Revised Draft
Environmental Impact Report
(Revised Draft EIR)

[State Clearinghouse No. 2012101019]

for

Los Angeles International Airport (LAX)

Runway 7L/25R Runway Safety Area (RSA) and Associated Improvements Project

(Runway Safety Area Improvements and
Pavement Reconstruction of
Portions of Runway 7L/25R, Taxiway B, and
Apron West of Air Freight Building No. 8)

City of Los Angeles
Los Angeles World Airports

December 2013

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1.0 INTRODUCTION AND EXECUTIVE SUMMARY

Based on comments received from the South Coast Air Quality Management District (SCAQMD) on the Draft Environmental Impact Report (EIR) for the Runway 7L/25R Runway Safety Area (RSA) and Associated Improvements Project, LAWA has determined that a revised Draft EIR needed to be prepared and circulated for review prior to issuance of a Final EIR. This revised Draft EIR presents updates to the air quality (Section 4.1) and human health risk assessment (Section 4.4) analyses that were presented in the Draft EIR.

1.1 Project Background

The City of Los Angeles, through its aviation department, Los Angeles World Airports (LAWA), is proposing the Runway 7L/25R Safety Area Project and Associated Improvements at the Los Angeles International Airport (LAX or Airport). LAWA proposes to construct improvements to the Runway Safety Area (RSA) for Runway 7L/25R, and to reconstruct pavement on the eastern segments of Runway 7L/25R and Taxiway B, and the aircraft parking apron west of Air Freight Building No. 8 (collectively, the proposed Project). The RSA improvements are being undertaken by LAWA in response to the *Transportation, Treasury, Housing and Urban Development, the Judiciary, the District of Columbia, and Independent Agencies Appropriations Act, 2006* (Public Law [P.L.] 109-115), November 30, 2005. This Act requires completion of RSA improvements by airport sponsors that hold a certificate under Title 14, Code of Federal Regulations (CFR), Part 139, *Certification and Operations: Land Airports Serving Certain Air Carriers*, to meet Federal Aviation Administration (FAA) design standards by December 31, 2015.

This revised Draft Environmental Impact Report (EIR) was prepared pursuant to the requirements of the California Environmental Quality Act (CEQA). LAWA is the Lead Agency to ensure compliance with CEQA for airport development actions at LAX. The proposed Project also underwent an environmental review under the National Environmental Policy Act (NEPA) with the FAA as the federal Lead Agency. The FAA issued a Finding of No Significant Impact (FONSI) and Record of Decision (ROD) on the Environmental Assessment (EA) assessing the proposed Project on September 5, 2013.

1.1.1 Refinement of the Proposed Project

A Draft EIR assessing the potential effects of the Proposed Project was released for public and agency review on September 19, 2013. The construction sequencing analyzed in the Draft EIR assumed that the RSA improvements would be implemented concurrent with the rehabilitation of the runway pavement, with both occurring in 2014 and early 2015. Subsequent to the release of the Draft EIR, LAWA has determined that while the RSA improvements would still occur in 2014 and early 2015, they may elect to implement the pavement rehabilitation portion of the project after 2015 for operational and scheduling reasons. Because all of the significant impacts associated with the proposed Project result from the emissions of construction equipment and the rerouting of aircraft during the required runway closure, the separation of the construction of the Project elements may reduce the severity of these impacts. As the analysis conducted and reported in the Draft EIR assumes a worst-case scenario (work occurring simultaneously) and LAWA may still elect to implement the RSA improvements and pavement rehabilitation work concurrent with each other, the construction phasing assumptions were not revised.

The analysis in the Draft EIR was based on a forecasted activity level of 637,903 annual aircraft operations contained in the 2011 Terminal Area Forecast for LAX.[1] However, FAA's 2012 Terminal Area Forecast[2] for LAX does not anticipate reaching that level of operations until sometime in 2017. Thus, the analyses conducted for this Project based on aircraft operations (primarily air quality and noise), may overestimate the environmental effects of the rerouting of aircraft during the runway closure depending on when the runway closure occurs. Regardless of when the runway closure occurs, if the RSA improvements and pavement rehabilitation work do not occur simultaneously, the proposed Project may result in reduced, but similar significant and unavoidable impacts.

1.1.2 Relationship to LAX Master Plan

Several other projects besides the proposed Project are also being studied and/or implemented at LAX. Some of these projects are part of the LAX Master Plan, approved by the City of Los Angeles City Council in December 2004. This document serves as a broad policy statement regarding the conceptual strategic planning framework for future development at LAX. The LAX Master Plan also outlines how projected growth in passengers and cargo at LAX can be accommodated, in part, through the year 2015. The approved LAX Master Plan includes airfield modifications, development of new terminals, and new landside facilities to accommodate passenger and employee traffic, parking, and circulation. It also provides working guidelines to be consulted by LAWA as it formulates and processes site-specific LAX Master Plan projects. LAWA prepared a Program EIR for the LAX Master Plan, which, according to CEQA Guidelines Section 15168, is an EIR that applies to a series of actions that can be characterized as one large project.[3]

The proposed Project is not a component of the LAX Master Plan as the federal requirement for RSA compliance occurred under the *Transportation, Treasury, Housing and Urban Development, the Judiciary, the District of Columbia, and Independent Agencies Appropriations Act, 2006* (Public Law [P.L.] 109-115), which was adopted November 30, 2005. However, LAWA has incorporated many of the same commitments and mitigation measures identified in the LAX Master Plan Mitigation Monitoring and Reporting Program (MMRP) as part of the mitigation measures for the proposed Project. The commitments to be implemented as part of the proposed Project are identified in the individual sub-Chapters within Chapter 4. Relevant information from the LAX Master Plan Program EIS/EIR is incorporated in this document by reference.

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[1] Federal Aviation Administration, Office of Aviation Policy and Plans, *Fiscal Year 2011 Terminal Area Forecast,* released January 2012.

[2] Federal Aviation Administration, Office of Aviation Policy and Plans, *Fiscal Year 2012Terminal Area Forecast,* released January 2013.

[3] City of Los Angeles, Los Angeles World Airports and FAA, *Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements*, April 2004.

1.2 Environmental Review Process

1.2.1 CEQA Compliance

One of the primary objectives of CEQA is to enhance public participation in the planning process. The environmental review process provides several opportunities for the public to participate through the public noticing and public review of CEQA documents and in public hearings. Additionally, lead agencies are required to consider comments from the scoping process in the preparation of the Draft EIR and to respond to public comments on the Draft EIR in preparation of the Final EIR.

This document is a revised Draft EIR for the proposed Runway 7L/25R Runway Safety Area and Associated Improvements (proposed Project) at LAX. LAX is owned by the City of Los Angeles and operated by the LAWA, whose Board of Airport Commissioners (BOAC) oversees the policy, management, operation, and regulation of the Airport, as well as Los Angeles/Ontario International Airport, Palmdale Regional Airport, and Van Nuys Airport. This revised Draft EIR has been prepared by LAWA, as the Lead Agency, in compliance with CEQA.[4] The Project site is located entirely within the boundaries of the LAX property.

In accordance with CEQA, all discretionary projects within the State of California that could have a physical effect on the environment are required to undergo environmental review to determine their potential environmental impacts before they are implemented.[5] CEQA was enacted in 1970 by the California legislature to require lead agencies to disclose to decision-makers and the public the significant environmental effects of proposed activities and ways to avoid or reduce the environmental effects either through implementation of feasible mitigation measures or project alternatives. CEQA applies to all California government agencies at all levels, including local agencies, regional agencies, and state agencies, boards, commissions, and special districts. LAWA is the Lead Agency for the proposed Project and as such is required to conduct an environmental review to analyze the potential environmental effects associated with the proposed Project.

1.2.2 Initial Study, Notice of Preparation and Scoping

An Initial Study (IS) was prepared and made available to the public on October 5, 2012 for the proposed Project and was included as Appendix A in the Draft EIR. The IS evaluated all the environmental topics required by CEQA as outlined in Appendix G of the CEQA Guidelines. The findings of the IS determined that an EIR would be prepared, with any environmental topics that were determined in the IS to have no impacts or less than significant impacts without mitigation not being carried forward for further analysis in this Draft EIR. These topics are summarized in Chapter 5, Other CEQA Considerations.

LAWA issued a Notice of Preparation (NOP) to provide early consultation in the preparation of the Draft EIR and invited public agencies and the public to comment on the scope of analysis in the Draft EIR. The NOP was filed on October 5, 2012 with the California Office of Planning and Research (OPR) State Clearinghouse, the County of Los Angeles Clerk's Office, and the City of Los Angeles Clerk's Office. This began a 30-day scoping period that was to end on November 5, 2012. Due to public requests, LAWA extended the public review period for the NOP by 15 days, and comments on the IS/NOP were accepted through November 20, 2012. In addition,

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[4] CEQA Guidelines, Section 15050.

[5] *Ibid*.

copies of the NOP were mailed to federal, state, regional, and local agencies, airlines, other leaseholders, and interested stakeholders at LAX. The IS/NOP was also made available on the LAWA website (http://www.ourlax.org) and at the locations listed below:

Westchester-Loyola Village Branch Library
7114 W. Manchester Avenue
Los Angeles, CA 90045

El Segundo Library
111 W. Mariposa Avenue
El Segundo, CA 90245

Finally, the NOP was published in the *Los Angeles Times*, the *Argonaut*, and *Daily Breeze* on October 5, 2012.

One public scoping meeting was held on October 17, 2012 at the Proud Bird Restaurant located at 11022 Aviation Blvd, Los Angeles, CA 90045, to receive public comment regarding the scope and content of the environmental information to be included in the Draft EIR. In response to the public outreach and participation program undertaken by LAWA, three comments from the general public and four comment letters from public agencies were received, which were considered in the preparation of the Draft EIR.

1.2.3 Draft EIR

A Draft EIR was prepared and made available to the public on September 19, 2013 for the proposed Project. Based on the findings of the IS, the Draft EIR focused on evaluating the effects of the proposed Project on air quality, greenhouse gas emissions, hazardous waste, hydrology and water quality, human health risk assessment, noise, and surface transportation as required by CEQA. The environmental topics that were determined in the IS to have no impacts or less than significant impacts without mitigation were summarized in Chapter 5, Other CEQA Considerations, of the Draft EIR.

LAWA issued a Notice of Availability (NOA) for the Draft EIR and invited public agencies and the public to comment on the Draft EIR. The NOA was filed on September 19, 2013 with the California OPR State Clearinghouse, the County of Los Angeles Clerk's Office, and the City of Los Angeles Clerk's Office. This began a 45-day review period that ended on November 4, 2013. In addition, copies of the NOP were mailed to federal, state, regional, and local agencies, airlines, other leaseholders, and interested stakeholders at LAX. The Draft EIR and NOA was also made available on the LAWA website (http://www.ourlax.org) and at the locations listed below:

Westchester-Loyola Village Branch Library
7114 W. Manchester Avenue
Los Angeles, CA 90045

El Segundo Library
111 W. Mariposa Avenue
El Segundo, CA 90245

Finally, the NOA was published in the *Los Angeles Times*, the *Argonaut*, and *Daily Breeze* on September 19, 2013.

One public workshop was held on October 3, 2013 at the Flight Path Learning Center located at 6661 West Imperial Highway, Los Angeles, CA 90045, to receive public comment regarding the content of the Draft EIR. In response to the public outreach and participation program undertaken by LAWA, three comment letters from public agencies were received (**Appendix A**), which were considered in the preparation of this revised Draft EIR.

1.2.4 Revised Draft EIR

This revised Draft EIR presents updates to the air quality (Section 4.1) and human health risk assessment (Section 4.4) analyses that were presented in the Draft EIR. Changes to the Draft EIR text (beginning with Section 1.5) are indicated by ~~strikethrough~~ and insertion. In addition, the comments received on the Draft EIR, along with responses to those comments, are provided in **Appendix A**. Backup material for the revised air quality analysis is provided in **Appendix B** (this also includes backup material for the greenhouse gas analysis, which was not revised). Similarly, backup material for the revised human health risk assessment is included in **Appendix C**.

1.2.5 Intended Uses of This Revised Draft EIR

This revised Draft EIR will be circulated for agency and public review and comment. A Final EIR will be prepared which will incorporate responses to comments received on the revised Draft EIR. In addition, the Final EIR will provide revisions to the revised Draft EIR, as necessary. LAWA, the BOAC, and the City of Los Angeles City Council will use the Final EIR and associated documents to evaluate and consider the environmental impacts of the proposed Project prior to certifying the Final EIR and prior to taking action on the proposed Project or one of the alternatives. Certification of the Final EIR would complete the project-level CEQA compliance review for the proposed Project as described in the Draft EIR and this revised Draft EIR. Information in the Draft EIR, this revised Draft EIR, and the Final EIR may also be used by LAWA and its contractors as input for permit and other approval applications.

In addition, the Final EIR may be used by various federal, state, and local agencies in their respective decision-making and approval processes for discretionary actions (e.g., permits) regarding the proposed Project.

1.2.6 Availability of the Revised Draft EIR

The revised Draft EIR for the proposed Project is being distributed directly to numerous agencies, organizations, and interested groups and persons for comment during the formal review period. The revised Draft EIR is also available for review for 32 calendar days at the following locations during regular business hours:

- LAWA Offices, Los Angeles International Airport, 1 World Way, Room 218, Los Angeles, CA 90045
- Westchester-Loyola Village Branch Library, 7114 West Manchester Avenue, Los Angeles, CA 90045
- El Segundo Library, 111 West Mariposa Avenue, El Segundo, CA 90245

In addition, the revised Draft EIR is available online at the LAWA website, http://www.ourlax.org. On the website, the revised Draft EIR can be accessed through the “Project-Publications” link.

Due to the time limits mandated by state law,[6] comments must be sent to LAWA at the earliest possible date but not later than January 13, 2014. Agency responses to the revised Draft EIR should include the name of a contact person within the commenting agency. Please send your comments by mail or email to:

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[6] *CEQA Guidelines*, Section 15205(d)

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1.3 Organization of the Revised Draft EIR

This revised Draft EIR follows the preparation and content guidance provided by CEQA and its Guidelines. It only includes information that was updated/revised from the Draft EIR, as specified in §15088.5 of the CEQA Guidelines. Listed below is a summary of the contents of each chapter of this report.

1.0 Introduction and Executive Summary. Chapter 1 describes the proposed Project's background including refinements to the proposed Project; relationship to the LAX Master Plan; CEQA compliance requirements; the environmental review process; IS/NOP; Draft EIR; the organization of the revised Draft EIR; intended uses of the revised Draft EIR; availability of the revised Draft EIR; and includes an Executive Summary that presents a brief summary of the revised Draft EIR, impacts, mitigation measures and areas of controversy known to the Lead Agency.

2.0 Project Description. No revisions – not included.

3.0 Overview of Project Setting. No revisions – not included.

4.0 Environmental Impact Analysis. Chapter 4 describes the existing conditions; methodology used in the impact analysis; thresholds of significance; commitments incorporated into the proposed Project; impacts that would result from the proposed Project; applicable mitigation measures that would eliminate or reduce significant impacts; the residual impacts after mitigation for each environmental issue; and cumulative impacts. This chapter presents the revised analyses for:

Chapter 4.1	Air Quality
Chapter 4.2	Greenhouse Gas Emissions. No revisions – not included.
Chapter 4.3	Hazards and Hazardous Materials. No revisions – not included.
Chapter 4.4	Human Health Risk Assessment
Chapter 4.5	Hydrology and Water Quality. No revisions – not included.
Chapter 4.6	Noise. No revisions – not included.
Chapter 4.7	Surface Construction Traffic. No revisions – not included.

5.0 Other Environmental Considerations. Chapter 5 includes a discussion of issues required by CEQA that are not covered in Chapter 4. This includes growth-inducing impacts, irreversible environmental changes, unavoidable significant impacts, reasons why the proposed Project is being proposed, notwithstanding unavoidable significant impacts, and potential secondary effects. In addition, Chapter 5 includes a summary of the topics evaluated in the IS but not carried forward for further evaluation in this Draft EIR (impacts found not to be significant).

6.0 Alternatives. Chapter 6 evaluates the environmental effects of alternatives to the proposed Project including the required No Project Alternative, compares alternatives, and identifies the Environmentally Superior Alternative.

7.0 List of Preparers and Persons Consulted. Chapter 7 lists the individuals involved in preparing this revised Draft EIR.

8.0 References. Chapter 8 identifies the documents reviewed in preparing this revised Draft EIR.

9.0 Acronyms and Definitions. Chapter 9 presents a list of the acronyms and definitions used in this revised Draft EIR.

Appendices. The Appendices present data supporting the analysis contained in this revised Draft EIR. The appendices in this revised Draft EIR include:

Appendix A	Responses to Comments on the Draft EIR
Appendix B	Air Quality and Greenhouse Gas Emissions Appendix
Appendix C	Human Health Risk Assessment Appendix

1.4 Summary of the Project

The proposed Project is described in detail in Chapter 2. The proposed Runway 7L/25R RSA improvements of the proposed Project primarily involve the west end of Runway 7L. The elements of the proposed Runway 7L/25R RSA improvements include:

- Extend the Runway 7L/25R pavement, 832 feet to the west. The Runway 7L threshold will remain at its current location for landings, resulting in an 832-foot displaced threshold;
- Implement declared distances to maintain existing take-off run available and take-off distance available;
- Grade and compact the RSA, approximately 500 feet wide by 168 feet long, beyond the new Runway 7L runway end;
- Grade but not pave an additional area approximately 500 feet wide by 957 feet long to RSA standards beyond the Runway 7L safety area to maintain the option of shifting operations to the west on the runway at a future date;
- Construct a blast pad west of the Runway 7L extension;
- Extend parallel Taxiway H 832 feet to the west;
- Construct a new taxiway connector (B17) from Taxiway H to Taxiway C;
- Decommission Taxiway B16 from Taxiway H to Taxiway B;
- Reconstruct a portion of Taxiway B at the intersection with new Taxiway B17;
- Reconstruct a portion of Taxiway U from Taxiway B to Runway 7L/25R;
- Relocate the existing Runway 25R Localizer Antenna and shelter to the west of the graded, unpaved area;
- Relocate other FAA equipment shelters west of Taxiway B17;
- Relocate existing service road west, beyond the proposed 957- foot grading extension and provide access roads to navaids and equipment shelters;

- Replace existing Approach Lighting System (ALS) towers where the new runway pavement will be constructed with in-pavement lights; and
- Modify the existing Runway and Taxiway lighting and markings in the newly constructed pavements.

For west-flow operations (the most common direction for departures at LAX Runway 7L/25R), declared distances would provide an Accelerate-Stop Distance Available (ASDA), a Take Off Run Available (TORA), and Take Off Distance Available (TODA) of 12,091 feet, and a Landing Distance Available (LDA) of 11,134 feet. For east-flow operations (the least common direction for departures at LAX Runway 7L/25R), the proposed declared distances would provide an ASDA, TORA, and TODA of 12,091 feet and an LDA of 11,259 feet. These distances are shown in Figure 2-4. This strategy allows LAWA to satisfy RSA requirements without changing the amount of runway currently available for take-off and landing operations.

Pavement reconstruction activities would be undertaken at the locations listed below:

- Full-depth reconstruction of existing pavement from the Runway 25R threshold to Taxiway F (1,225 feet long by 150 feet wide by approximately 3 feet deep);
- Full-depth reconstruction of the keel portion of Runway 7L/25R from Taxiway F westward to Taxiway J (600 feet long by 50 feet wide by approximately 3 feet deep);
- Replace existing pavement surface of the keel portion of Runway 7L/25R keel from Taxiway J west to the Taxiway N (6,447 feet long by 50 feet wide);
- Full-depth reconstruction of Taxiway B, from its terminus near the Runway 25R threshold approximately 2,128 feet west to a point between Taxiway F and Taxiway C3, including connecting Taxiway C1 (2,128 feet long by 176 feet wide by approximately 3 feet deep);
- Replace existing apron pavement in the north of Taxiway C, between Taxiway C1 and Air Freight Building No. 8;
- Replace the existing jet blast fence east of Runway 25R; and,
- Installation of in-pavement approach lights.

1.5 Summary of Environmental Impacts Related to the Runway 7L/25R RSA and Associated Improvements Project

The environmental topics evaluated in the Draft EIR and this revised Draft EIR include Air Quality, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise, and Construction Surface Traffic.

Impacts to Aesthetics, Agricultural Resources, Biological Resources, Cultural Resources, Geology/Soils, Land Use/Planning, Mineral Resources, Population/Housing, Public Services, Recreation, Utilities and Public Systems have been found to be less than significant through the analysis in the IS and through the change in the scope of the proposed Project since the release of the IS. These environmental topics were not evaluated further in the Draft EIR or in this revised Draft EIR.

Table 1-1 summarizes the impacts related to the proposed Project by environmental resource topic.

As shown in Table 1-1, impacts related to Air Quality (Operations), Greenhouse Gas Emissions, Hazards and Hazardous Materials, Cancer and chronic non-cancer hazard risks, Health risks to on-airport workers, Hydrology and Water Quality, Noise, and Construction Surface Traffic would be less than significant. Impacts related to construction air quality and acute non-cancer hazard risk for acrolein would be significant and unavoidable. Chapters 4.1 and 4.4 discuss these significant construction air quality impacts and acute non-cancer hazard risks. Although the construction air quality impacts and acute non-cancer hazard risk for acrolein would be significant and unavoidable, they would also be short-term and temporary.

1.6 Areas of Known Controversy and Issues to be Resolved

The proposed Project is a safety improvement program required under federal directive. During the agency and public review periods of the IS/NOP and Draft EA, former elements of the proposed Project, mainly the proposed new GSE maintenance facility, were of concern to a commenter. In general, there was a preference from those who attended the public hearing and those who submitted written comments for the alternative proposed in the Draft EA, the Shift Runway Alternative instead of the proposed Project. Based on this public input, the proposed Project has been modified to include an additional graded area of 957 feet west of the proposed runway extension that would allow shifting the runway to the west if it is determined in the future that impacts to existing and future aircraft operations at LAX would be acceptable. LAWA needs to conduct extensive coordination with all aircraft operators at LAX to determine the effect shifting the runway would have on their operations before it can decide whether or not this is acceptable. LAWA has initiated a study to determine the effects of the runway shift and is planning on meeting with stakeholders in January 2014. However, in order to meet the requirements of P.L. 109-115, LAWA has identified the modified proposed Project analyzed in this Draft EIR to bring the Runway 7L/25R RSA in compliance with FAA design standards by December 31, 2015. In addition to the modifications discussed above, LAWA is also eliminating the extension of Taxiway C and the demolition of Air Freight Building No. 8 from the proposed Project.

Besides the comments on the air quality and human health risk analyses submitted by SCAQMD, no other concerns with the proposed Project were raised during the review period on the Draft EIR. There are no other areas of known controversy or issues that need to be resolved.

Table 1-1

Summary of Environmental Impacts by Resource Topic

Impact Topic	Pre-Mitigation Level of Significance	Applicable Project Design Features (Including BMPs)	Applicable LAX Master Plan Commitments	Project-Specific Mitigation	Level of Significance After Mitigation
AIR QUALITY (CHAPTER 4.1)					
Construction	*Regional emissions* Potentially significant without mitigation	Tier 4 Pollution Control Measures for Construction Equipment	MM-AQ-1 General Air Quality Control Measures MM-AQ-2 Construction Related Measure	*Regional emissions* No Feasible Mitigation Exists	*Regional emissions* Significant and Unavoidable (but short-term and temporary)
	Localized Concentrations Potentially significant without mitigation			*Localized Concentrations* No Feasible Mitigation Exists	*Localized Concentrations* Significant and Unavoidable (but short-term and temporary)
Operations	Less Than Significant	Not Applicable as Operational Capacity Would Not be Modified	Not Applicable as Operational Capacity Would Not be Modified	None Required	Less Than Significant
Cumulative					
Construction	Potentially significant without mitigation	Same as under Construction	Same as under Construction	No Feasible Mitigation Exists	Significant and Unavoidable (but short-term and temporary)
Operations	Less Than Significant	Not Applicable as Operational Capacity Would Not be Modified	Not Applicable as Operational Capacity Would Not be Modified	None Required	Less Than Significant

Table 1-1

Summary of Environmental Impacts by Resource Topic

Impact Topic	Pre-Mitigation Level of Significance	Applicable Project Design Features (Including BMPs)	Applicable LAX Master Plan Commitments	Project-Specific Mitigation	Level of Significance After Mitigation
GREENHOUSE GAS EMISSIONS (CHAPTER 4.2)					
Construction	Less Than Significant	Already Included in Applicable LAX Master Plan Commitments	MM-AQ-2 Construction Related Measure	None Required	Less Than Significant
Operations	Less Than Significant	Not Applicable as Operational Capacity Would Not be Modified	Not Applicable as Operational Capacity Would Not be Modified	None Required	Less Than Significant
Consistency with GHG Reduction Plans	Less Than Significant	Not Applicable as Operational Capacity Would Not be Modified	Not Applicable as Operational Capacity Would Not be Modified	None Required	Less Than Significant
Cumulative					
Construction	Less Than Significant	Same as under Construction	Same as under Construction	None Required	Less Than Significant
Operations	Less Than Significant	Not Applicable as Operational Capacity Would Not be Modified	Not Applicable	None Required	Less Than Significant

Table 1-1

Summary of Environmental Impacts by Resource Topic

Impact Topic	Pre-Mitigation Level of Significance	Applicable Project Design Features (Including BMPs)	Applicable LAX Master Plan Commitments	Project-Specific Mitigation	Level of Significance After Mitigation
HAZARDS AND HAZARDOUS MATERIALS – LOCATION ON LISTED HAZARDOUS MATERIAL SITE (CHAPTER 4.3)					
Construction	Less Than Significant	Already Included in Applicable LAX Master Plan Commitments	HM-1 Ensure Continued Implementation of Existing Remediation Efforts HM-2 Handling of Contaminated Materials Encountered During Construction	None Required	Less Than Significant
Operations	No Impacts	Not Applicable as Operational Capacity Would Not be Modified	Not Applicable as Operational Capacity Would Not be Modified	None Required	Less Than Significant
Cumulative					
Construction	Less Than Significant	Same as under Construction	Same as under Construction	None Required	Less Than Significant
Operations	No Impacts	Not Applicable as Operational Capacity Would Not be Modified	Not Applicable as Operational Capacity Would Not be Modified	None Required	No Impacts

Table 1-1

Summary of Environmental Impacts by Resource Topic

Impact Topic	Pre-Mitigation Level of Significance	Applicable Project Design Features (Including BMPs)	Applicable LAX Master Plan Commitments	Project-Specific Mitigation	Level of Significance After Mitigation
HUMAN HEALTH RISK ASSESSMENT (CHAPTER 4.4)					
Construction					
DPM cancer and chronic non-cancer hazards risk	Less Than Significant	Already Included in Applicable LAX Master Plan Commitments	MM-AQ-1 General Air Quality Control Measures MM-AQ-2 Construction Related Measure	None Required	Less Than Significant
Acrolein acute non-cancer hazard risk	Potentially significant without mitigation	Already Included in Applicable LAX Master Plan Commitments	MM-AQ-1 General Air Quality Control Measures MM-AQ-2 Construction Related Measure	No Additional Feasible Mitigation Exists	Significant and Unavoidable (but short-term and temporary)
Formaldehyde acute non-cancer hazard risk	Less Than Significant	Already Included in Applicable LAX Master Plan Commitments	MM-AQ-1 General Air Quality Control Measures MM-AQ-2 Construction Related Measure	None Required	Less Than Significant
Health risks to on-airport workers	Less Than Significant	Already Included in Applicable LAX Master Plan Commitments	MM-AQ-1 General Air Quality Control Measures MM-AQ-2 Construction Related Measure	None Required	Less Than Significant

Table 1-1

Summary of Environmental Impacts by Resource Topic

Impact Topic	Pre-Mitigation Level of Significance	Applicable Project Design Features (Including BMPs)	Applicable LAX Master Plan Commitments	Project-Specific Mitigation	Level of Significance After Mitigation
Cumulative	~~Less Than Significant~~Potentially significant without mitigation for acrolein acute non-cancer hazard risk	Same as under Construction	Same as under Construction	~~None Required~~No Additional Feasible Mitigation Exists	~~Less Than~~ Significant and Unavoidable (but short-term and temporary)
HYDROLOGY AND WATER QUALITY – INCREASED RUNOFF (CHAPTER 4.5)					
Construction	Less Than Significant	• Relocation of existing drainage and pipeline infrastructure. • Construction of new storm drain pipeline segments, inlets, and storm treatment filters. • Remove and replace sections of the existing storm drain pipelines, inlets, and manholes • Stormwater runoff conveyance structures • Installation of stormwater quality features and construction of erosion control pavement. • Infrastructure to accommodate the LADBS recommended 50-year event. • An orifice plate • Infield areas will be graded at approximately 1.5% - 3.0% percent slope from the edge of runway and taxiway shoulders. • New storm water filtration	HWQ-1 Develop Detailed Drainage Plan MM-HWQ-1 Update Regional Drainage Facilities	None Required	Less Than Significant

Table 1-1

Summary of Environmental Impacts by Resource Topic

Impact Topic	Pre-Mitigation Level of Significance	Applicable Project Design Features (Including BMPs)	Applicable LAX Master Plan Commitments	Project-Specific Mitigation	Level of Significance After Mitigation
		system. • Infiltration Systems • Bio-Filtration/Retention Systems • Stormwater Capture and Re-use • Mechanical/Hydrodynamic Units • Combination of Any of the Above			
Operations	Less Than Significant	Not Applicable as Operational Capacity Would Not be Modified	Not Applicable as Operational Capacity Would Not be Modified	None Required	Less Than Significant
Cumulative					
Construction	Less Than Significant	Same as under Construction	Same as under Construction	None Required	Less Than Significant
Operations	Less Than Significant	Not Applicable as Operational Capacity Would Not be Modified	Not Applicable as Operational Capacity Would Not be Modified	None Required	Less Than Significant

Table 1-1

Summary of Environmental Impacts by Resource Topic

Impact Topic	Pre-Mitigation Level of Significance	Applicable Project Design Features (Including BMPs)	Applicable LAX Master Plan Commitments	Project-Specific Mitigation	Level of Significance After Mitigation
NOISE (CHAPTER 4.6)					
Construction	Less Than Significant	• Haul Routes • Internal Circulation • Construction Staging Area	MM-N-7 Construction Noise Control Plan MM-N-8 Construction Staging MM-N-9 Equipment Replacement MM-N-10 Construction Scheduling ST-16 Designated Haul Routes	None Required	Less Than Significant
Operational	Less Than Significant	Not Applicable as Operational Capacity Would Not be Modified	Not Applicable as Operational Capacity Would Not be Modified	None Required	Less Than Significant
Cumulative					
Construction	Less Than Significant	Same as under Construction	Same as under Construction	None Required	Less Than Significant
Operations	Less Than Significant	Not Applicable as Operational Capacity Would Not be Modified	Not Applicable as Operational Capacity Would Not be Modified	None Required	Less Than Significant
SURFACE CONSTRUCTION TRANSPORTATION (CHAPTER 4.7)					

Table 1-1

Summary of Environmental Impacts by Resource Topic

Impact Topic	Pre-Mitigation Level of Significance	Applicable Project Design Features (Including BMPs)	Applicable LAX Master Plan Commitments	Project-Specific Mitigation	Level of Significance After Mitigation
Construction	No Impact	Already Included in Applicable LAX Master Plan Commitments	C-1 Establishment of a Construction Coordination Office C-2 Construction Personnel Airport Orientation ST-9 Construction Deliveries ST-12 Designated Truck Delivery Hours ST-14 Construction Employee Shift Hours ST-16 Designated Haul Routes ST-18 Construction Traffic Management Plan ST-22 Designated Truck Routes	None Required	No Impact
Cumulative	No Impact	Same as under Construction	Same as under Construction	None Required	No Impact

Source: URS Corporation and Ricondo and Associates, Inc., 2013.

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4.1 Air Quality

4.1.1 Introduction

This air quality analysis examines potential air quality impacts that could result from the proposed Project. The analysis addresses the change in criteria pollutant emissions from construction activities and operational activities as a result of the proposed Project. Potential impacts related to greenhouse gases are addressed in Chapter 4.2 Greenhouse Gases of this Draft EIR. Potential impacts related to human health risks from inhalation of toxic air contaminant emissions are addressed in Chapter 4.4 Human Health Risk Assessment of this Draft EIR.

The air quality impact analyses for criteria pollutants presented below include development of emission inventories for the proposed Project (i.e., the quantities of specific pollutants, typically expressed in pounds per day or tons per year) based on emission modeling and assessment of localized concentrations (i.e., the concentrations of specific pollutants within ambient air, typically expressed in terms of micrograms per cubic meter) based on screening criteria and dispersion modeling. The criteria pollutant emissions inventories and ambient concentrations were developed using standard industry software/models and federal-, state-, and locally-approved methodologies; results of the emission inventories were compared to daily thresholds established by the South Coast Air Quality Management District (SCAQMD) for the South Coast Air Basin (Basin)[1] and results of the ambient concentrations were compared to the national and state ambient air quality standards. This section is based in part on more comprehensive information provided in the Air Quality and Greenhouse Gas Emissions Appendix (Appendix B).

4.1.1.1 Pollutants of Interest

Six criteria pollutants were evaluated for the proposed Project, including carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (PM_{10}), particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), sulfur dioxide (SO_2), and ozone (O_3), using as surrogates volatile organic compounds (VOCs)[2] and oxides of nitrogen (NO_x). These pollutants were analyzed because they were shown to have potentially significant impacts in the air quality analysis documented in Chapter 4.6, *Air Quality*, of the Los Angeles International Airport (LAX) Master Plan Final EIR.[3] In addition, these six criteria pollutants are considered to be pollutants of concern based on the type of emission sources associated with construction and operation of the proposed Project, and are thus included in this assessment. Although lead (Pb) is a criteria pollutant, it was not evaluated in this Draft EIR because the proposed Project would have a negligible impact on Pb levels in the Basin. The only source of lead emissions from LAX is from aviation gasoline (AvGas) associated with piston-engine general aviation aircraft; however, due to the low number

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[1] South Coast Air Quality Management District, *CEQA Air Quality Handbook*, 1993; as updated by *SCAQMD Air Quality Significance Thresholds*, March 2011, available at http://www.aqmd.gov/CEQA/handbook/signthres.pdf, Accessed May 2013.

[2] The emissions of volatile organic compounds (VOC) and reactive organic gases (ROG) are essentially the same for the combustion emission sources that are considered in this EIR. This EIR will typically refer to organic emissions as VOC.

[3] City of Los Angeles, Los Angeles World Airports and FAA, *Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements SCH#1997061047*, April 2004.

of piston-engine general aviation aircraft operations at LAX, AvGas quantities are low and emissions from these sources would not be materially affected by the Project. Sulfate compounds (e.g., ammonium sulfate) are generally not emitted directly into the air but are formed through various chemical reactions in the atmosphere; thus, sulfate is considered a secondary pollutant. All sulfur emitted by airport-related sources included in this analysis was assumed to be released and to remain in the atmosphere as SO_2. Therefore, no sulfate inventories or concentrations were estimated.

Following standard industry practice, the evaluation of O_3 was conducted by evaluating emissions of VOCs and NO_X, which are precursors in the formation of O_3. O_3 is a regional pollutant and ambient concentrations can only be predicted using regional photochemical models that account for all sources of precursors, which is beyond the scope of this analysis. Therefore, no photochemical O_3 modeling was conducted for the proposed Project. Additional information regarding the six criteria pollutants that were evaluated in the air quality analysis is presented below.

Ozone (O_3)

Ozone (O_3), commonly referred to as smog, is formed in the atmosphere rather than being directly emitted from pollutant sources. O_3 forms as a result of VOCs and NO_x reacting in the presence of sunlight in the atmosphere. Ozone levels are highest in warm-weather months. VOCs and NO_x are termed "ozone precursors" and their emissions are regulated in order to control the creation of O_3.

O_3 damages lung tissue and reduces lung function. Scientific evidence indicates that ambient levels of ozone not only affect people with impaired respiratory systems (e.g., asthmatics), but also healthy children and adults. O_3 can cause health effects such as chest discomfort, coughing, nausea, respiratory tract and eye irritation, and decreased pulmonary functions.

Nitrogen Dioxide (NO_2)

Nitrogen dioxide (NO_2) is a poisonous, reddish-brown to dark brown gas with an irritating odor. NO_2 forms when nitric oxide (NO) reacts with atmospheric oxygen. Most sources of NO_2 are man-made; the primary source of NO_2 is high-temperature combustion. Significant sources of NO_2 at airports are boilers, aircraft operations, and vehicle movements. NO_2 emissions from these sources are highest during high-temperature combustion, such as aircraft takeoff mode.

NO_2 may produce adverse health effects such as nose and throat irritation, coughing, choking, headaches, nausea, stomach or chest pains, and lung inflammation (e.g., bronchitis, pneumonia).

Carbon monoxide (CO)

Carbon monoxide (CO) is an odorless, colorless gas that is toxic. It is formed by the incomplete combustion of fuels. The primary sources of this pollutant in Los Angeles County are automobiles and other mobile vehicles. The health effects associated with exposure to CO are related to its interaction with hemoglobin once it enters the bloodstream. At high concentrations, carbon monoxide reduces the amount of oxygen in the blood, causing heart difficulties in people with chronic diseases, reduced lung capacity, impaired mental abilities, and death.

Particulate Matter (PM_{10}) and Fine Particulate Matter ($PM_{2.5}$)

Particulate matter (PM) consists of solid and liquid particles of dust, soot, aerosols, and other matter small enough to remain suspended in the air for a long period of time. PM_{10} refers to PM with an aerodynamic diameter less than or equal to 10 micrometers and $PM_{2.5}$ refers to PM with an aerodynamic diameter less than or equal to 2.5 micrometers. Particulates smaller than 10 micrometers (i.e., PM_{10} and $PM_{2.5}$) represent that portion of PM thought to represent the greatest hazard to public health. PM_{10} and $PM_{2.5}$ can accumulate in the respiratory system and are associated with a variety of negative health effects. Exposure to particulates can aggravate existing respiratory conditions, increase respiratory symptoms and disease, decrease long-term lung function, and possibly cause premature death. The segments of the population that are most sensitive to the negative effects of PM in the air are the elderly, individuals with cardiopulmonary disease, and children. Aside from adverse health effects, PM in the air causes a reduction of visibility and damage to paints and building materials.

A portion of the PM in the air comes from natural sources such as windblown dust and pollen. Man-made sources of PM include fuel combustion, automobile exhaust, field burning, factories, and vehicle movement or other man-made disturbances of unpaved areas. Secondary formation of PM may occur in some cases where gases such as sulfur oxides (SO_x) and NO_x interact with other compounds in the air to form PM. Fugitive dust generated by construction activities is a major source of suspended PM.

The secondary creators of particulate matter, SO_X and NO_X, are also major precursors to acidic deposition (acid rain). While SO_X is a major precursor to particulate matter formation, NO_X has other environmental effects. NO_X reacts with ammonia, moisture, and other compounds to form nitric acid and related particles. Human health concerns include effects on breathing and the respiratory system, damage to lung tissue, and premature death. Small particles penetrate into sensitive parts of the lungs and can cause or worsen respiratory disease. NO_X has the potential to change the composition of some species of vegetation in wetland and terrestrial systems, to create the acidification of freshwater bodies, impair aquatic visibility, create eutrophication of estuarine and coastal waters, and increase the levels of toxins harmful to aquatic life.

Sulfur Dioxide (SO_2)

Sulfur dioxide (SO_2) is formed when fuel containing sulfur (typically, coal and oil) is burned, and during other industrial processes. The term "sulfur oxides" accounts for distinct but related compounds, primarily SO_2 and sulfur trioxide. As a conservative assumption for this analysis, it was assumed that all SO_X are emitted as SO_2; therefore, SO_X and SO_2 are considered equivalent in this document. Higher SO_2 concentrations are found in the vicinity of large industrial facilities. The physical effects of SO_2 include temporary breathing impairment, respiratory illness, and aggravation of existing cardiovascular disease. Children and the elderly are most susceptible to the negative effects of exposure to SO_2.

4.1.1.2 Scope of Analysis

The air quality analysis conducted for the proposed Project addresses construction-related impacts for the peak day of proposed construction activities and operations-related impacts for the future year of 2015. The basic steps involved in performing the analysis are listed below.

Construction:

- Identify construction-related emissions sources for the identified sources.
- Develop peak daily construction emissions inventories.
- Compare emissions inventory with appropriate CEQA thresholds for construction.
- Conduct dispersion modeling for the peak year of Project construction emissions.
- Obtain background concentration data from SCAQMD and estimate future concentrations with the proposed Project.
- Identify potential construction-related mitigation measures if warranted beyond what is already required through LAX Master Plan commitments and mitigation measures.

Operations:

- Identify operational-related emissions sources associated with the proposed Project.
- Develop peak daily operational emissions inventories for the identified sources.
- Compare emissions inventories with appropriate CEQA thresholds for operations.
- Identify potential operations-related mitigation measures if warranted beyond what is already required through LAX Master Plan commitments and mitigation measures.

