.

All necessary water distribution facilities would be installed simultaneously with site development. Therefore, the connection to the existing water delivery system would not result in substantial disturbance of existing water facilities. As previously identified, the net potable water demand that would be required for the proposed project would total 140 AFY.[1] The amount of water demand would be within the existing available supply even with a reduction in deliveries from the SWP. The proposed project would not require the construction of new water treatment facilities or expansion of existing facilities, which could cause significant environmental effects. Adherence to standard requirements identified by GSWC-SAS and the City associated with the design and installation of new water infrastructure would ensure that no significant impacts would result from the construction or operation of the proposed project. Therefore, impacts related to this issue would be less than significant and no mitigation measures would be required.

[1] The current land use uses 20 AFY, which was subtracted from the gross project demand of 160 AFY.

In summary, development of the proposed project will not result in the need for new or expanded water entitlements, or the current construction of new water treatment facilities. Therefore, the project will not have a significant impact on water use or the need for new water treatment facilities and no mitigation is required.

4.8.6 Potentially Significant Impacts

No impacts related to water services or facilities have been identified as significant for the proposed project.

4.8.7 Cumulative Impacts to Water Supply Services

The cumulative area for water supply-related issues is the GSWC-SAS service area. Existing and future demand with the GSWC-SAS service area would demand additional quantities of water. The adopted UWMP (2010) projects the population within the service area will increase to 33,811 by 2035. The anticipated conversion of water-intensive uses (i.e., agriculture) and the implementation of existing water conservation measures and recycling programs would reduce the need for increased water supply. As outlined in Section 4.6.5.1, the Water Supply Assessment for the proposed project concluded that GSWC-SAS's water supply sources are sufficient to be fully reliable and available to meet GSWC-SAS's future demands with the project, including during single and multiple dry years.

Metropolitan will continue to rely on the plans and policies outlined in its RUWMP and IRP to address water supply shortages and interruptions (including potential shut downs of SWP pumps) to meet water demands. An aggressive campaign for voluntary conservation and recycled water usage, curtailment of groundwater replenishment water and agricultural water delivery are some of the actions outlined in the RUWMP. As previously stated, Metropolitan currently does not have surplus water available, due in part to pumping restrictions imposed on the SWP to avoid and minimize impacts to Federal- and State-protected fish species in the Delta. However, Metropolitan has analyzed the reliability of water delivery through the SWP and the Colorado River Aqueduct. Metropolitan's IRP and RUWMP conclude that, with the storage and transfer programs developed by Metropolitan, there will be a reliable source of water to serve its member agencies' needs through 2035. In addition, the GSWC-SAS would have water supplies for projected growth through 2035 in wet, dry, and multiple-dry years, so cumulative impacts to water supply would be less than significant. The proposed project would connect to existing conveyance infrastructure and adequate treatment capacity is available, so the proposed project would not make a significant contribution to any cumulatively considerable impacts on regional water supply or infrastructure.

5.0 ADDITIONAL TOPICS REQUIRED BY CEQA

Section 15126 of the *CEQA Guidelines* requires that all aspects of a project must be considered when evaluating its impacts on the environment, including planning, acquisition, development, and operation. As part of this analysis, the EIR must also identify (1) significant environmental effects of the proposed project; (2) significant environmental effects that cannot be avoided if the proposed project is implemented; and (3) growth-inducing impacts.

Chapter 4.0 provides detailed analyses of the potential effects of the construction and operation of the proposed project including identification of potentially significant adverse effects. The potentially significant adverse environmental effects that cannot be avoided if the proposed project is implemented, the significant irreversible environmental changes that would occur if the proposed project is implemented, and the potential for the proposed project to result in growth-inducing impacts are discussed in the following sections.

5.1 SIGNIFICANT ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED IF THE PROPOSED PROJECT IS IMPLEMENTED

Table 5.A summarizes the significant unavoidable adverse impacts anticipated to result from the proposed project, even with implementation of the project-specific mitigation measures identified in the Chapter 4.0 analyses. In concept, CEQA requires the analysis of impacts of a proposed project on the existing natural and man-made environment (e.g., new traffic, loss of habitat, air quality emissions, noise, and visual) and not impacts of the existing environment on a proposed project. In practice however, CEQA documents examine a number of topics where impacts to projects, as well as impacts of the proposed project on the environment, are examined relative to existing environmental hazards (e.g., earthquake faults, flooding, and hazardous materials). As a result, Table 5.A also summarizes potentially significant adverse environmental impacts on the proposed project.

Table 5.A: Significant Adverse Environmental Effects Which Cannot Be Avoided After Mitigation

Topic	Type of Impact	Impact
Air Quality Section 4.1	Air Quality Emissions Project Related and Cumulative	Implementation of the proposed project would result in the exceedance the corresponding SCAQMD daily emission thresholds for VOC, NO_X, and CO. The cause of the exceedance is the increase in traffic the project will attract especially on the weekends. Nearly 100 percent of these emissions are from mobile sources, which are all private vehicles used for customers and employees of the project. Even with implementation of the mitigation measures identified in the EIR to reduce these air pollution emissions, impacts cannot be reduced to below thresholds. Therefore, project-related long-term air quality impacts would be significant and unavoidable. The project's long-term operational emissions would exceed the SCAQMD's regional criteria pollutant thresholds for VOC, NOx, and CO. Therefore, the proposed project would potentially result in a significant long-term cumulative impact.

Table 5.A: Significant Adverse Environmental Effects Which Cannot Be Avoided After Mitigation

Topic	Type of Impact	Impact
Greenhouse Gas Emissions and Climate Change Section 4.3	Greenhouse Gas Project Emissions Project Related.	Construction of the proposed project will introduce new retail commercial land use that will cause an increase in vehicle trips to the project site, which will increase the amount of greenhouse gas emissions produced in the City of Irwindale. Eighty-three percent of the GHG emissions are from mobile sources, which are all private vehicles used by customers and operators of the project. Even with implementation of the mitigation measures identified in the EIR to reduce these greenhouse gas emissions, impacts cannot be reduced to below thresholds. Thus, there are no feasible mitigation measures that would alter the BAU-proposed project reduction to more that 15 percent. Thus, as the project is unable to show consistency with the Scoping Plan, project GHG emissions would be significant and unavoidable.
Traffic and Transportation Section 4.7	Project and Cumulative Intersection LOS	The project contributes to the less than standard LOS at three intersections, resulting in a significant project and cumulative impacts requiring mitigation. Even with implementation of the mitigation measures identified in the EIR to reduce these traffic LOS deficiencies, impacts cannot be reduced to below thresholds. Therefore, project and cumulative traffic impacts would be significant and unavoidable.

5.2 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

Section 15126(c) of the *CEQA Guidelines* mandates that the EIR must address any significant irreversible environmental changes that would be involved in the proposed action should it be implemented. An impact would fall into this category if it resulted in any of the following:

- The project would involve a large commitment of non-renewable resources;
- The primary and secondary impacts of the project would generally commit future generations of people to similar uses;
- The project involves uses in which irreversible damage could result from any potential environmental incidents associated with the project; and/or
- The proposed consumption of resources is not justified (e.g., the project could waste energy).

Determining whether the proposed project may result in significant irreversible effects requires a determination of whether key resources would be degraded or destroyed in such a way that there would be little possibility of restoring them.

The approximately 63.65-acre project site is currently developed with a speedway and other uses. The entire site has been disturbed and developed in those uses. The site is currently designated Commercial/Recreation in the 2020 General Plan and is zoned M-2 (Heavy Manufacturing). The proposed project includes changing the zoning on the project site to C-2 (Heavy Commercial). The evaluation of the proposed project relative to the four potential categories of potentially significant irreversible environmental changes described above is provided in Table 5.B. Table 5.B indicates the proposed project will not result in significant irreversible environmental changes.

Table 5.B: Analysis of the Potential for the Project to Result in Significant Irreversible Environmental Changes

Potential Irreversible Environmental Changes	Does the Project Result in a Significant Irreversible Environmental Change?
The project would involve a large commitment of non-renewable resources	Considerable amounts of fossil fuels, labor, and construction materials are expected to be used for construction of the proposed project. These materials are generally not retrievable. However, they are not in short supply and their use would not have an adverse effect on the continued availability of these resources in the region. The land used for the project is considered an irreversible commitment during the period that the land is used for the proposed commercial uses. In the long term, operation of the proposed project would require the use of energy and water resources. Although energy resources are considered to be available into the future, the availability of water maybe more limited in the future. In summary, the construction and operation of the proposed project would result in as substantial commitment of non-renewable resources particularly land and water resources.
The primary and secondary impacts of the project would generally commit future generations of people to similar uses.	There are no primary or secondary impacts of the proposed project as described in Section 4.0 of this EIR that would commit future generations to similar uses.
The project involves uses in which irreversible damage could result from any potential environmental incidents associated with the project.	The proposed project will be built on the site of a former landfill. A Phase I Site Assessment was prepared for the project and determined there are existing methane gas monitoring wells that will need to be maintained for the project. In addition, methane monitoring wells will be required as a mitigation measure. A methane gas protection and monitoring system shall be installed beneath each new commercial building of the project. The proposed project is a typical commercial shopping center and there are no expected potential environmental incidences that would occur as a result of implementation of the project.
The proposed consumption of resources is not justified (e.g., the project could waste energy).	Natural resources in the form of construction materials would be used in the construction of the proposed project, and energy (electricity and natural gas) and water resources would be used during the long-term operation of the project. The use of energy resources is not expected to have a substantial impact on the availability of these types of resources in the region over time. However, the demand for water for domestic and landscaping uses could, in the long term, be an adverse impact during operation of the proposed project.

5.3 GROWTH-INDUCING IMPACTS

The project site is designated in the 2020 General Plan for uses consistent with the proposed retail uses on the project site. The proposed retail uses would be consistent with the City's Zoning Code based on the proposed zone change included in the discretionary actions for the proposed project. It is possible that the change in land uses on the project site, from the speedway to commercial uses, could induce or create conditions that could accelerate development of vacant or other underutilized parcels in the City of Irwindale. However, pressure for development on those types of parcels would likely be a result of overall economic conditions in the area and the need for higher or better land uses on those parcels.

The proposed project does not include any residential uses on the project site. Jobs for the project construction and the new commercial uses are not expected to require any specialized skills or experience that would result in the need for employees to relocate to the area. The construction and retail employees are expected to be drawn from the existing labor pool in this part of Southern

California. As a result, the construction and operation of the project are not expected to result in increased demand for housing in the area.

The project does not include utility or infrastructure improvements which could induce growth in the surrounding area by removing an existing impediment to growth. Therefore, the proposed project would not remove any infrastructure limitations to support additional growth in the future.

Although the project would require a zone change, construction and operation of the proposed retail uses would not facilitate growth that has not already been anticipated by the City of Irwindale in the 2020 General Plan and the City's Zoning Code. As a result, the proposed project is not expected to result in any growth-inducing impacts, and no mitigation is required.