4.1.2 Methodology

The air quality assessment for the proposed Project was conducted in accordance with the City of Los Angeles *L.A. CEQA Thresholds Guide*[4] and the SCAQMD's 1993 *CEQA Air Quality Handbook*.[5] The City of Los Angeles has not adopted specific City-wide significance thresholds for air quality impacts; however, its *L.A. CEQA Thresholds Guide* references the thresholds and methodologies contained in the SCAQMD *CEQA Air Quality Handbook* for evaluating proposed projects in the City. Thus, the determinations and assessments contained herein are based on the SCAQMD's *CEQA Air Quality Handbook* as well as information presented in the following documents:

- *LAX Master Plan Final EIR,* Chapter 4.6, Air Quality, April 2004;
- *LAX Master Plan Final EIR, Chapter 4.24.1, Human Health Risk Assessment,* April 2004;
- *LAX Master Plan Final EIR, Section 4.20, Construction Impacts*, April 2004; and
- *LAX Master Plan Final EIR, Appendix F-B, Air Quality Appendix*, April 2004.

4.1.2.1 Construction

Air emissions occurring as the result of construction activity vary, based on the proposed Project's duration and level of activity. Construction emissions occur mostly as exhaust products from the operation of construction equipment and vehicles, but can also occur as

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[4] City of Los Angeles, *L.A. CEQA Thresholds Guide*, 2006, B-1.

[5] South Coast Air Quality Management District, *CEQA Air Quality Handbook*, 1993; as updated by *SCAQMD Air Quality Significance Thresholds*, March 2011, available at http://www.aqmd.gov/CEQA/handbook/signthres.pdf, Accessed May 2013.

fugitive dust emissions from land disturbance during material staging, demolition, and movement. Evaporative emissions also result from asphalt paving operations. The type of construction equipment commonly used can be categorized as both off-road and on-road equipment. Off-road equipment is typically used for earthwork, paving, demolition, and other onsite activities, while on-road equipment is typically used to transport and deliver supplies, materials, and employees.

Daily emissions during construction were forecast from a construction schedule and applicable emissions factors from various EPA, FAA, California Air Resources Board (CARB) and SCAQMD references. In order to estimate construction emissions, resource requirements and activity schedules were developed by the LAX Development Program Team, an integrated team of the Los Angeles World Airports (LAWA) and consultant staff responsible for oversight and program management. Monthly estimates of equipment usage (in hours) were also developed for each piece of equipment expected to be used during construction of the proposed Project. From the resource information provided, peak daily emissions estimates were developed for the construction period. Peak-daily emissions estimates were also developed for each construction phase. Construction activity emissions inventories for criteria pollutants were developed for emissions sources including off-road on-site equipment, on-road on-site equipment, fugitive dust, fugitive VOCs, and worker commute trips. Emissions inventories were also developed for the aircraft operational emissions during construction. A complete listing of the construction equipment by phase, construction phase duration, emissions estimation model and dispersion model input assumptions used in this analysis is included within the emissions calculation worksheets that are provided in Appendix B of this Draft EIR.

Emissions estimates for the proposed Project's construction activities included the application of emission reduction measures required by the LAX Master Plan Mitigation Monitoring and Reporting Program (MMRP), the LAX Master Plan-Mitigation Plan for Air Quality (LAX MP-MPAQ) and SCAQMD rules, as well as additional control measures set forth in the LAX Master Plan Community Benefits Agreement. These measures are applicable to PM_{10} and $PM_{2.5}$ emissions and to a lesser degree to NO_X emissions. The measures that would result in reductions of NO_X, PM_{10} and $PM_{2.5}$ are discussed in Section 4.1.5 below.

~~As further described in Chapter 2, *Project Description, c*~~Construction of the proposed ~~Project~~ RSA improvements ~~is~~are expected to occur in 2014 and 2015; the proposed pavement rehabilitation work may occur simultaneous with the RSA improvements or be postponed until after the RSA improvements are complete if LAWA determines that operational and scheduling issues necessitate. As discussed in Chapter 1, Section 1.1.1, the analysis conducted and reported in the Draft EIR assumes a worst-case scenario (work occurring simultaneously).

Emission Source Types

Off-Road Equipment

Off-road construction equipment includes dozers, loaders, sweepers, and other heavy-duty construction equipment that is not licensed to travel on public roadways. Off-road construction equipment and fuel types, estimated horsepower, and estimated annual hours of operation were developed by construction subtasks. The annual hours of operation were based on the material use and production rates; generally as a result of a 10-hour-per-day, 6-day-per-week workweek. Non-road exhaust emission factors were developed based on calendar year 2014 emissions rates from the CARB OFFROAD2011 emissions model.

Emissions for off-road equipment were calculated by multiplying these emission factors by the horsepower, usage factor, and operational hours for each type of equipment. Select equipment was assumed to be equipped with diesel particulate filters (DPFs) achieving PM_{10} emissions reductions ranging from 8.5 to 76.5 percent, as required by the LAX Master Plan mitigation program.

On-Road Equipment

On-road equipment emissions are generated from on-site pick-up trucks, water trucks, dump trucks, haul trucks, cement trucks, and other on-road vehicles. Activity levels and engine assignments for on-road construction vehicles were developed based on the requirements and schedule for the proposed Project. On-road emission factors were computed using calendar year 2014 emissions factors[6] by the CARB EMFAC2011 emissions model. A schedule of planned construction activities, including vehicle miles traveled estimates for on-road construction vehicles, was developed by construction subtask. Criteria pollutant emissions associated with these activities were computed by factoring these data against County of Los Angeles-specific emissions factors within EMFAC2011, in grams per mile and grams per idle hour.

Fugitive Dust

Fugitive dust emissions occur as the result of travel on unpaved roads, site preparation, grading activities, wind erosion, and other land disturbances. The EPA provides a worst-case uncontrolled PM_{10} emissions rate of 38.2 pounds per acre-day. This emissions rate was used to calculate uncontrolled PM_{10} emissions using construction task acreage assumptions, as well as construction task durations. Notably, CARB specifies in the CalEEMod[7] model that a maximum of 25 percent of this acreage would be disturbed on any given construction day, and that 20 percent of the PM_{10} emissions would occur as $PM_{2.5}$. Watering, as required under LAWA construction contracts and also being one of the main dust suppression measures recognized in SCAQMD Rule 403, was assumed to reduce fugitive dust emissions by 61 percent.[8]

Fugitive VOCs

Based on the CARB default data contained within CalEEMod, an emission factor of 2.62 pounds of VOC (from asphalt curing) per acre of asphalt material was used to determine VOC emissions from asphalt paving. The construction schedule provided the required tons of bituminous surface material. Equivalent acreage was calculated using a weight of asphalt of 2,111 tons per acre, assuming an 8-inch pavement depth, based on data available from the National Asphalt Pavement Association and FAA Advisory Circular 150/5320-6E, *Airport Pavement Design and Evaluation*.

Worker Commute Trips

Emissions from worker commute trips were calculated using emission factors and assumed default commute distances, as provided in CalEEMod. The number of workers during each construction phase was calculated using the construction resource schedule (see Appendix B).

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[6] Year 2014 is the assumed date for the start of construction and represents a conservative assumption for later years.

[7] CalEEMOD, the California Emissions Estimator Model (CalEEMod), Version 2013.2, is an emissions inventory software program recommended by the SCAQMD. CalEEMod is based on outputs from OFFROAD2011 and EMFAC2011, which are emissions estimation models developed by CARB to calculate emissions from construction activities.

[8] South Coast Air Quality Management District, *Fugitive Dust, Table XI-A: Construction & Demolition*, Available: http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/MM_fugitive.html, Accessed May 2013.

Construction-worker vehicle emissions were calculated using SCAQMD default assumptions for vehicle fleet mix, travel distance, and average travel speeds.[9] Assumptions included:

- 1 out of every 11 workers participate in a carpool; and
- An average commute distance for construction employees of 13.3 miles (26.6 miles round trip).

Aircraft Operations during Construction

To allow for the rehabilitation of portions of the Runway 7L/25R pavement, the runway must be temporarily closed for a period of time estimated at 3.5 months. During this time, the aircraft operations from this runway must be accommodated through the use of other runways at LAX. This shift in operations may cause airfield and/or airspace delays resulting in increased arrival and departure taxi times. An increase in taxi travel times can result in increased emissions.

To determine the taxi times during the runway closure period, real-time ASDE-X data from LAX was used from a period of seven days in 2013 for which Runway 7L/25R was closed due to the installation of runway status lights. Based on conversations with FAA air traffic controllers at LAX, this historical data would be a reasonable indicator of operations with the runway closure required for the proposed improvements. The taxi-in and taxi-out times for arrivals and departures were averaged over the period for which the runway was closed (January 26, 2013 – February 2, 2013) and when the runway was operating (January 1, 2013 – January 25, 2013; February 3, 2013 – March 31, 2013). The resulting difference in taxi times were added to the 2015 Without Project taxi times as shown in **Table 4.1-1** to establish the construction period taxi times for the runway closure period. The 2015 Without Project data was adjusted for the runway closure period taxi times. Annual emissions for the runway closure, and normal operations, were then normalized based on a 110-day closure. With the exception of aircraft taxi times, aircraft times in mode (i.e., approach, climbout, and takeoff) do not change during the runway closure period.

Table 4.1-1

Assumed Taxi Times During Runway Closure

		Taxi-In Time (minutes)		Taxi-Out Time (minutes)	
Year	Operations	Without Project	During Runway Closure	Without Project	During Runway Closure
2015	637,903	9.0	9.80	14.40	15.98

Source: FAA, Terminal Area Forecast, 2012; FAA, FAA's Aviation System Performance Metrics (ASPM) database for January 1, 2013 through March 31, 2013; ~~;~~ASDE-X radar data from ATAC Corporation, June 2013; URS Corporation, 2013; Ricondo & Associates, Inc., 2013.

Localized Construction Concentration Modeling

The localized effects from the on-site portion of daily emissions from the sources described above were evaluated at nearby sensitive receptor locations potentially impacted by the

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[9] ENVIRON International Corporation, *CalEEMod Appendix A - Calculation Details*, February 2011, Section 4.5, pages 13-15. Available: http://caleemod.com/, Accessed May 2013.

proposed Project according to the SCAQMD's localized significance threshold (LST) methodology,[10] which uses on-site mass emission rate look-up tables with Project-specific daily construction site areas (acres) and receptor distances. LSTs are only applicable to on-site emissions of the following criteria pollutants: NO_X, CO, PM_{10}, and $PM_{2.5}$. LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area (SRA) and distance to the nearest sensitive receptor. The mass rate look-up tables were developed for each SRA and can be used to determine whether or not a project may generate significant adverse localized air quality impacts. The LST mass rate look-up tables apply to projects that are less than or equal to five acres. If the project exceeds five acres or any applicable LST when the mass rate look-up tables are used as a screening analysis, then project-specific air quality modeling model may be performed. The SCAQMD recommends that lead agencies perform project-specific air quality modeling for larger projects.[11] The Project area exceeds five acres in total size; therefore, Project-specific dispersion modeling was used to assess localized construction impacts rather than the mass emission rate look-up tables.

The project-specific air quality modeling of localized construction impacts was conducted consistent with SCAQMD methodology. The USEPA and SCAQMD-approved dispersion model, AMS/EPA Regulatory Model (AERMOD),[12] was used to model the air quality impacts of NO_X, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions. AERMOD can estimate the air quality impacts of single or multiple point, area, or volume sources using historical meteorological conditions. Volume sources were used to represent the emissions from trucks, heavy-duty construction equipment, and fugitive dust. Volume sources are three-dimensional sources of emissions that can be used to model releases from a variety of industrial uses, including moving diesel trucks and equipment.[13] Area sources were used to model fugitive dust emissions of PM_{10} and $PM_{2.5}$. Area sources are two-dimensional surface-based sources of emissions that can be used to model releases from emissions that occur over a wide area, such as fugitive dust. Although the SCAQMD calculated PM_{10} deposition when it developed its mass emission LSTs, this analysis did not calculate PM_{10} deposition as a conservative approach. For the purpose of the dispersion modeling, the maximum daily emissions that could occur due to construction activities from any construction phase were selected for the LST analysis. It was assumed that an average workday would result in 10 hours of emissions-generating activity. Therefore, the maximum daily emissions were divided by 10 to convert the maximum daily emissions into emission rates in units of pounds per hour.

Dispersion of the on-airport aircraft emissions was modeled using FAA's Emissions and Dispersion Modeling System (EDMS).[14] EDMS is the FAA-required model for airport air quality analysis of aviation sources and was used to develop projected concentrations of aircraft air pollutants associated with the proposed Project.

The SCAQMD requires that AERMOD be run using USEPA regulatory default options, unless non-default options are justified; therefore, AERMOD was run using USEPA regulatory default options. Additional modeling options are listed below:

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[10] South Coast Air Quality Management District, *Final Localized Significance Threshold Methodology*, 2008. Available at http://www.aqmd.gov/ceqa/handbook/LST/Method_final.pdf, Accessed May 2013.

[11] *Ibid*, 1-5.

[12] Lakes Environmental, AERMOD VIEW Software.

[13] California Air Resources Board, *ARB Health Risk Assessment Guidance for Rail Yards and Intermodal Facilities*, 2006.

[14] Federal Aviation Administration, *Emissions and Dispersion Modeling System User's Manual with Supplements, EDMS Version 5.1.4*, June 2013.

- Urban dispersion (Los Angeles County population of 9,862,049, as per SCAQMD guidance);
- Averaging periods: 1-hour (CO and NO_2), 8-hour (CO), 24-hour (PM_{10} and $PM_{2.5}$); Annual (NO_2, PM_{10} and $PM_{2.5}$)
- Flagpole receptor heights: 1.8 meters; and
- No building downwash (no point sources modeled).

Source and Receptor Locations

Construction activities were assumed to be located in the Project site and the construction staging area. Aircraft operations during construction were located on respective taxiways and runways.

Receptor points are the geographic locations where the air dispersion model calculates air pollutant concentrations. These discrete Cartesian receptors were used to determine air quality impacts in the vicinity of the Project site. Field receptors were placed at the boundary of LAX (along the fence line), as well as at the Theme Building.

Meteorology

The meteorological data from the monitoring station located at the LAX Hastings site was used in the analysis. The meteorological data were obtained from the SCAQMD website and have been preprocessed using AERMET.[15] AERMET is a meteorological preprocessor for organizing available meteorological data into a format suitable for use in the AERMOD air quality dispersion model. These files were also developed by the SCAQMD using site specific surface characteristics (i.e., surface albedo, surface roughness, and Bowen ratio) obtained using AERSURFACE. AERSURFACE is a tool that provides realistic and reproducible surface characteristic values, including albedo, Bowen ratio, and surface roughness length, for input into AERMET. The dataset used consisted of five years of hourly surface data collected at LAX for calendar years 2005 through 2009; the data included ambient temperature, wind speed, wind direction, and atmospheric stability parameters, as well as mixing height parameters from the appropriate upper air station. All five years of data were ~~run~~ us~~ing~~ed in the analysis ~~AERMOD to determine the meteorological year that is most conducive to air pollutant formation based on the proposed Project construction schedule. Based on the AERMOD results, met year 2005 was determined to be most conducive to air pollutant formation and was conservatively used for this analysis.~~.

Ozone Limiting Method for NO_2 Modeling

AERMOD contains the ozone limiting method (OLM) and Plume Volume Molar Ratio Method (PVMRM) options, which are used to model the conversion of NO_X to NO_2. The OLM option was used in this modeling analysis. The SCAQMD provides hourly O_3 data for modeling conversion of NO_X to NO_2 using the OLM option. In addition, the following values were used in the analysis:

- Ambient Equilibrium NO_2/NO_X Ratio: 0.90 (default)

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[15] South Coast Air Quality Management District, *AQMD Meteorological Data for AERMOD* website http://www.aqmd.gov/smog/metdata/AERMOD.html. 2010, Accessed May 2013.

- In-stack NO_2/NO_X Ratio: 0.~~10~~135 ~~(default)~~[16]
- Default Ozone Value: 40 parts per billion (used only for missing data in the hourly O_3 data file provided by the SCAQMD)

Localized Significance Thresholds

The LSTs for NO_2 were developed based on the 1-hour NO_2 CAAQS of 0.18 parts per million (ppm). An exceedance of the 1-hour NO_2 NAAQS is determined based on the USEPA standard, which is the 3-year average of the 98th percentile of the daily maximum 1-hour average. Because the 1-hour NO_2 NAAQS is evaluated over a three-year period, it is appropriately considered for construction activities that could last for multiple years. The 1-hour NO_2 NAAQS was considered in this analysis because of the anticipated construction duration of the proposed Project. The LSTs for CO were developed based on the 1-hour and 8-hour CAAQS of 20 ppm and 9.0 ppm, respectively. With respect to CO, the CAAQS are more stringent than the NAAQS; therefore, the NAAQS need not be specifically addressed. For PM_{10} and $PM_{2.5}$, the LSTs were derived based on requirements in SCAQMD Rule 403, Fugitive Dust.

4.1.2.2 Operations

This operational air quality assessment was conducted in accordance with the *L.A. CEQA Thresholds Guide*[17] and the SCAQMD's *CEQA Air Quality Handbook*[18] for evaluating air quality impacts. The methodology for determining baseline conditions, estimating airport-related emissions, and assessing the significance of impacts followed standard practices for determining impacts of aviation sources that have been found acceptable by USEPA, CARB, and SCAQMD; this methodology is summarized below.

Regional and localized operational air quality impacts were assessed based on the net new incremental increase in emissions compared to existing conditions. In accordance with the State *CEQA Guidelines* and the *L.A. CEQA Thresholds Guide*, the impacts of the proposed Project were compared to baseline conditions to determine significance under CEQA.

Emission Source Types

The sources of air emissions associated with LAX are typical of sources associated with most large commercial service airports. Typical sources include aircraft during the landing/takeoff cycle, ground support equipment (GSE), auxiliary power units (APUs), airport-related motor vehicles (from passengers, employees, shuttle vans, fleet vehicles, buses, etc.) within the

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[16] A site-specific NO_X to NO_2 ratio was developed based on the project-specific sources contributing to the top 10% of receptors recording the highest ~~U.S. Environmental Protection Agency, "NO_2/NO_X In-Stack Ratio (ISR) Database," http://www.epa.gov/ttn/scram/no2_isr_database.htm. Accessed April 2013. If no equipment-specific information is~~ NO_X concentrations.~~available, the default NO2/NOX In-Stack Ratio is 0.10. Data provided in the "NO2_ISR_alpha_database.xlsx" file downloaded from the website does not include information specifically for construction equipment. Values for diesel internal combustion engines (ICE) for a water pump indicate ratios ranging from 0.0 to 0.5. However, the upper and lower-end ratios are based on very low average NOX values and were considered not representative of the project. Two of the ICE water pumps with higher average NOX values had ratios of approximately 0.09 and 0.16. Given that none of the data specifically applies to construction equipment, a default value of 0.10 was used in the analysis.~~

[17] City of Los Angeles, *L.A. CEQA Thresholds Guide*, 2006, B-1.

[18] South Coast Air Quality Management District, *CEQA Air Quality Handbook*, 1993; as updated by *SCAQMD Air Quality Significance Thresholds*, March 2011, available at http://www.aqmd.gov/CEQA/handbook/signthres.pdf, Accessed May 2013.

airport roadway network, construction-related emissions, and stationary sources (e.g., boilers and generators).

The incremental increase in regional daily air pollutant emissions of CO, VOC, NO_X, SO_2, PM_{10}, and $PM_{2.5}$ were compared to the existing airport uses. Sources of emissions are generally divided into two categories: mobile and stationary. Examples of LAX-related mobile sources include aircraft, ground support equipment (GSE), and on-road motor vehicles. Examples of LAX-related stationary sources include hangar utility equipment such as air conditioning and water heating/cooling units.

As noted in Chapter 2, *Project Description*, neither the fleet composition nor operational levels of aircraft serving LAX would change as a result of the proposed Project. Criteria pollutant emissions from aircraft were computed for the 2015 proposed Project using the FAA's Emissions and Dispersion Modeling System (EDMS), the FAA-required and EPA-preferred model to calculate emissions from aircraft.[19]

Table 4.1-2 depicts the total aircraft operations utilized in the emissions inventories for calendar year 2015. As mentioned, these operational levels do not differ between the Without Project and the With Project scenarios for a given year, and are based upon total operations reported in the FAA Terminal Area Forecast (TAF). Also summarized on **Table 4.1-2** are taxi times utilized in the operational emissions analysis; as shown, implementation of the proposed Project would slightly increase taxi time (by 0.01 minutes) over the Without Project scenario.[20]

Table 4.1-2

Aircraft Operations and Taxi Times, Operations

		Taxi-In Time (minutes)		Taxi-Out Time (minutes)	
Year	**Operations**	**Without Project**	**With Project**	**Without Project**	**With Project**
2015	637,903	9.0	9.0	14.40	14.41

Source: FAA, Terminal Area Forecast, 2012; FAA's Aviation System Performance Metrics (ASPM) database for calendar year 2010; Ricondo & Associates, Inc., 2013; URS Corporation, 2013.

The aircraft fleet mix and operational levels were assigned within the EDMS in a manner consistent with the noise assessment developed concurrently for this Draft EIR (see Section 4.6 and Appendix C). Where possible, aircraft engines representing the actual in-use fleet at LAX were applied in EDMS using LAWA's Aircraft Noise and Operations Monitoring System (ANOMS) data, cross-referenced with proprietary fleet data for air carrier and business jet operations, on the basis of reported aircraft tail number. In segments of the fleet where such matches were not possible, EDMS default engine selections were retained. The taxi times for

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[19] Federal Aviation Administration, *Emissions and Dispersion Modeling System User's Manual with Supplements, EDMS Version 5.1.4*, June 2013.

[20] Note these taxi times are with and without the project. Table 4.1-1 lists taxi times for the without project condition and the period of time during construction when Runway 7L-25R would be closed.

existing conditions[21] were adjusted to future year conditions on the basis of additional estimated taxi distance, holding taxi speed, runway utilization, and delay assumptions.[22]

Aircraft emissions occur during approach, taxi-in (from runway to apron including landing roll), engine startup at the apron, taxi-out (from apron to runway), takeoff, and climb-out. As previously noted, the LAX Runway 7L/25R RSA improvements would result in a slight change in taxi-out times of 0.01 minutes.

The proposed Project would have no effect on any stationary sources; thus, stationary sources were not included in the operational air quality emissions analysis.

Localized Operations

Traffic-congested roadways and intersections have the potential to generate localized high levels of CO. Carbon monoxide is produced in greatest quantities from vehicle combustion and is usually concentrated at or near ground level because it does not readily disperse into the atmosphere.

As stated previously, operation of the proposed Project would not result in additional or increased operational activities and would not result in net new trips to LAX. The SCAQMD recommends an evaluation of potential localized CO impacts when vehicle to capacity (V/C) ratios are increased by two percent or more at intersections with a level of service (LOS) of C or worse or when LOS declines from A through C to D or worse. The proposed Project would not cause an increase in vehicular traffic compared to existing conditions and would not result in long-term operational changes to traffic activity and traffic flows within the airport study area. Therefore, a CO hotspots modeling analysis is not required and is not included in this assessment as the proposed Project would not cause or contribute to the formation of CO hotspots.

The on-site portion of daily emissions from the sources described above would not result in localized effects at off-site sensitive receptors. Operation of the proposed Project would not result in additional or increased operations activities at LAX. The future operation of the proposed Project would not result in long-term operational changes to traffic activity and traffic flows within the airport study area as, in the long-term, the proposed Project would not increase the number of employees or airline passengers traveling to/through LAX. Only the difference in taxi distance for aircraft departing from Runway 7L changes between the existing conditions and the proposed Project. Therefore, impacts will be determined based on the minimal contribution of net new emissions from taxiing emissions associated with this incremental increase in distance between the gates and the end of Runway 7L (i.e., for aircraft departing from Runway 7L).

4.1.2.3 Odor Impacts (Construction and Operations)

Potential odor impacts were evaluated by conducting a screening-level analysis; if necessary this would be followed by a more detailed analysis (i.e., dispersion modeling). The screening-

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[21] FAA's Aviation System Performance Metrics (ASPM) database for calendar year 2010, equating to 9 minutes on taxi-out and 14.4 minutes on taxi-in (including delay).

[22] The only difference in the airfield layout associated with the With Project condition is the 832-foot extension to Runway 7L. With implementation of declared distances, the departure and landing point for aircraft remains the same except for aircraft departing from Runway 7L. Because aircraft departures from Runway 7L annually occur less than 1 percent, there is only a slight change in the average taxi-out times per aircraft operation. Note that the proposed Project would result in no change to taxi-in times.

level analysis consisted of reviewing the Project site plan and proposed Project elements to identify new or modified odor sources. If it is determined that the proposed Project would introduce a potentially significant new odor source, or significantly modify an existing odor source, then downwind sensitive receptor locations would be identified and site-specific dispersion modeling conducted to determine proposed Project impacts.

4.1.3 Existing Conditions

4.1.3.1 Climatological Conditions

The airport is located within the South Coast Air Basin of California, a 6,745 square-mile area encompassing all of Orange County and the urban, non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The meteorological conditions at the airport are heavily influenced by the proximity of the airport to the Pacific Ocean to the west and the mountains to the north and east. This location tends to produce a regular daily reversal of wind direction: onshore (westerly) during the day and offshore (easterly) at night. Comparatively warm, moist Pacific air masses drifting over cooler air resulting from coastal upwelling of cooler water often form a bank of fog that is generally swept inland by the prevailing westerly winds. The "marine layer" is generally 1,500 to 2,000 feet deep, extending only a short distance inland and rising during the morning hours producing a deck of low clouds. The air above is usually relatively warm, dry, and cloudless. The prevalent temperature inversion in the Basin tends to prevent vertical mixing of air through more than a shallow layer.

A dominating factor in the weather of California is the semi-permanent high-pressure area of the North Pacific Ocean. This pressure center moves northward in summer, holding storm tracks well to the north, and minimizing precipitation. Changes in the circulation pattern allow storm centers to approach California from the southwest during the winter months and large amounts of moisture are carried ashore. The Los Angeles region receives on average 10 to 15 inches of precipitation per year, of which 83 percent occurs during the months of November through March. Thunderstorms are light and infrequent, and on very rare occasions, trace amounts of snowfall have been reported at the airport.

The annual minimum mean, maximum mean, and overall mean temperatures at the airport are 55 degrees Fahrenheit (^{o}F), 70 ^{o}F, and 63°F, respectively. The prevailing wind direction at the airport is from the west-southwest with an average wind speed of roughly 6.4 knots (7.4 miles per hour [mph] or 3.3 meters per second [m/s]). Maximum recorded gusts range from 27 knots (31 mph or 13.9 m/s) in July to 54 knots (62 mph or 27.8 m/s) in March. The monthly average wind speeds range from 5.7 knots (6.5 mph or 2.9 m/s) in December to 7.4 knots (8.5 mph or 3.8 m/s) in April. [23]

4.1.3.2 Regulatory Setting

Air quality is regulated by federal, state, and local laws. In addition to rules and standards contained in the federal Clean Air Act (CAA) and the California Clean Air Act (CCAA), air quality in the Los Angeles region is subject to the rules and regulations established by the California Air

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[23] Ruffner, J.A., *Climates of the States: National Oceanic and Atmospheric Administration Narrative Summaries, Table, and Maps for Each State with Overview of State Climatologist Programs*, Third Edition, Volume 1: Alabama-New Mexico, Gale Research Company, 1985.

Resource Board (CARB) and the South Coast Air Quality Management District (SCAQMD) with oversight provided by the U.S. Environmental Protection Agency (EPA), Region IX.

Federal

The EPA is responsible for implementation of the federal CAA. Under the authority granted by the CAA, EPA has established National Ambient Air Quality Standards (NAAQS) for the following criteria pollutants: CO, NO_2, O_3, PM_{10}, $PM_{2.5}$, SO_2, and Pb. **Table 4.1-3** presents the NAAQS that are currently in effect for criteria air pollutants. As discussed previously, O_3 is a secondary pollutant, meaning that it is formed from reactions of precursor compounds under certain conditions. The primary precursor compounds that can lead to the formation of O_3 include VOC and NO_x.

Table 4.1-3

National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards	
			Primary	**Secondary**
Ozone (O_3)	8-Hour	0.070 ppm (137 µg/m^3)	0.075 ppm (147 µg/m^3)	Same as Primary Standard
	1-Hour	0.09 ppm (180 µg/m^3)	N/A	N/A
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	N/A
	1-Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	N/A
Nitrogen Dioxide (NO_2)	Annual	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)	Same as Primary Standard
	1-Hour	0.18 ppm (339 µg/m^3)	100 ppb (188 µg/m^3)	N/A[a]
Sulfur Dioxide (SO_2)[b]	Annual	N/A	0.030 ppm (80 µg/m^3)	N/A
	24-Hour	0.04 ppm (105 µg/m^3)	0.14 ppm (365 µg/m^3)	N/A
	3-Hour	N/A	N/A	0.5 ppm (1300 µg/m^3)
	1-Hour	0.25 ppm (655 µg/m^3)	75 ppb (196 µg/m^3)	N/A
Respirable Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m^3	N/A	N/A
	24-Hour	50 µg/m^3	150 µg/m^3	Same as Primary Standard
Fine Particulate Matter	Annual Arithmetic Mean	12 µg/m^3	12.0 µg/m^3	15 µg/m^3

Table 4.1-3

National and California Ambient Air Quality Standards

			National Standards	
Pollutant	**Averaging Time**	**California Standards**	**Primary**	**Secondary**
($PM_{2.5}$)	24-Hour	N/A	35 µg/m^3	Same as Primary Standard
Lead (Pb)	Rolling 3-Month Average	N/A	0.15 µg/m^3	Same as Primary Standard
	Quarterly	N/A[c]	1.5 µg/m^3 (for certain areas)	N/A
	30-Day Average	1.5 µg/m^3	N/A	N/A
Visibility Reducing Particles	8-Hour (State)	Extinction of 0.23 per km	N/A	N/A
	8-Hour (Lake Tahoe)	Extinction of 0.07 per km	N/A	N/A
Sulfates	24-Hour	25 µg/m^3	N/A	N/A
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m^3)	N/A	N/A
Vinyl Chloride	24-Hour	0.01 ppm (26 µg/m^3)	N/A	N/A

Notes:
NAAQS = National Ambient Air Quality Standards
CAAQS = California Ambient Air Quality Standards
ppm = parts per million (by volume)
µg/m^3 = micrograms per cubic meter
N/A = Not applicable
mg/m^3 = milligrams per cubic meter

[a] On August 1, 2011, the USEPA proposed a 1-hour secondary NO_2 standard that would be set at a level of 100 parts per billion (ppb) and a 1-hour secondary SO_2 standard that would be set at 75 ppb. These secondary standards would be identical to the NO_2 and SO_2 primary 1-hour standards (76 Federal Register [FR] 46084).

[b] On June 22, 2010, the 1-hour SO_2 NAAQS was updated and the previous 24-hour and annual primary NAAQS were revoked. The previous 1971 SO_2 NAAQS (24-hour: 0.14 ppm; annual: 0.030 ppm) remain in effect until one year after an area is designated for the 2010 NAAQS (75 FR 35520). On June 20, 2011, CARB recommended to USEPA that all of California be designated attainment; however, USEPA has not yet finalized area designations (Goldstene, James N., Executive Officer, CARB, Letter to Jared Blumenfeld, Regional Administrator, USEPA, June 20, 2011). On June 29, 2011, the USEPA responded that the USEPA intends to designate all areas of California as unclassifiable/attainment (Blumenfeld, Jared, Regional Administrator, USEPA, Letter to Governor Brown, California, June 29, 2011).

[c] The NAAQS for Pb is no longer applicable in California since the final area designations for the 2008 Pb NAAQS became effective on December 31, 2010 (75 FR 3086).

Source: California Air Resources Board, 2013.

The CAA also specifies future dates for achieving compliance with the NAAQS and mandates that states submit and implement a State Implementation Plan (SIP) for local areas not meeting these standards. These plans must include pollution control measures that demonstrate how the standards will be met. The 1990 amendments to the CAA identify specific emission reduction goals for areas not meeting the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or meet interim milestones.

The Project site is located within the South Coast Air Basin (Basin), which is a sub-region of the SCAQMD's jurisdiction including all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. The Los Angeles Basin is designated as a federal non-attainment area for O_3, $PM_{2.5}$, and Pb. The nonattainment designation under the CAA for O_3 is categorized into levels of severity based on the level of concentration above the standard, which is also used to set the required attainment date. The Los Angeles Basin is classified as an extreme nonattainment area for O_3. The Basin was reclassified on September 22, 1998 to attainment/maintenance for NO_2 and on June 11, 2007 for CO since concentrations of these pollutants dropped below the NO_2 and CO NAAQS for several years. More recently, the Los Angeles Basin was reclassified to attainment/maintenance for PM_{10} on July 26, 2013.[24] Attainment/maintenance means that the pollutant is currently in attainment and that measures are included in the SIP to ensure that the NAAQS for that pollutant are not exceeded again. **Table 4.1-4** presents the attainment designation for each of the federal criteria air pollutants.

Table 4.1-4

Los Angeles - South Coast Air Basin Criteria Pollutant Attainment Status

Criteria Pollutant	National Standards	California Standards
Ozone (O_3)	Nonattainment - Extreme	Nonattainment
Carbon Monoxide (CO)	Attainment - Maintenance	Attainment
Nitrogen Dioxide (NO_2)	Attainment - Maintenance	Nonattainment
Sulfur Dioxide (SO_2)	Attainment	Attainment
Respirable Particulate Matter (PM_{10})	Attainment - Maintenance	Nonattainment
Fine Particulate Matter ($PM_{2.5}$)	Nonattainment	Nonattainment
Lead (Pb)	Nonattainment	Nonattainment

Source: U.S. Environmental Protection Agency, Green Book, Available at http://www.epa.gov/air/oaqps/greenbook/index.html. As of July 31, 2013; California Air Resources Board. “Area Designations Maps/State and National,” Available at www.arb.ca.gov/desig/adm/adm.htm, Effective 04/01/1013.

State

The CCAA, signed into law in 1988, requires all areas of the state to achieve and maintain the California Ambient Air Quality Standards (CAAQS) by the earliest practical date. The CAAQS are at least as stringent as, and in several cases more stringent than, the NAAQS and include several more pollutants such as visibility reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. The currently applicable CAAQS are presented with the NAAQS in **Table 4.1-3**. The attainment status with regard to the CAAQS is presented in **Table 4.1-~~3~~ 4** along with the federal

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[24] U.S. Environmental Protection Agency, “Approval and Promulgation of Implementation Plans; Designation of Areas for Air Quality Planning Purposes; California; South Coast Air Basin; Approval of PM_{10} Maintenance Plan and Redesignation to Attainment for the PM_{10} Standard,” *Federal Register,* Vol. 78, No. 123, June 26, 2013, pp. 38223-38226.

attainment status for each criteria pollutant. The area is in attainment for sulfates and unclassified for hydrogen sulfide and visibility reducing particles.

CARB has been granted jurisdiction over a number of air pollutant emission sources that operate in the state. Specifically, CARB has the authority to develop emission standards for on-road motor vehicles, as well as for stationary sources and some off-road mobile sources. In turn, CARB has granted authority to the regional air pollution control and air quality management districts to develop stationary source emission standards, issue air quality permits, and enforce permit conditions.

Regional/Local

South Coast Air Quality Management District

The SCAQMD has jurisdiction over an area of 10,743 square miles consisting of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties, and the Riverside County portions of the Salton Sea Air Basin and Mojave Desert Air Basin. The Basin is a sub-region of SCAQMD's jurisdiction and covers an area of 6,745 square miles. While air quality in this area has improved, the Basin requires continued diligence to meet air quality standards.

The SCAQMD has adopted a series of Air Quality Management Plans (AQMPs) to meet the CAAQS and NAAQS. SCAQMD and CARB have adopted the 2012 AQMP which incorporates the latest scientific and technological information and planning assumptions, including the 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), and updated emission inventory methodologies for various source categories.[25] The Final 2012 AQMP was adopted by the AQMD Governing Board on December 7, 2012. Therefore, the 2012 AQMP is the most appropriate plan to use for consistency analysis. The AQMP builds upon other agencies' plans to achieve federal standards for air quality in the Basin. It incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, and on-road and off-road mobile sources. The 2012 AQMP builds upon improvements in previous plans, and includes new and changing federal requirements, implementation of new technology measures, and the continued development of economically sound, flexible compliance approaches. In addition, it highlights the significant amount of emission reductions needed and the urgent need to identify additional strategies, especially in the area of mobile sources, to meet all federal criteria pollutant standards within the timeframes allowed under the federal CAA.

The 2012 AQMP's key undertaking is to bring the Basin into attainment with NAAQS for 24-hour $PM_{2.5}$ by 2014. It also intensifies the scope and pace of continued air quality improvement efforts toward meeting the 2023 8-hour O_3 standard deadline with new measures designed to reduce reliance on the CAA Section 182(e)(5) long-term measures for NO_X and VOC reductions. SCAQMD expects exposure reductions to be achieved through implementation of new and advanced control technologies as well as improvement of existing technologies.

The control measures in the 2012 AQMP consist of four components: 1) Basin-wide and Episodic Short-term $PM_{2.5}$ Measures; 2) Contingency Measures; 3) 8-hour O_3 Implementation Measures; and 4) Transportation and Control Measures provided by the Southern California Association of Governments (SCAG). The Plan includes eight short-term $PM_{2.5}$ control

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[25] South Coast Air Quality Management District, 2012 Air Quality Management Plan (AQMP) website, http://www.aqmd.gov/aqmp/2012aqmp/index.htm, Accessed May 2013.

measures, 16 stationary source 8-hour O_3 measures, 10 early action measures for mobile sources and seven early action measures proposed to accelerate near-zero and zero emission technologies for goods movement related sources, and five on-road and five off-road mobile source control measures. In general, the District's control strategy for stationary and mobile sources is based on the following approaches: 1) available cleaner technologies; 2) best management practices; 3) incentive programs; 4) development and implementation of zero-near-zero technologies and vehicles and control methods; and 5) emission reductions from mobile sources.

SCAQMD also adopts rules to implement portions of the AQMP. At least one of these rules is applicable to the construction phase of the RSA. Rule 403 requires the implementation of best available fugitive dust control measures during active construction activities capable of generating fugitive dust emissions from on-site earth-moving activities, construction/demolition activities, and construction equipment travel on paved and unpaved roads. Also, SCAQMD Rule 1113 limits the amount of volatile organic compounds from architectural coatings and solvents, which lowers the emissions of odorous compounds.

Southern California Association of Governments

The Southern California Association of Governments (SCAG) is the metropolitan planning organization (MPO) for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and serves as a forum for the discussion of regional issues related to transportation, the economy, community development, and the environment. As the federally designated metropolitan planning organization (MPO) for the southern California region, SCAG is mandated by the federal government to research and develop plans for transportation, hazardous waste management, growth management, and air quality. SCAG is also responsible under the federal CAA for determining conformity of transportation projects, plans, and programs with applicable air quality plans. With regard to air quality planning, SCAG has prepared the 2012-2035 RTP/SCS, which addresses regional development and growth forecasts.

City of Los Angeles General Plan Air Quality Element

The City of Los Angeles General Plan was prepared in response to California State law requiring that each city and county adopt a long-term comprehensive general plan. According to State Guidelines, a general plan must be integrated, internally consistent, and present goals, objectives, policies, and implementation guidelines for decision makers to use. The City of Los Angeles addresses air quality issues in the Air Quality Element, which is part of the City's General Plan. The planning area for the City's Air Quality Element covers the entire City of Los Angeles, which encompasses an area of about 465 square miles. The City's General Plan Air Quality Element serves to aid the greater Los Angeles region in attaining federal and State ambient air quality standards at the earliest feasible date, while still maintaining economic growth and improving the quality of life. The City's Air Quality Element and its accompanying Clean Air Program acknowledge the interrelationships between transportation and land use planning in meeting the City's mobility and clean air goals. With the City's adoption of the Air Quality Element and the accompanying Clean Air Program, the City is seeking to achieve consistency with regional Air Quality, Growth Management, Mobility, and Congestion Management Plans.

In the Basin, the City of Los Angeles, CARB, and the SCAQMD have adopted or proposed additional rules and policies governing the use of cleaner fuels in public vehicle fleets. The City of Los Angeles Policy CF#00-0157 requires that all city-owned or operated diesel-fueled vehicles be equipped with particulate traps and that they use ultra-low-sulfur diesel fuel. CARB adopted a Risk Reduction Plan for diesel-fueled engines and vehicles. The SCAQMD has proposed a series of rules that would require the use of clean fuel technologies in on-road school buses, on-road heavy-duty public fleets, and street sweepers.

4.1.3.3 Existing Ambient Air Quality

In an effort to monitor the various concentrations of air pollutants throughout the basin, the SCAQMD has divided the region into 38 SRAs in which monitoring stations operate. The monitoring station nearest to LAX is the Southwest Coastal Los Angeles monitoring station, located at 7201 W. Westchester Parkway (referred to as the LAX Hastings site), approximately 1.5 miles northwest of the Central Terminal Area. Criteria pollutants monitored at this location include O_3, CO, NO_2, SO_2, and PM_{10}. A summary of the monitored pollutants from 2008 through 2012 is provided in **Table 4.1-5**. Since $PM_{2.5}$ has not been monitored at the Southwest Coastal Los Angeles Monitoring Station, data for this pollutant were obtained from the North Long Beach Monitoring Station located at 3648 North Long Beach Boulevard, 12 miles to the southeast of the airport. As shown, the data show a trend of generally improving (i.e., lower) concentrations of criteria pollutants at LAX and, consequently, in the Project site, with the exception of ozone, which shows an up and down pattern from year to year.

Table 4.1-5

Southwest Coastal Los Angeles and South Coastal Los Angeles County Monitoring Station Ambient Air Quality Data

	Monitoring Data by Calendar Year				
Pollutant	**2008**	**2009**	**2010**	**2011**	**2012**
Ozone (O_3)					
Maximum Concentration 1-Hour Period (ppm)	0.086	0.077	0.089	0.078	0.106
Days over State Standard (0.09 ppm)	0	0	0	0	1
Maximum Concentration 8-Hour Period (ppm)	0.075[1]	0.070	0.070	0.067	0.075
Days over State Standard (0.07 ppm)	1	0	0	0	1
Days over Federal Standard (0.075 ppm)	0	0	0	0	0
Nitrogen Dioxide (NO_2)					
Maximum Concentration 1-Hour Period (ppm)	0.094	0.077	0.076	0.098	0.077
98th Percentile 1-Hour Average (ppm)	0.076	0.069	0.061	0.065	0.055
Days over State Standard (0.18 ppm)	0	0	0	0	0
Annual Arithmetic Mean (ppm)	0.014	*	0.012	0.013	*
Exceed State Standard? (0.030 ppm)	No	No	No	No	No
Carbon Monoxide (CO)					
Maximum Concentration 1-Hour Period (ppm)	4	3	3	2	3
Days over State Standard (20.0 ppm)	0	0	0	0	0
Maximum Concentration 8-Hour Period (ppm)	3	2	2	2	2

Table 4.1-5

Southwest Coastal Los Angeles and South Coastal Los Angeles County Monitoring Station Ambient Air Quality Data

	Monitoring Data by Calendar Year				
Pollutant	**2008**	**2009**	**2010**	**2011**	**2012**
Days over State Standard (9.0 ppm)	0	0	0	0	0
Sulfur Dioxide (SO_2)					
Maximum Concentration 1-Hour Period (ppb)	15	12	16	8	5
Days over State Standard (75 ppb)	0	0	0	0	0
Maximum Concentration 24-Hour Period (ppb)	4	6	2	2	1
Days over State Standard (140 ppb)	0	0	0	0	0
Respirable Particulate Matter (PM_{10})					
Maximum Concentration 24-Hour Period (μg/m^3)	50	52	37	41	31
Days over State Standard (50 μg/m^3)	0	6	*	0	0
Days over Federal Standard (150 μg/m^3)	0	0	0	0	0
Annual Concentration (μg/m^3)	25.5	25.5	*	21.4	19.6
Exceed State Standard? (20 μg/m^3)	Yes	Yes	*	Yes	No
Fine Particulate Matter ($PM_{2.5}$)[2]					
Maximum Concentration 24-Hour Period (μg/m^3)	57.2	63.0	35.0	39.7	49.8
Days over Federal Standard (35 μg/m^3)	8	6	0	2	4
Annual Concentration (μg/m^3)	14.1	12.8	10.3	11.3	10.6
Exceed State Standard? (12 μg/m^3)	Yes	Yes	No	No	No

Notes:
μg/m^3 = micrograms per cubic meter
PM_{10} = particulate matter equal to less than 10 microns in diameter
$PM_{2.5}$ = particulate matter equal to less than 2.5 microns in diameter
ppm = parts per million
* Insufficient data to determine the value

[1] State and federal statistics may differ for the following reasons: State statistics are based on California-approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers. In 2008, the federal method resulted in an ozone concentration of 0.075 ppm (which does not exceed the federal standard); the State method resulted in an ozone concentration of 0.076 and there is 1 day that exceeded the State standard.

[2] $PM_{2.5}$ data not recorded at the Westchester Parkway Monitoring Station. For informational purposes, data from North Long Beach monitoring station located 12 miles to the southeast of the airport is provided.

Source: California Air Resources Board, State and Local Air Quality Monitoring Plan, iAdam, Air Quality Data Statistics, http://www.arb.ca.gov/adam/netrpt, 2013; United States Environmental Protection Agency, AirData Monitor Values Report, http://www.epa.gov/airdata/, 2013.

The data shows the following pollutant trends (refer to **Table 4.1-3** for NAAQS and CAAQS standards):

Ozone - The maximum 1-hour O_3 concentration recorded during the 2008 to 2012 period was 0.106 ppm, recorded in 2012. During this period, the California standard was not exceeded. The maximum 8-hour O_3 concentration was 0.075 ppm recorded in 2008 and 2012. The

California standards were exceeded once during the reporting period, while the NAAQS were not violated.

Nitrogen Dioxide - The highest 1-hour NO_2 concentration recorded was 0.098 ppm in 2011. The highest recorded NO_2 annual arithmetic mean was 0.014 ppm recorded in 2008. As shown, the standards were not exceeded during the five-year period.

Carbon Monoxide - The highest 1-hour CO concentration recorded was 4 ppm, recorded in 2008. The maximum 8-hour CO concentration recorded was 3 ppm recorded in 2008. As demonstrated by the data, the standards were not exceeded during the five-year period.

Sulfur Dioxide - The highest 1-hour concentration of SO_2 was 16 ppb recorded in 2010. The maximum 24-hour concentration was 6 ppb, recorded in 2009. As shown, the standards were not exceeded during the five-year period.

Respirable Particulate Matter (PM_{10}) - The highest recorded 24-hour PM_{10} concentration recorded was 52 $\mu g/m^3$ in 2009. During the period 2008 to 2012, the CAAQS for 24-hour PM_{10} was exceeded between 0 and 1.6 percent of the time; the NAAQS was not violated. The maximum annual arithmetic mean recorded was 25.5 $\mu g/m^3$ in 2008 and 2009.

Fine Particulates ($PM_{2.5}$) - The maximum 24-hour $PM_{2.5}$ concentration recorded was 63.0 $\mu g/m^3$ in 2008. The 24-hour NAAQS was exceeded between 0 and 2.2 percent annually from 2008-2012. The highest annual geometric mean of 14.1 was recorded in 2008.

Lead (Pb) – The monitored area for the proposed Project site is in compliance with the CAAQS and NAAQS for ambient concentrations of lead. The Los Angeles County portion of the Basin is currently in nonattainment with the California and National standards for Pb primarily as the result of lead emissions from an industrial lead-acid battery recycling facility in the City of Commerce. The SCAQMD currently maintains a network of three source-oriented lead monitors around the facility. Monitoring is only conducted periodically elsewhere in the Basin because the primary sources of atmospheric Pb, leaded gasoline and lead-based paint, are no longer available in the Basin.

4.1.4 CEQA Thresholds of Significance

As noted in the Initial Study, for the purposes of this Draft EIR, and in accordance with Appendix G of the CEQA Guidelines, which is also incorporated in the City of Los Angeles *CEQA Thresholds Guide*[26], an impact to air quality is considered significant if the proposed project would:

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

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[26] City of Los Angeles, *L.A. CEQA Thresholds Guide*, 2006, B-1.

The SCAQMD has developed operational and construction-related thresholds of significance for air quality impacts of projects proposed in the Basin. These thresholds, which are included in the SCAQMD *Air Quality Analysis Guidance Handbook*, are utilized for purposes of CEQA, and are summarized in **Table 4.1-6**. In accordance with the SCAQMD *Air Quality Analysis Guidance Handbook*, a significant air quality impact would occur if the estimated incremental increase in operational or construction-related emissions attributable to the project would be greater than the daily operational or construction emission thresholds presented in **Table 4.1-6**.

Table 4.1-6

South Coast Air Quality Management District Thresholds of Significance for Air Pollutant Emissions in the South Coast Air Basin

	Mass Daily Thresholds (lbs/day)	
Pollutant	Construction	Operation
Carbon Monoxide (CO)	550	550
Nitrogen Oxides (NO_x)	100	55
Volatile Organic Compounds (VOC)[a]	75	55
Sulfur Oxides (SO_x)	150	150
Respirable Particulate Matter (PM_{10})	150	150
Fine Particulate Matter ($PM_{2.5}$)	55	55
Lead (Pb)[b]	3	3

Notes:
lbs/day = pounds per day
[a] The emissions of VOCs and reactive organic gases are essentially the same for the combustion emission sources that are considered in this EIR. This EIR will typically refer to organic emissions as VOCs.
[b] The only source of lead emissions from LAX is from aviation gasoline (AvGas) associated with piston-engine general aviation aircraft; however, due to the low number of piston-engine general aviation aircraft operations at LAX, AvGas quantities are low and emissions from these sources would not be materially affected by the Project.
Source: SCAQMD Air Quality Significance Thresholds. Available at www.aqmd.gov/ceqa/handbook/signthres.pdf, March 2011.

The SCAQMD has also developed operational and construction-related thresholds of significance for local project air pollutant concentrations. These thresholds are summarized in **Table 4.1-7**. In accordance with the SCAQMD *Air Quality Analysis Guidance Handbook,* a significant air quality impact would occur if the estimated incremental ambient concentrations due to construction-related or operations-related emissions would be greater than the concentration thresholds presented in **Table 4.1-7**. The SCAQMD's recommended thresholds for the evaluation of localized air quality impacts are based on the difference between the maximum monitored ambient pollutant concentrations in the area and the CAAQS or NAAQS. Therefore, the thresholds depend upon the concentrations of pollutants monitored locally with respect to a project site. For pollutants that already exceed the CAAQS or NAAQS (e.g., PM_{10} and $PM_{2.5}$), the thresholds are based on SCAQMD Rule 403 for construction and Rule 1303, Table A-2 for operations as described in the SCAQMD *Final Localized Significance Threshold Methodology*. The methodology requires that the anticipated increase in ambient air concentrations, determined using a computer-based air quality dispersion model, be compared to localized significance thresholds for PM_{10}, $PM_{2.5}$, NO_2, and CO.[27] The significance threshold for PM_{10} represents compliance with Rule 403 (Fugitive Dust) for construction and Rule 1303

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[27] South Coast Air Quality Management District, *Final Localized Significance Threshold Methodology*, 2008. Available at http://www.aqmd.gov/ceqa/handbook/LST/Method_final.pdf, Accessed May 2013.

(New Source Review Requirements) for operations, while the thresholds for NO_2 and CO represent the allowable increase in concentrations above background levels in the vicinity of the Project site that would not cause or contribute to an exceedance of the relevant ambient air quality standards. The significance thresholds for $PM_{2.5}$ are intended to constrain emissions so as to aid in the progress toward attainment of the ambient air quality standards.[28] The applicable thresholds are shown below in **Table 4.1-7**. For the purposes of this analysis, the localized construction emissions resulting from development of the proposed Project are assessed with respect to the thresholds in **Table 4.1-7** using detailed dispersion modeling (i.e., AERMOD).

The SCAQMD provides mass rate look-up tables in Appendix C of the *Final Localized Significance Threshold Methodology*, which allows a lead agency to readily determine if the daily emissions for proposed construction or operational activities could result in significant localized air quality impacts that could exceed the concentration-based thresholds in **Table 4.1-7**. For the purposes of this analysis, the incremental localized operational emissions resulting from the difference in taxi times for aircraft taxiing to Runway 7L-25R between the existing conditions and the proposed Project are assessed with respect to the mass rate look-up tables in Appendix C of the *Final Localized Significance Threshold Methodology*.

Table 4.1-7

SCAQMD CEQA Threshold of Significance for Air Pollutant Concentrations
Project Related Concentration Thresholds

Pollutant	Averaging Period	Construction	Operation	Project Only or Total[a]
PM_{10}	Annual	1.0 µg/m^3	1.0 µg/m^3	Project Only
	24-hour	10.4 µg/m^3	2.5 µg/m^3	Project Only
$PM_{2.5}$	24-hour	10.4 µg/m^3	2.5 µg/m^3	Project Only
CO	1-hour	20 ppm (23 mg/m^3)	20 ppm (23 mg/m^3)	Total including Background
	8-hour	9.0 ppm (10 mg/m^3)	9.0 ppm (10 mg/m^3)	Total including Background
NO_2	1-hour (State)	0.18 ppm (339 µg/m^3)	0.18 ppm (339 µg/m^3)	Total including Background
	1-hour (Federal)[b]	0.100 ppm (188 µg/m^3)	0.100 ppm (188 µg/m^3)	Total including Background
	Annual (State)[c]	0.030 ppm (57 µg/m^3)	0.030 ppm (57 µg/m^3)	Total including Background

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[28] South Coast Air Quality Management District, *Final Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds*, (2006).

Table 4.1-7

SCAQMD CEQA Threshold of Significance for Air Pollutant Concentrations
Project Related Concentration Thresholds

Pollutant	Averaging Period	Construction	Operation	Project Only or Total[a]
SO_2	1-hour (State)	0.25 ppm (655 μg/m^3)	0.25 ppm (655 μg/m^3)	Total including Background
	1-hour (Federal)[d]	0.075 ppm (196 μg/m^3)	0.075 ppm (196 μg/m^3)	Total including Background
	24-hour	0.04 ppm (105 μg/m^3)	0.04 ppm (105 μg/m^3)	Total including Background

Notes:

[a] The concentration threshold for attainment pollutants (CO, PM_{10}, and NO_2) is the CAAQS, which is at least as stringent as the NAAQS. The concentration threshold for nonattainment pollutants ($PM_{2.5}$) has been developed by SCAQMD for project construction or operational impacts.

[b] To evaluate project impacts to ambient 1-hour NO_2 levels, the analysis includes both the current SCAQMD 1-hour state NO_2 threshold and the more stringent revised 1-hour federal ambient air quality standard of 188 μg/m^3. To attain this standard, the 3-year average of 98th percentile of the daily maximum 1-hour average at a receptor must not exceed 0.100 ppm.

[c] The state standard is more stringent than the federal standard.

[d] To attain the SO_2 federal 1-hour standard, the 3-year average of the 99th percentile of the daily maximum 1-hour averages at a receptor must not exceed 0.075 ppm.

Source: SCAQMD, 1993, 2011; USEPA, 2010a (75 FR 6474, "Primary National Ambient Air Quality Standards for Nitrogen Dioxide, Final Rule," February 8, 2010) and 2010b (75 FR 35520, "Primary' National Ambient Air Quality Standard for Sulfur Dioxide, Final Rule," June 22, 2010).

4.1.5 Project Design Features

4.1.5.1 LAX Master Plan EIS/EIR Commitments

As part of the LAX Master Plan, LAWA adopted several mitigation measures and commitments pertaining to air quality to avoid or reduce environmental impacts, as described in the LAX Master Plan MMRP. Although the proposed Project is not part of the LAX Master Plan, LAWA is committed to implementing the applicable LAX Master Plan commitments to all LAWA projects, including the proposed Project. Of the three commitments and four mitigation measures that were designed to address air quality impacts related to implementation of the LAX Master Plan, none of the commitments are applicable to the proposed Project, but three of the control measures are applicable to the proposed Project and were considered in the air quality analysis herein (denoted below as LAX-AQ-1, LAX-AQ-2, and LAX-AQ-4). The transportation-related control measure (denoted as LAX-AQ-3) is not applicable to the proposed Project because the Project does not include ground transportation access components; thus LAX-AQ-3 was not considered in the air quality analysis herein. The portions of the three air quality control measures that would be applicable to the proposed Project are summarized below in **Table 4.1-8**, **Table 4.1-9**, and **Table 4.1-10**.

- **LAX-AQ-1 – General Air Quality Control Measures.** This measure describes a variety of specific actions to reduce air quality impacts associated with projects at LAX, and applies to all projects. Some components of LAX-AQ-1 are not readily quantifiable, but would be implemented as part of LAX Master Plan projects. Specific measures are identified in **Table 4.1-8**.

Table 4.1-8

General Air Quality Control Measures[a]

Measure Number	Measure	Type of Measure	Quantified Emissions Reduction
1a	Watering (per SCAQMD Rule 403) – twice daily	Fugitive Dust	55% PM_{10} and $PM_{2.5}$
1b	Ultra-low sulfur diesel (ULSD) fuel will be used in construction equipment.	Off-Road Mobile	Assumed in modeling
1c	Post a publicly visible sign with the telephone number and person to contact regarding dust complaints; this person shall respond and take corrective action within 24 hours.	Fugitive Dust	NQ
1d	Prior to final occupancy, the applicant demonstrates that all ground surfaces are covered or treated sufficiently to minimize fugitive dust emissions.	Fugitive Dust	NQ
1e	All roadways, driveways, sidewalks, etc., being installed as part of the project should be completed as soon as possible; in addition, building pads should be laid as soon as possible after grading.	Fugitive Dust	NQ
1f	Prohibit idling or queuing of diesel-fueled vehicles and equipment in excess of five minutes. This requirement will be included in specifications for any LAX projects requiring on-site construction.[b]	Nonroad Mobile	NQ
1g	Require that all construction equipment working on-site is properly maintained (including engine tuning) at all times in accordance with manufacturers' specifications and schedules.	Mobile and Stationary	NQ

Notes:
NQ = Not Quantified
[a] These measures are from LAX Master Plan Mitigation Measure MM-AQ-2, unless otherwise noted.
[b] From LAX Master Plan Mitigation Measure MM-AQ-2 and Community Benefits Agreement Measure X.M.
Source: Los Angeles World Airports, *LAX Master Plan Final EIS/EIR*, April 2004; Los Angeles World Airports, *Community Benefits Agreement*, 2006.

- **LAX-AQ-2 - Construction-Related Control Measures.**[29] This measure describes numerous specific actions to reduce fugitive dust emissions and exhaust emissions from on-road and off-road mobile and stationary sources used in construction. Some components of LAX-AQ-2 are not readily quantifiable, but would be implemented as part of LAX projects.

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[29] The mitigation elements presented in LAX-AQ-2 were derived from LAX Master Plan EIS/EIR Mitigation Measure MM-AQ-3.

These control strategies are expected to reduce construction-related emissions. Specific measures are identified in **Table 4.1-9**.

Table 4.1-9

Construction-Related Air Quality Control Measures[a]

Measure Number	Measure	Type of Measure	Potential Emissions Reduction by Equipment
2a	All diesel-fueled equipment used for construction will be outfitted with the best available emission control devices, where technologically feasible, primarily to reduce emissions of diesel particulate matter (PM), including fine PM (PM2.5), and secondarily, to reduce emissions of NO_x. This requirement shall apply to diesel-fueled off-road equipment (such as construction machinery), diesel-fueled on-road vehicles (such as trucks), and stationary diesel-fueled engines (such as electric generators). (It is unlikely that this measure will apply to equipment with Tier 4 engines.) The emission control devices utilized in construction equipment shall be verified or certified by California Air Resources Board or US Environmental Protection Agency for use in on-road or off-road vehicles or engines. For multi-year construction projects, a reassessment shall be conducted annually to determine what constitutes a best available emissions control device.[b]	Off-Road Mobile	85% PM10 PM2.5, adjusted for compatibility
2b	Watering (per SCAQMD Rule 403) – three times daily	Fugitive Dust	61% PM_{10} and 61% $PM_{2.5}$
2c	Pave all construction access roads at least 100 feet onto the site from the main road.	Fugitive Dust	NQ
2d	To the extent feasible, have construction employees' work/commute during off-peak hours.	On-Road Mobile	NQ
2e	Make available on-site lunch trucks during construction to minimize off-site worker vehicle trips.	On-Road Mobile	NQ
2f	Utilize on-site rock crushing facility, when feasible, during construction to reuse rock/concrete and minimize off-site truck haul trips.	Nonroad Mobile	NQ
2g	Specify combination of electricity from power poles and portable diesel- or gasoline-fueled generators using "clean burning diesel" fuel and exhaust emission controls.	Stationary Point Source Controls	NQ
2h	Suspend use of all construction equipment during a second-stage smog alert in the immediate vicinity of LAX.	Mobile and Stationary	NQ
2i	Utilize construction equipment having the minimum practical engine size (i.e., lowest appropriate horsepower rating for intended job).	Mobile and Stationary	NQ
2j	Prohibit tampering with construction equipment to increase horsepower or to defeat emission control devices.	Mobile and Stationary	NQ
2k	The contractor or builder shall designate a person or persons to ensure the implementation of all components of the construction-related measure through direct inspections, record reviews, and investigations of complaints.	Administrative	NQ

Table 4.1-9

Construction-Related Air Quality Control Measures[a]

Measure Number	Measure	Type of Measure	Potential Emissions Reduction by Equipment
2l	LAWA will locate rock-crushing operations and construction material stockpiles for all LAX-related construction in areas away from LAX-adjacent residents, to the extent possible, to reduce impacts from emissions of fugitive dust.[c]	Stationary	Can be quantified in modeling assumptions
2m	LAWA will ensure that there is available and sufficient infrastructure on-site, where not operationally or technically infeasible, to provide fuel to alternative-fueled vehicles to meet all requests for alternative fuels from contractors and other users of LAX. This will apply to construction equipment and to operations-related vehicles on-site. This provision will apply in conjunction with construction or modification of passenger gates related to implementation of the LAX Master Plan relative to the provision of appropriate infrastructure for electric GSE.[d]	Mobile	NQ
2n	On-road trucks used on LAX construction projects with a gross vehicle weight rating of at least 19,500 pounds shall, at a minimum, comply with USEPA 2007 on-road emissions standards for PM10 and NO_x.[e]	On-Road Mobile	Assumed in modeling
2o	Prior to January 1, 2015, all off-road diesel-powered construction equipment greater than 50 horsepower shall meet USEPA Tier 3 off-road emission standards. After December 31, 2014, all off-road diesel-power construction equipment greater than 50 horsepower shall meet USEPA Tier 4 off-road emissions standards. Tier 4 equipment shall be considered based on availability at the time the construction bid is issued. LAWA will encourage construction contractors to apply for SCAQMD "SOON" funds to accelerate clean-up of off-road diesel engine emissions.[f]	Off-Road Mobile	Assumed in modeling

Notes:

[a] These measures are from LAX Master Plan Mitigation Measure MM-AQ-2, unless otherwise noted.

[b] From LAX Master Plan Mitigation Measure MM-AQ-2 and Community Benefits Agreement Measure X.F.

[c] From Community Benefits Agreement Measure X.L.

[d] From Community Benefits Agreement Measure X.N.

[e] From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-1.

[f] From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-1.

Source: Los Angeles World Airports, *LAX Master Plan Final EIS/EIR*, April 2004; Los Angeles World Airports, *Community Benefits Agreement*, 2006; Los Angeles World Airports, *Preliminary LAX Specific Plan Amendment Study Report for Los Angeles International Airport (LAX) Specific Plan Amendment Study*, June 2012.

- **LAX-AQ-4 – Operations-Related Control Measures.** The principle feature of this measure is the conversion of LAX GSE to low and ultra-low emission technology (e.g., electric, fuel cell, and other future low-emission technologies). It should be noted that no estimate of the air quality benefit (i.e., emission reductions) of other secondary measures is made in this analysis. Specific measures are identified in **Table 4.1-10**.

Table 4.1-10

Operations-Related Air Quality Control Measures [1]

Measure Number	Measure	Type of Measure
4a	LAX GSE will be converted to low- and ultra-low emission technology (e.g., electric, fuel cell, and other future low-emission technologies). Both LAWA- and tenant-owned equipment will be included in this conversion program, which will be implemented in phases. LAWA will assign a GSE coordinator whose responsibility it will be to ensure the successful conversion of GSE in a timely manner. This coordinator will have adequate authority to negotiate on behalf of the City and have sufficient technical support to evaluate technical issues that arise during the implementation of this measure.[2]	Airside Operations
4d	LAWA will require the use of electric lawn mowers and leaf blowers, as these units become available for commercial use, for landscape maintenance associated with the proposed project.[3]	General
4e	LAWA will require the conversion of sweepers to alternative fuels or electric power for ongoing airfield and roadway maintenance. In the 2006 GSE inventory, two of ten sweepers were electric powered and one was either CNG or LPG fueled. HEPA filters will be installed on airport sweepers where the use of HEPA filters is technologically and financially feasible and does not pose a safety hazard to airport operations.[4]	General
4f	LAWA will ensure that there is available and sufficient infrastructure on-site, where not operationally or technically infeasible, to provide fuel to alternative-fueled vehicles to meet all requests for alternative fuels from contractors and other users of LAX. This will apply to construction equipment and to operations-related vehicles on-site. This provision will apply in conjunction with construction or modification of passenger gates related to implementation of the LAX Master Plan relative to the provision of appropriate infrastructure for electric GSE.[5]	Operational Vehicles.

Notes:

NQ = Not Quantified

[1]~~.~~ These measures are from LAX Master Plan Mitigation Measure MM-AQ-4, unless otherwise noted.

[2]~~.~~ From Community Benefits Agreement Measure X.F.

[3]~~.~~ From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-3.

[4]~~.~~ From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-3.

[5]~~.~~ From Community Benefits Agreement Measure X.N.

4.1.6 Impact Analysis

4.1.6.1 Construction Emissions

Regional Construction Emissions

The peak daily emissions were calculated for each phase of construction and for the 110-day runway closure. Criteria and precursor pollutant emissions (VOC, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$) for aircraft are presented in **Table 4.1-11**. Total construction period emissions and significance thresholds ~~, and~~ are presented in **Table 4.1-~~11~~ 12** for all ~~criteria and precursor~~ pollutants studied ~~(VOC, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$)~~. As shown therein, construction-related daily (short-term) emissions of CO, VOC, and NO_X, would exceed SCAQMD significance thresholds for unmitigated construction emissions. These calculations include reductions achieved with implementation of mandated dust control measures~~,~~ (as required by SCAQMD Rule 403 ~~(~~- Fugitive Dust), as well as implementation of exhaust controls.~~.~~

~~These calculations also include reductions achieved with implementation of exhaust controls.~~ The proposed Project would implement measures to reduce emissions from the combustion of fossil fuels. The proposed Project would use equipment that meet stringent emission standards for NO_X, PM_{10}, and $PM_{2.5}$, which would result in emission reductions compared to fleet-wide average emissions for heavy-duty construction equipment and trucks in the southern California region. As discussed in Section 4.1.5, on-road trucks would comply with the USEPA 2007 on-road emissions standards for NO_2 and diesel particulate matter ~~or~~ (DPM), ~~(~~primarily in the form of $PM_{2.5}$~~)~~. Compliance with the USEPA 2007 on-road emission standards result in a reduction of NO_2 and DPM by approximately 40 percent and 22 percent, respectively, compared to fleet-wide average emissions for heavy-duty trucks. Due to the high number of trucks needed for the grading work, the proposed Project has additionally committed to using only haul trucks that would comply with the USEPA 2007 on-road emissions standards for NO_2 and DPM during the mass grading phase of construction.[30] Off-road diesel-powered construction equipment greater than 50 horsepower (hp) would meet USEPA Tier 3 off-road emissions standards prior to January 1, 2015, and Tier 4 standards after December 31, 2014. Compliance with the USEPA Tier 3 and Tier 4 off-road emissions standards would also result in substantial reduction in emissions of NO_2 and DPM compared to fleet-wide average emissions for heavy-duty construction equipment.

Table 4.1-11

2015 Aircraft Operations Emissions during Runway Closure (lbs/day)

Pollutant	No Project	Runway Closure	Incremental Difference
CO	16,247	17,797	1,550
VOC	2,466	2,641	174
NO_X	18,888	19,184	296
SO_2	1,854	1,945	91
PM_{10}	205	213	8
$PM_{2.5}$	205	213	8

Source: Ricondo & Associates, Inc., December 2013.

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[30] The SCAQMD requested that LAWA consider requiring haul trucks meet the 2010 on-road emission standards for this Project. LAWA has agreed to incorporate that requirement into the Project, if sufficient equipment that meets these standards is available within 200 miles of the Project (see Section 4.1.8). However, because LAWA cannot guarantee that sufficient equipment is available that meets the 2010 on-road emission standards, the analysis was based on meeting the 2007 on-road emission standards.

Table 4.1-12

2015 Peak Construction Emissions (lbs/day)

Pollutant	Incremental Aircraft Operations	Construction Equipment	Construction Total	SCAQMD Threshold	Above Threshold?
CO	1,550	529	2,079	550	**Yes**
VOC	174	39	213	75	**Yes**
NO_X	296	190	486	100	**Yes**
SO_2	91	2	93	150	No
PM_{10}	8	52	60	150	No
$PM_{2.5}$	8	11	19	55	No

Source: Ricondo & Associates, Inc., December 2013.

As indicated in **Table 4.1-12~~1~~**, the proposed Project's peak daily emissions of CO, VOC, and NO_x would exceed the SCAQMD regional construction emissions thresholds. Peak daily emissions of ~~CO, VOC,~~ PM_{10}, $PM_{2.5}$, and SO_2 were found to be below the SCAQMD construction thresholds. The majority of the construction emissions for the proposed Project would be associated with the shift in runway use during the 110-day runway closure. ~~pavement reconstruction of Taxiways B and F and with improvements to Runway 25R.~~ To a lesser extent, the pavement reconstruction of Taxiways B and F and the improvements to Runway 25R ~~service road relocation on the west side of the Project site and reconstruction of the apron on the eastern Project site~~ would also contribute to the exceedances. As discussed in Section 4.1.6, Tier 4 pollution control measures were included in the evaluation of construction emissions; however, an exceedance of NOx would still occur during construction, mainly attributable to the increased taxi time during the runway closure. Therefore, construction emissions of CO, VOC, and NO_x would be significant.

Localized Construction Impacts

As discussed in Section 4.1.2, Methodology, above, the localized effects from the on-site portion of daily emissions are evaluated at nearby sensitive receptor locations potentially impacted by the proposed Project consistent with the methodologies in the SCAQMD's *Final Localized Significance Threshold Methodology.* The SCAQMD recommends that lead agencies perform project-specific air quality modeling for larger projects.[31] The Project area exceeds five acres in total size; therefore, Project-specific dispersion modeling was used to assess localized construction impacts rather than the mass emission rate look-up tables. The project-specific air quality modeling of localized construction impacts was done in a manner consistent with the

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[31] South Coast Air Quality Management District, *Final Localized Significance Threshold Methodology*, 2008. Available at http://www.aqmd.gov/ceqa/handbook/LST/Method_final.pdf, Accessed May 2013, 1-5.

mass emission rate look-up tables in the SCAQMD's *Final Localized Significance Threshold Methodology* (June 2008).

Ambient concentrations resulting from construction-related activities, including the runway closure, for the proposed Project are presented in **Tables 4.1-~~12~~ 13** and **4.1-~~13~~14**. **Table 4.1-~~12~~ 13** addresses CO, NO_2, and SO_2, for which the applicable thresholds of significance require the inclusion of background concentrations (see **Table 4.1-7**). **Table 4.1-~~13~~ 14** addresses PM_{10} and $PM_{2.5}$, which include only the Project-related concentrations, without background concentrations, pursuant to the applicable thresholds of significance (see **Table 4.1-7**).

The air pollutant concentrations shown in **Tables 4.1-~~12~~ 13** and **4.1-~~13~~14**, represent the highest concentrations at the fence line of the Airport, as shown in **Figure 4.1-1**. With the exception of NO_2, all the analyzed air pollutants were found to be below the NAAQS and CAAQS thresholds. 1-hour concentrations of NO_2 were found to exceed the CAAQS thresholds at ~~three~~ eight of the 327 LAX fence line locations that were evaluated (**Figure 4.1-2**). All of these were located at offsite worker locations ~~closest to the eastern end of Runway 6L-24R and 6R-24L~~on the northeastern and eastern boundary of the airport, and not at residential locations or other sensitive receptors (see **Figure 4.1-2**). The ~~three~~ eight exceedances of the 1-hour NO_2 concentrations included both Project-related emissions and background ambient levels and were found to be between ~~five to~~one and ~~six~~ eighteen percent above the CAAQS thresholds. NO_2 concentrations were found to be below the 1-hour NAAQS and annual CAAQS thresholds. The cause of the exceedance of the 1-hour NO_2 CAAQS threshold is due to the shift in runway use for aircraft operations that would occur during the proposed 3.5-month closure of Runway 7L/25R. Therefore, construction concentrations for NO_2 would be significant. Construction concentrations for all other criteria pollutants would be less than significant.

Table 4.1-13

Peak Construction Concentrations for CO, NO_2, and SO_2 Pollutants

Pollutant	Averaging Period	Project (ppm)	Background (ppm)	Total (ppm)	Threshold (ppm)	Significant?
CO	CAAQS 1-Hour	1.4	3	4	20	No
	CAAQS/ NAAQS 8-Hour	0.33	2.19	3	9	No
NO_2	CAAQS 1-Hour	0.115	0.098	0.213	0.18	**Yes**
	CAAQS Annual	0.003	0.014	0.017	0.030	No
	NAAQS 1-Hour	0.018	0.065	0.083	0.100	No
SO_2	CAAQS 1-Hour	0.051	0.012	0.063	0.25	No
	CAAQS 24-Hour	0.004	0.006	0.01	0.04	No
	NAAQS 1-Hour	0.032	0.008	0.040	0.075	No

Source: URS Corporation and Ricondo and Associates, Inc., December 2013.

~~Table 4.1-12~~

~~Peak Construction Concentrations for CO, NO$_2$, and SO$_2$ Pollutants~~

~~Pollutant~~	~~Averaging Period~~	~~Project (µg/m^3)~~	~~Background (µg/m^3)~~	~~Total (µg/m^3)~~	~~Threshold (µg/m^3)~~	~~Significant?~~
~~CO~~	~~CAAQS 1-Hour~~	~~1~~	~~3~~	~~4~~	~~20~~	~~No~~
	~~CAAQS/ NAAQS 8-Hour~~	~~<1~~	~~2.19~~	~~3~~	~~9~~	~~No~~
~~NO$_2$~~	~~CAAQS 1-Hour~~	~~0.92~~	~~0.98~~	**~~0.19~~**	~~0.18~~	**~~Yes~~**
	~~CAAQS Annual~~	~~0.007~~	~~0.014~~	~~0.021~~	~~0.030~~	~~No~~
	~~NAAQS 1-Hour~~	~~0.031~~	~~0.065~~	~~0.096~~	~~0.100~~	~~No~~
~~SO$_2$~~	~~CAAQS 1-Hour~~	~~0.051~~	~~0.012~~	~~0.063~~	~~0.25~~	~~No~~
	~~CAAQS 24-Hour~~	~~0.004~~	~~0.006~~	~~0.01~~	~~0.04~~	~~No~~
	~~NAAQS 1-Hour~~	~~0.051~~	~~0.012~~	~~0.063~~	~~0.075~~	~~No~~

~~Source: URS Corporation and Ricondo and Associates, Inc., August 2013.~~

Table 4.1-~~13~~14

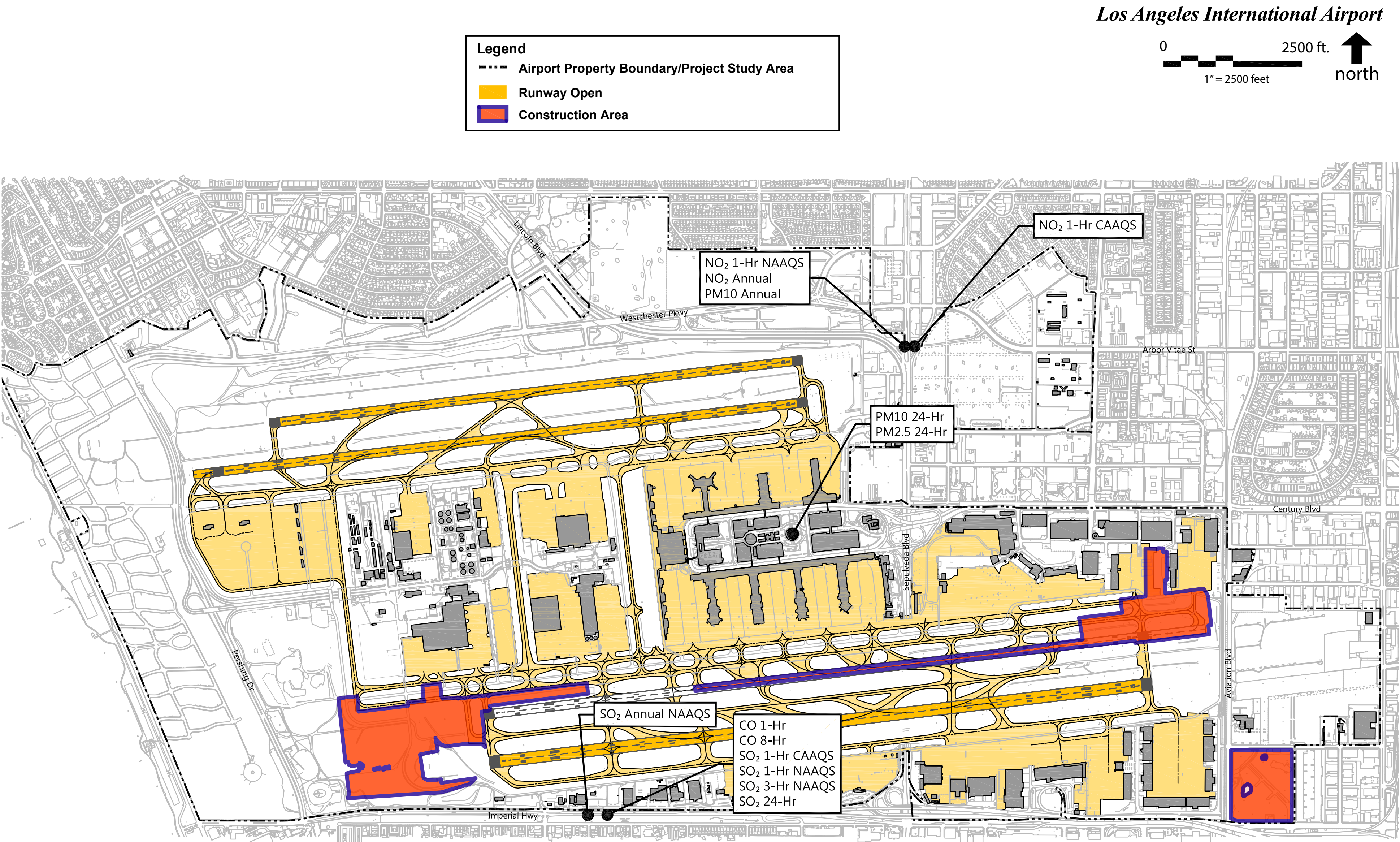
Peak Construction Concentration of PM$_{10}$ and PM$_{2.5}$

Pollutant	Averaging Period	Project (µg/m^3)	Threshold (µg/m^3)	Significant?
PM$_{10}$	24-Hour	~~1.4~~2.3	10.4	No
	Annual	0.~~2~~3	1.0	No
PM$_{2.5}$	24-Hour	~~1.4~~2.3	10.4[a]	No
	Annual	0.~~2~~3	1.0	No

~~Notes:~~

~~[a] The threshold for PM$_{2.5}$ is for a 1-Hour Averaging Period.~~

Source: URS Corporation and Ricondo and Associates, Inc., August 2013.



Sources: LAWA, 2013; Ricondo & Associates, Inc., August 2013 ; Prepared by: Ricondo & Associates, Inc., August 2013.