5.4 CONSISTENCY WITH REGIONAL PLANS

In accordance with CEQA Guidelines Section 15125(c) an EIR is to discuss the proposed project's consistency with local and regional plans. Each of the EIR Chapters 4.1 through 4.8 discusses the proposed project's consistency with the City's General Plan and regional plans where appropriate. In its response to the Notice of Preparation, the Southern California Association of Governments (SCAG) issued a comment letter requesting an evaluation of the proposed project's consistency with specific Goals and Strategies from the 2012 Regional Transportation Plan (RTP), provided growth forecasts from the RTP, and provided guidance regarding EIR mitigation measures related to the RTP. Table 5.C is provided below to indicate consistency with SCAG's Regional Plans.

The SCAG Regional Council adopted the 2012 RTP/SCS in April 2012. The 2012 RTP/SCS links the goal of sustaining mobility with the goals of fostering economic development, enhancing the environment, reducing energy consumption, promoting transportation-friendly development patterns, and encouraging fair and equitable access to residents affected by socioeconomic, geographic, and commercial limitations (see http://rtpscs.scaq.ca.gov). The goals included in the 2012 RTP/SCS may be pertinent to the proposed project. These goals are meant to provide guidance for considering the proposed project within the context of regional goals and policies. The proposed project's consistency with relevant goals of the 2012 RTP/SCS are provided in Table 5.C.

Table 5.C: Project's Consistency with Regional Plans

2012 RTP/SCS Goals and Policies	Proposed Project's Consistency
RTP/SCS G1: Align the plan investments and policies with improving regional economic development and competitiveness.	**Consistent.** The proposed project would provide a regional shopping center that will provide jobs to people within the City and surrounding areas and will provide a revenue source to the City, while competing with other regional centers in the Los Angeles Basin.
RTP/SCS G2: Maximize mobility and accessibility for all people and goods in the region.	**Consistent.** The proposed project is located adjacent to I-605 one exit south of the I-210, and three exits north of the I-10 freeway. The site is easily accessed for residents within the San Gabriel Valley of Los Angeles. The project maximizes the use of traffic along these major transportation corridors to maximize mobility and accessibility of goods.
RTP/SCS G3: Ensure travel safety and reliability for all people and goods in the region.	**Not Applicable.** This goal is not applicable to the proposed project because the project is a shopping center that does not pertain to the safety of travel of people or goods.
RTP/SCS G4: Preserve and ensure a sustainable regional transportation system.	**Consistent.** The proposed project would pay TUMF and DIF fees that would ensure the sustainability of the regional transportation system.

Table 5.C: Project's Consistency with Regional Plans

2012 RTP/SCS Goals and Policies	Proposed Project's Consistency
RTP/SCS G5: Maximize the productivity of our transportation system.	**Consistent.** The proposed project is located adjacent to I-605, one exit south of the I-210, and three exits north of the I-10 freeway. The site is easily accessed for residents within the San Gabriel Valley of Los Angeles. The project maximizes the use of traffic along these major transportation corridors.
RTP/SCS G6: Protect the environment and health for our residents by improving air quality and encouraging active transportation (non-motorized transportation, such as bicycling and walking)	**Consistent.** The City is requiring bike racks to be provided by the applicant to encourage non-motorized transportation. The site will also be accessed by public transportation (buses).
RTP/SCS G7: Actively encourage and create incentives for energy efficiency, where possible.	**Potentially Consistent.** The project applicant will consider installation of PV solar system to offset the electrical demand from the proposed shopping center.
RTP/SCS G8: Encourage land use and growth patterns that facilitate transit and non-motorized transportation.	**Potentially Consistent.** It will be up to Foothill Transit to request the site be served by a bus stop. However, if the site is served by Foothill Transit in the future, the project will be consistent with this policy.
RTP/SCS G9: Maximize the security of the regional transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies.	**Not Applicable.** This goal is not applicable to the proposed project because the project is a shopping center that does not pertain to the security of regional transportation systems.

THIS PAGE INTENTIONALLY LEFT BLANK

6.0 ALTERNATIVES

6.1 INTRODUCTION

An EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment. In compliance with *CEQA Guidelines* Section 15126.6(a), this Draft EIR must describe "a range of reasonable alternatives to the project, or to the location of the project which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project." The EIR need not consider every conceivable alternative; rather it must consider a reasonable range of potentially feasible alternatives to the project, or to the location of the project, which would avoid or substantially lessen significant effects of the project, even if "these alternatives would impede to some degree the attainment of the project objectives, or would be more costly" (*CEQA Guidelines* Section 15126.6(b)). The discussion of project alternatives must "include sufficient information about each (to) allow meaningful evaluation, analysis, and comparison with the proposed project." An EIR must evaluate a "No Project" alternative in order to allow decision-makers to compare the effect of approving the project to the effect of not approving the project.

The City, acting as the CEQA Lead Agency, is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. The range of alternatives addressed in an EIR is governed by a "rule of reason," which requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. Of the alternatives considered, the EIR need examine in detail only those the Lead Agency determines could feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project. Per *CEQA Guidelines* Section 15364, "feasible" has been defined as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors."

6.1.1 Summary of the Proposed Project

The project site is approximately 63.5 acres in size. The proposed project includes the construction and occupancy of an approximately 700,000 square foot shopping center and associated parking. In addition to the primary function of the shopping center to provide commercial space for shopping opportunities, the project includes ancillary amenities including a central plaza for public gatherings, entryway features, an outdoor entertainment/performance area, and a food court. The proposed project will include related improvements, including, but not limited to parking, landscape planters, fencing, and walls. The Irwindale Speedway would be demolished and the concrete and asphalt would be used as on-site fill for the racing oval as part of the proposed project's construction.

6.1.2 Project Objectives

The purpose of the proposed project is to achieve the following:

- To provide employment opportunities for various segments of the region and local community;
- To provide a pleasant and unique shopping experience for outlet-focused customers looking for bargains within and outside the region;
- To increase tourism and bolster the image of Irwindale as a regional hub;
- To encourage complementary uses around the shopping center in an effort to further boost economic development in the City and region; and

- To meet the goals and objectives of the City's General Plan by implementing uses consistent with the "Commercial/Recreation" land use designation.

6.1.3 Summary of Proposed Project Significant Impacts

The analysis provided in Chapter 4.0 determined that, with implementation of the recommended mitigation measures, the proposed project would result in significant unavoidable impacts related to:

- Air Quality Operational Emissions (VOC, NO_X, and CO);
- Cumulative Air Quality Emissions;
- Cumulative Greenhouse Gas Emissions; and
- Project Direct and Cumulative Traffic Intersection Levels of Service.

It should be remembered that in concept CEQA requires only the analysis of impacts of a project on the natural or man-made environment, and not impacts of the environment on the project. To meet the applicable CEQA requirements, the analysis of alternatives must reduce or eliminate one or more project-related significant impacts.

6.2 ALTERNATIVES CONSIDERED BUT NOT ANALYZED FURTHER

In determining an appropriate range of alternatives to be evaluated in the EIR, several possible alternatives were considered by the lead agency and eventually rejected because they could not accomplish the basic objectives of the project as listed above or they were considered infeasible. Per the *CEQA Guidelines* (Section 15126.6(c)), factors that may be considered when addressing the feasibility of alternatives include failure to meet most of the stated project objectives, infeasibility, or inability to avoid environmental effects. As outlined in the Project Objectives, the proposed project would provide a regional shopping center in the southwestern portion of the City.

The following potential development scenarios were considered but were eventually rejected as alternatives to implementation of the proposed project:

- Residential Alternatives; and
- Alternative Sites.

Based on Section 15126.6 of the *CEQA Guidelines*, these alternatives were rejected based on the criteria of not feasibly attaining most of the basic objectives of the project even though they might reduce or avoid one or more of the significant effects of the proposed project. The reason or reasons for not selecting each of the rejected alternatives are discussed below.

6.2.1 Residential Alternatives

The EIR could examine a variety of residential land uses. However, it would be inappropriate to locate any type of residential uses on this site because of the risk of methane due to the existing landfill. In addition, the project site is adjacent to the I-605 freeway, and is surrounded by mining quarries as well as commercial land uses, and truck-related uses. The entire site consists of 63.5 acres and contains the existing Irwindale Speedway. There are existing mining quarry and truck-related uses to the north surrounding the project site. The residential uses do exist surrounding the project, however these residential areas are divided from the project by the I-605, trucking facilities, mining quarries, and mining pits filled with water.

Implementation of a residential alternative or a residential/mixed use alternative that emphasizes residential uses would result in an increase in environmental impacts due to the introduction of sensitive receptors (i.e., residences) in close proximity to significant generators of air pollution and noise emissions that currently exist in the project vicinity. Therefore, no residential or residential/ mixed use alternatives were evaluated further in the EIR.

6.2.2 Alternative Sites

The significant impacts of the project that could be reduced by an alternative site would be to relocate the shopping center to an area not subject to potentially significant hazardous materials that otherwise is created by the site's previous use as a landfill. However, with implementation of the mitigation measures identified previously in this EIR, these hazardous impacts were determined to be less than significant. Nonetheless, the City considered alternative off-site locations on which the proposed project could be built that would not experience this significant impact, though rendered less than significant with mitigation. During the alternative location review process, the City limited its review to potential sites located within the City's limits.[1] City staff reviewed the available vacant land in the City that could support a project of similar size (acres) as the proposed project, had an appropriate General Plan land use designation and zoning classification (see Figure 6.1), and was near either the I-210 or I 605 freeways. City staff was not able to find an appropriate alternative vacant site large enough to contain the proposed project within the City limits that did not contain an existing landfill. It should also be remembered that the hazardous materials impact of the proposed project is not a "significant" impact of the project but is actually an impact of the environment on the project, and not (as CEQA strictly requires) an impact of the project on the environment. The City, as lead agency, is therefore not required to select a feasible alternative site for the proposed project. See Table 6.A and following analysis below for alternative sites considered and rejected.

Table 6.A: Alternative Sites Comparison and Evaluation

Site	At least 60 acres	Environmental Constraints	Direct Access
1	Yes (64.3 acres)	Existing landfill, hazardous materials, and unstable slopes	Yes – I-605 No – I-210
2	Yes (63.2 acres)	Existing landfill, hazardous materials, and unstable slopes	Yes – I-605 No – I-210
3	Yes (89.6 acres)	Existing landfill	No – I-605 Yes – I-210

6.2.2.1 Alternative Site 1 JH Pit

This wedge-shaped site is situated directly north of the proposed project site across Live Oak Avenue. The site is bounded by I-605 to the east, Arrow Highway to the north, and Live Oak Avenue to the south. The site contains the JH Pit, an existing landfill. Due to the existing landfill the site would require fill and stabilization of slopes. A substantial amount of soil may need to be exported that would cause addition traffic and air quality impacts. This landfill is known to have compaction issues and at least some of the material will have to be removed and recompacted in order to construct buildings on the site. In addition, the Alternative 1 site is in such close proximity to the proposed project site that this alternative site would not provide any benefits in the form of reduced impacts to air, greenhouse gas emissions, and traffic.