FIGURE
4.1-1

Peak Construction Concentrations

Environmental Impact Report
Runway 7L/25R RSA and
Associated Improvements Project

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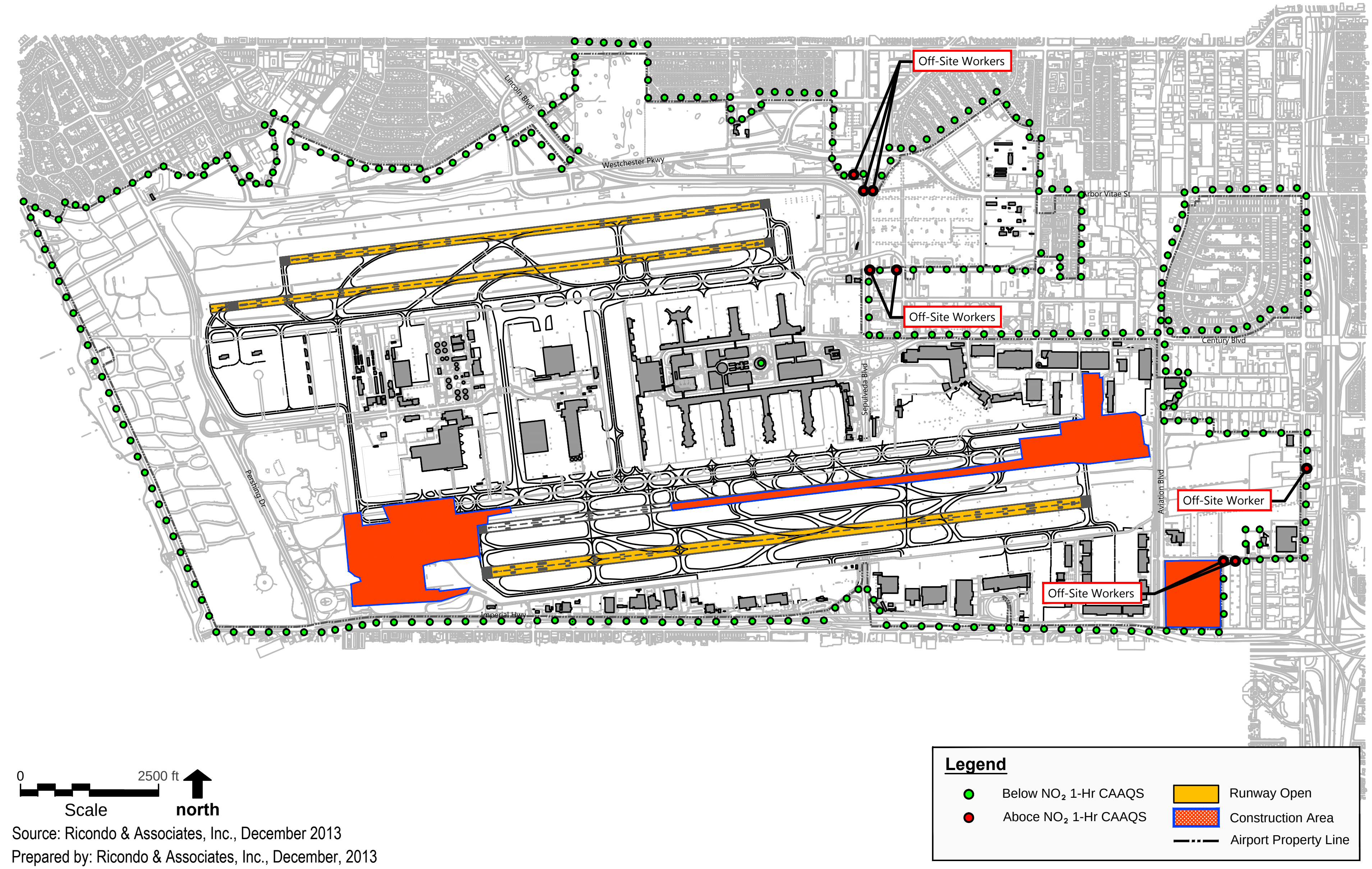

Source: Ricondo & Associates, Inc., December 2013

Prepared by: Ricondo & Associates, Inc., December, 2013

Runway 7L/25R RSA and Associated Improvements Project Draft EIR

NO$_2$ 1-Hr CAAQS Threshold Exceedances

4.1-2

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Odors

Potential sources that may emit odors during construction activities include the use of architectural coatings and solvents and from diesel emissions. SCAQMD Rule 1113 limits the amount of VOCs from architectural coatings and solvents. The proposed Project would comply with DPM reduction strategies such as compliance with USEPA 2007 on-road emission standards for heavy-duty trucks and USEPA Tier 3 and Tier 4 off-road emission standards for heavy-duty construction equipment. Due to mandatory compliance with SCAQMD Rules and compliance with the DPM reduction strategies, no construction activities or materials are proposed which would create objectionable odors affecting a substantial number of people. In addition, the nearest sensitive receptors are located beyond the LAX property line and would be further buffered by the dissipation of odors with distance and prevailing winds. Therefore, no impact would occur and no mitigation measures would be required.

4.1.6.2 Operations

Regional Operational Emissions

Upon completion of the proposed Project, there is an anticipated increase in the taxi-out time of 0.01 minutes, as discussed in Section 4.1.2.2. For a comparison to baseline conditions, the incremental change in taxi times that would result if the Project were operational was compared to existing baseline conditions; the results are presented in **Table 4.1-~~14~~15**. As shown in **Table 4.1-~~14~~15**, the incremental Project operational emissions after implementation of the proposed Project subtracting the baseline (2011) conditions does not exceed the significance thresholds that are presented in **Table 4.1-6**.

Table 4.1-~~14~~ 15

Incremental Project Operational Emissions Compared to Baseline (2011) Conditions

	Criteria Pollutant					
Source	**CO**	**VOC**	**NOx**	**SO$_2$**	**PM$_{10}$**	**PM$_{2.5}$**
Proposed Project	6	<1	1	<1	<1	<1
Threshold	*550*	*55*	*55*	*150*	*150*	*55*
Significant?	No	No	No	No	No	No

Source: URS Corporation and Ricondo and Associates, Inc., September 2013.

For **Table 4.1-~~15~~16**, the incremental project operational emissions were determined by calculating the aircraft emissions in 2015 after implementation of the proposed Project, then subtracting the 2015 Without Project conditions. The incremental project emissions were then compared to the significance thresholds that are presented in **Table 4.1-6**.

Table 4.1-~~15~~16

Incremental Project Operational Emissions Compared to 2015 Without Project Conditions

	Criteria Pollutant					
Source	**CO**	**VOC**	**NOx**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Proposed Project	6	<1	1	<1	<1	<1
Threshold	*550*	*55*	*55*	*150*	*150*	*55*
Significant?	No	No	No	No	No	No

Source: URS Corporation and Ricondo and Associates, Inc., August 2013.

As indicated in **Table 4.1-~~14~~15**, operational emissions associated with the Project would not be significant when compared to baseline conditions. In comparison to the 2015 Without Project scenario, the proposed Project would also not have significant impacts for any criteria pollutant (**Table 4.1-~~15~~16**).

Localized Operational Concentrations

The proposed Project would not increase aircraft operational levels as compared to the Without Project scenario for the same year. An increase of 0.01 minutes in the taxi time out would result in a small incremental increase in emissions associated with the operational phase that would not substantially increase air pollutant concentrations at sensitive receptors proximate to the Airport. Therefore, operational concentrations would be less than significant.

Odors

According to the SCAQMD CEQA Air Quality Handbook, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The proposed Project does not include any uses identified by the SCAQMD as being associated with odors. As the proposed Project activities would not be a source of odors, potential odor impacts would be less than significant.

4.1.7 Cumulative Impacts

The SCAQMD has provided guidance on an acceptable approach to addressing the cumulative impacts issue for air quality.[32]

> "As Lead Agency, the AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR…Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that

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[32] South Coast Air Quality Management District, Cumulative Working Group White Paper website, http://www.aqmd.gov/rules/CIWG/index.html, Accessed March 2013.

> do not exceed the project-specific thresholds are generally not considered to be cumulatively significant."

As shown in **Table 4.1-~~11~~12**, construction of the proposed Project would exceed the Project-specific significance thresholds for regional emissions of CO, VOC, and NO_X. As shown in **Table 4.1-13**, construction of the proposed Project would exceed the Proejct-specific significance thresholds for localized emissions of NO_2. As a result, the proposed Project would have a cumulatively considerable contribution for construction emissions and would result in a cumulatively significant construction impact. As shown in **Tables 4.1-~~14~~ 15** and **4.1-~~15~~16**, emissions attributable to operations of the proposed Project would not exceed the Project-specific significance thresholds. Thus, the proposed Project would not have a cumulatively considerable contribution for operational emissions and would result in a cumulatively less than significant operational impact.

For disclosure purposes, a list of past, present, and probable future LAWA projects that could overlap in time for construction are provided in **Table 4.1-~~16~~ 17** along with estimated mass emissions. The projects listed in **Table 4.1-~~16~~ 17** include related LAWA projects planned on the entire LAX property (3,650 acres) and not just the proposed Project site. Emissions for several of these related LAWA projects were estimated or obtained from publicly available and readily accessible environmental documents. Construction emissions for other projects were estimated based on the ratio of the project costs as compared to the proposed Project, the ratio of construction trip intensity, and the ratio of the emissions using the proposed Project as a reference baseline. As shown in **Table 4.1-~~16~~17**, the cumulative construction project emissions would exceed the SCAQMD daily thresholds of significance. Calculation details are provided in Appendix B. The calculations are considered to be conservative because it assumes overlapping construction emissions from the related LAWA projects listed in **Table 4.1-~~16~~17**.

Table 4.1-~~16~~17

Cumulative Construction Projects Peak Daily Emissions Estimates

	Peak Potentially Overlapping Daily Emissions (lbs/day)					
Construction-Period Related LAWA Projects[a]	**VOC**	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
1. West Aircraft Maintenance Area	~~23~~ 125	~~133~~ 697	~~245~~ 724	~~<1~~ 2	~~11~~ 30	~~6~~ 14
2. Runway Safety Area Improvements-North Airfield	~~37~~ 99	~~306~~ 554	~~366~~ 575	~~1~~ 2	~~17~~ 24	~~9~~ 11
3. LAX Bradley West Project – Remaining Work	~~128~~ 212	580	~~531~~ 523	1	~~137~~ 197	~~43~~ 52
4. T-3 Connector (Part of BWP)	--[b]	--[b]	--[b]	--[b]	--[b]	--[b]
5. North Terminals Major Renovation (T-1)	~~100~~ 271	~~836~~ 1,513	~~999~~ 1,572	~~2~~ 4	~~48~~ 65	~~24~~ 30
6. South Terminals Major Renovation (T-5 through T-8)	~~175~~ 475	~~1,463~~ 2,649	~~1,748~~ 2,751	4 8	~~84~~ 114	~~42~~ 53
7. Midfield Satellite Concourse: Phase 1 - North Concourse Project	~~175~~ 476	~~1,466~~ 2,655	~~1,752~~ 2,757	4 8	~~84~~ 114	~~42~~ 53
8. Central Utility Plant Replacement Project – Remaining Work	26~~--[b]~~	112~~--[b]~~	132~~--[b]~~	<1~~--[b]~~	19~~--[b]~~	7~~--[b]~~
9. Miscellaneous Projects/Improvements	~~62~~ 168	~~520~~ 935	~~621~~ 971	~~1~~ 3	~~30~~ 40	~~15~~ 19

Table 4.1-~~16~~17

Cumulative Construction Projects Peak Daily Emissions Estimates

	Peak Potentially Overlapping Daily Emissions (lbs/day)					
Construction-Period Related LAWA Projects[a]	**VOC**	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
10. LAX Northside Area Development	N/A[c]	N/A[c]	N/A[c]	N/A[c]	N/A[c]	N/A[c]
11. LAX Master Plan Alt. D/SPAS Alt. 3	369	4,765	1,869	5	1,956	309
12. Metro Crenshaw / LAX Transit Corridor and Station	--[b]	--[b]	--[b]	--[b]~~1~~	--[b]~~29~~	--[b]~~18~~
Total from Other Construction Projects	~~1,069~~ 2,043	~~10,069~~ 13,901	~~8,131~~ 11,378	~~19~~ 30	~~2,396~~ 2,479	~~508~~ 531
Proposed Project Peak Overlapping Daily Emissions	**~~39~~** **213**	**~~190~~** **486**	**~~529~~** **2,079**	**~~2~~** **93**	**~~52~~** **60**	**~~11~~** **19**
Total Cumulative Construction Project Emissions	**~~1,108~~** **2,256**	**~~10,259~~** **14,387**	**~~8,660~~** **13,457**	**~~21~~** **123**	**~~2,448~~** **2,539**	**~~519~~** **550**
SCAQMD Construction Emission Significance Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Emissions Exceed SCAQMD Project-Level Threshold?	**Yes**	**Yes**	**Yes**	No	**Yes**	**Yes**

Notes:

[a] Project construction is estimated to occur from 2014 to 2018, with the primary construction activity occurring in 2014 and 2015.

[b] Project is not anticipated to result in overlapping construction emissions from this related project during the estimated combined peak day.

[c] Estimated construction emissions not available.

Sources: CDM Smith (list and characteristics of proposed Project and concurrent projects), August 2013; Crenshaw/LAX Transit Corridor Project FEIR (Metro Crenshaw/LAX Transit Corridor cost), August 2011; www.metro.net/projects/crenshaw_corridor.com (Metro Crenshaw/LAX Transit Corridor schedule), accessed November 12, 2012; Ricondo & Associates, Inc., August 2013.

4.1.8 Mitigation Measures

LAWA is committed to mitigating temporary construction-related emissions to the extent practicable and has established some of the most aggressive construction emissions reduction measures in southern California, particularly with regard to requiring construction equipment to be equipped with emissions control devices. The specific means for implementing the project design features described in Section 4.1.5 were first approved and implemented as part of the South Airfield Improvement Project, and would also be applied to the proposed Project.

Project design features described in Section 4.1.5 also include those required by the CBA. These measures establish a commitment and process for incorporating all technically feasible air quality mitigation measures into each component of the LAX Master Plan, as well as LAX projects that are independent of the LAX Master Plan. In addition, the Los Angeles Green Building Code Tier 1 standards, which are applicable to all projects with an Los Angeles Department of Building and Safety permit-valuation over $200,000, require the proposed Project to implement a number of measures that would reduce criteria pollutant and greenhouse gas emissions. These include measures such as: further reduce vehicle and equipment idling times; comply with Tier 4 emission standards for non-road diesel equipment; retrofit existing diesel equipment with particulate filters and oxidation catalysts; replace aging equipment with new low-emission models; and consider the use of alternative fuels for construction equipment.

~~LAWA has not identified any additional feasible measures that could be adopted at this time. Therefore, no additional project-specific mitigation measures are recommended in connection with the proposed Project.~~

In comments provided by the SCAQMD on the Draft EIR, the SCAQMD noted that Tier 4-final construction equipment was assumed for the majority of vehicles used for this Project; however some vehicles were assumed to only use tier 4-interim engines. The SCAQMD requested that LAWA investigate if additional tier 4-final equipment is available. In addition, the SCAQMD noted that haul trucks were assumed to meet 2007 emission standards, but that 2010 truck emission standards would provide an approximately 60% reduction in NOx emissions from this source based on values presented in the Draft EIR calculation sheets. SCAQMD requested that LAWA consider only using trucks meeting 2010 emissions standards.

LAWA will include in bid documents for this Project language specifying that contractors should use equipment on the Project that meets the most stringent emission requirements. In the event that the contractor can demonstrate that equipment is not available within 200 miles of LAX that meets the most stringent emission requirements, they will be able to utilize equipment that meets the next lowest requirements (e.g., if Tier 4 final equipment is not available, they would be permitted to use Tier 4 interim equipment). Because it is difficult for LAWA to determine whether equipment is available that meet the most stringent emission requirements, for purposes of this analysis, LAWA has kept the equipment mix specified in the Draft EIR, but will require contractors to use equipment that meets stricter standards if available.

Specifically, LAWA will modify the following construction-related air quality control measures (LAX-AQ-2):

- Measure 2n: On-road trucks used on LAX construction projects with a gross vehicle weight rating of at least 19,500 pounds shall, at a minimum, comply with USEPA 2010 on-road emissions standards for PM_{10} and NO_x. Contractor requirements to utilize such on-road haul trucks or the next cleanest vehicle available will be subject to the provisions of LAWA Air Quality Control Measure 2p below.
- Measure 2o: Prior to January 1, 2015, all off-road diesel-powered construction equipment greater than 50 horsepower shall meet USEPA Tier 3 off-road emission standards. After December 31, 2014, all off-road diesel-power construction equipment greater than 50 horsepower shall meet USEPA Tier 4(final) off-road emissions standards. Tier 4(final) equipment shall be considered based on availability at the time the construction bid is issued. Contractor requirements to utilize Tier 4(final) equipment or next cleanest equipment available will be subject to the provisions of LAWA Air Quality Control Measure 2p below. LAWA will encourage construction contractors to apply for SCAQMD “SOON” funds to accelerate clean-up of off-road diesel engine emissions.
- Measure 2p: The on-road haul truck and off-road construction equipment requirements set forth in Air Quality Control Measures 2n and 2o above shall apply unless any of the following circumstances exist and the Contractor provides a written finding consistent with project contract requirements that:
  - The Contractor intends to meet the requirements of the Measures 2n and 2o as to a particular vehicle or piece of equipment by leasing or short-term rental, and the Contractor has attempted in good faith and due diligence to lease the vehicle or equipment that would comply with these measures, but that vehicle or equipment is not available for lease or short-term rental within 200 miles of the

project site, and the Contractor has submitted documentation to LAWA showing that the requirements of this exception provision (Measure 2p) apply.

- The Contractor has been awarded funding by SCAQMD or another agency that would provide some or all of the cost to retrofit, repower, or purchase a piece of equipment or vehicle, but the funding has not yet been provided due to circumstances beyond the Contractor's control, and the Contractor has attempted in good faith and due diligence to lease or short-term rent the equipment or vehicle that would comply with Measures 2n and 2o, but that equipment or vehicle is not available for lease or short-term rental within 200 miles of the project site, and the Contractor has submitted documentation to LAWA showing that the requirements of this exception provision (Measure 2p) apply.
- Contractor has ordered a piece of equipment or vehicle to be used on the construction project in compliance with Measures 2n and 2o at least 60 days before that equipment or vehicle is needed at the project site, but that equipment or vehicle has not yet arrived due to circumstances beyond the Contractor's control, and the Contractor has attempted in good faith and due diligence to lease or short-term rent a piece of equipment or vehicle to meet the requirements of Measures 2n and 2o, but that equipment or vehicle is not available for lease or short-term rental within 200 miles of the project, and the Contractor has submitted documentation to LAWA showing that the requirements of this exception provision (Measure 2p) apply.
- Construction-related diesel equipment or vehicle will be used on the project site for fewer than 10 calendar days per calendar year. The Contractor shall not consecutively use different equipment or vehicles that perform the same or a substantially similar function in an attempt to use this exception (Measure 2p) to circumvent the intent of Measures 2n and 2o.

In any of the situations described above, the Contractor shall provide the next cleanest piece of equipment or vehicle as provided by the step down schedules in **Table 4.1-18** for Off-Road Equipment and **Table 4.1-19** for On-Road Equipment.

Table 4.1-18

Off-Road Vehicle Compliance Step-Down Schedule

Compliance Alternative	Engine Standard	CARB-verified DECS (VDECS)
1	Tier 4 *interim*	N/A*
2	Tier 4	N/A*
3	Tier 3	Level 3
4	Tier 2	Level 3
5	Tier 1	Level 3
6	Tier 2	Level 2
7	Tier 2	Level 1
8	Tier 2	Uncontrolled
9	Tier 1	Level 2

Notes:
Equipment less than Tier 1, Level 2 shall not be permitted.
* Tier 4 (interim or final) or 2007 model year equipment not already supplied with a factory-equipped diesel particulate filter shall be outfitted with Level 3 VDECS.
Source: CDM Smith, November 2013.

Table 4.1-19

On-Road Vehicle Compliance Step-Down Schedule

Compliance Alternative	Engine Model Year	CARB-verified DECS (VDECS)
1	2007	N/A*
2	2004	Level 3
3	1998	Level 3
4	2004	Uncontrolled
5	1998	Uncontrolled

Notes:
Equipment with a model year earlier than model year 1998 shall not be permitted.
* Tier 4 (interim or final) or 2007 model year equipment not already supplied with a factory-equipped diesel particulate filter shall be outfitted with Level 3 VDECS.
Source: CDM Smith, November 2013.

It is estimated that the proposed Project would have significant impacts relative to regional concentrations of CO, VOC, and NO_x, and localized concentrations of NO_2, during the construction period (specifically during the 3.5-month closure of the runway). As indicated in the impacts discussion above, the vast majority (over 95 percent) of the emissions contributing to those significant impacts (i.e., causing exceedances of the 1-hour CAAQS) would occur from the shifting of aircraft operations to other runways when Runway 7L-25R is closed. As part of the planning for the proposed Project, LAWA examined several construction scenarios to identify the option that would require the shortest runway closure period. Due to the nature of the work required, LAWA has determined that 110 days is the shortest time period for the runway closure that would allow the work to be accomplished efficiently and with the least disruption to airport operations. Other than potential future improvements in aircraft engine technology and associated reductions in air pollutant emissions, there are no feasible means to mitigate emissions during aircraft takeoff because the only measures are related to aircraft operational options, such as reduced thrust take-off, which are at the sole discretion of the pilot. However, as noted above, LAWA is committed to mitigating operational air quality impacts to the maximum extent feasible. The specific measures described in Section 4.1.5 would also be applied to the proposed Project. Although these measures would not mitigate impacts to a level that is less than significant, they would reduce impacts associated with the proposed Project to the extent feasible.

4.1.9 Level of Significance after Mitigation

Even with incorporation of feasible construction-related project design features as described above, the peak daily construction-related regional mass emissions resulting from the proposed Project would be significant for CO, VOC, and NO_X and the 1-hour concentrations of NO_2 during the proposed 3.5-month runway closure required during Project construction. LAWA has not identified any additional feasible mitigation measures that could be adopted at this time.

4.4 Human Health Risk Assessment

4.4.1 Introduction

The Human Health Risk Assessment (HHRA) addresses potential impacts to people exposed to toxic air contaminants (TACs) anticipated to be released as a result of the proposed Project. Potential impacts to human health associated with releases of TACs may include increased cancer risks and increased chronic (long-term) and acute (short-term) non-cancer health hazards from inhalation of TACs by people working, living, recreating, or attending school on or near the Project site. The objective of this HHRA is to estimate increased incremental health risk associated with construction activities of the proposed Project. Given that the proposed Project would not increase operational capacity at LAX nor would it substantially affect airport operations during operations, this HHRA only assesses the health impacts to people exposed to TACs during the construction phase of the proposed Project.

The HHRA was conducted in four steps as defined in South Coast Air Quality Management District[1] (SCAQMD), California Environmental Protection Agency[2] (CalEPA) and U.S. Environmental Protection Agency[3] (EPA) guidance, consisting of:

- Identification of TACs that may be released in sufficient quantities to present a public health risk (Hazard Identification);
- Analysis of ways in which people might be exposed to TACs (Exposure Assessment);
- Evaluation of the toxicity of TACs that may present public health risks (Toxicity Assessment); and
- Characterization of the magnitude and location of potential health risks for the exposed community (Risk Characterization)

Specifically, this HHRA addresses the following issues:

- Quantitative assessment of potential cancer risks and chronic non-cancer health hazards due to the release of TACs associated with the proposed Project construction activities.
- Quantitative evaluation of possible acute non-cancer health hazards due to the release of TACs associated with the proposed Project construction activities.

Risk assessment is an evolving and uncertain process, which includes important uncertainties emanating from the estimation of emissions of TACs, the dispersion of such TACs in the air,

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[1] South Coast Air Quality Management District, *Supplemental Guidelines for preparing Risk Assessment for the Air Toxics Hot Spots Information and Assessment Act (AB2588)*, July 2005.

[2] California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, *Air Toxics Hot Spots Program Risk Assessment Guidelines, Part I: Technical Support Document for the Determination of Acute Reference Exposure Levels for Airborne Toxicants*, March 1999; *Air Toxic Hot Spots Program Risk Assessment Guidelines, Part IV: Technical Support Document for Exposure Assessment and Stochastic Analysis*, September 2000; *Air Toxics Hot Spots Program Risk Assessment Guidelines, Part III: The Determination of Chronic Reference Exposure Levels for Airborne Toxicants*, February 23, 2000; *Air Toxics Hot Spots Program Risk Assessment Guidelines, Part II: Technical Support Document for Describing Available Cancer Potency Factors*, updated August 2003; *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, August 2003.

[3] U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, *Risk Assessment Guidance for Superfund, Vol I, Human Health Evaluation Manual (Part A), Interim Final, EPA/540/1-89/002*, December, 1989.

actual human exposure to such TACs, and health effects associated with such exposure. There are also uncertainties associated with evaluation of the combined effects of exposure to multiple chemicals, as well as interactions among pollutants. These uncertainties were discussed in detail in the LAX Master Plan Final EIR Technical Report 14a and Technical Report S-9a.[4] This HHRA relied upon the best data and methodologies available; however, the nature and types of uncertainties described in the LAX Master Plan Final EIR Technical Reports also apply to this HHRA.

To help address uncertainties, conservative methods were used to estimate cancer risks and chronic non-cancer hazards. That is, methods were used that are much more likely to overestimate possible health risks. For example, risks were calculated for individuals at locations where TAC concentrations are predicted to be highest (maximally exposed individual or MEI). Further, these individuals were assumed to be exposed to TACs for almost all days of the year and for many years to maximize estimates of possible exposure.

Resulting incremental risk estimates represent upper-bound predictions of exposure and, therefore, health risk, which may be associated with living near, and breathing TACs released during the construction phase of the proposed Project. By protecting hypothetical individuals that receive the highest exposures, the risk assessment is also protective for actual members of the population near LAX that would not be as highly exposed.

The HHRA for the proposed Project also evaluates potential short-term (1-hour) exposures and associated acute, health impacts. These estimates are also intentionally conservative; for example, maximum concentrations were used to assess possible hazards for receptors that live, work, go to school, or recreate off-airport. Actual exposure concentrations in off-airport areas are, again, overestimated by this approach.

4.4.2 Methodology

Cancer risk and chronic and acute non-cancer health hazard assessments for this HHRA consisted of two steps: (1) estimation of emissions of TACs associated with project construction, and subsequent air dispersion modeling of those emissions; and (2) estimation of incremental health risks associated with those emissions. The estimated emission rates were used, along with meteorological and geographic information, as inputs to the USEPA AERMOD air dispersion model to predict ambient concentrations of TACs released during construction of the proposed Project. The predicted concentrations were in turn used to calculate human health risks and hazards.

The results of the analysis were then interpreted by comparing cancer risks and chronic non-cancer health hazards to regulatory thresholds. For purposes of assessing the significance of any health impacts, these comparisons were made for MEI at locations where maximum concentrations of TAC were predicted by the air dispersion modeling. An impact was considered significant if cancer risks and/or chronic non-cancer health hazards for MEI exceeded regulatory thresholds. Acute non-cancer health hazards were estimated by comparing modeled maximum 1-hour concentrations with acute Reference Exposure Levels (RELs).

Details of the methodologies, as well as health risk calculations, are provided in Appendix C of this EIR.

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[4] City of Los Angeles, Los Angeles World Airports, and FAA, *Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements SCH#1997061047*, April 2004.

4.4.2.1 Exposure Assessment

The exposure assessment includes identification of exposed populations, selection of exposure pathways, and calculation of exposure concentrations and total dose. For the HHRA analysis of the proposed Project construction phase, receptors selected for quantitative evaluation were: off-airport workers, off-airport adult residents, off-airport child residents, off-airport school children, and on-airport workers. Each receptor represents a unique population and set of exposure conditions. As a whole, they cover a range of exposure scenarios for people who may be affected by the construction phase emissions of the proposed Project. Receptors for which exposure scenarios were prepared were selected to provide protective risks and hazards estimated for MEI and to demonstrate the range of risks and hazards in the vicinity of the airport. As previously noted, by providing estimates for the most exposed individuals for determination of significance, the general population is protected.

Different receptors could be exposed to TAC in several ways, called exposure pathways. An exposure pathway consists of four basic parts: a TAC source (e.g., diesel engines); a release mechanism (e.g., diesel engine exhaust); a means of transport from the release point to the receptor (e.g., local winds); and a route of exposure (e.g., inhalation). Numerous possibly complete exposure pathways exist for receptors at or near LAX, but most are anticipated to make minimal to negligible contribution to total risks and hazards. For this HHRA, the inhalation pathway is the most important complete exposure pathway, contributing the majority of risk associated with the proposed Project construction, and was therefore quantitatively evaluated for all receptors. Other exposure pathways, including deposition of TACs onto soils and subsequent exposure via incidental ingestion of this soil, uptake from soil into plants, and other indirect pathways, were addressed quantitatively in the programmatic HHRA developed for the LAX Plan EIR (see LAX Master Plan Final EIR Technical Report 14a and Technical Report S-9a).

Modeled concentrations were used for estimating human health risks and hazards, which serve as the basis for significance determinations for the proposed Project. To estimate cancer risks and the potential for adverse acute and chronic non-cancer health hazards, TAC intake via inhalation for each receptor were estimated. Average long-term daily intakes were used to estimate risk and hazards. Cancer risk was evaluated as the lifetime average daily dose (LADD) according to CalEPA and EPA guidance. Non-cancer health hazards were evaluated as average daily dose (ADD) over the period of exposure, again, following CalEPA and USEPA guidance.

The assessment of chronic non-cancer health hazard impacts due to the release of TACs associated with the construction of the proposed Project assumes that exposure concentrations of TACs are constant over a 70-year period for residential receptors. Exposure parameters used to calculate LADD and ADD for all receptors for the inhalation pathway are summarized in **Table 4.4-1**.

Table 4.4-1

Parameters Used to Estimate Exposures to TACs of Concern

Exposure Pathway Inhalation of Particulates and Gases	Off-Airport Receptors: Off-Site Resident: Adult (70 years)	Off-Airport Receptors: Off-Site Resident: Adult (30 years)	Off-Airport Receptors: Off-Site Resident: Child	Off-Airport Receptors: Off-Site School Child	Off-Airport Receptors: Off-Site Worker
Daily Breathing Rate (m^3/day)	20[b]	20[b]	15[b]	6[b]	10[b]
Exposure Frequency (days/yr)	350[a,c]	350[a,c]	350[a,c]	200[d]	245[a]
Exposure Duration (years)	70[a,e]	30[a,e]	6[b]	6[d]	40[a]
Body Weight (kg)	70[a,f]	70[a,f]	15[b]	40	70[a,f]
Averaging Time - Non-cancer (days)	25,550[a,f]	10,929	2,190[f]	2,190[f]	14,600[f]
Averaging Time - Cancer (days)	25,550[a,f]	25,550	25,550[a,f]	25,550[a,f]	25,550[a,f]

Notes:

[a] California Environmental Protection Agency (Cal/EPA), *Air Toxic Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, August 2003.

[b] U.S. Environmental Protection Agency, *Exposure Factors Handbook, USEPA/600/P-95/002Fa*, 1997.

[c] U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, *Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors*, August, 1991.

[d] Site-specific. See Appendix ~~D~~C, Attachment C.3~~.~~

[e] 70 year exposure duration will be used as basis for determining significance.

[f] U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, *Risk Assessment Guidance for Superfund, Volume I - Human Health Evaluation Manual, Part A, USEPA/540/1-89/002*, 1989.

Source: URS Corporation, 2013.

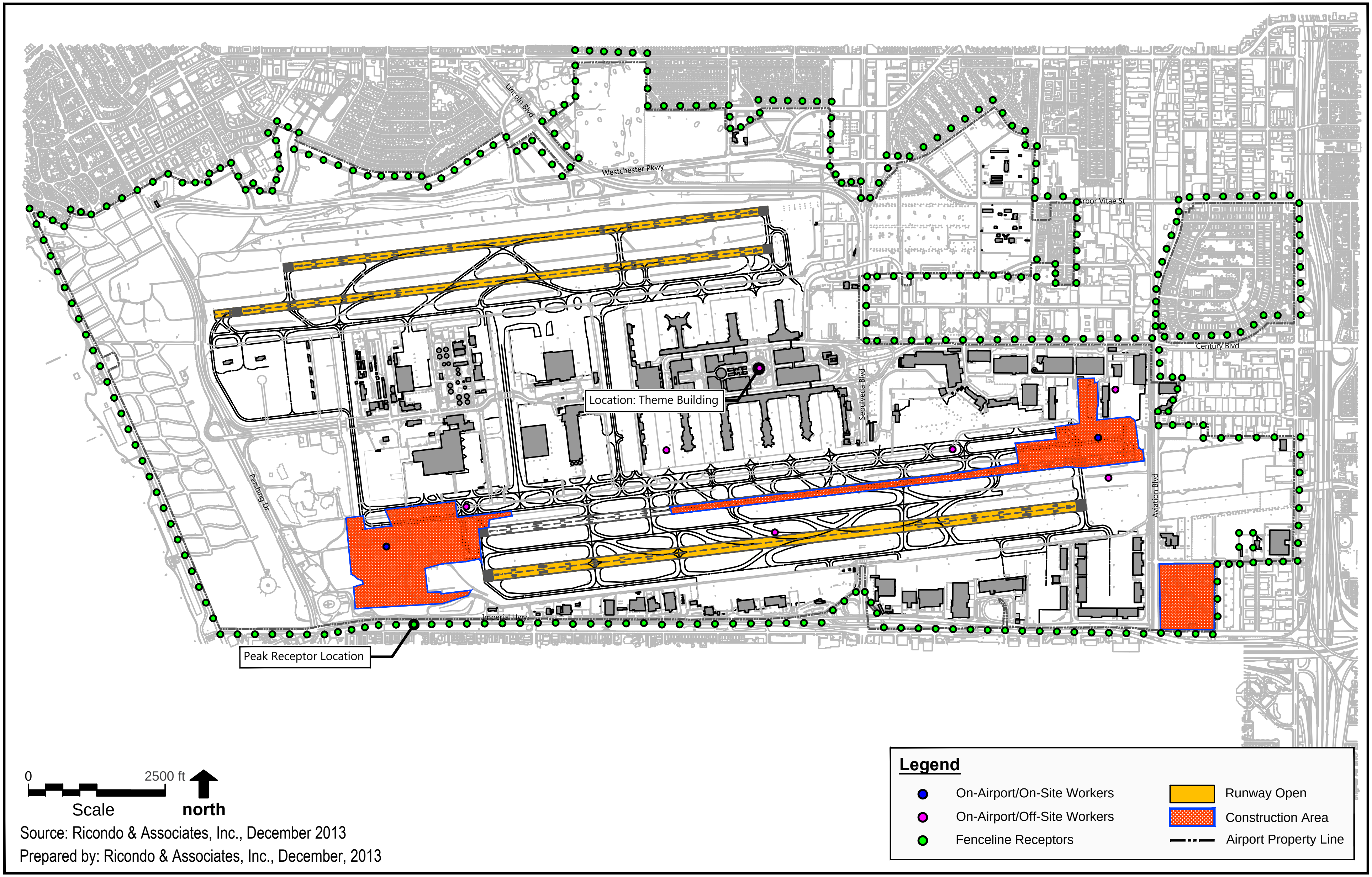
4.4.2.2 Toxicity Assessment

Toxicity cancer risk factor and chronic REL of TACs developed by the State of California were used to characterize cancer risks and chronic non-cancer health associated with longer term exposure to construction emissions. Acute REL for each analyzed TAC developed by the State of California were used in the characterization of potential acute non-cancer health hazards associated with the construction of the proposed Project.

4.4.2.3 Risk Characterization

Concentrations of TAC of concern in air, locations of potentially exposed populations, including locations for MEI exposure scenarios (worker, resident, student), and toxicity criteria were used to calculate incremental human health risks associated with the proposed Project.

For the proposed Project, grid points were analyzed along the airport fence-line and within the study area, as shown in **Figure 4.4-1**. These locations are anticipated to represent MEI, based on previous dispersion modeling for LAX. Concentrations of each TAC at these nodes were used in calculating cancer risk, and chronic and acute non-cancer health hazard estimates. These calculations were used to identify locations with maximum cancer risks and maximum non-cancer health hazards and serve as the basis for significance determinations.



Source: Ricondo & Associates, Inc., December 2013

Prepared by: Ricondo & Associates, Inc., December, 2013

Runway 7L/25R RSA and Associated Improvements Project Draft EIR

Peak Impact Receptor Locations

Figure

4.4-1

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MEI estimates were partially land use specific. On-airport locations were used to identify on-worker locations. For off-airport locations, all land uses and associated receptors (commercial, residential, etc.) were evaluated for all fence-line grid points under the assumption that such land use could be present now or in the future. Risk and hazard calculations were based on receptors appropriate for land use designations. For example, at each grid node, exposure parameters appropriate for adult commercial workers, for both adult and child residential receptors and for school children were used to estimate exposures, cancer risks, and non-cancer health hazards at that grid point location.

Fence-line concentrations of TAC represent the highest or near-highest concentrations that could be considered "off-airport." Concentrations in areas where people actually work, live, or attend school are predicted to be lower. Thus, impacts for residents, workers, and school children are likely to provide protective estimates for risks and hazards that may occur as a result of implementing the proposed Project.

Twenty-one (21) of the 326 grid node locations that are located closest to the schools nearest the LAX fence-line (i.e., St. Bernard High School, and Visitation Elementary School located north of LAX and Imperial Avenue School located south of LAX) were selected to assess acute non-cancer health hazards for sensitive receptors attending or working at schools near the fence-line. The analysis for these 21 grid nodes provides direct information on potential impacts on students, faculty and staff at these schools. To ensure a conservative analysis for school children, grid nodes were placed between the schools and construction and operational sources and somewhat closer to these TAC sources. Finally, eight locations on the airport were evaluated to represent where on-airport workers might receive the greatest exposure to TACs. Risk and hazard estimates for these eight additional locations were not used for significance determination; health and safety of on-airport workers is regulated under the California Occupational Safety and Health Administration (CalOSHA) and no risk or hazards are estimated for these workers. Instead, these estimates are used to provide additional perspective on possible impacts of construction emissions by comparison to the CalOSHA 8-hour Time-Weighted Average Permissible Exposure Levels (PEL-TWAs).

Evaluation of Cancer Risks and Chronic Non-Cancer Health Hazard

Cancer risks of TACs were estimated by multiplying exposure estimates for TACs by the pollutant-specific cancer risk factor. The result is a risk estimate expressed as the odds of developing cancer. Cancer risks were based on an exposure duration~~s~~ of 70~~, 30, and 6~~ years.

~~for residential adults and child exposures respectively. Offsite school and worker exposure durations are 40 and 70 years respectively.~~ Chronic non-cancer health hazard estimates of TACs were calculated by dividing exposure estimates of each TAC by the chronic REL. RELs are estimates of the highest exposure levels that would not cause adverse health effects even if exposures continue over a lifetime. A ratio that is less than one indicates that the proposed Project exposure was less than the highest exposure level that would not cause adverse health effects and, hence, no impact to human health would be expected.

~~For this evaluation, 327 grid points were analyzed along the airport fence-line and within the airport property. Concentrations of TACs at these grid nodes were used in the cancer risk and chronic and acute non-cancer health hazard estimates. These calculations were used to identify locations with maximum cancer risks and maximum non-cancer health hazards. These locations represent MEI and were used in the significance determinations.~~

Evaluation of Acute Non-Cancer Health Hazard Impacts

Acute non-cancer risk estimates were calculated by dividing estimated maximum 1-hour TAC concentrations in air by acute RELs. An acute REL is a concentration in air below which adverse effects are unlikely for people, including sensitive subgroups, exposed for a short time on an intermittent basis. In most cases, RELs are estimated on the basis of an 1-hour exposure duration. RELs do not distinguish between adults and children, but are established at levels that are considered protective of sensitive populations. Since margins of safety are incorporated to address data gaps and uncertainties, exceeding the REL does not automatically indicate an adverse health impact.

Short-term concentrations for TAC associated with Project construction were estimated using the same air dispersion model (AERMOD) used to estimate annual average concentrations, but with the model option for 1-hour maximum concentrations selected. These concentrations represent the highest predicted concentrations of TAC. Acute non-cancer health hazards were then estimated at each grid point by dividing estimated maximum 1-hour TAC concentrations in air by acute RELs. A hazard index equal to or greater than 1, the threshold of significance for acute non-cancer health impacts, indicates some potential for adverse acute non-cancer health impacts. A hazard index less than 1 suggests that adverse acute non-cancer health impacts are not expected.

~~Acute non-cancer health hazards of TACs were also analyzed at 327 grid points in the vicinity of LAX. They were estimated at each grid point by comparison of the modeled pollutant concentration at each grid point with the acute REL. Short-term (1-hour and 8-hour average) concentrations of formaldehyde associated with the construction of the proposed Project were used to assess acute non-cancer health hazards. Acute non-cancer health hazards for formaldehyde were then estimated at each grid point by dividing the estimated maximum 1-hour and 8-hour average formaldehyde concentrations by acute formaldehyde REL. In the case of 8-hour average concentration, a CARB-approved persistence value (per CARB Hotspots Analysis Reporting Program [HARP] guidance) of 0.7 was applied to the 1-hour concentrations to calculate 8-hour concentration. A hazard index equal to or greater than 1, the EPA threshold of significance for acute non-cancer health impacts, indicates some potential for adverse acute non-cancer health impacts. A hazard index less than 1 suggests that adverse acute non-cancer health impacts are not expected.~~

Evaluation of Health Effects for On-Airport Construction Workers

Impacts to construction workers were evaluated by comparing estimated acute 8-hour concentrations at ~~the LAX Theme Building~~eight receptors on airport, two of which are located at the construction site, to the CalOSHA 8-hour average time-weighted average permissible exposure level (PEL-TWA) standard~~ ~~s~~for formaldehyde~~.