[1] Alternative sites located outside of the City of Irwindale would eliminate the ability of the City, as lead agency, to implement or control the timing of implementation of mitigation measures identified in this EIR, resulting in the creation of potential significant and unavoidable impacts over and above those identified for the proposed project.

THIS PAGE INTENTIONALLY LEFT BLANK

LSA

FIGURE 6.1

Project Boundary

Alternative Site

N

0 1,000 2,000

FEET

SOURCE: LARIAC Aerials, 2012; Thomas Bros., 2009

I:\COI1401\Reports\EIR\fig6-1_AltSites.mxd (9/2/2014)

Irwindale Regional Shopping Center
Environmental Impact Report

Alternative Sites

THIS PAGE INTENTIONALLY LEFT BLANK

6.2.2.2 Alternative Site 2 Nuway

This site is situated due east of the JH Pit across I-605 and northeast of the proposed project site. The site is bounded by Live Oak Avenue to the south, I-605 to the west, and Live Oak Lane to the north and east. The site contains the existing Nuway landfill. Similar to the JH Pit, this site may require fill and slope stabilization. This landfill is known to have compaction issues, and at least some of the material will have to be removed and recompacted in order to construct buildings on the site. Also, similar to the proposed project site, the Alternative 2 site is near the intersection of Live Oak Avenue and the I-605 therefore this alternative site would have similar traffic, air quality, and greenhouse gas emissions impacts as the proposed project and would not provide any additional benefits or reduce any significant impacts of the proposed project.

6.2.2.3 Alternative Site 3 Reliance II

This site is situated east of I-605 and north of the I-210 approximately three miles northeast of the project site. The site has a zoning designation of M-2 Heavy Manufacturing and a General Plan designation of Regional Commercial and currently contains the Reliance II landfill. A shopping center at this site would require a zone change to accommodate a shopping center. This alternative site would have similar traffic, air quality, and greenhouse gas emissions impacts as the proposed project and would not provide any additional benefits or reduce any significant impacts of the proposed project.

6.2.2.4 Summary

The preceding analysis indicates there are no feasible alternative sites in the City that could support the proposed project (i.e., at least 60 acres to accommodate the proposed shopping center), would avoid or substantially lessen one or more of the significant impacts of the project, and would have direct access to the I-605 or I-210 freeways.

6.3 DEVELOPMENT OF ALTERNATIVES

6.3.1 Summary of Alternatives

The following alternatives have been identified and evaluated to provide decision-makers with a reasonable range of alternatives that would eliminate or reduce the impacts of the project. An EIR need not consider an alternative whose impact cannot be reasonably ascertained and whose implementation is remote or speculative. In accordance with *CEQA Guidelines*, the alternatives considered in this EIR include those that 1) could accomplish most of the basic objectives of the project, 2) are reasonably feasible given the nature of the project and surrounding land uses, and 3) could avoid or substantially lessen one or more of the significant impacts of the project.

This section examines the following three potential alternatives to the proposed project:

- Alternative 1: No Project – Existing Speedway;
- Alternative 2: Existing General Plan Land Use; and
- Alternative 3: Reduced Intensity.

Table 6.B summarizes the alternatives that are evaluated in this EIR, followed by a more detailed discussion of them.

Table 6.B: Summary of Project and Analyzed Alternatives

Project Alternative	Alternative Description
Proposed Project	The proposed project includes construction and occupancy of an approximately 700,000 square foot shopping center and associated parking on the site of the Irwindale Speedway.
Alternative 1 No Project – Existing Speedway	This alternative includes the existing speedway and would assume the continued operation of the speedway.
Alternative 2: Existing General Plan Land Use	This alternative includes a small amusement park including a miniature golf course, carnival rides, and an arcade.
Alternative 3: Reduced Intensity	This alternative would reduce the square footage of the proposed project to a point that the alternative would not have any significant air quality or greenhouse gas impacts.

Source: LSA Associates, Inc. 2014

6.3.1.1 Alternative 1: No Project – Existing Speedway

Under the No Project – Existing Speedway Alternative, the existing Irwindale Speedway would continue the existing operation and no additional development is proposed. No ground-disturbing activities would take place, nor would any commercial structures or facilities be erected. Impacts associated with this alternative, when compared to the proposed project, would not occur. In the absence of development, no additional impacts would occur over the existing condition, therefore, this alternative would be the environmentally superior alternative. However, prohibiting and additional development of the site, as suggested by this alternative, would not fulfill any of the objectives of the proposed project. This alternative provides a baseline of existing conditions for comparison to the proposed project.

6.3.1.2 Alternative 2: Existing General Plan Land Use

Pursuant to CEQA (§15126.6[e][2]), the No Project Alternative should discuss what would reasonably be expected to occur, based on current plans and consistent with available infrastructure and community services, in the foreseeable future. It is reasonable in the event the proposed project were not approved, the site would be developed in accordance with the existing General Plan land uses in the future. In this case, the General Plan shows the site as Recreation/Commercial. Therefore, this alternative would result in development of 63.5 acres of amusement park, consistent with the current General Plan land use designation. Because the proposed project is also consistent with the current General Plan land use designation, the alternative project would include a miniature golf course, carnival rides, batting cages, and an arcade to provide a contrast to the proposed project.

6.3.1.3 Alternative 3: Reduced Intensity

Even with implementation of the specific mitigation measures identified previously in this EIR, the proposed project would create significant and unavoidable air quality, greenhouse gas (GHG), and traffic impacts. With the intent of avoiding or substantially reducing significant air quality, GHG, and traffic impacts created by the proposed project, the City has considered a Reduced Intensity Alternative. This alternative includes a shopping center covering approximately 196,000 square feet on the 63.5 acres. The reduction in building area would reduce the alternative's NOx operational emissions to below the SCAQMD regional threshold for NOx operational emissions. Under this alternative, the proposed shopping center uses would represent a net decrease of approximately 72 percent compared to the proposed project. Similar to the proposed project, the existing Commercial/ Recreation General Plan designation would be retained. However like the proposed project a zone change would be required from M-2 Heavy Manufacturing to C-2 Heavy Commercial.

6.4 ANALYSIS OF ALTERNATIVES

The following sections evaluate and compare the impacts of the proposed project, Alternative 1 through Alternative 3 by each environmental topic presented in Section 4 of this EIR. Section 6.5 summarizes the impacts of each alternative and provides a determination of to what degree each one would achieve the objectives of the project.

6.4.1 Environmental Impacts That Are Similar to the Proposed Project

Four of the seventeen environmental issues for all the alternatives considered would result in a less than significant impact in the same or approximately the same manner as the proposed project (listed below). Rather than repeat a discussion of these non-significant impacts under each alternative, a summary of these impacts is presented below.

- Hydrology and Water Quality
- Hazards and Hazardous Materials
- Geology and Soils
- Noise

The level of impact associated with these topics would be similar with the proposed project or any of the alternatives. Where impacts related to any of these issues do differ among project alternatives, an appropriate discussion is provided for the respective alternative as set forth in Section 6.3.4 and beyond in this alternatives analysis.

6.4.1.1 Hydrology and Water Quality

As with the proposed project, the development of Alternative 2 or 3 would require the modification of the existing on-site pattern of drainage and would require the installation of drainage improvements that may include on-site collection/routing pipes, landscaped swales, sand filters, and paved landscape features. While the extent of the impermeable surfaces (rooftops, driveways, parking areas, etc.) required under each alternative is potentially reduced from that required for the proposed project, the environmental impact of these improvements would be similar. All local, State, and federal policies and regulations pertaining to surface water and groundwater resources would remain in effect under these alternatives. Sedimentation and erosion from any on-site development has the potential to affect water quality. Similar to the proposed project, the construction of any on-site use would be required to follow applicable NPDES requirements, including the preparation of and adherence to an SWPPP and BMPs. This requirement has been incorporated as Mitigation Measures 4.5.6.1A and 4.5.6.1B (refer to Section 4.9.6.1 *Hydrology and Water Quality* of the EIR).

As with the proposed project, runoff from paved surfaces attributable to any of the on-site alternatives, especially during “first-flush” events, may be contaminated by sediment, debris, and other contaminants. A standard condition with any such development would be preparation and implementation of a Standard Urban Stormwater Mitigation Plan, which would effectively mitigate post-construction water quality impacts from the developed area. This requirement has been incorporated as Mitigation Measure 4.5.6.2A (refer to Section 4.9.6.2 *Hydrology and Water Quality* of the EIR).

The project site is not identified as a groundwater recharge area, so none of the on-site alternatives would interfere with groundwater recharge. Anticipated on-site flows would be routed to the onsite and off-site water quality features such as vegetated swales, clarifiers, and sand filters to protect downstream water quality.

New development is required to maintain off-site flows to below or equal to pre-development conditions, per City and resource agency development requirements. The project site is not located within a flood zone and the project site is not susceptible to mudslides, tsunamis, seiches, or flooding

as a result of dam or levee failure. Similar to the proposed project, potential impacts related to hydrology and water quality would be less than significant for all alternatives.

6.4.1.2 Hazards/Hazardous Materials

Development of the any of the on-site build alternatives would result in the on-site handling of hazardous substances, both during project construction and operation. These substances would be used in accordance with existing applicable local, State, and federal standards and transported, stored, and handled using standard practices in accordance with these existing standards. There are no existing or proposed schools within a quarter mile of the proposed project site. Air traffic-related hazards would not occur at the proposed project site as it is not located within the safety hazard zones of any public airport, private airfield, or military air base. No impacts associated these issues would occur for all on-site alternatives, in the same manner as the proposed project, and no mitigation would be required.

The Irwindale General Plan does not identify any areas that are subject or at risk to wildland fires. The project area is not within a Fire Hazard Severity Zone as identified on Fire Hazard Severity Zone maps created by the California Department of Forestry and Fire Protection's Fire Resources Assessment Program. The project site is not within any designated fire hazard zone. Additionally, the project site is in developed, urbanized areas, and is not adjacent to or near wildlands that could be subject to wildland fires. Development of the proposed alternatives would not increase risks related to wildland fires or expose people or structures to significant risk of wildland fires. No impacts related to wildland fires would occur.

All on-site alternatives will be designed, constructed, and maintained in accordance with applicable standards associated with vehicular access, ensuring that adequate emergency access and evacuation will be provided. Construction activities that may temporarily restrict vehicular traffic would be required to implement appropriate measures to facilitate the passage of persons and vehicles through/around any required road closures. Compliance with existing regulations for emergency access and evacuation will ensure that impacts related to this issue are less than significant for all on-site build alternatives, in the same manner as the proposed project, and no mitigation is required.