~~4.4.2.3~~4.4.2.4 Overview of Risk Assessment

The HHRA was conducted on TAC emissions associated with the proposed Project construction activities. The HHRA followed state and federal guidance for performance of risk assessments and was conducted in four steps described above, as defined in SCAQMD, CalEPA, and EPA guidance, consisting of selection of TAC of concern, exposure assessment, toxicity assessment, and risk characterization. These steps are summarized below.

Selection of Toxic Air Contaminants of Concern

TACs of concern evaluated in this HHRA are shown in **Table 4.4-2**. They were selected based on emissions estimates and human toxicity information, results of the LAX Master Plan HHRA, and a review of health risk assessments included in the Crossfield Taxiway Project (CFTP) Final EIR, LAX Bradley West Project Final EIR, and LAX Specific Plan Assessment study (SPAS) Final EIR. The primary TACs that contribute to health risk from diesel exhaust are from diesel particulate matter (DPM) and formaldehyde. The primary TACs that contribute to health risk from aircraft (jet fuel) exhaust are from acrolein and formaldehyde. However, all the TACs listed in **Table 4.4-2** were included within this HHRA. These TACs represent those pollutants that are most conducive to cancer risk, as well as adverse chronic and acute health exposure.

Table 4.4-2

Toxic Air Contaminants (TAC) of Concern for the ~~p~~Proposed Project

Toxic Air Contaminant	Type
Acetaldehyde	VOC
Acrolein	VOC
Benzene	VOC
1,3-Butadiene	VOC
Ethylbenzene	VOC
Formaldehyde	VOC
n-Hexane	VOC
Methyl alcohol	VOC
Methyl ethyl ketone	VOC
Propylene	VOC
Styrene	VOC
Toluene	VOC
Xylene (total)	VOC
Naphthalene	PAH
Arsenic	PM-Metal
Cadmium	PM-Metal
Chromium VI	PM-Metal
Copper	PM-Metal
Lead	PM-Metal
Manganese	PM-Metal
Mercury	PM-Metal
Nickel	PM-Metal
Selenium	PM-Metal
Vanadium	PM-Metal

Table 4.4-2

Toxic Air Contaminants (TAC) of Concern for the ~~p~~Proposed Project

Toxic Air Contaminant	Type
Diesel PM	Diesel Exhaust
Chlorine	PM-Inorganics
Silicon	PM-Inorganics
Sulfates	PM-Inorganics

Notes:
PAH = Polycyclic aromatic hydrocarbons
PM = Particulate matter
VOC = Volatile organic compounds
Sources: URS Corporation, 2013.

Emissions of Toxic Air Contaminants

For construction equipment used d~~D~~uring the construction phase of the proposed Project, emissions of DPM are expected to contribute the majority to total incremental cancer risks. Based on previous evaluations of construction impacts at LAX, other TACs have minimal contributions. DPM is classified as a carcinogenic TAC by the California Office of Environmental Health Hazard Assessment (OEHHA). However, the evaluation of cancer risks and chronic health hazards evaluated the release of DPM as well as other associated TACs from construction equipment.

Construction DPM emissions were assumed to be equal to the engine exhaust component of particulates less than 10 microns in diameter (PM_{10}) emissions. Emissions of organic TACs were developed from VOC emission inventories. PM_{10} is the focus for PM emissions because this size fraction can deposit in the deep lung and is therefore responsible for most inhalation exposure. Organic speciation profile No. 818 for diesel-fueled motor vehicles and off-road equipment for VOC emissions, developed by the California Air Resources Board (CARB), was used to calculate organic TAC emissions. The CARB PM speciation profile No. 6159 for diesel-fueled offroad equipment was used to estimate particulate TAC emissions.

In addition to construction equipment, aircraft emissions during the construction phase of the proposed Project would also contribute to TAC emissions. Organic speciation profile No. 5861 for aircraft (jet fuel) exhaust VOC emissions, developed by CARB, was used to calculate organic TAC emissions. Metals emissions were estimated using the elemental analysis of Jet A fuel conducted by the U.S. Navy.[5]

Exposure Concentrations

Air dispersion modeling was used to estimate TACs concentrations from construction sources of the proposed Project. Concentrations of TACs were estimated using the air dispersion model (AERMOD, Version 12345) with model options for 1-hour maximum and annual average concentrations selected. Incremental short-term 1-hour concentrations were then used to

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[5] Shumway. *Trace Element and Polycyclic Aromatic Hydrocarbon Analysis of Jet Engine Fuels: Jet A, JP-5, JP-8*, December 2000.

estimate acute non-cancer health hazard impacts and incremental annual average concentrations were used to estimate cancer risk and chronic non-cancer health hazards.

Concentrations were estimated at a total of 335 grid nodes: ~~327~~ 326 grid nodes at or near the LAX property line (fenceline); ~~and at~~ one grid node at the LAX Theme Building; and eight grid nodes on-airport at or near the construction area. Receptor type (i.e., recreational, residential, commercial, or school) for each grid node was dictated by land use at or near the grid node location. Modeled concentrations at the fenceline ~~is~~ are higher than concentrations modeled ~~concentrations~~ farther out from the airport where people currently reside, work, recreate, and go to school due to pollutant dispersion over distance. Concentrations at these fenceline locations reasonably represent concentrations of TACs for use in evaluating MEI.

~~Nineteen~~ Twenty-one (21) of the 326 fenceline~~7~~ grid nodes are located close to school sites nearest to the LAX fenceline (i.e., Saint Bernard High School at 9100 Falmouth Avenue in Playa Del Rey, Visitation Catholic Elementary School north of LAX at 8740 Emerson Avenue in Westchester, and Imperial Avenue School located south of LAX at 540 East Imperial Avenue in El Segundo). These grid nodes were selected to assess risks and hazards for sensitive receptors attending or working at schools near the fenceline.

Eight ~~The one grid node near the center of LAX (LAX Theme Building)~~additional grid nodes were added on-site to the proposed construction area to ~~was evaluated to~~ represent where on-airport workers might receive the greatest exposure to TACs. The TAC concentrations were ~~at the LAX Theme Building were~~ compared to the California Occupational Safety and Health Administration (CalOSHA) 8-hour PEL-TWAs.

4.4.3 Existing Conditions

4.4.3.1 Regulatory Setting

Federal

The EPA provides guidance on performing an HHRA through its Office of Emergency and Remedial Response publication, *Risk Assessment Guidance for Superfund, Vol I, Human Health Evaluation Manual (Part A), Interim Final, EPA/540/1-89/002*, published December, 1989.

State

The CARB's statewide comprehensive air toxics program was established in the early 1980's. The Toxic Air Contaminant Identification and Control Act (AB 1807) created California's program to reduce exposure to air toxics. The South Coast Air Quality Management District (SCAQMD) has jurisdiction over the air quality of the Basin and has released a draft final Basin-wide air toxics study (Multiple Air Toxics Exposure Study [MATES] III, May 2008). As part of the MATES III study, a series of maps showing regional trends in estimated outdoor inhalation cancer risk from toxic emissions was prepared and indicates that the City of Los Angeles is exposed to an inhalation cancer risk of 500 – 3,692 persons per million. These risk maps depict inhalation cancer risk due to modeled outdoor TAC pollutant levels, and do not account for cancer risk due to other types of exposure. The largest contributors to inhalation cancer risk are diesel engines.

In September 1987, the California Legislature established the AB 2588 air toxics "Hot Spots" program. It requires facilities to report their air toxics emissions, ascertain health risks, and to notify nearby residents of significant risks. The SCAQMD has determined that the significance criterion for cancer health risks is a ten in one million increase in the chance of developing cancer. The SCAQMD has also adopted a significance criterion for cancer burden. The cancer burden is the estimated increase in the occurrence of cancer cases in a population as a result of exposures to TAC emissions. The SCAQMD has determined that the significance criterion for cancer burden is greater than 0.5 excess cancer cases in areas with an incremental increase in cancer risk greater than or equal to 1 in 1 million. The significance of non-cancer (acute and chronic) risks is evaluated in terms of hazard indices (HI) for different endpoints. The SCAQMD threshold for non–cancer risk for both acute and chronic HI is 1.0. In September 1992, the "Hot Spots" Act was amended by Senate Bill 1731 which required facilities that pose a significant health risk to the community to reduce their risk through a risk management plan. Beginning In 2000, the CARB has adopted diesel risk reduction plans and measures to reduce DPM emissions and the associated health risk. These are discussed in more detail in the following section.

California Air Resources Board Air Toxics Control Measure (ATCM)

In 2004, CARB adopted a control measure to limit commercial heavy duty diesel motor vehicle idling in order to reduce public exposure to DPM and other TACs. The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. In general, it prohibits idling for more than 5 minutes at any location.

In addition to limiting exhaust from idling trucks, CARB promulgated emission standards for off-road diesel construction equipment such as bulldozers, loaders, backhoes and forklifts, as well as many other self-propelled off-road diesel vehicles. A CARB regulation that became effective on June 15, 2008, aims to reduce emissions by installation of diesel soot filters and encouraging the replacement of older, dirtier engines with newer emission controlled models. The regulation requires that fleets limit their unnecessary idling to 5 minutes; there are exceptions for vehicles that need to idle to perform work (such as a crane providing hydraulic power to the boom), vehicles being serviced, or in a queue waiting for work. A prohibition against acquiring certain vehicles (e.g., Tier 0 and Tier 1) began on March 1, 2009; however, CARB is not enforcing this part of the regulation until “it receives authorization from U.S. EPA.”[6] Implementation of the fleet averaging emission standards is staggered based on fleet size, with the largest operators to begin compliance in 2014.[7] By 2020, CARB estimates that DPM will be reduced by 74 percent and smog forming NO_X (an ozone precursor emitted from diesel engines) by 32 percent, compared to what emissions would be without the regulation.[8]

The CalEPA provides guidance on performing an HHRA through its Office of Environmental Health Hazard Assessment publications:

- *Air Toxics Hot Spots Program Risk Assessment Guidelines, Part I: Technical Support Document for the Determination of Acute Reference Exposure Levels for Airborne Toxicants*, March 1999;
- *Air Toxics Hot Spots Program Risk Assessment Guidelines, Part II: Technical Support Document for Describing Available Cancer Potency Factors*, updated August 2003;

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[6] Office of Administrative Law, “California Regulatory Notice Register, February 26, 2010,” http://www.oal.ca.gov/res/docs/pdf/notice/9z-2010.pdf, Accessed March 2013.

[7] California Air Resources Board, In-Use Off-Road Diesel Vehicle Regulation, Overview, Revised May 2012, http://www.arb.ca.gov/msprog/ordiesel/faq/overview_fact_sheet_dec_2010-final.pdf, Accessed June 2013.

[8] California Air Resources Board, “Emissions and Health Benefits of Regulation for In-Use Off-Road Diesel Vehicles,” http://www.arb.ca.gov/msprog/ordiesel/documents/OFRDDIESELhealthFS.pdf, Accessed March 2013.

- *Air Toxics Hot Spots Program Risk Assessment Guidelines, Part III: The Determination of Chronic Reference Exposure Levels for Airborne Toxicants*, February 23, 2000;
- *Air Toxic Hot Spots Program Risk Assessment Guidelines, Part IV: Technical Support Document for Exposure Assessment and Stochastic Analysis*, September 2000; and
- *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, August 2003.

Regional/Local

The SCAQMD provides guidance on performing an HHRA through its publication, *Supplemental Guidelines for preparing Risk Assessment for the Air Toxics Hot Spots Information and Assessment Act (AB2588)*. July 2005.

4.4.3.2 Existing Health Risk in the Project Area

The SCAQMD has released a draft final Basin-wide air toxics study (MATES III, Multiple Air Toxics Exposure Study, May 2008). The MATES III Study represents one of the most comprehensive air toxics studies ever conducted in an urban environment. The Study was aimed at estimating the cancer risk from TAC emissions throughout the Basin by conducting a comprehensive monitoring program, an updated emissions inventory of TACs, and a modeling effort to fully characterize health risks for those living in the Basin. The Study concluded that the average carcinogenic risk from air pollution in the Basin is approximately 1,200 in one million. Mobile sources (e.g., cars, trucks, trains, ships, aircraft, etc.) represent the greatest contributors. Approximately 85 percent of the risk is attributed to DPM emissions, approximately 10 percent to other toxics associated with mobile sources (including benzene, butadiene, and formaldehyde), and approximately 5 percent of all carcinogenic risk is attributed to stationary sources (which include industries and other certain businesses, such as dry cleaners and chrome plating operations).

As part of the MATES III study, the SCAQMD has prepared a series of maps that show regional trends in estimated outdoor inhalation cancer risk from toxic emissions, as part of an ongoing effort to provide insight into relative risks. The maps' estimates represent the number of potential cancers per million people associated with a lifetime of breathing air toxics (24 hours per day outdoors for 70 years) in parts of the area. The estimated lifetime cancer risk from exposure to TACs for those residing within the vicinity of the proposed Project is estimated at 884 cancers per million, while the vast majority of the area surrounding LAX ranges between 500 to 1,200 cancers per million.[9] However, the visual resolution available in the map is 1 kilometer by 1 kilometer and, thus, impacts for individual neighborhoods are not discernible on this map. In general, the risk of the Project site is comparable with other areas in the Los Angeles area; the risk from air toxics is lower near the coastline, and increases inland, with higher risks concentrated near large diesel sources (e.g., freeways, airports, and ports).

The CARB also prepares a series of maps that show regional trends in estimated outdoor inhalable cancer risk from air toxic emissions. The Year 2010 Los Angeles County Central map, which is the most recently available map to represent existing conditions, shows cancer risk

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[9] South Coast Air Quality Management District, Multiple Air Toxics Exposure Study III Model Estimated Carcinogenic Risk website available at http://www3.aqmd.gov/webappl/matesiii/, Accessed September 2013.

ranging from 500 to 1,500 cancers per million in the Project area, which is generally consistent with the SCAQMD's risk maps.[10]

The data from the SCAQMD and CARB provide a slightly different range of risk. This difference is primarily related to the fact that the SCAQMD risk is based on monitored pollutant concentrations and the CARB risk is based on dispersion modeling and emission inventories. Regardless, the SCAQMD and CARB data shows that there is an inherent health risk associated with living in urbanized areas of the Basin, where mobile sources (e.g., cars, trucks, trains, ships, aircraft, etc.) represent the greatest contributors to the overall risk.

Sources of Toxic Air Contaminants of Concern

As indicated in the LAX Master Plan Final EIR, baseline sources of TACs at LAX include both stationary and mobile sources. Stationary sources consist of aircraft maintenance facilities, the existing fuel farm, and the Central Utility Plant. Mobile sources of TACs include aircraft, ground service equipment, and on- and off-airport vehicles. These sources generate a number of TACs of concern, including volatile organics, polycyclic aromatic hydrocarbons, metals, and other constituents.

Exposed Populations

Screening-level air dispersion modeling conducted for the LAX Master Plan Final EIS/EIR indicated that the greatest area of human health impact from airport activities is confined to the airport property. However, health risks from LAX may accrue to populations in the nearby area. The exposed population within this potential area of impact includes workers, residents, and sensitive receptors such as schools, hospitals, and nursing. The airport is bound to the north and south by residential areas which are likely to contain populations that are particularly sensitive to air pollution. These population groups include children, elderly, and acutely and chronically ill persons (especially those with cardio-respiratory diseases). Sensitive land uses in close proximity to the Project site include the following:

- The El Segundo residential neighborhood located approximately 1,300 feet to the south of the Project area.
- The Westchester residential neighborhood located approximately 1,300 feet to the north of Runway 6L-24R.

4.4.4 CEQA Thresholds of Significance

There are no significance thresholds related to a HHRA within Appendix G of the CEQA Guidelines. Significance determinations for health impacts were assessed as incremental increases in cancer risks and non-cancer health hazards associated with the construction of the proposed Project, based on guidance from SCAQMD, CalEPA, and EPA. A significant impact to human health would occur if construction activities of the proposed Project would result in one or more of the following conditions:

- An incremental TAC cancer risk greater than, or equal to, 10 in one million (10 x 10^{-6}) people for potentially exposed off-site workers, residents, or school children.
- An incremental TAC chronic hazard index greater than, or equal to, one (1) person at any receptor location.

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[10] California Air Resources Board, Cancer Inhalation Risk: Local Trend Maps website available at http://www.arb.ca.gov/ch/communities/hlthrisk/cncrinhl/rskmapvwtrend.htm.400, Accessed September 2013.

- An incremental acute hazard index greater than, or equal to, one (1) person at any receptor location.
- Exceedance of PEL-TWA for on-airport workers.

The above thresholds utilized for this HHRA are based on SCAQMD guidance. The SCAQMD is in the process of developing an "Air Quality Analysis Guidance Handbook" (Handbook) to replace the 1993 SCAQMD CEQA Air Quality Handbook. Although not yet published, SCAQMD has made certain sections of the Handbook available, including their air quality significance thresholds, which provide thresholds for TACs.[11] The threshold for workers is based on standards developed by CalOSHA.[12]

4.4.5 Project Design Features

4.4.5.1 LAX Master Plan EIS/EIR Commitments

As part of the LAX Master Plan, LAWA adopted several mitigation measures and commitments pertaining to air quality to avoid or reduce environmental impacts, as described in the LAX Master Plan MMRP. Although the proposed Project is not part of the LAX Master Plan, LAWA is committed to implementing the applicable LAX Master Plan commitments to all LAWA projects, including the proposed Project. Of the three commitments and four mitigation measures that were designed to address air quality impacts related to implementation of the LAX Master Plan, none of the commitments are applicable to the proposed Project, but two of the mitigation measures are applicable to the proposed Project and were considered in the air quality analysis herein.

LAWA has identified air quality control measures that it requires on all projects based on the LAX Master Plan commitments and mitigation measures, subsequent measures identified during the implementation of Master Plan projects, the LAX Master Plan Community Benefits Agreement (CBA) and Settlement Agreement, recommendations from the SCAQMD, and the City of Los Angeles Green Building Code Tier 1 standards. Applicable air quality control measures for the proposed Project include:

- **LAX-AQ-1 – General Air Quality Control Measures.** This measure describes a variety of specific actions to reduce air quality impacts associated with projects at LAX, and applies to all projects. Some components of LAX-AQ-1 are not readily quantifiable, but would be implemented as part of LAX Master Plan projects. Specific measures are identified in **Table 4.4-3**.

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[11] South Coast Air Quality Management District, *CEQA Air Quality Handbook*, 1993, as updated by "SCAQMD Air Quality Significance Thresholds," March 2011, Available: http://www.aqmd.gov/ceqa/handbook/signthres.pdf, Accessed August 2013.

[12] California Occupational Safety and Health Administration (CalOSHA), Permissible Exposure Limits for Chemical Contaminants, Table AC-1, Available: http://www.dir.ca.gov/Title8/5155table_ac1.html, Accessed August 2013.

Table 4.4-3

General Air Quality Control Measures[a]

Measure Number	Measure	Type of Measure	Quantified Emissions Reduction
1a	Watering (per SCAQMD Rule 403) – twice daily	Fugitive Dust	50% PM_{10} and $PM_{2.5}$
1b	Ultra-low sulfur diesel (ULSD) fuel will be used in construction equipment.	Off-Road Mobile	Assumed in modeling
1c	Post a publicly visible sign with the telephone number and person to contact regarding dust complaints; this person shall respond and take corrective action within 24 hours.	Fugitive Dust	NQ
1d	Prior to final occupancy, the applicant demonstrates that all ground surfaces are covered or treated sufficiently to minimize fugitive dust emissions.	Fugitive Dust	NQ
1e	All roadways, driveways, sidewalks, etc., being installed as part of the project should be completed as soon as possible; in addition, building pads should be laid as soon as possible after grading.	Fugitive Dust	NQ
1f	Prohibit idling or queuing of diesel-fueled vehicles and equipment in excess of five minutes. This requirement will be included in specifications for any LAX projects requiring on-site construction.[b]	Nonroad Mobile	NQ
1g	Require that all construction equipment working on-site is properly maintained (including engine tuning) at all times in accordance with manufacturers' specifications and schedules.	Mobile and Stationary	NQ

Notes:
NQ = Not Quantified
[a] These measures are from LAX Master Plan Mitigation Measure MM-AQ-2, unless otherwise noted.
[b] From LAX Master Plan Mitigation Measure MM-AQ-2 and Community Benefits Agreement Measure X.M.
Source: City of Los Angeles, Los Angeles World Airports and FAA, *Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements SCH#1997061047*, April 2004; City of Los Angeles, Los Angeles World Airports, *Community Benefits Agreement*, 2006.

- **LAX-AQ-2 - Construction-Related Control Measures.**[13] This measure describes numerous specific actions to reduce fugitive dust emissions and exhaust emissions from on-road and off-road mobile and stationary sources used in construction. Some components of LAX-AQ-2 are not readily quantifiable, but would be implemented as part of LAX projects. These control strategies are expected to reduce construction-related emissions. Specific measures are identified in **Table 4.4-4.**

Table 4.4-4

Construction-Related Air Quality Control Measures[a]

Measure Number	Measure	Type of Measure	Potential Emissions Reduction by Equipment
2a	All diesel-fueled equipment used for construction will be outfitted with the best available emission control devices, where technologically feasible, primarily to reduce emissions of diesel particulate matter (PM), including fine PM ($PM_{2.5}$), and secondarily, to reduce emissions of NO_x. This requirement shall apply to diesel-fueled off-road equipment (such as construction machinery), diesel-fueled on-road vehicles (such as trucks), and stationary diesel-fueled engines (such as electric generators). (It is unlikely that this measure will apply to equipment with Tier 4 engines.) The emission control devices utilized in construction equipment shall be verified or certified by California Air Resources Board or US Environmental Protection Agency for use in on-road or off-road vehicles or engines. For multi-year construction projects, a reassessment shall be conducted annually to determine what constitutes a best available emissions control device.[b]	Off-Road Mobile	85% PM_{10}; $PM_{2.5}$, adjusted for compatibility
2b	Watering (per SCAQMD Rule 403) – three times daily	Fugitive Dust	61% PM_{10} and 61% $PM_{2.5}$
2c	Pave all construction access roads at least 100 feet onto the site from the main road.	Fugitive Dust	NQ
2d	To the extent feasible, have construction employees' work/commute during off-peak hours.	On-Road Mobile	NQ
2e	Make available on-site lunch trucks during construction to minimize off-site worker vehicle trips.	On-Road Mobile	NQ
2f	Utilize on-site rock crushing facility, when feasible, during construction to reuse rock/concrete and minimize off-site truck haul trips.	Nonroad Mobile	NQ
2g	Specify combination of electricity from power poles and portable diesel- or gasoline-fueled generators using "clean burning diesel" fuel and exhaust emission controls.	Stationary Point Source Controls	NQ
2h	Suspend use of all construction equipment during a second-stage smog alert in the immediate vicinity of LAX.	Mobile and Stationary	NQ

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[13] The mitigation elements presented in LAX-AQ-2 were derived from LAX Master Plan EIS/EIR Mitigation Measure MM-AQ-3.

Table 4.4-4

Construction-Related Air Quality Control Measures[a]

Measure Number	Measure	Type of Measure	Potential Emissions Reduction by Equipment
2i	Utilize construction equipment having the minimum practical engine size (i.e., lowest appropriate horsepower rating for intended job).	Mobile and Stationary	NQ
2j	Prohibit tampering with construction equipment to increase horsepower or to defeat emission control devices.	Mobile and Stationary	NQ
2k	The contractor or builder shall designate a person or persons to ensure the implementation of all components of the construction-related measure through direct inspections, record reviews, and investigations of complaints.	Administrative	NQ
2l	LAWA will locate rock-crushing operations and construction material stockpiles for all LAX-related construction in areas away from LAX-adjacent residents, to the extent possible, to reduce impacts from emissions of fugitive dust.[c]	Stationary	Can be quantified in modeling assumptions
2m	LAWA will ensure that there is available and sufficient infrastructure on-site, where not operationally or technically infeasible, to provide fuel to alternative-fueled vehicles to meet all requests for alternative fuels from contractors and other users of LAX. This will apply to construction equipment and to operations-related vehicles on-site. This provision will apply in conjunction with construction or modification of passenger gates related to implementation of the LAX Master Plan relative to the provision of appropriate infrastructure for electric GSE.[d]	Mobile	NQ
2n	On-road trucks used on LAX construction projects with a gross vehicle weight rating of at least 19,500 pounds shall, at a minimum, comply with USEPA 2007 on-road emissions standards for PM10 and NO_x.[e]	On-Road Mobile	Assumed in modeling
2o	Prior to January 1, 2015, all off-road diesel-powered construction equipment greater than 50 horsepower shall meet USEPA Tier 3 off-road emission standards. After December 31, 2014, all off-road diesel-power construction equipment greater than 50 horsepower shall meet USEPA Tier 4 off-road emissions standards. Tier 4 equipment shall be considered based on availability at the time the construction bid is issued. LAWA will encourage construction contractors to apply for SCAQMD "SOON" funds to accelerate clean-up of off-road diesel engine emissions.[f]	Off-Road Mobile	Assumed in modeling

Notes:

[a] These measures are from LAX Master Plan Mitigation Measure MM-AQ-2, unless otherwise noted.

[b] From LAX Master Plan Mitigation Measure MM-AQ-2 and Community Benefits Agreement Measure X.F.

[c] From Community Benefits Agreement Measure X.L.

[d] From Community Benefits Agreement Measure X.N.

[e] From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-1.

[f] From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-1.

Source: City of Los Angeles, Los Angeles World Airports and FAA, *Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements SCH#1997061047*, April 2004; City of Los Angeles, Los Angeles World Airports, *Community Benefits Agreement*, 2006; City of Los Angeles, Los Angeles World Airports, *Preliminary LAX Specific Plan Amendment Study Report for Los Angeles International Airport (LAX) Specific Plan Amendment Study*, June 2012.

4.4.6 Impact Analysis

Cancer risk estimates from exposure to construction sources are presented below for on-airport workers (occupational exposure), ~~and~~ off-airport workers, residents, and school children. Acute and chronic non-cancer health hazards are also presented.

4.4.6.1 Health Risks to On-Airport Workers

Effects on on-airport workers were evaluated by comparing estimated maximum 8-hour average TAC concentration to the CalOSHA 8-hour PEL-TWA. Estimated maximum 1-hour air concentrations at the on-site locations were converted to 8-hour averages by multiplying the 1-hour average by a factor of 0.7.[14] Receptor locations evaluated for on-airport workers are shown in Figure 4.4-1. Estimated maximum on-airport air concentrations and PEL-TWAs for TACs of concern are ~~The estimated maximum 8-hour average TAC concentration at the on-airport grid point is several orders of magnitude below the PEL-TWA and, thus would not exceed those considered acceptable by CalOSHA standards, as~~ shown in **Table 4.4-5**. As shown, estimated maximum air concentrations at on-airport locations are a few to several orders of magnitude below PELs for all TACs. Therefore, impacts related to health risks to on-airport workers would be less than significant.

Table 4.4-5

Comparison of CalOSHA Permissible Exposure Limits to Maximum Estimated 8-Hour On-Site Air Concentrations

Toxic Air Contaminant[a]	Controlled Project Concentrations (mg/m^3) [b]	CalOSHA PEL TWA (mg/m^3) [c]
Acetaldehyde	~~0.000032503~~0.001042	45
Acrolein	0.000000	0.25
Benzene	~~0.000008844~~0.000283	0.32[d]
Butadiene, 1-3-	~~0.000000840~~0.000027	2.2
Ethylbenzene	~~0.000001371~~0.000043	435
Formaldehyde	~~0.000065050~~0.002084	0.37[d]
Hexane, n-	~~0.000000708~~0.000022	180
Methanol	~~0.000000133~~0.000004	260
Methyl ethyl ketone (mek) (2-butanone)	~~0.000006545~~0.000209	590
Naphthalene	~~0.000000398~~0.000012	50
Propylene	~~0.000011498~~0.000368	NA[5]
Styrene	~~0.000000265~~0.000008	215
Toluene	~~0.000006501~~0.000209	37
Xylene (total)	~~0.000004643~~0.000147	435

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[14] California Air Resources Board. 2003. *HARP User Guide: Appendix H Recommendations for Estimating Concentrations of Longer Averaging Periods from the Maximum One-Hour Concentration for Screening Purposes*. Available: www.arb.ca.gov/toxics/harp/harpug.htm

Table 4.4-5

Comparison of CalOSHA Permissible Exposure Limits to Maximum Estimated 8-Hour On-Site Air Concentrations

Toxic Air Contaminant[a]	Controlled Project Concentrations (mg/m^3) [b]	CalOSHA PEL TWA (mg/m^3) [c]
Diesel PM	0.001517	NA[e]
Arsenic	~~0.0000000000~~0.000001	0.01
Cadmium	~~0.0000000010~~0.000006	0.005
Chlorine	~~0.0000000010~~0.000052	1.5
Chromium (VI)	0.000000	0.005
Copper	~~0.0000000030~~0.000004	1
Lead	~~0.0000000000~~0.000006	0.05
Manganese	~~0.0000000020~~0.000006	0.2
Mercury	~~0.0000000000~~0.000005	0.025
Nickel	~~0.0000000000~~0.000003	0.5
Selenium	~~0.0000000000~~0.000002	0.2
Silicon	~~0.0000000000~~0.000377	6
Sulfates	~~0.0000005750~~0.002644	NA[e]
Vanadium	~~0.0000000000~~0.000004	0.05

Notes:

a All TACs for which PEL-TWAs are available are listed. PEL-TWAs are not available for diesel exhaust, propylene, and sulfates.

b Maximum 1-hour concentrations at on-airport location converted to 8-hour averages by multiplying by a factor of 0.7..

c California Occupational Safety and Health Administration. Permissible Exposure Limits for Chemical Contaminants, Table AC-1, 2008, http://www.dir.ca.gov/title8/5155table_ac1.html.

d CalOSHA does not have a value; value is from American Conference of Governmental Industrial Hygienists (ACGIH), Documentation of the Threshold Limit Values and Biological Exposure Indices, 8th ed., Cincinnati, Ohio, 1998.

e NA = Not Available

Source: URS Corporation, 2013.

4.4.6.2 Cancer Risks and Chronic Non-Cancer Hazards

For cancer risks and chronic non-cancer hazards for the proposed Project, 326 grid points were analyzed along the airport fence-line and ~~one~~ seven ~~within the airport property~~on-airport/off-site grid nodes ~~(at the Theme Building)~~. The concentrations at the 326 fence-line locations represent maximum concentrations of TAC predicted by the air dispersion modeling, can be used to evaluate exposure to a MEI, and thus provide a ceiling for risks and hazards for off-airport residential, commercial, and student receptors. In essence, these calculations assumed that people live, work, and go to school at the LAX fence-line. Although this assumption is incorrect, it is conservative.

Air concentrations for TAC from construction sources were developed using emissions estimates and dispersion modeling as described above. Using these emission estimates, exposure parameters for potential receptors and current toxicity values, cancer risks and chronic non-cancer health hazards were calculated for adult residents, resident children ages 0 to 6 years, and for elementary-aged school children at fence-line locations where air concentrations for TAC were predicted. Offsite worker risks and hazards were estimated at the fence-line receptors~~, and at three on-airport locations to represent LAWA, tenant, and contractor personnel~~. Peak cancer risks and chronic non-cancer health hazards for MEI at the fence-line and on-airport locations are summarized in **Table 4.4-6**.

Residents and school children were evaluated at all 326 off-airport grid nodes. Estimated peak incremental cancer risks for adult residents and child residents for the proposed Project range from 0.~~05~~ 003 in one million to ~~0.6~~0.04 in one million. Estimated incremental cancer risks are higher for adults than for children, because exposure duration for adults is longer. Incremental cancer risk for school children at the peak location was estimated to be 0.00~~05~~ 1 in one million. Adult worker risks were evaluated at all 326 off-airport grid nodes as well as at ~~1~~ seven on-airport grid nodes. The peak adult (non-Project) worker cancer risk would be ~~0.6~~0.19 in one million. These estimates indicate that project-related cancer risks for adults and for young children would be below the threshold of significance of 10 in one million for controlled Project construction.[15]

Project-related chronic non-cancer hazard indices for construction impacts associated with the Project for adult residents and child residents living at the peak TAC concentration location were estimated to be 0.~~0007~~002. Project-related chronic non-cancer hazard index for chemicals affecting the same target (i.e., the respiratory system) for MEI school children is 0.~~0007~~0003. The peak adult (non-Project) worker chronic hazard index was estimated to be 0.~~002~~006. These estimates indicate that project-related chronic non-cancer hazards would be less than the hazard index threshold of 1.

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[15] Controlled emissions include emission reductions associated with control measures required by the South Coast Air Quality Management District, as well as mitigation measures required as part of the LAX Master Plan Mitigation Monitoring & Report Program, Community Benefits Agreement, and Stipulated Settlement Agreement.

Table 4.4-6

Maximum Incremental Cancer and Chronic Non-Cancer Hazards Risk for MEIs During Construction

Receptor Type	Incremental Cancer Risk[a] (per million people)	Significance Threshold (per million people)	Significant?
Child Resident	0.~~05~~003	10	No
School Child	0.~~003~~001	10	No
Adult Resident ~~(70 years)~~	~~0.59~~0.04	10	No
~~Adult Resident (30 years)~~	~~0.25~~	~~10~~	~~No~~
Offsite Workers	~~0.25~~0.19	10	No

	Incremental Chronic Non-Cancer Hazards Risk	Significance Threshold	Significant?
Child Resident	0.002~~0.0007~~	1	No
School Child	0.0003~~0.0002~~	1	No
Adult Resident	0.002~~0.0007~~	1	No
Offsite Workers	~~0.002~~0.006	1	No

Notes:

[a] Values provided are the maximum number of cancer cases per million people exposed.

Source: ~~URS Corporation~~Ricondo and Associates, 2013.

4.4.6.3 Acute Non-Cancer Hazards Risk

As with cancer risks and chronic non-cancer health hazards, acute health hazards were analyzed at ~~327~~ 335 grid points within the study area. Short-term concentrations of TAC for the proposed Project sources were estimated using AERMOD with the model option for 1-hour maximum concentrations selected. Acute health hazards were estimated at each grid point by comparison of the modeled TAC concentration at each grid point with the acute REL. All TAC identified in Project construction emissions and for which CalEPA has developed acute RELs were evaluated for potential acute health hazards. All acute health hazard estimates are specific for airport emissions and are independent of county-wide estimates developed by USEPA.

Land use distinctions and different exposure scenarios are irrelevant for assessment of acute health hazards. For example, someone visiting a commercial establishment would potentially be subject to the same acute health hazards as someone working at the establishment. Fence-line concentrations of TAC are likely to represent the highest concentrations and therefore the greatest impacts for residents, school children, or off-airport workers. The one on-airport grid point was assumed to be commercial receptors (workers).

Acrolein and formaldehyde are the only TAC of concern in construction emissions from the Project that might be present at concentrations approaching the thresholds for acute health hazards. Acute health hazards for other TAC are orders of magnitude below their respective acute RELs and thus would not contribute substantially to health hazards. Acrolein and formaldehyde are responsible for approximately 48 percent and 11 percent, respectively, of all predicted acute non-cancer health hazards. The primary source of acrolein is aircraft emissions;

the primary source of formaldehyde is from diesel-powered construction equipment. Maximum acute health hazards associated with exposure to these two chemicals from Project construction are ~~The proposed Project construction-related acute non-cancer hazard risk for the MEIs are~~ summarized in **Table 4.4-7**. As shown in **Table 4.4-7**, ~~construction emissions of TACs from the proposed Project would not result in incremental acute non-cancer hazard risk greater than, or equal to the threshold of significance of one (1) for all exposure types. Therefore, impacts related to the acute non-cancer hazard risk during construction of the proposed Project would be less than significant.~~ Project-related maximum acute hazard quotients for acrolein during construction are estimated to be 3.3 for residents living at the peak hazard location, 1.9 for school children, 0.6 for recreational users, and 2.0 for off-site adult workers. However, 301 of 326 off-site grid nodes have incremental acute hazard quotients for acrolein of less than 1. Of the 35 grid nodes with incremental acute hazard quotients for acrolein greater than 1, only five of the grid nodes are greater than 2. These grid nodes are located south of Runway 7L/25R in the south airfield. Additional receptors located at 50 meter increments to the south of the airport show a 54 percent reduction of acrolein concentrations (acute hazard quotient of 1.5) at a distance of 150 meters, but does not fall below the threshold of significance until approximately 900 meters south of the fenceline. On the north, acrolein concentrations fall below the threshold of significance within 100 meters. Receptor nodes with acute hazard index exceedances are shown in **Figure 4.4-2**.

The acute REL for acrolein has an uncertainty factor of 60.[16] This factor indicates a moderate uncertainty in the REL based on specific sources of variability not addressed in the toxicological studies, such as individual variation and interspecies differences. Although the maximum acute hazard quotients for acrolein during construction of the proposed Project is greater than 1, it should be noted that the acute REL is set at or below a level at which no adverse health impacts are expected for the majority of the population. Hence, it represents the tail-end of a distribution and not a specific "bright line" beyond which adverse effects are certain; instead any adverse acute non-cancer health effects (mucous membrane irritation) would be part of a complex probabilistic process. Although the maximum acute hazard quotient estimated as 3.3 is above the threshold of significance of 1, the value is still close to the threshold for acute effects, given the uncertainty in the toxicity factor, and may represent minimal actual acute non-cancer health hazards. Thus, an acute hazard quotient of 3.3 does not mean that adverse effects would definitely occur in the receptor population; rather, it indicates that such effects cannot be ruled out on the basis of current knowledge. **Appendix C** contains additional discussion of the health effects of acrolein and the uncertainties involved in determining exposure risk.

Project-related maximum acute hazard quotients for formaldehyde during construction are estimated to be 0.8 for residents living at the peak hazard location, 0.4 for school children, 0.1 for recreational users, and 0.8 for off-site adult workers.

Because the acute hazard quotients for acrolein for receptors representing residents, school child, and off-site adult workers are above the threshold of significance of 1, acute non-cancer health hazard impacts during construction of the proposed Project would be significant.

~~Table 4.4-7~~

~~**Maximum Incremental Acute Non-Cancer Hazards Risk for MEIs During Construction**~~

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[16] California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, *Air Toxics Hot Spots Program Technical Support Document for the Derivation of Noncancer Reference Exposure Levels*, December 2008.

~~Receptor Type~~	~~Incremental Acute Non-Cancer Hazards Risk (1-hour / 8-hour values)~~[a]	~~Significance Threshold~~	~~Significant?~~
~~Child Resident~~	~~0.005 / 0.02~~	~~1~~	~~No~~
~~School Child~~	~~0.001 / 0.006~~	~~1~~	~~No~~
~~Adult Resident~~	~~0.005 / 0.02~~	~~1~~	~~No~~
~~Offsite Workers~~	~~0.009 / 0.03~~	~~1~~	~~No~~

~~Notes:~~

[a] ~~Values provided are the maximum values.~~

~~Source: URS Corporation, 2013.~~

Table 4.4-7

Maximum Incremental Acute Non-Cancer Hazard Indices During Construction

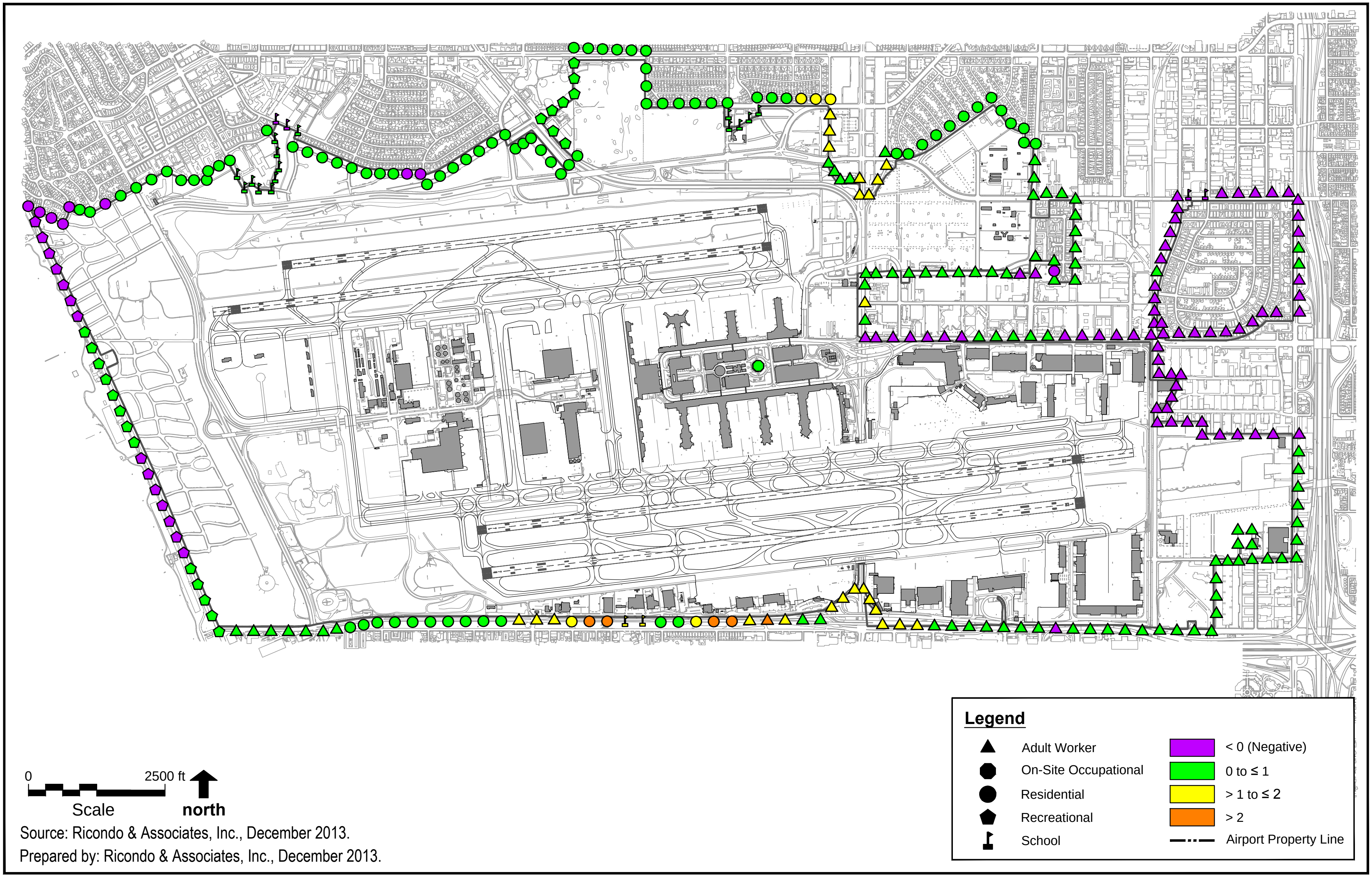
Pollutant	Acrolein	Formaldehyde
Residential		
Maximum HI[1]	**3.27**[2]	0.75
Minimum HI	-0.17	-0.04
Average HI	0.58	0.13
School		
Maximum HI	**1.87**	0.43
Minimum HI	-0.24	-0.06
Average HI	0.61	0.14
Offsite Worker		
Maximum HI	**2.02**	0.47
Minimum HI	-0.90	-0.21
Average HI	0.26	0.06
Recreational		
Maximum HI	0.55	0.13
Minimum HI	-0.52	-0.12
Average HI	0.06	0.01
Overall Off-Airport		
Maximum HI	**3.27**	0.75
On-Site Occupational		
Maximum HI	0.79	0.23

Notes:

[1] HI = Hazard Index

[2] **Bold** HIs are greater than the significance threshold of 1.