The project site is listed as on the Local Lists of Landfill/Solid Waste Disposal Sites maintained by the State Waste Management Board. The project site was included on this list due to its previous use as the former Nuway landfill. As noted in Section 4.4.6.1, a permanent methane gas monitoring system is in place on the project site to prevent the buildup of explosive methane gas beneath or within the onsite buildings. However, any new construction of occupied buildings on the project site would need to have methane gas protection systems installed and regularly monitored, similar to that currently in place on the site, to adequately protect the public from the potentially dangerous buildup of methane in occupied buildings. Such systems would need to be installed and monitored under the oversight of LACDPW. With the implementation of Mitigation Measures 4.4.6.1B through 4.4.6.1.E, impacts associated with this issue would be reduced to a less than significant level for all on-site build alternatives.

In addition the Hazardous Materials Phase 1 report did determine that there is a possibility of vapor issues on the northwest side of the property. With implementation of Mitigation Measures 4.4.6.1A through 4.4.6.1F, potential on-site conditions involving hazardous materials impacts of the proposed project would be reduced to less than significant levels for all on-site build alternatives.

6.4.1.3 Geology and Soils

Development of any of the on-site build alternatives and the off-site alternative would have similar geologic and soil-related impacts, and there are no active faults on or in the immediate vicinity of the project site. Therefore, fault-related hazards are less than significant levels for all alternatives.

The project site like all of Southern California is a seismically active area and continues to be subject to ground shaking resulting from seismic activity on regional faults. Ground shaking from earthquakes associated with nearby and more distant faults is expected to occur during the lifetime of the project. The level of potential ground motion is considered moderate to high in the City of Irwindale including at and in the vicinity of the project site. Project development, as well as development of any alternatives, will require geological and geotechnical investigations by State-licensed professionals. The geotechnical investigations will provide design considerations and earthwork recommendations to ensure that ground shaking impacts are appropriately mitigated. In addition, California Code of Regulations (CCR), Title 24, also known as the California Building Standards Code, contains building design and construction requirements relating to fire and life safety, and structural safety. The California Building Code (CBC) also includes standards designed to ensure that structures within California are built to withstand expected levels of seismic activity for each earthquake region throughout the State. Adherence to The California Building Code, as well as other requirements identified and required by the City, will ensure ground shaking hazards are reduced to a less than significant level for all alternatives.

On-site soils are identified as having a high clay content that may have high shrink swell potential. Subsequent geotechnical investigation(s), and the incorporation of appropriate construction and building design features/requirements (as established in Mitigation Measures 4.2.6.1 A-B, will ensure a no significant impact will occur for all on-site alternatives.

Prior to the issuance of grading permits, the project proponent will be required to prepare and submit a detailed grading plan in conformance with applicable standards of the City's Grading Ordinance. Soils covering the project site have a low erosion hazard potential. Because any development would be required to adhere to the City's Grading Ordinance, obtain an NPDES Permit, prepare an SWPPP and a SUSMP, construction and operational impacts associated with soil erosion hazards are considered to be less than significant for all on-site alternatives in the same manner as the proposed project, and no mitigation is required.

The project site is not subject to landslides or rockfalls. Septic tanks would not be used under any of the on-site alternatives as existing sewer infrastructure is readily available to serve any on-site development. No impacts associated these issues would occur for all alternatives, in the same manner as the proposed project, and no mitigation would be required.

None of the alternatives propose any activity known to cause damage by subsidence (e.g., oil, gas, or groundwater extraction). The existing on-site fill materials have been identified as being compressible and have a potential for hydro-collapse. In addition, the potential for liquefaction generally occurs during strong ground shaking within relatively cohesionless loose sediments where the groundwater is typically less than 50 feet below the surface. While the project site is not located in a mapped liquefaction hazard zone, the presence of high (albeit perched) groundwater on-site, increases the potential for on-site liquefaction. Estimated settlement due to liquefaction will range from one to two inches. However, as development of the proposed on-site structures and facilities will be required to adhere to the design specifications identified in the site-specific supplementary geotechnical investigation, as well as the applicable provisions of City, County, and State building codes, and Mitigation Measures 4.2.6.1A and 4.2.6.1B, impacts associated with on-site settlement and other potential geotechnical issues will be reduced to a less than significant level for all on-site alternatives.

6.4.1.4 Noise

As with the proposed project, the development of any of the build alternatives would result in similar noise impacts. The project area is not located within two miles of an airport or private airstrip. Therefore, no significant impact will occur for any of the alternatives from airport noise.

For all alternatives that require construction, construction crew commutes and the transport of construction equipment and materials to the site for the proposed project would incrementally increase noise levels on access roads in the project area. In addition, noise would be generated during excavation, grading, and building construction on various portions of the site. Due to the lack of sensitive receptors in the project vicinity, it is not anticipated that worst-case project construction noise levels would exceed City standards for any of the alternatives. In addition, the proposed alternatives would be required to comply with the City's Municipal Code Chapter 9.28 which limits construction to 7 a.m. to 7 p.m. from Monday through Saturday with no construction allowed on Sundays without a permit by the City. Therefore, short-term construction noise impacts are less than significant for all alternatives.

Long-term noise for all alternatives would be caused by increased traffic, truck idling and loading/unloading, parking lot noise, and HVAC equipment. Similarly to the short-term noise, the nearest sensitive receptors to the project site consist of a residential neighborhood 0.4 mile north of the project site. Therefore, due to the distance to the nearest sensitive receptors long-term noise from the proposed alternatives would not be discernible to the human ear. Therefore, long-term noise impacts are less than significant for all alternatives.

Groundborne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors, where the motion may be discernable, but without the effects associated with the shaking of a building there is less adverse reaction. Construction on the project site would result in the exposure of persons to excessive groundborne vibration or groundborne noise levels. Groundborne vibration during construction activity is temporary and would cease to occur after on-site alternative project construction is completed. Therefore, groundborne vibration impacts are less than significant for all alternatives.

6.4.2 Description and Impact Analysis of Alternatives

The following discussion compares the impacts of each alternative with the impacts of the proposed project, as detailed in Section 4.0 of this EIR. A conclusion is provided as to whether each alternative would result in one of the following:

- Reduction or elimination of the impact;
- A greater impact than the project;
- The same impact as the project; or
- A new impact in addition to the impacts of the proposed project.

6.4.3 Alternative 1: No Project - Existing Speedway

Impact Analysis. The No Project – Existing Speedway would take place within the project limits, no additional development would occur, and the Speedway would continue operation. The No Project - Existing Speedway would not result in any new physical environmental impacts. However, this alternative would not meet any of the project objectives as identified in Table 6.C.

Table 6.C: Comparison of No Project/No Build Alternative to the Project Objectives

Project Objectives	Does the Alternative Meet the Project Objectives?
To provide employment opportunities for various segments of the region and local community.	Yes
To provide a pleasant and unique shopping experience for outlet-focused customers looking for bargains within and outside the region.	No
To increase tourism and bolster the image of Irwindale as a regional hub.	Yes

Table 6.C: Comparison of No Project/No Build Alternative to the Project Objectives

Project Objectives	Does the Alternative Meet the Project Objectives?
To encourage complementary uses around the shopping center in an effort to further boost economic development in the City and region.	No
To meet the goals and objectives of the City's General Plan by implementing uses consistent with the "Commercial/Recreation" land use designation.	Yes

6.4.4 Alternative 2: Existing General Plan Land Use Alternative

Impact Analysis. The Existing General Plan Land Use Alternative proposes 63.5 acres of amusement park, which would include a miniature golf course, carnival rides, batting cages, and an arcade. Four environmental issues would have impacts similar to those identified for the proposed project. These include the following:

- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise

Impacts associated with these topics would be similar to the proposed project because development of the site under Existing General Plan Land Use Alternative would result in a similar footprint of development. For this reason, impacts to these land-oriented impact topics would result in the same or similar level of impact as the proposed project, as described in the previous Section 6.4.1. The remaining environmental issues would, in some cases, result in similar impacts, but would be different enough to be discussed separately.

Air Quality: Development under this alternative would require site grading and construction similar to that necessary for the proposed project. As identified in Section 4.3 of this EIR, short-term construction emission impacts associated with construction activities on the project site were less than significant with required construction emissions control measures. Since the Existing General Plan Land Use Alternative would require that the same amount of land be graded, it would require similar grading and construction activities on site. Therefore, it is reasonable to anticipate that short-term construction emission impacts would also be less than significant for this alternative, similar to the proposed project.

Under the Existing General Plan Land Use Alternative, the site would be developed with an amusement park on 63.5 acres. Table 6.D indicates that this alternative would generate less air pollutants compared to the proposed project; however, this alternative would still exceed the SCAQMD daily threshold for NOx. Therefore, air quality impacts of this alternative would be significant for NOx emissions, even with mitigation, similar to the proposed project. This alternative would reduce the proposed projects impacts on VOC and CO to a less than significant level. Similar to the proposed project, the generation of these emissions would also result in a cumulative contribution of air pollutants in a nonattainment basin.

Table 6.D: No Project/Existing Specific Plan Alternative Operational Emissions

Source	Pollutant Emissions, lbs/day					
	VOC	NOx	CO	SO_X	PM_{10}	$PM_{2.5}$
Proposed Project	100	190	770	1.9	130	36
Existing General Plan Land Use	54	92	330	0.87	54	16
Net Change	-46	-98	-440	-1.03	-79	-20
SCAQMD thresholds	**55**	**55**	**550**	**150**	**150**	**55**

Table 6.D: No Project/Existing Specific Plan Alternative Operational Emissions

Source	Pollutant Emissions, lbs/day					
	VOC	NOx	CO	SO_X	PM_{10}	$PM_{2.5}$
Alternative exceeds thresholds?	**No**	**Yes**	**No**	**No**	**No**	**No**

Source: LSA Associates, Inc., August 2014.
CO = carbon monoxide
lbs/day = pounds per day
NOx = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
ROG = reactive organic compounds
SCAQMD = South Coast Air Quality Management District
SOx = sulfur oxides

Greenhouse Gas Emissions: GHG emissions associated with the Existing General Plan Land Use Alternative would decrease in comparison to the proposed project. The Existing General Plan Land Use Alternative would generate 15.2 percent less greenhouse gas emissions than what was identified for the proposed project. However, like the proposed project the Existing General Plan Land Use Alternative would not reduce emissions to a level that is 15% below the business as usual (BAU) condition. Although this alternative may reduce the impacts of greenhouse gas emissions under BAU to a greater extent than the proposed project, there is not feasible mitigation available to reduce emissions by 15% because the greatest contribution to GHG emissions is vehicular traffic. Therefore, this alternative will still result in a significant and unavoidable impact related to cumulative greenhouse gas emissions, though the impact is slightly reduced in comparison to the proposed project.

Traffic: As indicated in Table 6.E, the Existing General Plan Land Use Alternative would generate approximately 11,443 Net daily Weekend vehicle trips, compared to the 27,408 trips for the proposed project. Therefore, this alternative would result in a 58% percent decrease in daily traffic. The project traffic study indicated study area intersections would operate at unacceptable LOS even with proposed improvements (Mitigation Measures 4.7.6.1A to 4.7.6.1C, and 4.7.6.2A to 4.7.6.2B). Although this alternative decreases local traffic by 58 percent, it would also result in LOS values that do not meet City standards even with similar mitigation, including payment of development impact fees and fair-share contributions to certain intersections. As with the proposed project, project direct and cumulative traffic impacts under this alternative would remain significant and unavoidable, although the impact would be slightly reduced.