Source: Ricondo & Associates, Inc., 2013.



Source: Ricondo & Associates, Inc., December 2013.

Prepared by: Ricondo & Associates, Inc., December 2013.

Runway 7L/25R RSA and Associated Improvements Project Draft EIR

Incremental Acute Non-Cancer Hazards from Acrolein by Receptor Type

Figure
4.4-2

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4.4.7 Cumulative Impacts

Acrolein and formaldehyde are the primary TAC of concern for the proposed Project that might be present at concentrations approaching the threshold for acute health hazards. Predicted concentrations of TAC released during the construction of the proposed Project estimate that acute non-cancer health hazards would be above the significance threshold of one for acrolein. The assessment of cumulative acute non-cancer health hazards follows the methods used to evaluate cumulative acute non-cancer health hazards presented in the LAX Master Plan Final EIR[17] (Section 4.24.1.7 and Technical Report S-9a, Section 6.3), incorporating updated National-Scale Air Toxics Assessment tables from 2005. USEPA-modeled emission estimates by census tract were used to estimate annual average ambient air concentrations. These census tract emission estimates are subject to high uncertainty, and USEPA warns against using them to predict local concentrations. Thus, for the analysis of cumulative acute non-cancer health hazards, estimates for each census tract within Los Angeles County were identified, and the range of concentrations was used as an estimate of the possible range of annual average concentrations in the general vicinity of the airport. This range of concentrations was used to estimate a range of acute non-cancer hazard indices using the same methods described in the LAX Master Plan Final EIR[18] (Section 4.24.1.7 and Technical Report S-9a, Section 6.1). The methodology entails converting the USEPA annual average estimates to maximum 1-hour average concentrations by dividing the annual average estimates by 0.08.[19] Then the 1-hour average concentrations were divided by the acute REL to calculate acute hazard indices. The range of hazard indices was then used as a basis for comparison with estimated maximum acute non-cancer health hazards for the proposed Project. The relative magnitude of acute non-cancer health hazards calculated on the basis of the USEPA estimates and maximum hazards estimated for the proposed Project were taken as a general measure of relative cumulative impacts. Emphasis must be placed on the relative nature of these estimates. Uncertainties in the analysis preclude estimation of absolute impacts.

When USEPA annual average estimates are converted to possible maximum 1-hour average concentrations, acrolein acute hazard indices are estimated to range from 0.03 to 1.5, with an average of 0.4; formaldehyde acute hazard indices are estimated to range from 0.1 to 2.2, with an average of 1 for locations within the HHRA study area. Predicted overall maximum incremental acute non-cancer health hazards for the proposed Project associated with acrolein ranged from 1.9 to 3.3; those associated with formaldehyde ranged from 0.4 to 0.8. Results suggest that the proposed Project would add to total 1-hour maximum acrolein concentrations at some locations in the HHRA study area and, therefore, to cumulative acute non-cancer health hazards associated with exposure to acrolein.

Although no defined thresholds for cumulative health risk impacts are available, it is the policy of the SCAQMD to use the same significance thresholds for cumulative impacts as for the Project-specific impacts analyzed in the EIR.[20] If cumulative health risks are evaluated following this SCAQMD policy, the project's contribution to the cumulative cancer risk would not be

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[17] City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004.

[18] City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004.

[19] California Air Resources Board. 2003. *HARP User Guide: Appendix H Recommendations for Estimating Concentrations of Longer Averaging Periods from the Maximum One-Hour Concentration for Screening Purposes*. December. Available: www.arb.ca.gov/toxics/harp/harpug.htm

[20] South Coast Air Quality Management District, White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution, August 2003

cumulatively considerable since the incremental cancer risk impacts of the proposed Project are all below the individual cancer risk significance thresholds of 10 in one million.

In contrast to cancer risk, the SCAQMD policy does have different significance thresholds for project-specific and cumulative impacts for hazard indices for TAC emissions. A project-specific significance threshold is one (1.0) while the cumulative threshold is 3.0. Based on this SCAQMD policy, chronic non-cancer hazard indices associated with airport emissions of acrolein under the proposed Project would be cumulatively considerable.

~~Construction activities associated with the proposed Project would result in less than significant impacts related to cancer and chronic non-cancer hazards risk, acute non-cancer hazard risk, and to health risks to on-airport workers. As such, the proposed Project would not contribute cumulatively to potential health risks from other related projects. Therefore, cumulative impacts would be less than significant.~~

4.4.8 Mitigation Measures

LAWA is committed to mitigating temporary construction-related emissions to the extent practicable and has established some of the most aggressive construction emissions reduction measures in southern California, particularly with regard to requiring construction equipment to be equipped with emissions control devices. The air quality control measures set forth by LAWA for development projects at LAX take into account LAX Master Plan commitments and mitigation measures, Community Benefits Agreement and Stipulated Settlement measures, and measures identified in EIRs for other projects at LAX. In addition, the Los Angeles Green Building Code Tier 1 standards, which are applicable to all projects with a Los Angeles Department of Building and Safety permit-valuation over $200,000, require the proposed Project to implement a number of measures that would reduce criteria pollutant emissions.

One potential mitigation measure that LAWA could implement would be to shift the runway closure to summer months when school is not in session to reduce the effects of the temporary increased acrolein emissions on school children. However, because July and August are historically the peak months for aircraft operations at LAX, closure of the runway during the summer months would cause the greatest impact to airfield operations and aircraft delays, which would result in the highest amount of emissions associated with the rerouting of aircraft during construction. To minimize impacts to airfield operations and aircraft delays (and by extension aircraft emissions), LAWA is committed to scheduling the runway closure at a time of year with historically lower numbers of aircraft operations to the extent possible.

Thus, LAWA has not identified any additional feasible measures available to address acute non-cancer health hazard impacts, which would remain significant.

~~The assessment of health risk for the construction phase of the proposed Project found that impacts related to health risks including cancer risk and chronic and acute exposures to TACs would be less than significant. As such, no project-specific mitigation measures are required.~~

~~4.4.8~~4.4.9 Level of Significance after Mitigation

Even with incorporation of feasible construction-related project design features as described above, acute non-cancer health hazards impacts for acrolein resulting from the proposed Project would be significant during the proposed 3.5-month runway closure required during Project construction. LAWA has not identified any additional feasible mitigation measures that could be adopted at this time.

~~The assessment of health risk for the construction phase of the proposed Project found that impacts related to health risks including cancer risk and chronic and acute exposures to TACs would be less than significant, and no mitigations are required. Impacts would remain less than significant.~~

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5.0 OTHER CEQA CONSIDERATIONS

5.1 Growth-Inducing Impacts

Section 15126.2(d) of the CEQA Guidelines states that the assessment of growth-inducing impacts in the EIR must describe the "ways in which the proposed Project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment."

The primary purpose of the proposed Project is to improve passenger and aircraft safety at LAX by implementing infrastructure improvements to the primary departure runway in the South Airfield, Runway 7L/25R. LAX is required by the FAA to bring the RSAs for Runway 7L/25R into conformance with current FAA design standards. The proposed Project is an airfield project that does not include any residential development, nor are residential uses allowed at airports. Consequently, the proposed Project would not directly induce residential population growth in the areas surrounding LAX.

In addition, the proposed Project is not a capacity-increasing project and is not anticipated to generate new permanent employment at LAX, which would potentially indirectly induce population growth in the areas surrounding LAX. During construction, temporary employment would increase, but no permanent jobs would be created such that it would indirectly induce growth. Temporary employees are unlikely to move into the Project site vicinity and result in direct population growth.

Finally, as the proposed Project is an airfield project, it would not create or support, directly or indirectly, any new jobs or businesses in the area that could indirectly induce growth. Therefore, potential direct or indirect population, housing, or employment growth would not occur.

5.2 Irreversible Environmental Changes

According to CEQA Guidelines Section 15126.2(c), an EIR is required to evaluate significant irreversible environmental changes that would be caused by implementation of the proposed Project. As stated in CEQA Guidelines Section 15126.2(c):

> "[u]ses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified."

Irreversible adverse environmental changes would occur upon implementation of the proposed Project. Construction of the proposed Project would utilize nonrenewable resources, including fossil fuel-derived energy sources such as gasoline, diesel fuel, and electricity (necessary for transport of workers and materials during construction and provision of electricity during construction and for the new airfield lighting during the life of the proposed Project).

Several elements of the proposed Project would require the use of construction equipment, powered by gasoline, diesel, and electricity, including:

- Excavation;
- Paving;
- Grading;
- Decommissioning;
- Relocating, modification, and new installation of equipment; and
- Fencing.

A variety of standard construction equipment would be required for these proposed Project elements. This equipment would be powered by nonrenewable resources, similar to standard construction practices.

In addition, the proposed Project would require temporary construction workers that are anticipated to commute to the designated construction employee parking area on Aviation Boulevard and 111th Street by private vehicles, consuming gasoline. However, this vehicle and related fuel usage would be typical for construction work. Transport of materials to the Project site and transport of waste and debris would also require vehicle trips, using additional fossil fuel.

Although fossil fuel consumption associated with the proposed Project would constitute a depletion of a resource that is irretrievable and irreversible, the amount of resources consumed would not be of a substantial nature in the context of regional consumption. These activities would be typical of standard construction sites and practices, and would not cause substantial depletion of resources in the region.

Operations of the proposed Project would cause few irreversible environmental changes. As discussed in Section 5.2 above, the existing and planned capacity at LAX under the proposed Project would remain the same as under existing and planned conditions. Therefore, aircraft would not require the use of any additional nonrenewable resources, including aircraft fuel. New airfield lighting created by the proposed Project would require electrical power during operations of the proposed Project. The City of Los Angeles Department of Water and Power (LADWP), provides power to the Project site. Twenty percent of the power provided by LADWP comes from renewable energy sources, and LADWP intends to provide thirty-five percent of its energy from renewable sources by 2020.[1] Although the proposed Project would require electrical power during its operations, this power would become increasingly dependent on renewable energy resources and less dependent on nonrenewable energy sources, such as coal and natural gas, which can cause irreversible environmental changes. Furthermore, the proposed Project would not increase the number of lights; just modify them from in-tower lights to in-pavement lights. Therefore, operations of the proposed Project would not require irreplaceable resources that would be of a substantial nature in the context of regional consumption.

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[1] City of Los Angeles, Department of Water and Power, *Renewable Energy Policy*, online at https://www.ladwp.com/ladwp/faces/ladwp/aboutus/a-power/a-p-renewableenergy/a-p-re-renewableenergypolicy?_adf.ctrl-state=emeedq704_4&_afrLoop=536605396375000, accessed June 2013.

5.3 Unavoidable Significant Impacts

Section 15126.2(b) of the CEQA Guidelines requires that an EIR describe significant environmental impacts that cannot be avoided, including those effects that can be mitigated but not reduced to a less-than-significant level. The following is a summary of the impacts associated with the proposed Project that were concluded to be significant and unavoidable. These impacts are also described in detail in Chapter 4 Environmental Impact Analysis of this revised Draft EIR.

The proposed Project is anticipated to have unavoidable significant impacts related to ~~construction~~ air quality and human health risk during construction. Specifically, construction activities associated with the proposed Project would result in exceedance of the CAAQS threshold for CO, VOC, and NO_x (regional emissions). Also, the temporary closure of Runway 7L/25R would result in an exceedance of NO_2 CAAQS thresholds (localized concentrations) due to the diversion of aircraft to other runways. Cumulative impacts associated with construction emissions would also be significant. The rerouting of aircraft during construction (when Runway 7L/25R is closed) would result in the temporary exceedance of the acute non-cancer hazard index for acrolein. There would also be a cumulative impact for the acute non-cancer hazard index for acrolein exposure. Chapters 4.1 and 4.4 describe~~s~~ these significant and unavoidable impacts in detail. These significant and unavoidable impacts are short-term and temporary, and would not exist during the operational phase of the proposed Project.

5.4 Reasons Why Project Is Being Proposed, Notwithstanding Unavoidable Significant Impacts

In addition to identification of the proposed Project's unavoidable significant impacts, Section 15126.2(b) of the CEQA Guidelines requires that the reasons why the Project is being proposed, notwithstanding these impacts, be described.

~~The proposed Project is anticipated to have unavoidable significant impacts related to construction air quality. Specifically, construction activities associated with the proposed Project would result in exceedance of the CAAQS threshold for NO_x (regional emissions). Also, the temporary closure of Runway 7L/25R would result in an exceedance of NO_2 CAAQS thresholds (localized concentrations) due to the diversion of aircraft to other runways. Chapter 4.1 describes these significant and unavoidable impacts in detail.~~

The primary reason why the Project is being proposed, notwithstanding these unavoidable significant impacts, is that the RSA improvements are federally mandated. As explained in Chapter 1 Introduction, The RSA improvements are being undertaken by LAWA in response to the *Transportation, Treasury, Housing and Urban Development, the Judiciary, the District of Columbia, and Independent Agencies Appropriations Act, 2006* (Public Law [P.L.] 109-115), November 30, 2005. This Act requires completion of RSA improvements by airport sponsors that hold a certificate under Title 14, Code of Federal Regulations (CFR), Part 139, *Certification and Operations: Land Airports Serving Certain Air Carriers*, to meet Federal Aviation Administration (FAA) design standards by December 31, 2015. Non-compliance with this law could potentially result in penalties. The RSA improvements require the closure of the runway for 3.5 months which will lead to the aforementioned unavoidable significant impacts.

Secondarily, these unavoidable significant impacts are short-term and temporary, lasting for approximately 3.5 months, and would not exist during the operational phase of the proposed Project.

5.5 Potential Secondary Effects

Section 15126.4(a)(1)(D) of the CEQA Guidelines requires that "if a mitigation measure would cause one or more significant effects in addition to those that would be caused by the project as proposed, the effects of the mitigation measure shall be discussed but in less detail than the significant effects of the project as proposed."

The following is a discussion of the potential secondary impacts that could occur as a result of implementation of the proposed mitigation measures, listed by environmental topic.

The proposed Project does not include any project-specific mitigation measures that would require an analysis of potential secondary effects.

5.6 Impacts Found Not To Be Significant

Section 15128 of the CEQA Guidelines states that an EIR shall contain a brief statement indicating reasons that various possible significant effects of a project were determined not to be significant and not discussed in detail in the EIR. The following is a discussion of impacts found not to be significant, listed by environmental topic. This analysis was included in the Initial Study (IS) prepared for the proposed Project which is included as Appendix A in this Draft EIR.

The sections below provide a summary of the Environmental Setting of each resource, the proposed Project impacts which were found not to be significant based on CEQA thresholds, and the Initial Study Conclusions describing the analysis of these thresholds. References are given to additional information in the EIR and its Appendix A.

5.6.1 Aesthetics

In the IS published in October 2012, the Aesthetics evaluation concluded that of all of the Aesthetics subtopics evaluated, only lighting would be evaluated further in the CEQA document, the Draft Environmental Impact Report (EIR), primarily due to potential impacts related to operations of the proposed new Ground Service Equipment (GSE) Maintenance Facility. During comments received during the review period of the IS and the concurrent Draft EA, the proposed Project as described in the October 2012 IS was refined and the proposed new GSE Maintenance Facility was removed from the Project Description. The remaining Project Description components were evaluated in the IS and found to be less than significant with no further evaluation required in this Draft EIR. Therefore, potential lighting impacts associated with the proposed new GSE Maintenance Facility would no longer occur. As such, the analysis from the IS is presented but without references to the GSE facility.

5.6.1.1 Environmental Setting

Scenic Vistas

The Pacific Ocean is the primary scenic vista in the vicinity of the Project site.

Scenic Resources

The Project site does not contain scenic resources, such as trees, rock outcroppings, historic buildings, or other locally recognized desirable aesthetic features.

Visual Character

The Project site is located directly south of the LAX Central Terminal Area (CTA). The majority of the Project site is characterized by Airport development and its visual character is dominated by Airport facilities, graded surfaces, and paved runways. The visual character in the vicinity of the Airport is highly urbanized and primarily characterized by residential and commercial development on the north; hotel, Airport support, and commercial development on the east; residential, commercial, and industrial development on the south; and open space on the west.

Lighting and Glare

Lighting is used throughout the Project study area and on the Airport to support existing operations during nighttime and during periods of low visibility. Glare is caused by metallic surfaces reflecting sunlight. Most of the surfaces at the Project site are not metallic and are not considered a significant source of glare.

5.6.1.2 CEQA Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, an impact to Aesthetics is considered significant if the proposed Project would:

- Have a substantial adverse effect on a scenic vista;
- Damage scenic resources including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- Substantially degrade the existing visual character or quality of the site and its surroundings;
- Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area.

5.6.1.3 Initial Study Conclusions

Scenic Vistas

As the runway and taxiway improvements associated with the proposed Project are on the ground and those elements already exist on the Project site, there will be no impacts to viewsheds. No impacts to scenic vistas would occur.

Scenic Resources

The Project site is not located within a state scenic corridor and would not damage any scenic resources. No impacts related to scenic resources would occur.

Visual Character

The runway and taxiway improvements associated with the proposed Project will not change the visual character of the Project site and are consistent with the existing industrial character of LAX. Impacts related to visual character would be less than significant.

Lighting and Glare

The proposed Project would include replacement of in-tower approach lights to in-pavement approach lights. The lighting associated with the runway would be set low to the ground. The operational lighting would be similar to existing lighting conditions. The surfaces under the proposed Project would have similar texture to existing conditions and would not be considered a significant source of glare. Impacts related to lighting and glare would be less than significant.

5.6.2 Agricultural and Forestry Resources

5.6.2.1 Environmental Setting

The Project site is located within a fully developed Airport, is surrounded by Airport-related uses, and has been extensively disturbed and paved. There are no agricultural resources or operations within the vicinity of LAX, including prime or unique farmlands or farmlands of statewide or local importance. Further, there are no Williamson Act contracts in effect within the LAX vicinity. In addition, no forest or timberland resources exist at the Project site or in the vicinity of the Project site. The current zoning of the Project (LAX-Airside Zone) site does not allow agricultural uses.

5.6.2.2 CEQA Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, an impact to Agriculture and Forestry Resources is considered significant if the proposed Project would:

- 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 in the California Resources Agency, to non-agricultural use;
- Conflict with existing zoning for agricultural use, or a Williamson Act contract;
- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220[g]), timberland (as defined in Public Resource Code section 4526), or timberland-zoned Timberland Production (as defined by Government Code section 51104[g]);
- Result in the loss of forest land or conversion of forest land to non-forest use;
- Involve other changes in the existing environment which, due to their location or nature, could individually or cumulatively result in loss of Farmland to non-agricultural use or conversion of forest land to non-forest use.

5.6.2.3 Initial Study Conclusions

As there are no agricultural resources or operations or Williamson Act contracts within the vicinity of LAX, there would be no impacts to agricultural resources. The proposed Project would not conflict with existing zoning for, or cause rezoning of, forest land or timberland (including timberland zoned as Timberland Production) or result in the loss or conversion of forest land to non-forest use. Therefore, impacts related to the thresholds listed in Section 5.6.2.2 would be less than significant.

5.6.3 Biological Resources

5.6.3.1 Environmental Setting

LAX is predominantly a developed, paved Airport surrounded by urbanized areas to the north, south, and east and by the Los Angeles/El Segundo Dunes to the west. According to previous studies and field research, no species or habitats of special concern have been found or observed in the Project site (Refer to Appendix F for more details). The El Segundo Blue Butterfly, a federally-listed endangered wildlife species, is not present within the footprint of the proposed Project.[2] On April 12, 2005, the U.S. Fish and Wildlife Service (USFWS) excluded LAX from critical habitat for Riverside fairy shrimp because the primary constituent elements required for the Riverside fairy shrimp to complete its life cycle are not met at LAX.[3]

There are no federally protected wetlands in the Project site. According to the LAX Master Plan Final EIS/EIR, non-federally protected wetlands near the Project site include areas EW 15 and EW 16, which are located approximately 650 feet to the southwest of the Project site. LAX does not contain any areas designated under a Habitat Conservation Plan, Natural Communities Conservation Plan, or any other approved local, regional, or state habitat conservation plan. The Biological Environmental Setting is discussed in further detail in Appendix F, Biological Resources Technical Report.

5.6.3.2 CEQA Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, an impact to Biological Resources is considered significant if the proposed Project would:

- Adversely impact, either directly or through habitat modifications, 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 (CDFW) or U.S. Fish and Wildlife Service (USFWS);
- Adversely impact any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or USFWS;
- Adversely impact federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) either individually or in combination with the known or probable impacts of other activities through direct removal, filling, hydrological interruption, or other means;

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[2] City of Los Angeles, Los Angeles World Airports and FAA, *Final Environmental Impact Statement/Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements, SCH#1997061047*, April 2004.

[3] *Ibid*.

- Interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Communities Conservation Plan, or other approved local, regional, or state habitat conservation plan.

5.6.3.3 Initial Study Conclusions

Construction and operation of the proposed Project would not impact the El Segundo Blue Butterfly due to the distance between the Project site and the Habitat Restoration Area. Construction and operation of the proposed Project would not impact Riverside Fairy Shrimp as the primary constituent elements required for its complete life cycle are not met at LAX. Furthermore, LAX Master Plan Commitments and Mitigation Measures applicable to the proposed Project would be implemented to minimize dust, light/glare and noise effects including effects in the Habitat Restoration Area.

Maintenance activities and a bird hazard reduction program are implemented at LAX because LAX is in the migratory pathway of the Pacific Flyway. The proposed Project would not conflict with any local policies or ordinances protecting biological resources as no suitable habitat to support special-status plant or wildlife species or sensitive vegetation communities exist within the Project site. Additional detail is presented in Appendix F, Biological Resources Technical Report. Therefore, impacts related to the thresholds listed in Section 5.6.3.2 would be less than significant

5.6.4 Cultural Resources

5.6.4.1 Environmental Setting

Historic Resources

The nearest known historic resources to the proposed Project are: 1) the Theme Building north of Runway 7L-25R, which is eligible for placement on the National Register, and 2) Hangar One south of Runway 7L-25R, which is on the National Register of Historic Places. Both these properties are located approximately 0.30 miles from the closest points of the Project site.

Archaeological Resources

The LAX Master Plan Final EIS/EIR reports six archaeological sites (four of which were also reported by the South Central Coastal Information Center [SCCIC]) and two isolates (also reported by the SCCIC) within the vicinity of the Area of Potential Effect (APE), of which one is within the APE: 19-000691. Additional details are provided in the Cultural Resources Technical Report included as Appendix E of this Draft EIR.

Paleontological Resources

A record search by the Natural History Museum of Los Angeles County revealed that no fossils have been previously collected from within the Project site. However, there are vertebrate fossils recorded from the same type of sediments within a one-mile distance of the Project site, at depths ranging from 13 feet to 70 feet. Additional details are provided in the Cultural Resources Technical Report included as Appendix E of this Draft EIR.

Human Remains

The Project site is not located within any known formal cemeteries.

5.6.4.2 CEQA Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, an impact to Cultural Resources is considered significant if the proposed Project would:

- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5;
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5;
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature;
- Disturb any human remains, including those interred outside of formal cemeteries.

5.6.4.3 Initial Study Conclusions

Historic Resources

There were three cultural resources evaluated for the proposed Project: the Runway 7L/25R complex, Air Freight Building No. 8, and a portion of Coast Boulevard located within the airfield. None of these resources were found to be eligible for listing in the National Register of Historic Places or the California Register of Historic Resources. Therefore, no impacts related to historic resources would occur.

Archaeological Resources

There are documented archaeological sites in the vicinity of the Project site but a low potential for disturbance of unknown archaeological resources within the Project site. The proposed Project would not require excavation deeper than three feet. In the event, however, that unanticipated archaeological resources are encountered, LAWA shall implement LAX Master Plan EIS/EIR Commitments, which would reduce potential impacts related to archaeological resources a less than significant level.

Paleontological Resources

The LAX Master Plan identified the presence of vertebrate fossil occurrences within the vicinity of the Project site. The proposed Project would not require excavation deeper than three feet. In the event, however, that unanticipated paleontological resources are encountered, LAWA shall implement LAX Master Plan EIS/EIR Commitments, which would reduce potential impacts related to paleontological resources a less than significant level.

Human Remains

The Project site is not located within any known formal cemeteries and the proposed Project would not require excavation deeper than three feet. In the event, however, that unanticipated human remains are encountered, LAWA will comply with Health and Safety Code § 7050.5 and Public Resources Code § 5097.98. Upon discovery of human remains, these statutes require LAWA to cease all excavation and disturbance of the site, to contact the coroner, to contact the Native American Heritage Commission if necessary, and to provide for appropriate treatment of the remains. Upon complying with the above mentioned codes, impacts related to human remains would be less than significant.

5.6.5 Geology and Soils

5.6.5.1 Environmental Setting

The Project site is located in the seismically active Southern California region; however, there is no evidence of faulting at the Project site, and the Project site is not located within an Alquist-Priolo Special Study Zone. Regionally, the Project site is located in the Los Angeles Coastal Plain. Locally, the Project site lies entirely on the physiographic area known as the El Segundo Sand Hills, an ancient floodplain.

5.6.5.2 CEQA Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, an impact to Geology and Soils is considered significant if the proposed Project would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
    i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault. Refer to Division of Mines and Geology Special Publication 42.
    ii. Strong seismic ground shaking,
    iii. Seismic-related ground failure, including liquefaction,
    iv. 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- 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) creating substantial risks to life or property;
- 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.

5.6.5.3 Initial Study Conclusions

While the Project site is located within the seismically active Southern California region, it is not located within an Alquist-Priolo Special Study Zone.[4] All proposed Project components would be designed in accordance with the provisions of FAA Advisory Circulars 150/5300-13, 5320-6E, and 5370-10E, regarding seismic construction materials and methods. Therefore, impacts related to rupture of a known earthquake fault or strong seismic ground shaking would be less than significant. The Project site has generally level topography; therefore it would not be subject to slope instability. Also, the proposed Project would comply with FAA Advisory Circulars 150/5300-13, 5320-6E, and 5370-10E, regarding seismic construction materials and methods, so that no impacts related to liquefaction would occur.

LAWA would prepare an erosion control plan requiring erosion and sediment control facilities be provided throughout the duration of construction, existing inlets be protected with filter fabric inserts, and disturbed areas will be seeded. Therefore, impacts related to soil erosion would be less than significant. As the proposed Project would be utilized by heavy aircraft, the FAA has specific requirements to ensure that the pavement supports the anticipated weights during operations which would be incorporated into the design of the proposed Project to reduce the impacts related to soil settlement to less than significant. Also, because construction of the proposed Project would occur in accordance with FAA Advisory Circulars, which include construction requirements for grading, excavation, and foundation work, the potential for hazards to occur as a result of expansive soils would be minimized. Therefore, impacts related to the thresholds listed in Section 5.6.5.2 would be less than significant

5.6.6 Hazards and Hazardous Materials

5.6.6.1 Environmental Setting

The types, characteristics, and occurrences of hazardous materials and other regulated substances at LAX are typical of large metropolitan airports that offer commercial and cargo services. Off-Airport activities within the Project study area include a mixture of industrial, commercial, and warehousing activities.

5.6.6.2 CEQA Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, an impact related to Hazards and Hazardous Materials is considered significant if the proposed Project would:

- 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 the reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;

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[4] City of Los Angeles, Los Angeles World Airports and FAA, *Final Environmental Impact Statement/Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements, SCH#1997061047*, April 2004.

- 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 within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan;
- Expose people or structures to the risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

5.6.6.3 Initial Study Conclusions

The proposed Project would not require changes in any routine transport, use, or disposal of hazardous materials associated with operations at the Airport. Construction of the proposed Project may involve the use of potentially hazardous materials, the quantities of which would not be significantly different than another construction project of similar size. Compliance with the existing federal, state, and local regulations would reduce the potential for accidental release of hazardous materials. There are no wildlands located within the Project site. In addition, the Project site is not within the City of Los Angeles Wildfire Hazard Area.[5] Consequently, the proposed Project would not expose people or structures to significant loss, injury, or death due to wildland fires. Therefore, impacts related to the thresholds listed in Section 5.6.6.2 would be less than significant.

5.6.7 Hydrology and Water Quality

5.6.7.1 Environmental Setting

The Project site contains primarily impermeable surfaces related to existing developments such as runways, taxiways, aprons, and service roads. Surface water discharge from the Project site goes to both City of Los Angeles and County of Los Angeles flood control and drainage structures that empty into Santa Monica Bay and San Pedro Harbor. The Project site uses the Imperial, Argo, and Dominguez Channel Sub-Basins. Existing water quality pollutants from the Project study area includes typical discharges from aircraft and related vehicle operations. The Project site is not located in a 100-year floodplain area.

5.6.7.2 CEQA Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, an impact to Hydrology and Water Quality is considered significant if the proposed Project would:

- Violate any water quality standards or waste discharge requirements;
- 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 (i.e., the production rate of pre-existing nearby wells would drop to a

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[5] City of Los Angeles, *Safety Element of the City of Los Angeles General Plan*, 1996.

level which would not support existing land uses or planned uses for which permits have been granted);

- 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 or siltation on- 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 in a manner that would result in flooding on- or off-site;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year floodplain, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- Place within a 100-year floodplain 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;
- Inundation by seiche, tsunami, or mudflow.

5.6.7.3 Initial Study Conclusions

The paving, grading, and other construction phases of the proposed Project would require temporary disturbance of surface soils and removal of asphalt and ornamental vegetative cover which could potentially result in on-site erosion and sedimentation. Erosion and sedimentation attributable to construction activities could potentially impact water quality. The proposed Project would not substantially change the drainage pattern of the Project site and would include drainage elements to maintain current flows. The proposed Project would not place structures in a 100-year plain, and it will not affect groundwater, as the excavation is substantially shallower (3 to 6 feet) than known depths (20 to 50 feet) of groundwater. The Project site is not in a tsunami hazard area and is not located downstream of a lake or dam which may generate seiches. The Project site is not located next to a mountainous area that would be susceptible to mudflows. Therefore, impacts related to the thresholds listed in Section 5.6.7.2 would be less than significant.

5.6.8 Land Use and Planning

5.6.8.1 Environmental Setting

The LAX property consists of Airport-related uses. Land uses surrounding the Project site are Airport-related uses to the north, south and east. Open space uses are located west of the South Airfield Complex. The El Segundo Dunes, managed by LAWA, supports the largest of the four remaining occupied habitats for the El Segundo Blue Butterfly, which the City of Los Angeles has designated as a Habitat Restoration Area pursuant to City Ordinance 167940 for the long-term conservation of the El Segundo Blue Butterfly. The LAX Plan designates the Project site as Airport Airside. This area includes those aspects of passenger and cargo movement that are associated with aircraft operating under power and related airfield support services. The LAX Specific Plan designates the Project site as Airport Airside (LAX-A Zone). the purpose of this zone is to allow for the safe and efficient operation of airport airfield activities.

5.6.8.2 CEQA Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, an impact to Land Use Planning is considered significant if the proposed Project would:

- Physically divide an established community;
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited, to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect;
- Conflict with any applicable habitat conservation plan or natural community's conservation plan.

5.6.8.3 Initial Study Conclusions

The proposed Project would occur entirely within LAX and would not divide an established community. Runway 7L/25R is located in the south airfield complex and is surrounded by Airport-related and open space land uses. The proposed Project uses are consistent with the existing LAX zoning in the City of Los Angeles LAX Plan. Therefore, impacts related to consistency with applicable land use plans would not occur. Due to the proximity of the proposed Project to the Los Angeles/El Segundo Dunes, with the implementation of construction related LAX Master Plan Commitments, impacts related to habitat conservation plans would be less than significant. Therefore, impacts related to the thresholds listed in Section 5.6.8.2 would be less than significant

5.6.9 Mineral Resources

5.6.9.1 Environmental Setting

LAX is located within the MRZ-3 zone, which represents areas with mineral deposits whose significance cannot be evaluated from available data. The Project site is developed with airport-related uses that are mostly paved with some disturbed open space and limited landscaping. There are no actively mined mineral resources on the LAX property. The property is not in an area delineated on the City of Los Angeles Oil Field and Oil Drilling Areas map in the City of Los Angeles General Plan Safety Element.

5.6.9.2 CEQA Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, an impact to Mineral Resources is considered significant if the proposed Project would:

- 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;
- 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.

5.6.9.3 Initial Study Conclusions

There are no actively mined resources on the LAX property. In addition, the proposed Project is not located in an area delineated on the City of Los Angeles Oil Field and Oil Drilling Areas map in the City of Los Angeles General Plan Safety Element. Therefore, no impacts related to mineral resources would occur.

5.6.10 Noise

5.6.10.1 Environmental Setting

The existing noise environment at and around the Project site consists of noise from Airport-related activities including aircraft departing, landing, and taxiing on runways and connecting taxiways; and noise from vehicular traffic movements on local roadways.

The nearest noise-sensitive area to the Project site consists of residential uses in El Segundo south of the Airport, multi-family homes along Century Boulevard just east of Aviation Boulevard and a small area east of the Airport containing hotels and single-family homes at the northeast corner of South La Cienega Boulevard, and West 104th Street. A more detailed environmental setting for Noise is presented in Chapter 4.5 and in Appendix D Noise Technical Report.

5.6.10.2 CEQA Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, an impact to Noise is considered significant if the proposed Project would lead to:

- Exposure of persons to or generation of excessive ground-borne vibration or ground-borne 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.

5.6.10.3 Initial Study Conclusions

Construction activities associated with the proposed Project primarily include site clearing, excavation, grading, paving, and site finishing. At the closest distance to existing homes in the City of El Segundo (i.e., 800 feet), it is not likely that the proposed Project construction would result in exposure to excessive ground-borne vibration. LAX is not a private airstrip and there are no private airstrip in the vicinity of LAX. Therefore, impacts related to the threshold listed in Section 5.6.10.2 would be less than significant.

5.6.11 Population and Housing

5.6.11.1 Environmental Setting

The LAX property consists of Airport-related uses and employment. Residential communities nearby the LAX property are the Westchester Community to the north, Playa Del Rey to the northwest, City of Inglewood to the east, and City of El Segundo to the south. No residential uses exist within LAX.

5.6.11.2 CEQA Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, an impact to Population and Housing is considered significant if the proposed Project would:

- 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);
- Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere;
- Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

5.6.11.3 Initial Study Conclusions

The proposed Project's infrastructure improvements would not be utilized by the general public and would not generate permanent employment. LAX consists of Airport-related uses and no residential uses. The proposed Project does not include residential or business development and would not induce population growth that would require additional housing. Therefore, no impacts related to population or housing growth and displacement would occur.

5.6.12 Public Services

5.6.12.1 Environmental Setting

Fire protection for LAX is provided by the City of Los Angeles Fire Department (LAFD). Law enforcement services are provided by the LAWA Police Division (LAWAPD), Los Angeles Police Department (LAPD) and the City of Los Angeles Police Department LAX Detail (LAPD LAX Detail). Within a quarter mile of the project study area, there are eight parks and areas of open space and 27 schools.

5.6.12.2 CEQA Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, an impact to Public Services is considered significant if the proposed Project would:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following Public Services:
    - Fire protection;
    - Police protection;
    - Schools;
    - Parks; and/or

  - Other public facilities.

5.6.12.3 Initial Study Conclusions

The implementation of the proposed Project would not increase the capacity of Airport operations, traffic congestion (except temporarily during construction), or the number of passengers. As a result, the proposed Project would not require additional support from local fire and police departments or require new or expanded fire or police facilities. Therefore, no impacts to fire and police protection services would occur.

The proposed Project does not include a residential component nor would it increase employment at the Airport during operations. As a result, there is no population growth that would increase the demands for schools, parks, or other public facilities, such as libraries. Therefore, no impacts to schools, parks, or other public facilities, such as libraries, would occur.

5.6.13 Recreation

5.6.13.1 Environmental Setting

The LAX property consists of Airport-related uses. Land uses surrounding the Project site to the north, south, and east are Airport-related uses. Open space uses are located west of the Project site. Within a quarter mile of the Project study area, there are 8 parks and areas of open space.

5.6.13.2 CEQA Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, an impact to Recreation is considered significant if the proposed Project would:

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated;
- Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

5.6.13.3 Initial Study Conclusions

The proposed Project does not include a housing component that would increase the population around the LAX area nor would it increase the number of permanent employees or include recreational facilities. As a result, no increased demand for recreational facilities beyond the existing demand and no physical deterioration of recreational areas would occur. Therefore, no impacts related to recreation would occur.

5.6.14 Transportation and Traffic

5.6.14.1 Environmental Setting

The principal freeways and roadways serving as access routes within the Project study area are I-405 (San Diego Freeway), I-105 (Glenn M. Anderson/Century Freeway), Aviation Boulevard, Century Boulevard, Imperial Highway, La Cienega Boulevard, Pershing Drive, Westchester Parkway, Sepulveda Boulevard, and 111th Street.

Public transit service to the LAX area is provided by several municipalities, including the Los Angeles County Metropolitan Transportation Authority (Metro), Beach Cities Transit, City of Los Angeles Department of Transportation (LADOT), Torrance Transit, Culver City Transit, and the Santa Monica Big Blue Bus. There is no public transit service to most of the Project site, as it has restricted access.

5.6.14.2 CEQA Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, an impact to Transportation and Traffic is considered significant if the proposed Project would:

- Substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- Result in inadequate emergency access;
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

5.6.14.3 Initial Study Conclusions

No impacts related to increasing hazards to a design feature or inadequate emergency access would occur. Additionally, the proposed Project would not conflict with adopted plans as it would not require operational modifications to the existing on-Airport circulation system, the existing transportation adjacent to LAX, or the regional access system. Therefore, impacts related to the thresholds listed in Section 5.6.14.2 would be less than significant.

5.6.15 Utility and Service Systems

5.6.15.1 Environmental Setting

The LADWP provides electrical power and water to most areas in the City of Los Angeles, including the Project site. Wastewater generated by activities at LAX is treated at the Hyperion Treatment Plan (HTP). Solid waste in LAX as well as the City of Los Angeles is collected by municipal agencies and private refuse haulers. Waste collected by these entities is disposed at eight major landfills and several smaller landfills within the County of Los Angeles.

5.6.15.2 CEQA Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, an impact to Utilities and Service Systems is considered significant if the proposed Project would:

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;

- Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Require new or expanded entitlements and/or resources for water supplies to serve the project;
- Result in a determination by the wastewater treatment provider, which serves or could serve the project, that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs;
- Not comply with federal, state, and local statues and regulations related to solid waste.