Table 6.E: Comparison of Average Daily Trips

Type of Development	Net Daily Trips Weekday	Change	Net Daily Trips Weekend	Change
Proposed Project[1]	17,788	–	27,408	—
No Project/No Build	4,811	-73%	11,443	-58.2%

[1] Based on project Traffic Study (Table E, LSA 2014).
[2] Based on CalEEMod data Land Use: 480 Amusement Park
Source: CalEEMod data based on LSA 2014 (Traffic Study) (Appendix F).

Water Supply: Water demand factors are not readily available for uses such as batting cages, miniature golf courses, carnival rides, and arcades. “Amusement Parks” typically include some amount of retail commercial and restaurant uses. While this alternative assumes development of the entire site with commercial recreation/amusement uses, the size, number, and intensity of individual amusement/recreation uses is uncertain. The historic water demand for amusement parks uses has ranged from 0.189 to 17.50 AFY, which is generally exclusive of landscaping, potable use, and facility usage. Utilizing a mid-range factor of 8.84 AFY, the proposed development of the 63.5-acre site with amusement park uses would require approximately 561.3 AFY of water. The estimated water demand for the retail uses and proposed on-site landscaping is approximately 141 and 19 AFY, respectively (160 AFY total). The water demand for this alternative would be roughly four times that of the proposed project.

The project site is served by Golden State Water Company – South Arcadia System (GSWC-SAS.) GSWC-SAS's total pumping rights within the Main San Gabriel Basin (MSGB) have ranged from 4,089 to 7,011 AFY. Water demand over the same time period ranged from 3,382 to 4,321 AFY, with an average of 3,924 AFY. Water producers in the MSGB obtain water supplies from groundwater extraction, surface water diversions, and direct delivery of treated imported water. Access to supplemental imported water has enabled water producers in the MSGB to meet water demands, including during single and multiple dry years. MWD's Integrated Resources Plan (IRP) and 2010 Regional UWMP conclude that with the storage and transfer programs developed by MWD, there will be a reliable source of water to serve its member agencies needs through 2035 in average, single-dry, and multiple-dry years. Therefore, while the demand for water under this alternative is greater than that for the proposed development, the impacts related to the availability and reliability of water would be similar.

Cumulative Impacts: Similar to the proposed project, this alternative would contribute to the following cumulative impacts: (1) cumulative air quality impacts from NOx emissions and (2) project contributions of greenhouse gases. These impacts remain significant, even after implementation of project-specific mitigation in approximately the same manner as the proposed project.

Impact Conclusions. Under the Existing General Plan Land Use Alternative, all impacts would be equivalent to those of the proposed project during both construction and operation, although traffic trip generation, air quality emissions, and GHG emission would be reduced. However, even with these reductions NOx and GHG emissions are still significant and unavoidable. The two significant impacts identified for the project that cannot be fully reduced to less than significant even with implementation of mitigation (i.e., project daily NOx emissions, cumulative air quality from NOx emissions, and cumulative greenhouse gas emissions) would also still be significant under this alternative.

Although this alternative decreases local traffic by 58 percent, it would also result in LOS values that do not meet City standards even with similar mitigation, including payment of development impact fees and fair-share contributions to certain intersections. As with the proposed project, project direct and cumulative traffic impacts under this alternative would remain significant and unavoidable, although the impact would be slightly reduced.

Meets Project Objectives. Under this alternative, the objectives regarding expansion of the City's economic and employment base would still be met. However, this alternative would not provide as many new employment opportunities as the proposed project; and therefore it is rejected by the City. See Table 6.F.

Table 6.F: Comparison of Existing General Plan Land Use Alternative to the Project Objectives

Project Objectives	Does the Alternative Meet the Project Objectives?
To provide employment opportunities for various segments of the region and local community.	Yes
To provide a pleasant and unique shopping experience for outlet-focused customers looking for bargains within and outside the region.	No
To increase tourism and bolster the image of Irwindale as a regional hub.	Yes
To encourage complementary uses around the shopping center in an effort to further boost economic development in the City and region.	No
To meet the goals and objectives of the City's General Plan by implementing uses consistent with the "Commercial/Recreation" land use designation.	Yes

6.4.5 Alternative 3: Reduced Intensity

Impact Analysis. The intent of the Reduced Intensity Alternative is avoiding or substantially reducing significant air quality, GHG, and traffic impacts. Four environmental issues would have impacts similar to those identified for the proposed project. These include the following:

- Geology and Soils
- Hydrology and Water Quality
- Hazards and Hazardous Materials
- Noise

Impacts associated with these topics would be similar to the proposed project because development of the site under the Reduced Intensity Alternative would result in a similar footprint of development. For this reason, impacts to these land-oriented impact topics would be similar resulting in the same level of impact.

The remaining environmental issues would, in some cases, result in similar impacts, but would be different enough to be discussed separately.

Air Quality: Because the amount of land to be graded with Alternative 3 would be equal to that of the proposed project, a similar mix of equipment as the proposed project would operate during earthmoving activities. The entire site will be graded and may require import of soil to raise the buildings for drainage purposes. Therefore, construction emissions from the development of Alternative 3 would be the same as that proposed project. Under this alternative, average daily traffic volumes would be reduced by 72 percent in comparison with the proposed project. As indicated in Table 6.G, the volume of each operational pollutant emitted during operation of this alternative could theoretically be correspondingly reduced by 72 percent. However, unlike the proposed project which exceeds daily SCAQMD operational emissions for NO_x, VOC and CO this alternative would not exceed SCAQMD operational emissions thereby resulting in a substantial reduction of a significant project impact.

Table 6.G: No Project/Existing Specific Plan Alternative Operational Emissions

Source	Pollutant Emissions, lbs/day					
	VOC	NOx	CO	SO_X	PM_{10}	$PM_{2.5}$
Proposed Project	100	190	770	1.9	130	36
Reduced Intensity Alternative	28	53.2	215.6	0.5	36.4	10.8
Net Change	-72	-136.8	-554.4	-1.4	-93.6	25.2
SCAQMD thresholds	**55**	**55**	**550**	**150**	**150**	**55**
Alternative exceeds thresholds?	**No**	**No**	**No**	**No**	**No**	**No**

Source: LSA Associates, Inc August 2014.
CO = carbon monoxide
lbs/day = pounds per day
NOx = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
ROG = reactive organic compounds
SCAQMD = South Coast Air Quality Management District
SOx = sulfur oxides

Greenhouse Gas Emissions: GHG emissions associated with the Reduced Intensity Alternative would be substantially decreased in comparison to the proposed project. The Reduced Intensity Alternative would generate 72 percent less greenhouse gas emissions than what was identified for the proposed project. Therefore, it is reasonable to assume that this alternative would be able to reduce emissions to a level that is 15 percent below BAU levels, resulting in a less than significant impact. Therefore, compared to the proposed project this alternative would not have significant impact related to cumulative global climate change.

Traffic: Based on trip generation rates published in *ITE Trip Generation Handbook, 9th Edition*, this alternative would generate approximately 4,981 net daily weekday vehicle trips and 7,674 weekend

trips, which is approximately 72 percent less than what was identified for the proposed project (see Table 6.H). With a 72 percent reduction in daily trips, it is reasonable to conclude that traffic volumes on local roadways and intersections would be reduced under this alternative. As the proposed project traffic impacts were determined to be significant and unavoidable even with mitigation, even with a 72 percent reduction in trips this alternative would also result in a significant and unavoidable traffic impact.

Table 6.H: Comparison of Average Daily Trips

Type of Development	Net Daily Trips Weekday	Change	Net Daily Trips Weekend	Change
Proposed Project[1]	17,788	—	27,408	—
No Project/No Build	4,981	-72%	7,674	-72%

[1] Based on project Traffic Study (Table E, LSA 2014).
[2] Based on CalEEMod data Land Use: 480 Amusement Park
Source: CalEEMod data based on LSA 2014 (Traffic Study) (Appendix F).

Water Supply: Based on a water use rate of 175 gallons per day (gpd) per 1,000 square feet (sf) of retail building space, the estimated water demand for the retail building space is approximately 38.4 AFY (or 196,000 square feet × 175 gpd per 1,000 square feet × (0.00112 AFY/gpd.)

The reduction in retail uses will allow approximately 12.06 additional acres of landscaping within the project limits. Using the same landscape design assumptions as the proposed project, approximately 95 percent of the landscaped areas will consist of drought-tolerant plants (very low to low water demand requirements). The remaining five (5) percent of landscaped areas will consist of plants with low to moderate water demand requirements limited to key focal concentrated areas and potted plants. On-site landscaping under this alternative would total approximately 850,467 square feet (19.52 acres). Using a factor of 2.5 AFY of water per landscaped acre would result in a landscape water demand of 48.8 AFY. Combined with retails uses, water demand under this alternative would total approximately 87.2 AFY.

The proposed project will require approximately 140 AFY of water. The water demand associated with this alternative is reduced by approximately 38 percent over that required for the proposed project. Due to the reduced water demand associated with this alternative, no greater impact on water supplies would occur. Like the proposed project, water demand impacts would be less than significant.

Cumulative Impacts: The Reduced Intensity Alternative would eliminate all cumulative significant and unavoidable impacts associated with project due to the reduction in project size by 72 percent, which in turn would substantially reduce the direct traffic impacts, air quality emissions, and greenhouse gas emissions.

Impact Conclusions. Under the Reduced Intensity Alternative, impacts related to short-term construction-related air quality would be similar to the proposed project as the same amount of land would be disturbed and the same mix of equipment would be utilized. Long-term operational-related air quality impacts and cumulative GHG emissions would be reduced in magnitude when compared to the project and would be reduced to a less than significant level. The decrease in commercial uses would result in a reduction of permanent jobs that would be created. However, similar to the proposed project, the alternative is still located on a landfill and will be subject to hazardous materials impacts.

As the proposed project traffic impacts were determined to be significant and unavoidable even with mitigation, even with a 72 percent reduction in trips this alternative would also result in a significant and unavoidable traffic impact.

Water use for this alternative would be less than the proposed project and would generate less wastewater and solid waste.

Meets Project Objectives. Under this alternative, the majority of project objectives would be met to some extent. However, an alternative that reduces that size of the proposed project by 72 percent would not be large enough to effectively meet the unmet demand for goods and services in the City of Irwindale and the region. Although development of this alternative would provide additional new employment opportunities for residents of Irwindale, and would provide substantially less revenues to the City than the proposed project the reduced alternative will not provide to the same degree the quantity of employment or retail choice as the proposed project. Although the alternative meets project objectives, this alternative does not meet the objectives to the same degree as the proposed project and is rejected by the City. See Table 6.I.

Table 6.I: Comparison of Reduced Intensity Alternative to the Project Objectives

Project Objectives	Does the Alternative Meet the Project Objectives?
To provide employment opportunities for various segments of the region and local community.	Yes
To provide a pleasant and unique shopping experience for outlet-focused customers looking for bargains within and outside the region.	Yes
To increase tourism and bolster the image of Irwindale as a regional hub.	Yes
To encourage complementary uses around the shopping center in an effort to further booster economic development in the City and region.	Yes
To meet the goals and objectives of the City's General Plan by implementing uses consistent with the "Commercial/Recreation" land use designation.	Yes

6.5 COMPARISON OF PROJECT ALTERNATIVES

The following discussion compares the impacts of each alternative with the impacts of the proposed project, as detailed in Section 4.0 of this EIR. Table 6.J compares the impacts of the alternatives with those of the proposed project. This table identifies whether the alternative results in (1) a reduction of the impact; (2) a greater impact than the project; or (3) the same impact as the project.

Table 6.J: Impact Comparison of Project Alternatives

Environmental Issue	Proposed Project	No Project/Existing Speedway	Existing General Plan Land Use	Reduced Intensity
Aesthetics	LTS	NI	=	=
Agricultural and Forest Resources	NI	NI	=	=
Air Quality	SIG NOx, VOC & CO	NI	=	LTS
Biological Resources	LTS/mit	NI	=	=
Cultural Resources	NI	NI	=	=
Geology and Soils	LTS/mit	NI	=	=
Greenhouse Gases and Global Climate Change	SIG (c)	NI	=	LTS
Hazards and Hazardous Materials	LTS/mit	NI	=	=
Hydrology and Water Quality	LTS/mit	NI	=	=

Table 6.J: Impact Comparison of Project Alternatives

Environmental Issue	Proposed Project	No Project/Existing Speedway	Existing General Plan Land Use	Reduced Intensity
Land Use and Planning	LTS	NI	=	=
Mineral Resources	NI	NI	=	=
Noise	NI	NI	=	=
Population, Housing, and Employment	NI	NI	=	=
Public Services (police, fire, schools, parks)	LTS	NI	=	=
Recreation	NI	NI	=	=
Transportation and Traffic	SIG SIG (c)	NI	=	=
Water Supply	LTS	NI	=	=

Proposed Project
NI: No Impact
LTS: Less than Significant Impact
LTS/mit: Less than Significant Impact with Mitigation
SIG: Significant Impact with or without Mitigation (c) cumulative impact

Project Alternatives
= Compared with the proposed project, no change in the significance of impact will occur.
➔ Compared with the proposed project, the significance of the impact is increased.
🡐 Compared with the proposed project, the significance of the impact is reduced.
+ Compared with the proposed project, a new impact has been identified.
🡐SIG Compared with the proposed project, the volume or extent of the impact is reduced, yet still significant.

6.6 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

As detailed above in Table 6.J, the Existing General Plan Land Use Alternative does not reduce any of the significant impacts associated with the proposed project to less than significant levels. The Reduced Intensity Alternative is the only alternative that reduces two of the project's significant impacts to less than significant levels (i.e., NO_x, VOC and CO project emissions and cumulative contributions to air quality emissions in the Los Angeles Air Basin and cumulative GHG emissions).

The CEQA Guidelines (Section 15126.6 (e[2]) requires that an environmentally superior alternative be identified in the EIR. Based on the analysis in this section and the summary contained in Table 6.M, the Reduced Intensity Alternative- is the only alternative that would reduce one or more significant impacts of the proposed project to less than significant levels (i.e., project NO_x, VOC and CO emissions and cumulative air quality emissions basin-wide and cumulative GHG emissions). Even though this alternative would have a reduction in vehicle trips by 72 percent over the proposed project, it would also result in a significant and unavoidable traffic impact.

Therefore, the Reduced Intensity Alternative has been deemed to be environmentally superior to the proposed project. However, none of the alternatives meet the major project objectives to nearly the same degree as the proposed project. Therefore, all of the alternatives are rejected in favor of the proposed project.

THIS PAGE INTENTIONALLY LEFT BLANK

7.0 REFERENCES

7.1 PERSONAL COMMUNICATION

Black, Cynthia, Customer Service Representation. Los Angeles Sanitation District. July 1, 2014.

Gonzales, Amy, Customer Service. Athens Services. July 9, 2014.

Molner, Fire Captain David. Irwindale Fire Station 48. June 30, 2014.

7.2 REFERENCES CITED

California Air Resources Board. "ARB approves tripling of early action measures required under AB 32." News Release 07-46. http://www.arb.ca.gov/newsrel/nr102507.htm. October 25, 2007.

California Air Resources Board. California's Greenhouse Gas Inventory – Current Data. http://www.arb.ca.gov/cc/inventory/data/data.htm. October 2013.

California Air Resources Board. *Climate Change Proposed Scoping Plan: a Framework for Change*. October 2008.

California Air Resources Board. *Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California Recommended for Board Consideration*. October 2007.

California Air Resources Board. Greenhouse Gas Inventory – 2020 Emissions Forecast. http://www.arb.ca.gov/cc/inventory/data/forecast.htm. Accessed January 2013.

California Air Resources Board. Greenhouse Gas Inventory Data – 1990 to 2004. http://www.arb.ca.gov/cc/inventory/data/data.htm. Accessed September 2010.

California Air Resources Board. Greenhouse Gas Inventory Data – 2000 to 2008. http://www.arb.ca.gov/cc/inventory/data/data.htm. Accessed July 2011.

California Department of Conservation, The Resources Agency. Regionally Significant Construction Aggregate Resources Areas of the San Gabriel Alluvial Fan, SP 143, Plate 43, 1983.

California Department of Water Resources. "San Gabriel Valley Water Basin." www.water.ca.gov/pubs/groundwater/bulletin_118/basindescriptions/4-13.pdf. Site accessed August 21, 2014.

California Energy Commission. *Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004 – Final Staff Report*, publication # CEC-600-2006-013-sf, Sacramento, CA, December 22, 2006; and January 23, 2007, update to that report.

California Energy Commission. *Nonresidential Compliance Manual for California's 2008 Energy Efficiency Standards*, effective January 1, 2010, www.energy.ca.gov/title24/2008standards/index.html. Accessed on March 4, 2010.

California Environmental Protection Agency, State Water Resources Control Board. *Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, June 1994* (as amended), www.waterboards.ca.gov/rwqcb4/water_issues/programs/basin_plan/basin_plan_documentation.shtml. Site accessed August 20, 2014.

California Environmental Protection Agency. *Climate Action Team Report to Governor Schwarzenegger and the Legislature.* March 2006.

California Health and Safety Code. Division 7, *Dead Bodies*; Chapter 2, *General Provisions*, § 7050.5.

California, State of, Governor's Office of Planning and Research. *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act Review.* June 19, 2008.

CalRecycle. Facility/Site Summary Details: Mid-Valley Sanitary Landfill, www.calrecycle.ca.gov/SWFacilities/Directory/36-AA-0055/Detail. Date accessed July 9, 2014.

Enviropedia, www.enviropedia.org.uk/Global_Warming/Emissions.php.

Federal Emergency Management Agency. Flood Insurance Rate Map, Panel 06037C1700F, effective September 26, 2008.

Federal Transit Authority. "Transit Noise and Vibration Impact Assessment." May 2006.

Golden State Water Company. *Final Report, 2010 Urban Water Management Plan – South Arcadia.* www.gswater.com/san-gabriel/files/2012/12/SoArcadia_2010_UWMP.pdf. August 2011. Site accessed August 21, 2014.

Huffington Post, The. "California's Cap-And-Trade System Goes Into Effect Amidst Lawsuit." www.huffingtonpost.com/2012/11/14/californias-cap-and-trade_n_2131251.html. November 14, 2012.

Intergovernmental Panel on Climate Change. *Climate Change 2007: The Physical Science Basis*, www.ipcc.ch.

Irwindale, City of. "Commercial and Industrial Design Guidelines." January 14, 2009.

Irwindale, City of. *2020 General Plan Update*, June 2008.

Irwindale, City of. *2020 General Plan,* Section 4, Infrastructure Element. June 2008.

Irwindale, City of. *Irwindale Materials Recovery Facility and Transfer Station Recirculated Draft EIR.* July 2014.

JR Millar & Associates, Inc. Preliminary Standard Urban Stormwater Mitigation Plan, Irwindale International Retail Outlet. June 2014.

Los Angeles County Local Enforcement Agency. *Closed Disposal Site Inspection Report (188)*. March 1, 2013.

Los Angeles Regional Water Quality Control Board. *Water Quality Control Plan Los Angeles Region Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties* (as amended). 1994.

LSA Associates, Inc. *Air Quality and Greenhouse Gas Assessment for the Irwindale Regional Shopping Center,* December 2014.

LSA Associates, Inc. *Noise Impact Study.* August 2014.

LSA Associates, Inc. *Traffic Impact Assessment for the Irwindale Regional Shopping Center.* December 2014.

Main San Gabriel Basin Watermaster. "About Us." watermaster.org/geninfo.html. Site accessed August 21, 2014.

Main San Gabriel Basin Watermaster. *Annual Report 2012–2013.* watermaster.org/web%20WM%20B&W%20annual%2010_28_13.+Appendices.FINAL_LR.pdf. Site accessed August 22, 2014.

S & S Commercial Environmental Services. *Phase I Environmental Site Assessment, 500 Speedway Drive, Irwindale, CA*. August 28, 2013.

San Gabriel Basin Water Quality Authority. *2014 San Gabriel Basin Groundwater Quality Management and Remediation Plan "§406 Plan."* www.wqa.com/wp-content/uploads/2011/07/2014-406-Plan-Final-Approved-by-Board-on-012414.pdf. January 21, 2014. Site accessed August 25, 2014.

Shannon & Wilson, Inc. *Preliminary Geotechnical Engineering Report, Subsurface Characterization and Preliminary Settlement, Proposed Irwindale Outlet Center.* May 20, 2014. South Coast Air Quality Management District. "Localized Significance Thresholds." www.aqmd.gov/ceqa/handbook/LST/LST.html.

South Coast Air Quality Management District. *Draft Guidance Document – Interim CEQA Greenhouse Gas Significance Threshold.* October 2008.

South Coast Air Quality Management District. *Final 2007 Air Quality Management Plan*. June 1, 2007.

U.S. Department of Energy. "Greenhouse Gases, Climate Change, and Energy." www.eia.gov/oiaf/1605/ggccebro/chapter1.html.

U.S. Department of Transportation, Federal Transit Administration. "Transit Noise and Vibration Impact Assessment." May 2006.

U.S. Department of Transportation. Code of Federal Regulations, Title 49—Transportation, Pipeline and Hazardous Materials Safety Administration. www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title49/49tab_02.tpl. Site accessed July 16, 2014.

U.S. Environmental Protection Agency. "Construction Site Stormwater Runoff Control." water.epa.gov/polwaste/npdes/swbmp/Construction-Site-Stormwater-Run-Off-Control.cfm. Site accessed August 22, 2014.