5.6.15.3 Initial Study Conclusions

The proposed Project does not include the addition of new uses or components that would result in an increase in population or employment that would generate wastewater or increase demand for water. During construction, the increase in wastewater generation would be minimal, as would be the demand for water. Consequently, the proposed Project would not result in the need for a new water supply or wastewater treatment facilities and impacts would be less than significant.

The proposed Project would include construction of new drainage associated with the areas where pavement would be reconstructed or grading would occur. Construction of drainage infrastructure is not anticipated to have significant impacts, as they would follow the building requirements of LAX and the City of Los Angeles and would occur entirely on Airport property. Therefore, impacts related to construction of new storm water drainage infrastructure or expansion of existing infrastructure would be less than significant.

The construction and demolition activities for the RSA and pavement reconstruction would generate solid waste. However, with adherence to LAWA's recycle program which is intended to comply with Assembly Bill 939, and LAX Master Plan commitments, impacts related to solid waste would be less than significant.

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6.0 ALTERNATIVES

6.1 Introduction

CEQA requires that an EIR describe a range of reasonable alternatives to the project or to the location of the project that could feasibly avoid or lessen significant environmental impacts while substantially attaining the basic objectives of the project.[1] An EIR should also evaluate the comparative merits of the alternatives. This chapter sets forth potential alternatives to the proposed project and provides a qualitative analysis of each alternative and a comparison of each alternative to the proposed project. Key provisions of the CEQA Guidelines pertaining to the alternatives analysis are summarized below.[2]

- The discussion of alternatives shall focus on alternatives to the project including alternative locations that are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.
- The No Project Alternative shall be evaluated along with its potential impacts. The No Project Alternative analysis shall discuss the existing conditions at the time the notice of preparation is published, as well as what would reasonably be expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.
- The range of alternatives required in an EIR is governed by a "rule of reason." Therefore, the EIR must evaluate only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the proposed project.
- For alternative locations, only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR.
- An EIR need not consider an alternative whose effects cannot be reasonably ascertained and whose implementation is remote and speculative.

The range of feasible alternatives is selected and discussed in a manner intended to foster meaningful public participation and informed decision making. Among the factors that may be taken into account when addressing the feasibility of alternatives (as described in CEQA Guidelines Section 15126.6[f][1]) are environmental impacts, site suitability, economic viability, availability of infrastructure, general plan consistency, regulatory limitations, jurisdictional boundaries, and whether the proponent could reasonably acquire, control, or otherwise have access to the alternative site.

An EIR must briefly describe the rationale for selection and rejection of alternatives. The lead agency may make an initial determination as to which alternatives are feasible, and, therefore, merit in-depth consideration.[3] Alternatives may be eliminated from detailed consideration in the EIR if they fail to meet project objectives, are infeasible, or do not avoid any significant environmental effects.[4]

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[1] CEQA Guidelines, § 15126.6.

[2] *Ibid*.

[3] CEQA Guidelines, §15126.6(f)(3).

[4] CEQA Guidelines, §15126.6(c).

6.2 Project-Level Impacts

As addressed in this revised Draft EIR, the proposed Project would create unavoidable significant impacts related to the following environmental topics:

- Air Quality – Construction
- Human Health Risk – acute non-cancer health hazard index for acrolein during construction

Other potentially significant impacts have been identified; however, all of these impacts would be reduced to less-than-significant levels with implementation of project design features, BMPs, and applicable LAX Master Plan EIS/EIR Commitments identified in their respective environmental topic chapters of this EIR.

As called for by the CEQA Guidelines, the achievement of project objectives must be balanced by the ability of an alternative to reduce the significant impacts of the proposed Project. The proposed Project's objectives include:

RSA Improvements Objectives

- Satisfy P.L. 109-115, which requires all 14 CFR Part 139 certificated airports to bring their RSAs into compliance with FAA airport design standards no later than December 31, 2015;
- Satisfy 14 CFR Part 139 certification requirements;
- Bring the RSA for Runway 7L/25R into compliance with FAA airport design standards by extending Runway 7L to the west, grading additional area to RSA standards west of the Runway 7L RSA, and the use of declared distances; and
- Based on public input, to maintain the option to physically shift operations of Runway 7L/25R to the west at a future date without negatively affecting aircraft operations at LAX, while still providing RSAs compliant with federal requirements.

Pavement Reconstruction Objectives

- Reconstruct deteriorating pavement at the eastern ends of Runway 7L/25R and Taxiway B, and in the aircraft apron located west of Air Freight Building No.8.

Any evaluated alternative should meet as many of these proposed Project objectives as possible. In addition, while not specifically required under CEQA, other parameters may be used to further establish criteria for selecting alternatives such as adjustments to project phasing, conformance to all existing zoning requirements, and other "fine-tuning" that could shape feasible alternatives in a manner that may result in reducing identified environmental impacts. In some instances, when the proposed Project results in environmental impacts that are reduced to less-than-significant levels with mitigation, an alternative may reduce these less-than-significant impacts even further.

6.3 Alternatives to the Proposed Project

The CEQA statute, the CEQA Guidelines, and related recent court cases do not specify a precise number of alternatives to be evaluated in an EIR. Rather, "the range of alternatives required in an EIR is governed by the rule of reason that sets forth only those alternatives necessary to permit a reasoned choice."[5] At the same time, Section 15126.6(b) of the CEQA Guidelines requires that "...the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project" and Section 15126.6(f) requires, "The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project."

Accordingly, alternatives that would not address potentially significant effects are not considered herein. However, the CEQA Guidelines require that a "No Project" alternative must be included and, if appropriate, an alternative site location should be analyzed.[6] Other project alternatives may involve a modification of the proposed land uses, density, or other project elements at the same project location.

Alternatives should be selected on the basis of their ability to attain all or most of the basic objectives of the project while reducing the project's significant environmental effects. The CEQA Guidelines state that "...[t]he EIR should briefly describe the rationale for selecting alternatives to be discussed [and]...shall include sufficient information to allow meaningful evaluation, analysis and comparison with the proposed project."[7]

The feasibility of the alternatives is another consideration in the selection of alternatives. The CEQA Guidelines state that "[a]mong the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations [and] jurisdictional boundaries..."[8] and also that "The range of feasible alternatives shall be selected and discussed in a manner to foster meaningful public participation and informed decision making."[9] Alternatives that are considered remote or speculative, or whose effects cannot be reasonably predicted do not require consideration. Therefore, feasibility, the potential to mitigate significant project-related impacts, and reasonably informing the decision-maker are the primary considerations in the selection and evaluation of alternatives.

6.3.1 Alternatives Rejected as Infeasible

State CEQA Guidelines Section 15126.6(c) requires EIRs to identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process, and briefly explain the reasons underlying the lead agency's determination. In addition to the alternatives evaluated later in this chapter, other alternatives, summarized below, were considered and rejected by the Lead Agency.

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[5] CEQA Guidelines, § 15126.6(f).

[6] CEQA Guidelines, §§ 15126.6(e),15126(f)(2)

[7] CEQA Guidelines, §§ 15126.6(e),15126(f).

[8] CEQA Guidelines, §15126.6(f)(1)

[9] CEQA Guidelines, §15126.6(f).

6.3.1.1 Alternative Sites

Alternative sites were not analyzed because the proposed Project is designed specifically to bring the Runway 7L/25R RSA in compliance with FAA RSA design standards and to replace the pavement at the specified locations. Pavement reconstruction at alternative sites would not fix the deteriorating Runway 7L/25R pavement. For this reason, alternative sites for the proposed Project were not considered as feasible alternatives.

6.3.1.2 Standard RSAs Alternative

The Standard RSAs Alternative would develop a traditional, graded RSA that meets FAA airport design standards. This alternative would remove and/or relocate all objects within the standard RSA footprint (500-feet wide and 1,000 feet beyond each runway end), including existing navigational aids and sections of a road and railroad. The development of a standard RSA would maintain the existing landing and take-off distances available to arriving and departing aircraft.

The Standard RSAs Alternative would require a portion of an existing airfield service road to have controlled access at the east end of the runway, as it would cross the extended Runway 25R. Aviation Boulevard and the Burlington Northern Santa Fe (BNSF) Harbor Subdivision railroad right-of-way (ROW), located to the east of Runway 25R ,would need to be grade-separated due to the extension of Runway 25R.[10] Because of the complexities of grade-separating Aviation Boulevard and the BNSF Harbor Subdivision ROW (both requiring off-airport right-of-way acquisition and construction), and the time and excessive costs associated with displacement, relocation, and construction, it is highly unlikely that this alternative could be constructed by the required completion date of December 31, 2015. For these reasons, the Standard RSAs Alternative is not considered a feasible alternative.

6.3.1.3 Reduced Runway Alternative

The Reduced Runway Alternative would physically reduce Runway 7L/25R from its present length of 12,091 feet to 10,970 feet. Under this alternative, the Runway 7L threshold would be relocated east approximately 289 feet and the 25R threshold would be relocated westward approximately 832 feet.

The Reduced Runway Alternative would have a substantial impact on usable runway length. Because the existing runway pavement beyond the relocated thresholds would not be available for any aircraft operations, this alternative would impose operational restrictions on certain large aircraft in order for them to operate on reduced runway. The available takeoff length of Runway 7L/25R under the Reduced Runway Alternative, for both 7L and 25R departures, would be reduced by 1,121 feet. The amount of Runway 7L/25R available for landing under the Reduced Runway Alternative would be reduced by approximately 1,121 feet on the Runway 7L end (east flow) and 289 feet on the Runway 25R end (west flow).

According to the LAX Master Plan, the most demanding runway length requirements at LAX are generated by the Boeing 747-200/300 and the 747-400, which require 11,500 and 11,100 feet of runway for departures, respectively, at 100 percent of maximum takeoff weight. Other aircraft, such as the MD-11, Boeing 737-300, and Boeing 737-400 require runway lengths between

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[10] The Harbor Subdivision railroad ROW is a freight corridor owned and operated by the Burlington North-Santa Fe Company. The ROW is located adjacent to the Airport property line along Aviation Boulevard from Imperial Highway to Century Boulevard, which it crosses on a bridge.

10,000 feet and 11,000 feet for departures when at maximum takeoff weight. LAX generates a substantial amount of long-haul and international air carrier departures, including passenger and all-cargo flights. A reduction in runway length would impose operational restrictions on these aircraft, which would include, but not be limited to, reduced fuel loads, reduced number of passengers, and/or reduced cargo to meet weight restrictions and performance requirements of a reduced runway. For these reasons, the Reduced Runway Alternative is not considered a feasible alternative.

6.3.1.4 Declared Distances Alternative

The Declared Distances Alternative would implement declared distances on Runway 7L/25R to obtain the FAA RSA dimensions. However, because there are physical limitations in implementing the full 1,000 feet of RSA length on the east end of Runway 7L/25R (Aviation Boulevard and the BNSF Harbor Subdivision railroad ROW), what would result is a shortening of the useable runway on which operations could occur. Specifically, the ASDA and LDA would be reduced by 832 feet for aircraft departing from Runway 25R end. A reduction in useable runway length would impose operational restrictions on aircraft operating at LAX, which would include, but not be limited to, reduced fuel loads, reduced number of passengers, and/or reduced cargo to meet weight restrictions and performance requirements of a reduced runway. For these reasons, the Declared Distances Alternative is not considered a feasible alternative.

6.3.2 Alternatives Carried Forward

6.3.2.1 No Project Alternative

The No Project Alternative is required by Section 15126.6 (e)(2) of the CEQA Guidelines and assumes that the proposed Project would not be implemented. The No Project Alternative allows decision-makers to compare the impacts of approving the proposed Project with the impacts of not approving the proposed Project. However, “no project” does not mean that development on the Project site would be prohibited. Instead, the No Project Alternative includes “what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.”[11]

Under the No Project Alternative, the RSA improvements as described in Section 2.4.1.1, would not occur and LAWA would be in non-compliance with Public Law 109-115, which requires all 14 CFR Part 139 certificated airports to comply with FAA RSA design guidelines by December 31, 2015. Regarding pavement reconstruction, it is reasonably foreseeable that under the No Project Alternative, typical, as-needed maintenance repair of poor quality pavement would still be required on Runway 7L/25R, Taxiway B, and the apron west of Air Freight Building No.8 to maintain safe airport operations.

6.3.2.2 Reduced Grading Alternative (RSA Alternative Refinement #2)

Under a Reduced Grading Alternative (RSA Alternative Refinement #2), the area that would be graded to the west of the Runway 7L extension would be limited to 168 feet. The Reduced RSA Grading Alternative is the proposed Project presented and evaluated in the Initial Study without

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[11] CEQA Guidelines, §15126.6 [e][2]

the Taxiway C extension, demolition of Air Freight Building No. 8, or the new GSE Maintenance Facility, which is also referred to as RSA Alternative Refinement #2 in published reports for the proposed Project (**Figure 6-1**). For consistency with previously published environmental documents, this alternative will be referred to as "Reduced Grading Alternative (RSA Alternative Refinement #2). The rationale for proposing this alternative is that the amount of construction activity on the west end of Runway 7L/25R would be of reduced intensity due to the reduced amount of grading that would be required as 1.92 acres of grading would be required under the Reduced Grading Alternative (RSA Alternative Refinement #2) versus 12.91 acres under the proposed Project.

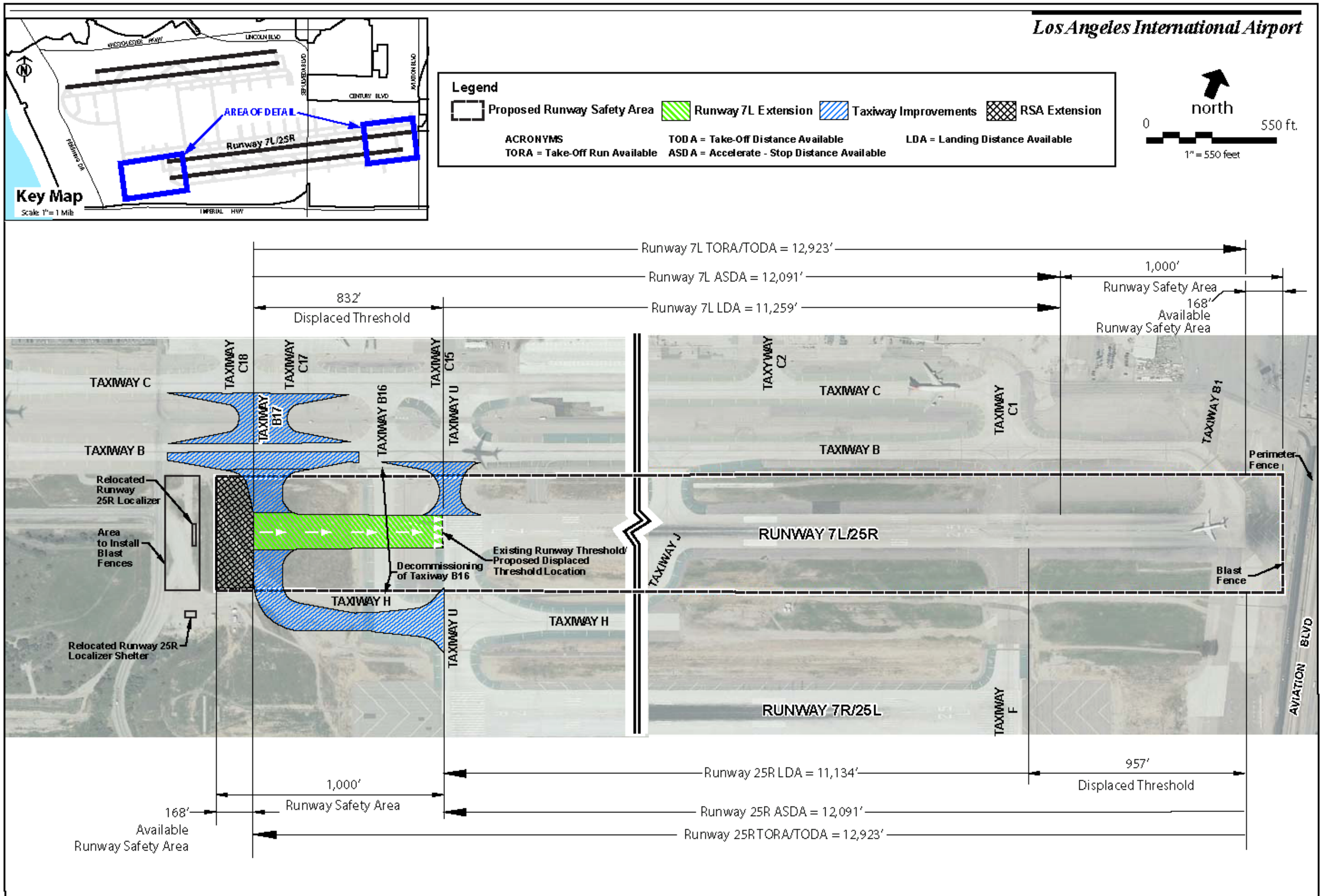
Under the Reduced Grading Alternative (RSA Alternative Refinement #2), the following proposed Project RSA improvements **would** be implemented:

- Extend the Runway 7L/25R pavement, 832 feet to the west. The Runway 7L threshold would remain at its current location for landings, resulting in an 832-foot displaced threshold;
- Implement declared distances to maintain existing take-off run available and take-off distance available;
- Grade and compact the RSA, approximately 500 feet wide by 168 feet long, beyond the new Runway 7L runway end;
- Construct a blast pad west of the Runway 7L extension;
- Extend parallel Taxiway H 832 feet to the west;
- Construct a new taxiway connector (B17) from Taxiway H to Taxiway C;
- Decommission Taxiway B16 from Taxiway H to Taxiway B;
- Reconstruct a portion of Taxiway B at the intersection with new Taxiway B17;
- Reconstruct a portion of Taxiway U from Taxiway B to Runway 7L/25R;
- Relocate the existing Runway 25R Localizer Antenna and shelter to the west of the graded, unpaved area;
- Replace existing Approach Lighting System (ALS) towers where the new runway pavement will be constructed with in-pavement lights; and
- Modify the existing Runway and Taxiway lighting and markings in the newly constructed pavements.

Under the Reduced Grading Alternative (RSA Alternative Refinement #2), the following proposed Project RSA improvements **would not** be implemented:

- Grade but not pave an additional area approximately 500 feet wide by 957 feet long to RSA standards beyond the Runway 7L safety area to maintain the option of shifting operations to the west on the runway at a future date;
- Relocate other FAA equipment shelters west of Taxiway B17; and
- Relocate existing service road west, beyond the proposed 957- foot grading extension and provide access roads to NAVAIDS and equipment shelters.

All of the pavement reconstruction elements under the proposed Project would also occur under the Reduced Grading Alternative (RSA Alternative Refinement #2).



Sources: *Runway 7L-25R Safety Area (RSA) Practicability Study for Los Angeles International Airport* (Ricondo & Associates, December 2009); ESRI Maps & Data May 2013 ; Prepared by: URS Corporation.

FIGURE 6-1

Reduced Grading Alternative (RSA Alternative Refinement #2)

Environmental Impact Report
Runway 7L/25R RSA and
Associated Improvements Project

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6.3.2.3 Shift Runway Alternative

The Shift Runway Alternative would physically shift Runway 7L/25R to the west to provide a standard RSA on the east end of the runway. This includes an area of 1,000 feet in length beyond the new 7L threshold that would be graded, and all existing objects in the new RSA footprint would be relocated to provide a standard RSA on the west end of the runway. Approach Lighting Systems (ALS) in towers would be removed and replaced with in-pavement lighting, new connector taxiways would be constructed to provide access to the new thresholds, and the runway length would be maintained (12,091 feet).

The proposed Project includes all of the elements of the Shift Runway Alternative as one of its objectives is to retain the option to shift Runway 7L/25R to the west without affecting airport operations. As the Shift Runway Alternative is already contained within the proposed Project, it is not evaluated as a separate alternative in this Draft EIR.

6.3.2.4 Summary of Alternatives Carried Forward

Table 6-1 presents a summary of the improvements of the proposed Project that would be implemented in its entirety or in part under the proposed alternatives.

Table 6-1

Summary of Improvements by Alternative

Improvement	Proposed Project	No Project Alternative	Reduced Grading Alternative (RSA Alternative Refinement #2)
RSA Improvements			
Extend the Runway 7L/25R pavement, 832 feet to the west. The Runway 7L threshold will remain at its current location for landings, resulting in an 832-foot displaced threshold	✓	☒	✓
Implement declared distances to maintain existing take-off run available and take-off distance available	✓	☒	✓
Grade and compact the RSA, approximately 500 feet wide by 168 feet long, beyond the new Runway 7L runway end	✓	☒	✓
Grade but not pave an additional area approximately 500 feet wide by 957 feet long to RSA standards beyond the Runway 7L safety area to maintain the option of shifting operations to the west on the runway at a future date	✓	☒	☒
Construct a blast pad west of the Runway 7L extension	✓	☒	✓
Extend parallel Taxiway H 832 feet to the west	✓	☒	✓

Table 6-1

Summary of Improvements by Alternative

Improvement	Proposed Project	No Project Alternative	Reduced Grading Alternative (RSA Alternative Refinement #2)
Construct a new taxiway connector (B17) from Taxiway H to Taxiway C	✓	☒	✓
Decommission Taxiway B16 from Taxiway H to Taxiway B	✓	☒	✓
Reconstruct a portion of Taxiway B at the intersection with new Taxiway B17	✓	☒	✓
Reconstruct a portion of Taxiway U from Taxiway B to Runway 7L/25R	✓	☒	✓
Relocate the existing Runway 25R Localizer Antenna and shelter to the west of the graded, unpaved area	✓	☒	✓
Relocate other FAA equipment shelters west of Taxiway B17	✓	☒	☒
Relocate existing service road west, beyond the proposed 957- foot grading extension and provide access roads to NAVAIDS and equipment shelters	✓	☒	☒
Replace existing Approach Lighting System (ALS) towers where the new runway pavement will be constructed with in-pavement lights	✓	☒	✓
Modify the existing Runway and Taxiway lighting and markings in the newly constructed pavements	✓	☒	✓
Pavement Reconstruction			
Full-depth reconstruction of existing pavement from the Runway 25R threshold to Taxiway F (1,225 feet long by 150 feet wide by approximately 3 feet deep)	✓	As-Needed Maintenance Repairs Only	✓
Full-depth reconstruction of the keel portion of Runway 7L/25R from Taxiway F westward to Taxiway J (600 feet long by 50 feet wide by approximately 3 feet deep)	✓	As-Needed Maintenance Repairs Only	✓
Replace existing pavement surface of the keel portion of Runway 7L/25R keel from Taxiway J west to the Taxiway N (6,447 feet long by 50 feet wide)	✓	As-Needed Maintenance Repairs Only	✓
Full-depth reconstruction of Taxiway B, from its terminus near the Runway 25R threshold approximately 2,128 feet west to a point between Taxiway F and Taxiway C3, including connecting Taxiway C1 (2,128 feet long by 176 feet wide by approximately 3 feet deep)	✓	As-Needed Maintenance Repairs Only	✓

Table 6-1

Summary of Improvements by Alternative

Improvement	Proposed Project	No Project Alternative	Reduced Grading Alternative (RSA Alternative Refinement #2)
Replace existing apron pavement west of Air Freight Building No. 8	✓	As-Needed Maintenance Repairs Only	✓
Replace the existing jet blast fence east of Runway 25R	✓	☒	✓
Installation of in-pavement approach lights	✓	☒	✓

Source: URS Corporation, 2013.

6.4 Alternatives Analysis

6.4.1 Draft EIR Environmental Topics

6.4.1.1 No Project Alternative

Table 6-2 presents the comparison of the impacts associated with the No Project Alternative compared to the proposed Project for the environmental topics evaluated in this Draft EIR. Following **Table 6-2**, only the environmental topics that would have different conclusions under the No Project Alternative compared to the proposed Project are discussed.

Table 6-2

Summary of Analysis of Draft EIR Environmental Topics, No Project Alternative and Proposed Project

Environmental Topic	Chapter/ Section	Level of Significance	
		Proposed Project	No Project Alternative
Air Quality	4.1		
Construction Impacts	4.1.7.1	Significant and Unavoidable	***Less Than Significant*** for As-needed maintenance repairs. However, if Runway repairs are needed, potential **significant and unavoidable** impacts would occur if operations are shifted to other runways during construction
Operational Impacts	4.1.7.2	Less Than Significant	Less Than Significant

Table 6-2

Summary of Analysis of Draft EIR Environmental Topics, No Project Alternative and Proposed Project

Environmental Topic	Chapter/ Section	Level of Significance	
		Proposed Project	No Project Alternative
Cumulative Impacts	4.1.7.3	Significant and Unavoidable	***Less Than Significant*** for As-needed maintenance repairs. However, if Runway repairs are needed, potential **significant and unavoidable** impacts would occur if operations are shifted to other runways during construction~~Significant and Unavoidable~~
Greenhouse Gas Emissions	4.2		
Construction Impacts	4.2.7.1	Less Than Significant	Less Than Significant
Operational Impacts	4.2.7.2	Less Than Significant	Less Than Significant
Cumulative Impacts	4.2.7.3	Not Cumulatively Considerable	Not Cumulatively Considerable
Hazards and Hazardous Materials	4.3		
Construction Impacts	4.3.7.1	Less Than Significant	Less Than Significant
Operational Impacts	4.3.7.2	No Impact	No Impact
Cumulative Impacts	4.3.7.3	Not Cumulatively Considerable	Not Cumulatively Considerable
Human Health Risk Assessment	4.4		
Construction Impacts	4.4.7.1	Significant and Unavoidable~~Less Than Significant~~	***Less Than Significant*** for As-needed maintenance repairs. However, if Runway repairs are needed, potential **significant and unavoidable** impacts would occur if operations are shifted to other runways during construction~~Less Than Significant~~
Cumulative Impacts	4.4.7.2	Significant and Unavoidable~~Not Cumulatively Considerable~~	***Less Than Significant*** for As-needed maintenance repairs. However, if Runway repairs are needed, potential **significant and unavoidable** impacts would occur if operations are shifted to other runways during construction~~Not Cumulatively Considerable~~

Table 6-2

**Summary of Analysis of Draft EIR Environmental Topics,
No Project Alternative and Proposed Project**

Environmental Topic	Chapter/ Section	Level of Significance	
		Proposed Project	**No Project Alternative**
Hydrology and Water Quality	4.5		
Construction Impacts	4.5.7.1	Less Than Significant	Less Than Significant
Operational Impacts	4.5.7.2	Less Than Significant	Less Than Significant
Cumulative Impacts	4.5.7.3	Not Cumulatively Considerable	Not Cumulatively Considerable
Noise	4.6		
Construction Impacts	4.6.7.1	Less Than Significant	Less Than Significant
Operational Impacts	4.6.7.2	Less Than Significant	Less Than Significant
Cumulative Impacts	4.6.7.3	Not Cumulatively Considerable	Not Cumulatively Considerable
Surface Traffic	4.7		
Construction Impacts	4.7.7.1	Less Than Significant	Less Than Significant
Cumulative Impacts	4.7.7.2	Not Cumulatively Considerable	Not Cumulatively Considerable

Source: URS Corporation, 2013.

As shown in **Table 6-2**, most impacts related to the environmental topics evaluated in this Draft EIR under the No Project Alternative would be similar to the impacts under the proposed Project. However, construction and cumulative air quality impacts would be different under the No Project Alternative compared to the proposed Project, as discussed below,

<u>Air Quality</u>

Construction

For the proposed Project, the significant and unavoidable impact related to air quality is associated with the closure of the runway and the shift in operations to other runways. Improvements associated with bringing the Runway 7L/25R RSA in compliance with FAA airport design standards under the No Project Alternative would not require closure of the runway for 3.5 months. As stated in Section 6.3.2.1, under the No Project Alternative, pavement reconstruction on Taxiway B, Runway 7L/25R, and the apron west of Air Freight Building No.8 would occur as needed and be part of typical maintenance at LAX to keep aircraft operations safe. Therefore, impacts related to air quality during construction would be less than significant under the No Project Alternative. However, if pavement repairs of Runway 7L/25R under the No Project Alternative require closure of the runway and the shifting of operations to other runways during construction, impacts would be similar to the proposed Project, and they would be significant and unavoidable.

Cumulative

Similar to the proposed Project, the No Project Alternative would not contribute cumulatively to air quality impacts if as-needed maintenance pavement repairs do not require a shift in operations to other runways during construction. In this case, cumulative impacts would be less than significant. However, if pavement repairs of Runway 7L/25R under the No Project Alternative require closure of the runway and the shifting of operations to other runways during construction, cumulative impacts would be significant and unavoidable.

Human Health Risk

Construction

For the proposed Project, the significant and unavoidable impact related to human health risk is associated with the closure of the runway and the shift in operations to other runways. Improvements associated with bringing the Runway 7L/25R RSA in compliance with FAA airport design standards under the No Project Alternative would not require closure of the runway for 3.5 months. As stated in Section 6.3.2.1, under the No Project Alternative, pavement reconstruction on Taxiway B, Runway 7L/25R, and the apron west of Air Freight Building No.8 would occur as needed and be part of typical maintenance at LAX to keep aircraft operations safe. Therefore, impacts related to human health risk during construction would be less than significant under the No Project Alternative. However, if pavement repairs of Runway 7L/25R under the No Project Alternative require closure of the runway and the shifting of operations to other runways during construction, impacts would be similar to the proposed Project, and they would be significant and unavoidable.

Cumulative

Similar to the proposed Project, the No Project Alternative would not contribute cumulatively to human health risk impacts if as-needed maintenance pavement repairs do not require a shift in operations to other runways during construction. In this case, cumulative impacts would be less than significant. However, if pavement repairs of Runway 7L/25R under the No Project Alternative require closure of the runway and the shifting of operations to other runways during construction, cumulative impacts would be significant and unavoidable.

6.4.1.2 Reduced Grading Alternative (RSA Alternative Refinement #2)

Table 6-3 presents the comparison of the impacts associated with the Reduced Grading Alternative (RSA Alternative Refinement #2) compared to the proposed Project for the ~~3~~environmental topics evaluated in this Draft EIR. Following **Table 6-2**, only the environmental topics that would have different conclusions under the Reduced Grading Alternative (RSA Alternative Refinement #2) compared to the proposed Project are discussed.

Table 6-3

Summary of Analysis of Draft EIR Environmental Topics, Reduced Grading Alternative (RSA Alternative Refinement #2) and Proposed Project

		Level of Significance	
Environmental Topic	**Chapter/ Section**	**Proposed Project**	**Reduced Grading Alternative (RSA Alternative Refinement #2)**
Air Quality	4.1		
Construction Impacts	4.1.7.1	Significant and Unavoidable	Significant and Unavoidable
Operational Impacts	4.1.7.2	Less Than Significant	Less Than Significant
Cumulative Impacts	4.1.7.3	Significant and Unavoidable	Significant and Unavoidable
Greenhouse Gas Emissions	4.2		
Construction Impacts	4.2.7.1	Less Than Significant	Less Than Significant
Operational Impacts	4.2.7.2	Less Than Significant	Less Than Significant
Cumulative Impacts	4.2.7.3	Not Cumulatively Considerable	Not Cumulatively Considerable
Hazards and Hazardous Materials	4.3		
Construction Impacts	4.3.7.1	Significant and Unavoidable~~Less Than Significant~~	Significant and Unavoidable~~Less Than Significant~~
Operational Impacts	4.3.7.2	No Impact	No Impact
Cumulative Impacts	4.3.7.3	Significant and Unavoidable~~Not Cumulatively Considerable~~	Significant and Unavoidable~~Not Cumulatively Considerable~~
Human Health Risk Assessment	4.4		
Construction Impacts	4.4.7.1	Less Than Significant	Less Than Significant
Cumulative Impacts	4.4.7.2	Not Cumulatively Considerable	Not Cumulatively Considerable
Hydrology and Water Quality	4.5		
Construction Impacts	4.5.7.1	Less Than Significant	Less Than Significant
Operational Impacts	4.5.7.2	Less Than Significant	Less Than Significant
Cumulative Impacts	4.5.7.3	Not Cumulatively Considerable	Not Cumulatively Considerable

Table 6-3

**Summary of Analysis of Draft EIR Environmental Topics,
Reduced Grading Alternative (RSA Alternative Refinement #2) and Proposed Project**

		Level of Significance	
Environmental Topic	**Chapter/ Section**	**Proposed Project**	**Reduced Grading Alternative (RSA Alternative Refinement #2)**
Noise	4.6		
Construction Impacts	4.5.7.1	Less Than Significant	Less Than Significant
Operational Impacts	4.5.7.2	Less Than Significant	Less Than Significant
Cumulative Impacts	4.5.7.3	Not Cumulatively Considerable	Not Cumulatively Considerable
Surface Traffic	4.7		
Construction Impacts	4.7.7.1	Less Than Significant	Less Than Significant
Cumulative Impacts	4.7.7.3	Not Cumulatively Considerable	Not Cumulatively Considerable

Source: URS Corporation, 2013.

As shown in **Table 6-3**, most impacts related to the environmental topics evaluated in this Draft EIR under the Reduced Grading Alternative (RSA Alternative Refinement #2) would be similar to the impacts under the proposed Project. However, construction and cumulative air quality impacts would be different under the Reduced Grading Alternative (RSA Alternative Refinement #2) compared to the proposed Project, as discussed below.

Air Quality

Construction

For the proposed Project, the significant and unavoidable impact related to air quality is associated with the closure of the runway and the shift in operations to other runways. Improvements associated with bringing the Runway 7L/25R RSA in compliance with FAA airport design standards under the Reduced Grading Alternative (RSA Alternative Refinement #2) and reconstruction of the Runway 7L/25R pavement would require closure of the runway for 3.5 months, similar to the proposed Project. Under the Reduced Grading Alternative (RSA Alternative Refinement #2), construction equipment under the No Project Alternative would be utilized at a lower intensity compared to the proposed Project. However, as the primary contributor to the significant unavoidable air quality impacts during construction is the runway closure, any emissions credit that would result from lesser construction equipment usage under the Reduced Grading Alternative (RSA Alternative Refinement #2) would not be enough to reduce impacts to a less than significant level. Therefore, impacts related to air quality during construction would still be significant and unavoidable under the Reduced Grading Alternative (RSA Alternative Refinement #2).

Cumulative

Per SCAQMD guidance, because impacts to air quality during construction under the Reduced Grading Alternative (RSA Alternative Refinement #2) would still be significant and unavoidable, the Reduced Grading Alternative (RSA Alternative Refinement #2) would contribute cumulatively to air quality impacts during construction. Therefore, cumulative impacts related to air quality during construction would be significant and unavoidable under the Reduced Grading Alternative (RSA Alternative Refinement #2).

Human Health Risk

Construction

For the proposed Project, the significant and unavoidable impact related to human health risk is associated with the closure of the runway and the shift in operations to other runways. Improvements associated with bringing the Runway 7L/25R RSA in compliance with FAA airport design standards under the Reduced Grading Alternative (RSA Alternative Refinement #2) and reconstruction of the Runway 7L/25R pavement would require closure of the runway for 3.5 months, similar to the proposed Project. Under the Reduced Grading Alternative (RSA Alternative Refinement #2), construction equipment under the No Project Alternative would be utilized at a lower intensity compared to the proposed Project. However, as the primary contributor to the significant unavoidable human health risk impacts during construction is the rerouting of aircraft necessitated by the runway closure, any emissions credit that would result from lesser construction equipment usage under the Reduced Grading Alternative (RSA Alternative Refinement #2) would not be enough to reduce impacts to a less than significant level. Therefore, impacts related to human health risk during construction would still be significant and unavoidable under the Reduced Grading Alternative (RSA Alternative Refinement #2).

Cumulative

Per SCAQMD guidance, because the runway closure would result in an exceedance of the cumulative threshold of 3.0 for the acute non-cancer hazard index, the Reduced Grading Alternative (RSA Alternative Refinement #2) would contribute cumulatively to human health risk impacts during construction. Therefore, cumulative impacts related to human health risk during construction would be significant and unavoidable under the Reduced Grading Alternative (RSA Alternative Refinement #2).

6.4.2 Evaluation of Other Environmental Topics

Table 6-4 presents the comparison of the impacts associated with the No Project Alternative and the Reduced Grading Alternative (RSA Alternative Refinement #2) compared to the proposed Project for the environmental topics required to be analyzed under CEQA, but not evaluated in this Draft EIR as a result of being screened out in the Initial Study.

Table 6-4

Summary of Alternatives Analysis for Other CEQA Environmental Topics

		Level of Significance under Alternative Would Be:(Greater, Similar, or Less)	
Environmental Topic	**Level of Significance Under Proposed Project**	**No Project Alternative**	**Reduced Grading Alternative (RSA Alternative Refinement #2)**
Aesthetics	Less Than Significant	Similar	Similar
Agricultural & Forestry Resources	No Impact	Similar	Similar
Biological Resources	Less Than Significant	Similar	Similar
Cultural Resources	Less Than Significant	Similar for Historic Resources **Less** for Archaeological and Paleontological Resources due to less excavation	Similar for Historic Resources **Less** for Archaeological and Paleontological Resources due to less excavation
Geology and Soils	Less Than Significant	Similar	Similar
Hazards and Hazardous Materials (Other than Hazardous Sites)	Less Than Significant	Similar	Similar
Hydrology and Water Quality (Other than Increased Runoff)	Less Than Significant	Mostly Similar **Less** for Altered Drainage Pattern due to minimal grading footprint	Mostly Similar **Less** for Altered Drainage Pattern due to reduced grading footprint
Land Use and Planning	No Impact	Similar	Similar
Mineral Resources	No Impact	Similar	Similar
Population and Housing	No Impact	Similar	Similar
Public Services	Less Than Significant	Similar	Similar
Recreation	No Impact	Similar	Similar
Utilities and Service Systems	Less Than Significant	Similar	Similar

Source: URS Corporation, 2013.

6.5 Environmentally Superior Alternative

Section 15126.6 of the State CEQA Guidelines requires that an “environmentally superior” alternative be selected among the alternatives that are evaluated in the EIR. In general, the environmentally superior alternative is the alternative that would be expected to generate the fewest adverse impacts. If the No Project Alternative is identified as environmentally superior, then another environmentally superior alternative shall be identified among the other alternatives.

6.5.1 Comparison of Environmental Impacts

Table 6-5 summarizes the impacts of the alternatives relative to the proposed Project by category of greater, similar, or less.

Table 6-5

Summary of Lesser/Greater Alternative Impacts Relative to Proposed Project Impacts

Level of Significance Relative to Proposed Project Impacts	Alternative	
	No Project Alternative	Reduced Grading Alternative (RSA Alternative Refinement #2)
Less	Construction Related for All topics (for Air Quality and human health risk only if as-needed pavement repairs do not require closure of runway)	Cultural Resources
	Hydrology-Altered Drainage Pattern	Hydrology-Altered Drainage Pattern
Greater	None	None

Source: URS Corporation, 2013.

As shown in **Table 6-5**, the No Project Alternative would result in lesser impacts compared to the proposed Project in all topics during construction due to the reduced intensity of the type of construction that would occur under the No Project Alternative. However, if pavement repairs of Runway 7L/25R under the No Project Alternative require closure of the runway and the shifting of operations to other runways during construction, impacts related to air quality and human health risk during construction would be similar to those under the proposed Project (significant and unavoidable). The No Project Alternative would not result in greater impacts compared to the proposed Project.

The Reduced Grading Alternative (RSA Alternative Refinement #2) would result in lesser impacts in two environmental topics compared to the proposed Project due to the reduced intensity of construction of the type of construction that would occur under the Reduced Grading Alternative (RSA Alternative Refinement #2). The Reduced Grading Alternative (RSA Alternative Refinement #2) would not result in greater impacts compared to the proposed Project.

6.5.2 Project Objectives Evaluation

Table 6-6 presents how the two proposed Project alternatives meet the objectives of the proposed Project.

Table 6-6

Comparison of Project Objectives Met By the Proposed Project Alternatives

	Does Alternative Meet Objective?	
Proposed Project Objective	**No Project Alternative**	**Reduced Grading Alternative (RSA Alternative Refinement #2)**
RSA Improvements		
Satisfy 14 CFR Part 139 certification requirements	**NO**	YES
Bring the RSA for Runway 7L/25R into compliance with FAA airport design standards by extending Runway 7L to the west, grading additional area to RSA standards west of the Runway 7L RSA, and the use of declared distances	**NO**	YES
Satisfy P.L. 109-115, which requires all 14 CFR Part 139 certificated airports to bring their RSAs into compliance with FAA airport design standards no later than December 31, 2015	**NO**	YES
Based on public input, to maintain the option to physically shift operations of Runway 7L/25R to the west at a future date without negatively affecting aircraft operations at LAX, while still providing RSAs compliant with federal requirements	**NO**	**NO**
Pavement Reconstruction Objectives		
Reconstruct deteriorating pavement at the eastern ends of Runway 7L/25R and Taxiway B, and in the aircraft apron located west of Air Freight Building No.8	YES	YES

Source: URS Corporation, 2013.