U.S. Environmental Protection Agency. "Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2009." www.epa.gov/climatechange/emissions/usinventoryreport.html. July 2011.

U.S. Environmental Protection Agency. "Inventory of US Greenhouse Gas Emissions and Sinks 1990–2006." www.epa.gov/climatechange/emissions/usinventoryreport.html. 2008.

U.S. Environmental Protection Agency. *The 2010 U.S. Greenhouse Gas Inventory Report.* www.epa.gov/climatechange/emissions/usinventoryreport.html. 2010. Accessed September 2010.

UNFCCC, Greenhouse Gas Inventory Data. unfccc.int/ghg_data/ghg_data_unfccc/time_series_annex_i/items/3814.php and maindb.unfccc.int/library/view_pdf.pl?url=http://unfccc.int/resource/docs/2005/sbi/eng/18a02.pdf. 2007.

United Nations. *The Millennium Development Goals Report 2011*. unstats.un.org/unsd/default.htm. Accessed July 26, 2011.

8.0 LIST OF PREPARERS

8.1 CITY OF IRWINDALE

Gus Romo, Community Development Director
Paula Kelly, Senior Planner and Project Manager
William K. Tam, PE, TE, City Engineer

8.2 LSA ASSOCIATES, INC.

8.2.1 Environmental Impact Report

Lynn Calvert-Hayes, AICP, Principal in Charge
Ray Hussey, AICP, Associate/Senior Project Manager
Kent Norton, AICP, REA, Associate/Senior Environmental Planner
Carl Winter, Associate/Senior Environmental Planner
Christine Huard-Spencer, Senior Environmental Planner
Jayna Harris, Senior Environmental Planner
Kelly Czechowski, Senior Environmental Planner
David Atwater, Environmental Planner
Katheryn Best, Environmental Planner
Cassi La Morte, Intern
Steven Dong, Senior Editor/Word Processor
Margaret Gooding, Senior GIS/Graphics Specialist
David Cisneros, GIS/Graphics Specialist

8.2.2 Air Quality and Greenhouse Gas Analyses

Tony Chung, PhD, Principal
Ron Brugger, Senior Air Quality Specialist

8.2.3 Noise Impact Analysis

Tony Chung, PhD, Principal

8.2.4 Traffic Impact Analysis

Ambarish Mukherjee, AICP, EIT, Associate/Senior Transportation Planner
Robert Aguirre, AICP, Senior Transportation Planner
Nancy Velgara, Transportation Planner

THIS PAGE INTENTIONALLY LEFT BLANK

9.0 ACRONYMS, ABBREVIATIONS, AND GLOSSARY OF TERMS

9.1 ACRONYMS AND ABBREVIATIONS

Acronyms and Abbreviations	
§	Section
§§	Subsection
°C	degrees Celsius
°F	degrees Fahrenheit
$\mu g/m^3$	Micrograms per cubic meter
A-P Act	Alquist-Priolo Earthquake Fault Zoning Act
AAQS	Ambient Air Quality Standards
AB	Assembly Bill
ADA	Americans with Disabilities Act
ADT	Average Daily Traffic
AER	Annual Emission Reporting
AF	acre-feet
AFY	acre feet per year
amsl	above mean sea level
ANSI	American National Standards Institute
APN	Assessor's Parcel Number
AQMP	Air Quality Management Plan
AR4	Fourth Assessment Report
AVR	Average Vehicle Ridership
Basin	South Coast Air Basin
BAU	Business As Usual
BMP	Best Management Practice
BTEX	Benzene, Toluene, Ethyl Benzene, and Xylene
CAA	Federal Clean Air Act
CAAQS	California Ambient Air Quality Standards

Acronyms and Abbreviations	
CAFE	Corporate Average Fuel Economy
Cal Green Code	California Green Buildings Standards Code
CalEPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CASQA	California Stormwater Quality Association
CAT	California Climate Action Team
CBC	California Building Code
CBSC	California Building Standards Commission
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDMG	California Department of Mines and Geology
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response Compensation Liability Act
CFR	Code of Federal Regulations
CH_4	Methane
CHMIRS	California Hazardous Material Incident Reporting Sites
CHRIS	California Historical Resources Information System
CIP	Capital Improvements Program
CIWMB	California Integrated Waste Management Board
CMP	Congestion Management Program
CNEL	Community Noise Equivalent Level
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
CPUC	California Public Utilities Commission
CTR	California Toxics Rule
CUWCC	California Urban Water Conservation Council

Acronyms and Abbreviations	
CVC	California Vehicle Code
CWA	(Federal) Clean Water Act
CWC	California Water Code
CWMB	California Waste Management Board
dB	decibel
dBA	decibel on the A-weighted scale
DEH	Department of Environmental Health
DHS	(California) Department of Health Services
DIF	Development Impact Fees
DMM	Demand Management Measure
DOC	(California) Department of Conservation
DOF	(California) Department of Finance
DOT	(U.S.) Department of Transportation
DTSC	(California) Department of Toxic Substance Control
DWR	(California) Department of Water Resources
EIR	Environmental Impact Report
EO	Executive Order
EOP	Emergency Operations Plan
EPA	U.S. Environmental Protection Agency
ESA	Environmental Site Assessment
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
ft	foot/feet
FTA	Federal Transit Administration
F-WQMP	Final Water Quality Management Plan
GCC	Global Climate Change
GHG	Greenhouse gas
GIS	Geographic Information Systems
GPA	General Plan Amendment

Acronyms and Abbreviations	
gpd	gallons per day
GSP	Groundwater Sustainability Plan
GSWC	Golden State Water Company
GSWC-SAS	Golden State Water Company-South Arcadia System
GWP	Global Warming Potential
HCM	*Highway Capacity Manual*
HFC	Hydrofluorocarbon
HHWE	Household Hazardous Waste Element
HI	Hazard Indices
HMB	Hazardous Materials Branch
HPLV	High Pressure Low Volume
HRA	Health Risk Assessment
HVAC	Heating, Ventilating, and Air Conditioning
Hz	Hertz
ICU	Intersection Capacity Utilization
IEA	International Energy Agency
IPCC	United Nations Intergovernmental Panel on Climate Change
IRP	Integrated Resources Plan
IS	Initial Study
ISCST	Industrial Source Complex Short Term
ITE	Institute of Transportation Engineers
I-605	Interstate 605
kWh	kilowatt hour
lbs	Pounds
LACDPW	Los Angeles County Department of Public Works
LACSD	Los Angeles County Sanitation District
LAeq	Equivalent continuous sound level (L_{eq}) adjusted for the A-weighted scale
LARWQCB	Los Angeles Regional Water Quality Control Board
LCFS	Low Carbon Fuel Standard
L_{dn}	day-night average noise

Acronyms and Abbreviations	
LED	light-emitting diode
LEED	Leadership in Energy and Environmental Design
L_{eq}	Equivalent continuous sound level (L_{eq})
LESA	(California) Land Evaluation and Site Assessments
LID	Low Impact Development
L_{max}	maximum noise level
LOS	Level of Service
LSA	LSA Associates, Inc.
LST	Local Significance Threshold
m	meter(s)
MBTA	Migratory Bird Treaty Act
MC	Municipal Code
MEI	maximum exposed individual
MERV	Minimum Efficiency Reporting Value
MWD	Metropolitan Water District of Southern California
mg/Kg	milligrams per kilogram
mgd	million gallons per day
MMRP	Mitigation Monitoring and Reporting Program
MMT	million metric tons
mph	miles per hour
MPO	Metropolitan Planning Organization
MS4	Municipal Separate Storm Sewer Systems
MSGB	Main San Gabriel Basin
MSW	Municipal Solid Waste
mt	metric tons
mty	metric tons per year
MWD	Metropolitan Water District
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission

Acronyms and Abbreviations	
NDS	National Data and Surveying Services, Inc.
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHTSA	National Highway Traffic Safety Administration
NIA	Noise Impact Assessment
NMOC	non-methane organic compounds
NO_2	Nitrogen Dioxide
NOI	Notice of Intent
NOP	Notice of Preparation
NO_X	Oxides of Nitrogen
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRCS	Natural Resource Conservation Service
O_3	Ozone
OEHHA	Office of Environmental Health Hazard Assessment
OHWM	Ordinary High Water Mark
OMB	(White House) Office of Management and Budget
OPR	Office of Planning and Research
OSY	Operating Safe Yield
PDF	Project Design Feature
PFC	Perfluorocarbon
PGA	Peak ground acceleration
PM_{10}	Particulate Matter with a Diameter of 10 Microns or Less
$PM_{2.5}$	Particulate Matter with a Diameter of 2.5 Microns or Less
POTW	Publicly Owned Treatment Works
ppm	parts per million
RCP	Regional Comprehensive Plan
RCNM	Roadway Construction Noise Model

Acronyms and Abbreviations	
RCRA	Resource Conservation and Recovery Act
RES	Renewable Electricity Standard
RHNA	Regional Housing Needs Assessment
ROC	Reactive Organic Compounds
ROG	Reactive Organic Gas
ROW	Right-of-Way
RTIP	Regional Transportation Improvement Plan
RTP	Regional Transportation Plan
RUWMP	Regional Urban Water Management Plan
RWQCB	Regional Water Quality Control Board
SAR	Second Assessment Report
SARA	Superfund Amendments and Reauthorization Act
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCS	Sustainable Communities Strategy
sf	square feet
SF_6	Sulfur Hexafluoride
SGVMWD	San Gabriel Valley Municipal Water District
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SO_X	Sulfur Oxides
SPL	Sound Pressure Level
SRA	Source Receptor Area
SRRE	Source Reduction and Recycling Element
SUSMP	Standard Urban Stormwater Mitigation Plan
SWIS	Solid Waste Information System
SWP	State Water Project

Acronyms and Abbreviations	
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic Air Contaminants
TDS	Total Dissolved Solids
Tg CO_2 Eq.	teragrams of carbon dioxide equivalent
TIA	Traffic Impact Analysis
TMA	Transportation Management Association
tpy	tons per year
TRI	Toxics Release Inventory
TRIS	Toxics Release Inventory System
UBC	Uniform Building Code
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USDOT	United States Department of Transportation
USGS	United States Geological Survey
UST	Underground Storage Tank
UWMP	Urban Water Management Plan
VMT	Vehicle Miles Traveled
v/c	Volume-to-capacity
VOC	Volatile Organic Compounds
WDID	Water Discharge Identification
WDR	Wastewater Discharge Requirement
WMUDS	Waste Management Units Database System
WQMP	Water Quality Management Plan
WSA	Water Supply Assessment
ZC	Zone Change

9.2 GLOSSARY OF TERMS

Acre-Foot. An acre-foot is the quantity of volume of water that covers one acre to a depth of one foot; equal to 43,560 cubic feet or approximately 326,000 gallons.

Aesthetics. The perception of artistic elements, or elements in the natural or human-made environment that are pleasing to the eye.

Air Quality Criteria. Air quality criteria are the levels of pollution and length of exposure at which adverse effects on health and welfare occur.

Air Quality Standards. Air quality standards are the prescribed level of pollutants in the outside air that cannot be exceeded legally during a specified time in a specified geographical area.

Ambient Noise. Ambient noise is the composite of noise from all sources near and far. The ambient noise level constitutes the normal or existing level of environmental noise at a given location.

Applicant. An applicant is a person who proposes to carry out a project which needs a lease, permit, license, certificate, or other entitlement, for use or financial assistance from one or more public agencies.

Arterial. An arterial is a major street carrying the traffic of local and collector streets to and from freeways and other major streets, with controlled intersections and generally providing direct access to non-residential properties.

Attainment. Attainment means that there is compliance with State and Federal ambient air quality standards within an air basin.

A-Weighted Decibel (dBA). The dB on the A-weighted scale is the sound level obtained by use of A-weighting. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.

California Environmental Quality Act (CEQA). Enacted in 1970, CEQA requires State and local agencies to estimate and evaluate the environmental implications of their actions. It aims to prevent environmental effects of the agency actions by requiring agencies, when feasible, to avoid or reduce the significant environmental impacts of their decisions. If a proposed activity has the potential for a significant adverse environmental impact, an environmental impact report (EIR) must be prepared and certified as to its adequacy before taking action on the proposed project (California Public Resources Code §§21000 et seq.)

Capacity. The maximum rate of flow at which vehicles can be reasonably expected to traverse a point or uniform segment of a lane or roadway during a specified time period under prevailing roadway, traffic, and control conditions.

Collector. Relatively low-speed, low-volume street that provides circulation within and between neighborhoods. Collectors usually serve short trips and are intended for collecting trips from local streets and distributing them to the arterial network.

Community Noise Equivalent Level (CNEL). A 24- hour energy equivalent level derived from a variety of single-noise events, with weighting factors of 5 and 10 dBA applied to the evening (7 p.m. to 10 p.m.) and nighttime (10 p.m. to 7 a.m.) periods, respectively, to allow for greater sensitivity to noise during these hours.

Congestion Management Plan (CMP). A mechanism employing growth management techniques, including traffic level of service requirements, standards for public transit, trip reduction programs involving transportation systems management and jobs/housing balance strategies, and capital improvement programming, for the purpose of controlling and/or reducing the cumulative regional traffic impacts of development.

Cumulative Impact. As used in CEQA, the total impact resulting from the accumulated impacts of individual projects or programs over time.

Day-Night Average Level (L_{dn}). The average equivalent A-weighted sound level during a 24-hour day, obtained after the addition of 10 decibels to sound levels in the night after 10 p.m. and before 7 a.m. (Note: CNEL and L_{dn} represent daily levels of noise exposure averaged on an annual or daily basis, while L_{eq} represents the equivalent energy noise exposure for a shorter time period, typically one hour.)

Decibel (dB). The decibel (dB) is the unit of level that denotes the ratio between two quantities that are proportional to power; the number of decibels is 10 times the logarithm (to the base 10) of this ratio.

Emission Standard. The maximum amount of pollutant legally permitted to be discharged from a single source, either mobile or stationary.

Environment. In CEQA, the environment are "the physical conditions which exist within the area which will be affected by a proposed project, including land, air, water, mineral, flora, fauna, noise, and objects of historic or aesthetic significance."

Environmental Impact Report (EIR). A report required pursuant to the California Environmental Quality Act that assesses all the environmental characteristics of an area, determines what effects or impacts will result if the area is altered or disturbed by a proposed action, and identifies alternatives or other measures to avoid or reduce those impacts.

Equivalent Energy Level (L_{eq}). L_{eq} is the sound level corresponding to a steady-state sound level containing the same total energy as a time-varying signal over a given sample period. L_{eq} is typically computed over 1-hour, 8-hour, and 24-hour sample periods.

Feasible. To be feasible, according to CEQA, means to be capable of being accomplished in a successful manner within a reasonable time taking into account economic, environmental, social, and technological factors.

Findings. Findings required by CEQA are the conclusions made regarding the significance of a project in light of its environmental impacts. A Statement of Overriding Considerations does not obviate the need to make other required CEQA findings.

Floor Area Ratio (FAR). The FAR is the gross floor area permitted on a site divided by the total net lot area.

Freeway. A freeway is a high-speed, high-capacity, limited-access road serving regional and countywide travel. Such roads are free of tolls, as contrasted with turnpikes or other toll roads. Freeways generally are used for long trips between major land use generators. Major streets cross at a different grade level.

Incorporation by Reference. "Incorporation by reference" is a CEQA term meaning reliance on a previous environmental document for some portion of the environmental analysis of a project. See *CEQA Guidelines* §15150.

Initial Study. An Initial Study is a preliminary CEQA analysis prepared by a Lead Agency determining whether an EIR or Negative Declaration must be prepared, and identifying the significant environmental effects to be analyzed in an EIR.

Land Use. Any land use is the determination by a governing authority of the use to which land within its jurisdiction may be put so as to promote the most advantageous development of the community.

Lead Agency. The lead agency is the public agency that has the principal responsibility for carrying out or approving a project. The Lead Agency decides whether an EIR or Negative Declaration is required for a project, and causes the appropriate document to be prepared.

Level of Service (LOS). LOS is a qualitative measure describing operational conditions within a traffic stream and how motorists and/or passengers perceive them.

Maximum Noise Level (L_{max}). The maximum A-weighted sound levels measured on a sound level meter, during a designated time interval, using fast time averaging.

Mitigation Measure. A mitigation measure is a change in a project designed to avoid, minimize, rectify, reduce, or compensate for a significant environmental impact.

Mitigation Monitoring and Reporting Program (MMRP). When a lead agency adopts a mitigated negative declaration or an EIR, it must adopt a program of monitoring or reporting which will ensure that mitigation measures are implemented. (See CEQA Statute §21081.6(a) and *CEQA Guidelines* §§15091(d) and 15097.)

Noise. Noise is any sound that is undesirable because it interferes with speech and hearing, or is intense enough to damage hearing, or is otherwise annoying (unwanted sound).

Noise Contours. Noise contours are lines drawn about a noise source indicating equal levels of noise exposure.

Notice of Determination (NOD). An NOD is a brief notice filed with the State Clearinghouse to document project approval. The filing of the NOD starts the statute of limitations period. (See *CEQA Guidelines* §15373.)

Notice of Preparation (NOP). An NOP is a brief notice to notify the public, Responsible and Trustee Agencies that an EIR is being prepared for a project. The notice serves to solicit guidance from those agencies and the public about the scope and content of the environmental information to be included in the EIR. (See *CEQA Guidelines* §15375.)

Peak Hour. The hour of highest traffic volume on a given section of roadway between 7:00 a.m. and 9:00 a.m. or between 4:00 p.m. and 6:00 p.m.

Project Description. A project description describes the basic characteristics of the project including location, need for the project, project objectives, technical and environmental characteristics, project size and design, project phasing and required permits. The level of detail provided in the project description varies according to the type of environmental document prepared.

Project EIR. A project EIR is an EIR that examines the impacts that would result from development of a specific project. (See C*EQA Guidelines* §15161.)

Project. According to CEQA, a project is the whole of an action that has the potential to result in significant environmental change in the environment, directly or ultimately. (See *CEQA Guidelines* §15378.)

Public Hearing. A public hearing is a mechanism for providing the public an opportunity to comment on and present evidence relating to a proposed project and its Draft EIR.

Responsible Agencies. According to CEQA, responsible agencies are all public agencies other than the Lead Agency that have discretionary approval power over the project. (See *CEQA Guidelines* §15381.)

Reviewing Agencies. Reviewing agencies are local, State and Federal agencies with jurisdiction over the project area or resources potentially affected by the project. Cities and counties are also considered reviewing agencies.

Scoping Meeting. A scoping meeting is an optional meeting pursuant to CEQA in which the lead agency meets with members of the public or agency representatives after the Notice of Preparation has been issued to discuss environmental issues related to a project. Scoping sessions provide the opportunity to discuss environmental issues, project alternatives and potential mitigation measures that may warrant in-depth analysis in the environmental review process.

Sensitive Receptors. Sensitive receptors are people or institutions with people that are particularly susceptible to illness from environmental pollution, such as the elderly, very young children, people already weakened by illness (e.g., asthmatics), and persons engaged in strenuous exercise.

Significant Effect on the Environment. A significant effect on the environment means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by

the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance (*CEQA Guidelines* §15382).

Thresholds of Significance. Thresholds of significance are criteria for each environmental issue area to assist with determinations of significance of project impacts. They are based on *CEQA Guidelines* Appendix G.

Trustee Agency. According to CEQA, a Trustee agency is a State agency that has jurisdiction by law over natural resources affected by a project which are held in trust for the people of the State of California. (See *CEQA Guidelines* §15386.)

Volume (Transportation). The volume of traffic is the total number of vehicles that pass over a given point or section of a roadway during a given time interval. Volumes may be expressed in terms of annual, daily, hourly, or sub-hourly periods.

Wastewater. Wastewater is water carrying dissolved or suspended solids from homes, farms, businesses, and industries. The wastewater treatment process includes any process that modifies characteristics of the wastewater, usually for the purpose of meeting effluent standards.

Zoning. Regulation by zone districts of the height, use, and area of structures, the use of land, and the density of population and intensity of allowable uses.

APPENDIX A

NOTICE OF PREPARATION (NOP) AND INITIAL STUDY, NOP MAILING LIST, NOP RESPONSE LETTERS

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX A-1

NOTICE OF PREPARATION (NOP) AND INITIAL STUDY

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX A-2

NOP MAILING LIST

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX A-3

NOP RESPONSE LETTERS

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX B

AIR QUALITY AND GREENHOUSE GAS EMISSIONS ASSESSMENT

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX C

COMBINED GEOTECHNICAL REPORTS

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX C-1

PRELIMINARY GEOTECHNICAL ENGINEERING REPORT

SUBSURFACE CHARACTERIZATION AND PRELIMINARY SETTLEMENT

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX C-2

PRELIMINARY GEOTECHNICAL REVIEW

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX C-3

FINAL REPORT GEOTECHNICAL INSPECTION SERVICES

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX C-4

REPORT OF GEOTECHNICAL INVESTIGATION

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX C-5

PRELIMINARY GEOTECHNICAL INVESTIGATION

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX C-6

PRELIMINARY SUMMARY OF IRWINDALE SPEEDWAY REDEVELOPMENT CONSTRAINTS

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX D

PHASE I ENVIRONMENTAL SITE ASSESSMENT

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX E

HYDROLOGY AND WATER QUALITY

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX E-1

PRELIMINARY STANDARD URBAN STORMWATER MITIGATION PLAN (SUSMP)

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX E-2

STORMWATER HYDROLOGY REPORT

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX F

NOISE IMPACT ANALYSIS

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX G

TRAFFIC IMPACT ANALYSIS

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX H

WATER SUPPLY ASSESSMENT

THIS PAGE INTENTIONALLY LEFT BLANK