As shown in **Table 6-6**, the No Project Alternative would meet only one of the five objectives of the proposed Project. The No Project Alternative would not bring the Runway 7L/25R RSA into compliance with airport design standards, nor the requirements of Public Law 109-115.

The Reduced Grading Alternative (RSA Alternative Refinement #2) would meet all but one of the proposed Project objectives. The Reduced Grading Alternative (RSA Alternative Refinement #2) would not allow for the shifting of the runway at a later time, which was requested by the public during the scoping period.

6.5.3 Conclusion

The No Project Alternative would have, in general, less environmental impacts compared to both the proposed Project and the Reduced Grading Alternative (RSA Alternative Refinement #2). However, as shown in **Table 6-6**, the No Project Alternative would not meet the proposed Project objectives, nor would it meet the requirements of Public Law 109-115.

The Reduced Grading Alternative (RSA Alternative Refinement #2) would have similar environmental impacts compared to the proposed Project, but would result in less impacts to cultural resources and hydrology. While the grading activities associated with this alternative would be less, these reduced impacts would not be sufficient to reduce air quality or human health risk impacts to less than significant because the closure of the Runway and the associated operational activities during closure are the primary contributors to the significant air quality and human health risk impacts. Under both the proposed Project and the Reduced Grading Alternative (RSA Alternative Refinement #2), these significant and unavoidable air quality and human health risk impacts would be short-term and temporary. Finally, the Reduced Grading Alternative (RSA Alternative Refinement #2) would not meet a significant objective of the proposed Project, which is to respond to public input by maintaining the option to physically shift operations of Runway 7L/25R to the west at a future date without negatively affecting aircraft operations at LAX and maintaining FAA-required RSA design.

Based on the evaluation of environmental impacts and on the project objectives, ~~the~~ no environmentally superior alternative ~~proposed in this Draft EIR is~~ exists for the proposed Project.

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9.0 ACRONYMS AND DEFINITIONS

The following is a list of abbreviations, definitions, and acronyms that are used in this Draft EIR.

Numbers and Symbols

μ/m^3	Micrograms per cubic meter
§	Section/Paragraph
°F	Degrees Fahrenheit

A

AAD	Average Annual Day
AAM	Annual Arithmetic Mean
AB	Assembly Bill
A/C	Advisory Circular
AAC	Aircraft Approach Category
ACCRI	Aviation Climate Change Research Initiative
ACHP	Advisory Council on Historic Preservation
ADD	average daily dose
ADG	Airplane Design Group
AHPA	Archaeological and Historic Preservation Act
Airport	Los Angeles International Airport
AIP	Airport Improvement Program
ALP	Airport Layout Plan
ALS	Approach Lighting System
ALSF-2	Approach Light System with Sequenced Flashing Lights
AMS	American Meteorological Society
ANOMS	Aircraft Noise and Operations Monitoring System

ANSI	American National Standards Institute
AOA	Airport Operations Area
APE	Area of Potential Effect
APM	Automated People Mover
APU	Auxiliary Power Units
AQMPs	Air Quality Management Plans
ARC	Airport Reference Code
ARFF	Aircraft Rescue and Fire Fighting
ARPA	Archaeological Resources Protection Act
ASDA	Accelerate-Stop Distance Available
ATADS	Air Traffic Activity Data System
ATCM	Air Toxics Control Measure

B

Basin	South Coast Air Basin
Basin Plan	Basin Plan for the California Regional Water Quality Control Board, Los Angeles Region
BAT	Best Available Technology
BCT	Best Practicable Control Technology
BFSF	Bulk Fuel Storage Facility
BMP	Best Management Practice
BNSF	Burlington North Santa Fe Railroad
BOAC	Board of Airport Commissioners
BOD	Biochemical Oxygen Demand
BOE	Department of Public Works, Bureau of Engineering
BPA	Business Plan Act

BRSA	Biological Resources Study Area

C

CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CalEPA	State of California Environmental Protection Agency
CalOSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCA	California Coastal Act
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDHS	California Department of Health Services
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CERFA	Community Environmental Response Facilitation Act
CFCs	Chlorofluorocarbons
cfs	cubic feet per second
CFR	Code of Federal Regulations
CFTP	Crossfield Taxiway Project
CH_4	Methane
CF_4	Perflurometháne
C_2F_6	Perfluoroethane

CHL	California Historical Landmarks
CHRI	California Historical Resources Inventory
CHRIS	California Historic Resource Information System
CMA	Critical Movement Analysis
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CNRA	California Natural Resources Agency
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
Cortese List	Hazardous Waste and Substances Sites List, California Government Code Section 65962.5
CPHI	California Points of Historical Interest
CRHR	California Register of Historical Resources
CTA	Central Terminal Area
CWA	Clean Water Act
CUP	Central Utility Plant
CUPA	Certified Unified Program Agency
CUP-RP	Central Utility Plant – Replacement Project

D

dB	Decibels
dBA	A-weighted decibel
DE	Diesel Exhaust
DNL	Day Night Average Sound Level)
DPM	Diesel Particulate Matter

DPR	California Department of Parks and Recreation
DTSC	Department of Toxic Substances Control

E

EA	Environmental Assessment
EDMS	Emissions and Dispersion Modeling System
EDR	Environmental Data Resources, Inc.
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EMAS	Engineered Materials Arresting System
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
EW	Ephemeral Wetland

F

FAA	Federal Aviation Administration
FAR	Federal Aviation Regulations
FEIR	Final Environmental Impact Report
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
FSC	Federal Species of Concern
FT	Federal Threatened

G

GAO	General Accounting Office
GCASP	General Construction Activity Stormwater Permit
GCC	Global Climate Change

GHG	Greenhouse Gas
GIS	Geographic Information Systems
g/mi	Grams per Mile
gpd	Gallons per day
GRI	Global Reporting Initiative
GSE	Ground Support Equipment
GTC	Ground Transportation Center
GWP	Global Warming Potential

H

Handbook	SCAQMD Air Quality Analysis Guidance Handbook
HARP	CARB Hotspots Analysis Reporting Program
HFCs	Hydrofluorocarbons
HHRA	Human Health Risk Assessment
HIRL	High Intensity Runway Edge Lights
HRI	Historic Resources Inventory
HWCL	Hazardous Waste Control Law

I

ID	Identification
ILS	Instrument Landing System
INM	Integrated Noise Model
IPCC	Intergovernmental Panel on Climate Change
IS	Initial Study

J, K

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L

LACDWP	Los Angeles County Department of Public Works
LADBS	Los Angeles Department of Building and Safety
LADCP	Los Angeles Department of City Planning
LADD	Lifetime Average Daily Dose
LADOT	City of Los Angeles Department of Transportation
LADWP	Los Angeles Department of Water and Power
LAFD	Los Angeles Fire Department
LAGBC	Los Angeles Green Building Code
LAHCM	City of Los Angeles Historic Cultural Monument
LAMC	Los Angeles Municipal Code
LAPD	Los Angeles Police Department
LARWGCB	Los Angeles Regional Water Quality Control Board
LAX	Los Angeles International Airport
LAX-A Zone	Airport Airside Sub-Area
LAWA	Los Angeles World Airports
LAWAPD	LAWA Police Department
LCFS	Low Carbon Fuel Standard
LDA	Landing Distance Available
LEED	Leadership in Energy and Environmental Design
Leq(h)	Equivalent Sound Level (hourly)
L_{max}	Maximum Noise Level
LID	Low Impact Development
LOS	Level of Service
LRT	Light Rail Transit

LUST	Leaking Underground Storage Tank

M

MALSR	Medium Intensity Approach Light Systems With Runway Alignment Indicator Lights
MATES	Multiple Air Toxics Exposure Study
MBAS	Methylene Blue Activated Substances
MBTA	Migratory Bird Treaty Act
MEI	maximally exposed individual
MEP	Maximum Extent Practicable
Metro	Los Angeles County Metropolitan Transportation Authority
mg/L	milligram per liter
MGTOW	Maximum gross takeoff weight
MM	Mitigation Measure
MMRP	Mitigation Monitoring and Reporting Program
Mpg	Miles Per Gallon
Mph	Miles Per Hour
MPO	Metropolitan Planning Organization
M/S	Meters per Second
MS4	Municipal Separate Storm Sewer Systems
MSC	Midfield Satellite Concourse
MT	Metric Tons
MUN	Municipal Water Use

N

N/A	Not Applicable/No Designation
NAAQS	National Ambient Air Quality Standards

NADB	National Archaeological Database
NAGPRA	Native American Graves Protection and Repatriation Act
NAHC	Native American Heritage Commission
NALs	Numeric Action Levels
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NLR	Noise Level Reduction
NMOC	Non-Methane Organic Compounds
NO	Nitric Oxide
NO_2	Nitrogen Dioxide
N_2O	Nitrous Oxide
NOA	Notice of Availability
NOP	Notice of Preparation
NORS	North Outfall Relief Sewer
NOx	Oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRHP	National Register of Historic Places

O

O_3	ozone
OEHHA	California Office of Environmental Health Hazard Assessment
OFA	Object Free Area
OLM	Ozone Limiting Method
OPR	Office of Planning and Research

OSHA	Occupational Safety and Health Act

P

PAHs	Polycyclic Aromatic Hydrocarbons
Pb	Lead
PCBs	Polychlorinated Biphenyls
PCC	Portland Cement Concrete
PCE	Passenger Car Equivalents
PCI	Pavement Condition Index
PEL-TWAs	Time-Weighted Average Permissible Exposure Levels
PFCs	Perfluorocarbons
PL	Public Law
PM	Particulate Matter
PM_{10}	particulate matter equal to less than 10 microns in diameter
$PM_{2.5}$	particulate matter equal to less than 2.5 microns in diameter
ppb	Parts per Billion
ppm	parts per million
PRC	Public Resource Code
Proposition 65	Safe Drinking Water and Toxic Enforcement Act

Q

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R

RCRA	Resource Conservation and Recovery Act
REAP	Rain Event Action Plan

RELs	Reference Exposure Levels
ROD	Record of Decision
ROG	Reactive Organic Gas
ROW	Right-of-Way
RPS	Renewables Portfolio Standard
RSA	Runway Safety Area
RS-N	Receiving Station N
RSP	Residential Soundproofing Program
RTAC	Regional Targets Advisory Committee
RVR	Runway Visual Range
RWQCB	Regional Water Quality Control Board
RWSL	Runway Status Light System
RWY	Runway

S

SAIP	South Airfield Improvement Project
SB	Senate Bill
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCCIC	South Central Coastal Information Center
SF_6	Sulfur Hexafluoride
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SMARTS	Stormwater Multi-Application, Reporting, and Tracking System
SO_2	Sulfur Dioxide

SO_X	Oxides of Sulfur
SPAS	Specific Plan Amendment Study
SSC	State Species of Concern
ST	Surface Transportation
Superfund	Comprehensive Environmental Response, Compensation, and Liability Act
SUSMP	Standard Urban Stormwater Mitigation Plan
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board

T

TAC	Toxic Air Contaminant
TAF	Terminal Area Forecast
TBIT	Tom Bradley International Airport
TDZ	Touchdown Zone
TMDL	Total Maximum Daily Loads
TNM	Traffic Noise Model
TODA	Take Off Distance Available
TORA	Take Off Run Available
Tpd	tons per day
TSA	Taxiway Safety Area
TSCA	Toxic Substances Control Act
TWY	Taxiway

U

UNFCC	United Nations Framework Convention on Climate Change
UP	Unified Program

URBEMIS	Urban Emissions Model
USACE	United States Army Corps of Engineers
USC	United States Code
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	Underground Storage Tank
UTM	Universal Transverse Mercator

V

v/c	volume/capacity
VASI	Visual Approach Slope Indicator
VOC	Volatile Organic Compound

W

WQBELs	Water Quality- Based Effluent Limitations
WQOs	Water Quality Objectives

X, Y, Z

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APPENDIX A

Comments and Responses to Comments on Draft EIR

1 Introduction

This appendix presents the comments received during the public review period for the Draft EIR and provides written responses to those comments. A total of 3 comment letters were received during the public review period. No comment forms were submitted during the public workshop held on October 3, 2013. The index presented in Section 2 lists the agencies, organizations, and individuals that submitted comments on the Draft EIR. Copies of all comment letters received are provided in Appendix A.1. A total of 20 individual comments resulted from such input. Section 3 of this document presents individual responses prepared by the City of Los Angeles relative to comments received during the review period for the Draft EIR (September 19, 2013 to November 4, 2013).

The format for the responses to comments presents, on a letter-by-letter basis, each comment, which is then followed immediately by a response. The comments and responses are organized and grouped into categories based on the affiliation of the commentor. The comments are presented in the following order: State agencies and regional agencies.

An alphanumeric index system is used to identify each comment and response, and is keyed to each letter and the individual comments therein. For example, the first letter within the group of State agencies submitting comments on the Draft EIR is from the State of California Native American Heritage Commission, and the text of the letter is considered to have 3 individual comments. The subject letter was assigned the alphanumeric label "SRSA-AS00001," representing "Runway 7L-25R Runway Safety Area (RSA) Project-Agency-State-Letter No. 1." Individual comments within the letter are labeled as SRSA-AS00001-1, SRSA-AS0001-2, etc. The same basic format and approach is used for the comment letters from regional agencies ("AR").

The following are the prefix codes used for categorizing the comment letter types:

Letter ID Prefix	Description
AS	State Agency
AR	Regional Agency

To assist the reader's review and use of the responses to comments an index is provided. The index provides the alphanumeric label number, commentor name, affiliation (i.e., name of agency or organization that the author represents), and date (if provided) of each comment letter.

Section 3 provides individual comments and responses, presented on a letter-by-letter basis. Each comment is typed exactly as it appears in the original comment letter. No corrections to typographical errors or other edits to the original comments were made. A copy of each original comment letter is provided in Appendix A.1 of this appendix.

Immediately following each typed comment is a written response developed by the City of Los Angeles. In some instances, the response to a particular comment may refer to the response(s) to another comment(s) that expressed the same concern or is otherwise related. Crossreferencing of responses uses the alphanumeric index system described above. For example, a response may indicate "Please see Response to Comment BWP-AS00001-2" if that response addresses the same concern expressed in a different comment.

2 Index of Comment Letters

Table 1-1

Index of Comment Letters

Letter ID	Commenter	Affiliation/Agency	Date
SRSA-AS00001	Dave Singleton	State of California, Native American Heritage Commission	September 24, 2013
SRSA-AS00002	Dianna Watson	State of California, Department of Transportation, District 7	November 1, 2013
SRSA-AR00001	Ian MacMillan	South Coast Air Quality Management District	November 8, 2013

3 COMMENTS AND RESPONSES

SRSA-AS00001 Singleton, Dave State of California 9/24/2013
Native American Heritage Commission

SRSA-AS00001-1

Comment: The Native American Heritage Commission (NAHC) has reviewed the Court decision (170 Cal App 3rd 604), the court held that the NAHC has jurisdiction and special expertise, as a state agency, over affected Native American resources impacted by proposed projects, including archaeological places of religious significance to Native Americans, and to Native American burial sites.

The California Environmental Quality Act (CEQA) states that any project which includes archeological resources, is a significant effect requiring the preparation of an EIR (CEQA guidelines 15064.5(b). To adequately comply with this provision and mitigate project-related impacts on archaeological resources, the Commission recommends the following actions be required:

Contact the appropriate Information Center for a record search to determine :If a part or all of the area of project effect (APE) has been previously surveyed for cultural places(s), The NAHC recommends that known traditional cultural resources recorded on or adjacent to the APE be listed in the draft Environmental Impact Report (DEIR).

If an additional archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey. We suggest that this be coordinated with the NAHC, if possible. The final report containing site forms, site significance, and mitigation measurers should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure pursuant to California Government Code Section 6254.10.

Response: As indicated on page 24 of Appendix E1 of the Draft EIR, a records search of the area of potential effect (APE) was received on January 20, 2012, from the SCCIC of the California Historic Resource Information System at California State University, Fullerton for the proposed Project (SCCIC File No. 12067.8789). The purpose of the record search was to ascertain whether any cultural resources had been previously identified within or adjacent to airport property and to identify any previous cultural resource investigations that may have included the current APE. The requested research included a review of ethnographic and historic literature and maps; federal, state, and local inventories of historic properties; archaeological base maps and site records; and, survey reports on file at the SCCIC. The SCCIC also reviewed the NRHP, the California Register of Historic Resources (CRHR), the California Historic Resources Inventory (HRI), the California State Historic Landmarks, the California Points of Historical Interest, the Office of Historic Preservation Historic Property Data File, and the City of Los Angeles Historic-Cultural Monuments (LAHCM) for the records search area, which comprised the entire airport property and a quarter-mile search radius buffer.

In addition, the LAX Master Plan Final EIS/EIR (FAA and LAWA, 2005) and the Caltrans Statewide Bridge Inventory of Local Agency and State Agency Bridges for Los Angeles County were reviewed to identify any additional previously recorded cultural resources within the Airport and quarter-mile search radius not reported by the SCCIC. A quarter-mile search radius is consistent with cultural resource methods in the state, where record searches are undertaken not only to identify previously recorded resources and previous investigations in the APE, but also to attain relevant contextual and background information. In a densely developed area such as LAX, the researchers considered a quarter-mile search radius sufficient to attain the contextual and background information relevant to the identification and evaluation of cultural resources within the APE. No known traditional cultural resources have been recorded on or adjacent to the APE.

SRSA-AS00001-2

Comment: A list of appropriate Native American Contacts for consultation concerning the project site has been provided and is attached to this letter to determine if the proposed active might impinge on any cultural resources. Lack of surface evidence of archeological resources does not preclude their subsurface existence.

Response: As indicated on page 36 of Appendix E1 of the Draft EIR, consultation with the California Native American Heritage Commission (NAHC) to identify Native American Tribes that may have input or concerns that uniquely or significantly affect those Tribes related to planned and proposed airport improvements, or may have information about, or be interested in, the proposed undertaking, was coordinated by the FAA. The California NAHC responded by letter dated February 14, 2012, providing contact information for various Native American Tribes and individuals, which were subsequently contacted.

The FAA sent five letters to the following tribes and organizations: Los Angeles City/County Native American Indian Commission, Gabrielino Tongva Nation, Gabrielino Tongva Indians of California Tribal Council, Gabrielino Tongva Tribe, and the Tongva Ancestral Tribal Nation. One email indicating a response would be forthcoming was received by the FAA; however, nothing further was received.

As noted on page 3-10 of the Initial Study prepared for the Runway 7L/25R Runway Safety Area (RSA) and Associated Improvements Project (see Appendix A of the Draft EIR), LAWA recognizes that there remains potential for disturbance of unknown archaeological/cultural resources within the Project site. The Cultural Resources Evaluation Report prepared for the proposed Project (see Appendix E of the Draft EIR) did not find evidence of archaeological resources. Should disturbance or destruction of potentially significant undiscovered archaeological resources occur during excavation or grading activities, LAX Master Plan EIR commitments and mitigation measures would be implemented. These LAX Master Plan EIR commitments include:

- **LAX Master Plan Mitigation Measure MM-HA-4**. Discover: Long-term protection and proper treatment of unexpected archeological discoveries of federal, state, and/or local significance under an FAA-prepared archeological treatment plan (ATP).
- **LAX Master Plan Mitigation Measure MM-HA-5**. Monitoring: LAWA will retain a qualified project archeologist who will monitor excavation and grading activities within areas that have not been identified as containing re-deposited fill material or as having been previously disturbed. The project archeologist shall be empowered to halt construction in the immediate area if potentially significant resources are identified.
- **LAX Master Plan Mitigation Measure MM-HA-6**. Excavation and Recovery: Any excavation, testing, and recovery of identified resources shall be performed by the qualified project archeologist using techniques and requirements stipulated in the ATP.

SRSA-AS00001-3

Comment: Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, pursuant to California Health & Safety Code Section 7050.5 and California Environmental Quality Act (CEQA) §15064.5(f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities. Also, California Public Resources Code Section 21083.2 require documentation and analysis of archaeological items that meet the standard in Section 15064.5 (a)(b)(f). Lead agencies should include in their mitigation plan provisions for the disposition of recovered artifacts, in consultation with culturally affiliated Native Americans. Lead agencies should include provisions for discovery of Native American human remains in their mitigation plan. Health and Safety Code §7050.5, CEQA §15064.5(e), and Public Resources Code §5097.98 mandates the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

Response: Please see Response to Comment SRSA-AS00001. In addition to the mitigation measures identified in Response to Comment SRSA-AS00001, as noted on page 3-10 of the Initial Study prepared for the Runway 7L/25R Runway Safety Area (RSA) and Associated Improvements Project (see Appendix A of the Draft EIR), LAWA will implement the following LAX Master Plan EIR commitments and mitigation measures.

- **LAX Master Plan Mitigation Measure MM-HA-7. Administration:** Where known resources are present, all grading and construction plans shall be clearly imprinted with all of the archeological/cultural mitigation measures. All site workers shall be informed in writing by the onsite archeologist of the restrictions regarding disturbance and removal, as well as procedures to follow, should a resource deposit be detected.
- **LAX Master Plan Mitigation Measure MM-HA 8. Archaeological/Cultural Monitor Report:** This is preparation of a report by the archeological/cultural monitor upon completion of grading and excavation activities in the vicinity of known archeological resources. The draft report will be submitted to FAA, LAWA, and City of Los Angeles Cultural Affairs Department, and a final report that addresses all comments would be issued.
- **LAX Master Plan Mitigation Measure MM-HA-9. Artifact Curation:** All artifacts, notes, photographs, and other project-related materials recovered during the monitoring program shall be curated at a facility meeting federal and state standards.
- **LAX Master Plan Mitigation Measure MM-HA-10. Archaeological Notification**: If human remains are found, all grading and activities in the vicinity would cease and the appropriate LAWA authority would be notified. LAWA would then ensure compliance with applicable procedures in the State Health and Safety Code and the Public Resources Code. In addition, steps outlined in Section 150645.5(e) of the CEQA Guidelines would be implemented.

Additionally, as noted on page 3-12 of the Initial Study prepared for the Runway 7L/25R Runway Safety Area (RSA) and Associated Improvements Project (see Appendix A of the Draft EIR), the proposed Project is not located within any known formal cemeteries and most of the proposed Project elements would not require excavation deeper than six feet. Given the settling patterns around LAX, it is unlikely that human remains would be encountered. In the event, however, that unanticipated human remains are encountered, LAWA will comply with Health and Safety Code § 7050.5 and Public Resources Code § 5097.98. Upon discovery of human remains, these statutes require LAWA to cease all excavation and disturbance of the site, to contact the coroner, to contact the Native American

Heritage Commission (NAHC), if necessary, and to provide for appropriate treatment of the remains.

SRSA-AS00002 Watson, Dianna State of California 11/1/2013
Department of Transportation, District 7

SRSA-AS00002-1

Comment: Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the above referenced project. The proposed Project would include: (1) Runway 7L/25R Improvement including extending the Runway 7L/25R pavement, grading and compacting the RSA; constructing a blast pad west of the Runway 7L extension; several taxiways modifications as necessary; relocating the existing Localizer Antenna and shelter to the west; replacing the existing Approach Lighting System (ALS) towers with in-payment lights; and modifying the existing Runway and Taxiway lighting and markings in the newly constructed pavements; (2) Pavement Reconstruction of the eastern portions of Runway 7L/25R and Taxi way B including connecting taxiways and installation of in-pavement approach lights; (3) Pavement reconstruction of the aircraft parking apron west of Air Freight Building No. 8, including new markings. The proposed Project would not result in increased or decreased aviation activity at LAX compared to existing conditions.

Response: Comment noted.

SRSA-AS00002-2

Comment: Currently, the location #71 at Imperial Highway & Sepulveda Blvd. (SR-01) is operating at Level of Service (LOS) “F” during the PM peak hours (see Table 4.7-7, Page 4.7-27 of the Draft Environmental impact Report, DEIR). On Table 4.7-2 (page 4.7-13) of the DEIR, from 15:00 to 16:00, there are estimated of 320 construction trips. Caltrans requests that construction trips be avoided during PM peak hours.

Response: In accordance with LAX Master Plan Commitments ST-12 and ST-14 described on page 4.7-31 of the Draft EIR, it is anticipated that truck delivery hours and construction employee shift hours would be scheduled to avoid the peak hours of 7:00 AM to 9:00 AM and 4:30 PM to 6:30 PM. Furthermore, as shown on Table 4.7-8 (Page 4.7-33) and Table 4.7-9 (Page 4.7-37), this intersection is not anticipated to experience any Project-related impacts during the PM construction peak hour of 3:30 PM to 4:30 PM.

SRSA-AS00002-3

Comment: Please be reminded that any work performed within the State Right-of-way will require an Encroachment Permit Caltrans. Any modifications to State facilities must meet all mandatory design standard and specifications. For information on the Permit process, please contact Caltrans District 7 Office of Permit at (213) 897-3631.

Response: Comment noted. All work associated with the Runway 7L/25R Runway Safety Area (RSA) and Associated Improvements Project would occur on LAX property. No work is anticipated within the State Right-of-way, nor are any modifications to State facilities required for the proposed Project.

SRSA-AS00002-4

Comment: Storm water run-off is a sensitive issue for Los Angeles and Ventura counties. Please be mindful that projects should be designed to discharge clean run-off water. Additionally, discharge of storm water run-off is not permitted onto State highway facilities without any storm water management plan.

Response: As noted on pages 4.5-19 and 4.5-20 of the Draft EIR, the proposed Project contains design features for the management and treatment of stormwater. The recommended treatment best management practices (BMPs) for the proposed Project include a combination of CDS units and an underground infiltration system. The recommended BMP of underground infiltration system can be installed southwest of the RSA to allow for inspection and maintenance without impacting runway operations. The existing grading is set such that there are several inlets already in place.

A CDS unit will be placed upstream of the infiltration unit. The main purpose of the CDS units will be to contain any oil spills or large debris prior to discharging to the existing outfall and prior to reaching the infiltration system and, therefore, decreasing frequency of maintenance of the infiltration system. Multiple infiltration system options are available. The proposed infiltration system options assume no percolation for maximum storage volume and conservative measures at this time until more geotechnical data is available. Final selection of a particular infiltration system requires further investigation of geotechnical conditions and stormwater quality.

In accordance with LAX Master Plan Commitments HWQ-1 described on page 4.5-21 of the Draft EIR, a detailed drainage plan for LAX was developed, which includes the area of the proposed Project.

SRSA-AS00002-5

Comment: Transportation of heavy construction equipment and/or materials, which requires the use of oversized-transport vehicles on State highways, will require a transportation permit from Caltrans. It is recommended that large size truck trips be limited to off-peak commute periods. In addition, a truck/traffic construction management plan may be needed for this project.

Response: Comment noted. In accordance with LAX Master Plan Commitment ST-12 described on page 4.7-31 of the Draft EIR, it is anticipated that truck activity will be scheduled to avoid the peak commute periods of 7:00 AM to 9:00 AM and 4:30 PM to 6:30 PM. Additionally, in accordance with LAX Master Plan Commitment ST-18, it is anticipated that a construction traffic management plan will be developed for the Project.

SRSA-AR00001 **MacMillan, Ian** **South Coast Air Quality Management District** **11/8/2013**

SRSA-AR00001-1

Comment: The South Coast Air Quality Management District (SCAQMD) staff appreciates the opportunity to comment on the above-mentioned document. The Draft EIR includes quantification of air quality impacts during construction and subsequent operations of the proposed runway project. Supporting calculation and modeling files were also provided to SCAQMD staff and comments in this letter are based on a review of those files. The following comments are intended to provide guidance to the Lead Agency and should be incorporated into the Final Environmental Impact Report (Final EIR) as appropriate. We appreciate the lead agency's consideration of this late comment letter, and the willingness to discuss the project with our staff in detail.

Response: Comment noted, no response required.

SRSA-AR00001-2

Comment: The Draft EIR concludes that operational air quality impacts and potential health risks during operation of the project are less than significant. In addition, only NOx emissions were found to present a significant impact during construction, both for regional and localized impacts. However, after reviewing the supporting files it appears that not all of the emissions sources were included prior to making these impact determinations. In particular, all of the airport emissions calculated using the EDMS software were not included. Aircraft will need to be re-routed onsite during construction as one of the runways will be temporarily closed. This re-routing activity was calculated in the supporting files provided to SCAQMD staff, but not presented in the Draft EIR. Because these emissions represent the majority of emissions from the project, they should be included prior to determining air quality impacts. The Final EIR should therefore be revised to include these emissions.

Response: As noted by the commenter, a dispersion analysis was conducted to determine the effect of re-routing aircraft during Project construction, which requires closure of Runway 7L/25R for a period of 110 days. However, these emissions were inadvertently left out of the results presented in the Draft EIR. Inclusion of these emissions results in exceedances of the CO and VOC SCAQMD thresholds in addition to the exceedance of the NO_x SCAQMD threshold reported in the Draft EIR. These exceedances are primarily caused by the rerouting of aircraft during the approximate 3-month runway closure which would result in increased taxi times. There are no feasible mitigation measures that would reduce emissions below the level of significance, thus, these temporary impacts during construction would be significant and unavoidable. See revised tables below.

Table 4.1-11

2015 Aircraft Operations Emissions (lbs/day)

Pollutant	No Project	Runway Closure	Incremental Difference
CO	16,247	17,797	1,550
VOC	2,466	2,641	174
NO_X	18,888	19,184	296
SO_2	1,854	1,945	91
PM_{10}	205	213	8
$PM_{2.5}$	205	213	8

Source: Ricondo & Associates, Inc., 2013.

Table 4.1-12

2015 Peak Construction Emissions (lbs/day)

Pollutant	Incremental Aircraft Operations	Construction Equipment	Construction Total	SCAQMD Threshold	Above Threshold?
CO	1,550	529	2,079	550	**Yes**
VOC	174	39	213	75	**Yes**
NO_X	296	190	486	100	**Yes**
SO_2	91	2	93	150	No
PM_{10}	8	52	60	150	No
$PM_{2.5}$	8	11	19	55	No

Source: Ricondo & Associates, Inc., 2013.

The health risks assessment also inadvertently omitted the emissions associated with the reroute of aircraft during the approximate 3-month closure of Runway 7L/25R. The updated results are presented below in Tables 4-4.5, 4-4.6, and 4-4.7. The updated results indicate an exceedance of the maximum incremental acute non-cancer hazard index for acrolein. Emissions of acrolein are related to taxiing of aircraft; the exceedance of the maximum incremental acute non-cancer hazard index for acrolein would be primarily caused by the rerouting of aircraft during the approximate 3-month runway closure. There are no feasible mitigation measures that would reduce these toxic air contaminant emissions below the level of significance; thus, these temporary impacts during construction would be significant and unavoidable.

Table 4-4.5

Comparison of CalOSHA Permissible Exposure Limits to Maximum Estimated 8-Hour On-Site Air Concentrations

Toxic Air Contaminant [a]	Controlled Project Concentrations (mg/m^3) [b]	CalOSHA PEL TWA (mg/m^3) [c]
Acetaldehyde	0.001042	45
Acrolein	0.000000	0.25
Benzene	0.000283	0.32
1,3-Butadiene	0.000027	2.2
Ethylbenzene	0.000043	435
Formaldehyde	0.002084	0.37
Hexane, n-	0.000022	180
Methanol	0.000004	260
Methyl ethyl ketone	0.000209	590
Naphthalene	0.000012	50
Propylene	0.000368	N/A
Styrene	0.000008	215
Toluene	0.000209	37
Xylene (total)	0.000147	435
Diesel PM	0.001517	N/A
Arsenic	0.000001	0.01
Cadmium	0.000006	0.005
Chlorine	0.000052	1.5
Chromium (VI)	0.000000	0.005
Copper	0.000004	1
Lead	0.000006	0.05
Manganese	0.000006	0.2
Mercury	0.000005	0.025
Nickel	0.000003	0.5

Table 4-4.5

Comparison of CalOSHA Permissible Exposure Limits to Maximum Estimated 8-Hour On-Site Air Concentrations

Selenium	0.000002	0.2
Silicon	0.000377	6
Sulfates	0.002644	N/A
Vanadium	0.000004	0.05

Notes:

[a] All TACs for which PEL-TWAs are available are listed. PEL-TWAs are not available for diesel exhaust, propylene, and sulfates.

[b] Maximum 1-hour concentrations at on-airport location converted to 8-hour averages by multiplying by a factor of 0.7.

[c] California Occupational Safety and Health Administration. Permissible Exposure Limits for Chemical Contaminants, Table AC-1, 2008, http://www.dir.ca.gov/title8/5155table_ac1.html.

Source: Ricondo & Associates, Inc., 2013.

Table 4-4.6

Maximum Incremental Cancer and Chronic Non-Cancer Hazards Risk for MEIs During Construction

Receptor Type	Incremental Cancer Risk [a] (per million people)	Significance Threshold (per million people)	Significant?
Child Resident	0.003	10	No
School Child	0.001	10	No
Adult Resident	0.04	10	No
Offsite Workers	0.19	10	No

Receptor Type	Incremental Chronic Non-Cancer Hazards Risk	Significance Threshold	Significant?
Child Resident	0.002	1	No
School Child	0.0003	1	No
Adult Resident	0.002	1	No
Offsite Workers	0.006	1	No

Notes:

[a] Values provided are the maximum number of cancer cases per million people exposed.

Source: Ricondo & Associates, Inc., 2013.

Table 4-4.7

Maximum Incremental Acute Non-Cancer Hazard Indices During Construction

Pollutant	Acrolein	Formaldehyde
Residential		
Maximum HI[1]	**3.27**[2]	0.75
Minimum HI	-0.17	-0.04
Average HI	0.58	0.13
School		
Maximum HI	**1.87**	0.43
Minimum HI	-0.24	-0.06
Average HI	0.69	0.16
Offsite Worker		
Maximum HI	**2.02**	0.47
Minimum HI	-0.90	-0.21
Average HI	0.26	0.06
Recreational		
Maximum HI	0.55	0.13
Minimum HI	-0.52	-0.12
Average HI	0.06	0.01
Overall Off-Airport		
Maximum HI	**3.27**	0.75
On-Site Occupational		
Maximum HI	0.79	0.23

Notes:

[1] HI = Hazard Index

[2] **Bold** HIs are greater than the significance threshold of 1.

Source: Ricondo & Associates, Inc., 2013.

SRSA-AR00001-3

Comment: In the event that the lead agency determines that the revised analysis results in additional air quality impacts, the Lead Agency should consider providing additional mitigation measures pursuant to Section 15126.4 of the California Environmental Quality Act (CEQA) Guidelines.

Response: LAWA, as the lead agency, is including the mitigation measures identified by the SCAQMD for this Project. Because most of the construction emissions associated with the proposed Project are directly related to the rerouting of aircraft during the approximate 3-month closure period of Runway 7L/25R, there are few feasible mitigation measures that LAWA can implement to reduce the significance of those impacts below significance thresholds. Notwithstanding, LAWA has agreed to implement all of the mitigation measures identified by the commenter. See Response to Comment SRSA-AR00001-7.

SRSA-AR00001-4

Comment: Pursuant to Public Resources Code Section 21092.5, please provide the SCAQMD with written responses to all comments contained herein prior to the adoption of the Final EIR. Further, staff is available to work with the Lead Agency to address these issues and any other questions that may arise.

Response: Written responses to SCAQMD comments are being provided as part of the revised Draft EIR.

SRSA-AR00001-5

Comment: The air quality analysis concludes that regional construction emissions for all pollutants except NOx from the proposed project will result in less than significant air quality impacts, however, the emission calculations that support this conclusion are not clearly presented in the Draft EIR. Specifically, it appears that the regional construction emissions analysis does not include the potential increase of emissions from aircraft operations (i.e., emissions resulting from additional taxiing time) during construction of the proposed project. Based on Table 4-1 (Assumed Taxi Times During Runway Closure) the lead agency determined that the proposed project will result in additional taxiing times during project construction. However, it does not appear that the lead agency included these emissions impacts that were quantified using the Federal Aviation Administration's (FAA's) Emissions and Dispersion Modeling System (EDMS) software. Therefore, the SCAQMD staff recommends that the Lead Agency modify the air quality analysis to include any additional emissions from aircraft operations during construction of the proposed project.

Response: See Response to Comment SRSA-AR00001-2. The analysis has been modified as requested by the commenter.

SRSA-AR00001-6

Comment: The Draft EIR includes a Health Risk Assessment (HRA) that evaluates potential risks from construction activities. The HRA concludes that all health risks would be less than significant. SCAQMD staff is unable to verify if the determination of a less than significant impact may is valid. The very low non-carcinogenic results (HI <0.01) are surprising given that the recently approved Specific Plan Amendment Study determined that short term toxic impacts (primarily from jet engines) would exceed SCAQMD thresholds. The cause of this impact in the SPAS EIR was due to northward relocation of the runway and increased activity along it. Although this project does not include relocation of the northern runway, the activity level of individual runways will increase substantially during construction as a result of the closed runway. It is reasonable to infer that the health risks would therefore increase substantially with the increase in activity.

Upon review of the HRA, it appears that emissions from re-routing activity at the airport (as calculated with EDMS) were not included in the health risk assessment. The Final EIR should include the potential health risks from emissions calculated by EDMS, especially including acute toxic impacts (e.g., from acrolein and formaldehyde).

Response: See Response to Comment SRSA-AR00001-2. The Final EIR includes the updated analysis requested by the commenter.

SRSA-AR00001-7

Comment: In the event that the lead agency determines that the revised analysis results in additional air quality impacts the SCAQMD staff recommends that the Lead Agency provide additional mitigation measures pursuant to Section 15126.4 of the California Environmental Quality Act (CEQA) Guidelines. Tier 4-final construction equipment is already assumed for the majority of vehicles used for this project, however some vehicles are assumed to only use tier 4-interim engines. The lead agency should investigate if additional tier 4-final equipment is available. In addition, haul trucks are assumed to meet 2007 emission standards. 2010 truck emission standards would provide an approximately 60% reduction in NOx emissions from this source based on values presented in the Draft EIR calculation sheets. The lead agency should consider only using trucks meeting 2010 emissions standards.

Response: LAWA, as the lead agency, has agreed to implement the additional mitigation measures suggested by the commenter. LAWA will include in bid documents for this Project language specifying that contractors should use equipment on the

Project that meets the most stringent emission requirements. In the event that the contractor can demonstrate that equipment is not available within 200 miles of LAX that meets the most stringent emission requirements, they will be able to utilize equipment that meets the next lowest requirements (e.g., if Tier 4 final equipment is not available, they would be permitted to use Tier 4 interim equipment). For purposes of disclosure, LAWA will keep the equipment mix specified in the Draft EIR, but will require contractors to use equipment that meets stricter standards if available.

SRSA-AR00001-8

Comment: It is unclear how the Draft EIR treats the CEQA baseline for determining air quality impacts from this project. For example, Table 4.1-14 uses a traditional 'existing conditions' baseline, while Table 4.1-15 uses a future year 2015 baseline. While utilizing both baselines may be appropriate for this infrastructure project, the Final EIR should include additional explanation of the choice of baseline for determining impacts. This discussion should also apply to any modifications to the construction period impacts based on comments above.

Response: The proposed Project would not affect the number or type of aircraft operations at the airport, nor would it change flight paths. However, it would result in a slight increase of average taxi time per operation of 0.01 minutes. This change in taxi time was assessed against both baseline (2011) conditions and the future (2015) Without Project condition. Table 4.1-14 in the Draft EIR (Table 4.1-15 in the revised Draft EIR) compares the 2011 With Project and 2011 Without Project conditions while Table 4.1-15 in the Draft EIR (Table 4.1-16 in the revised Draft EIR) compares the 2015 With Project and the 2015 Without Project conditions. Implementation of the proposed Project would not cause any exceedance of the CAAQS, whether compared to the baseline (2011) or future (2015) Without Project conditions. The growth and number of operations at LAX are completely independent of the proposed Project; thus, a comparison of baseline (2011) with future (2015) conditions is not valid. Aircraft operations in future years will be the same regardless of whether the proposed Project is implemented or not.

Construction effects were assessed by calculating the emissions associated with construction equipment and the emissions associated with the rerouting of aircraft during the temporary closure of Runway 7L/25R during construction. The emissions associated with the rerouting of aircraft during the temporary closure of Runway 7L/25R during construction were estimated by calculating the emissions associated with the Without Project condition in 2015 and then calculating emissions for the airport assuming closure of Runway 7L/25R and rerouting of aircraft to other runways in 2015. This analysis conservatively assumed that the runway closure would occur entirely in 2015. The emissions associated with the 2015 Without Project condition were then subtracted from the

2015 runway closure scenario to determine the emissions attributable to the closure of Runway 7L/25R. These emissions should have been included in Section 4.1.6.1, *Construction Emissions*, but were inadvertently left out. See Response to Comment SRSA-AR00001-2.

SRSA-AR00001-9

Comment: The text of the Draft EIR indicates that Table 4.1-14 presents the incremental air quality impact from operating the project by comparing 2015 project emissions against 2011 emissions. However, from the raw EDMS output files provided to SCAQMD, it appears that there may be some errors in this table. For example, the table shows 1 lb/day of NOx, yet the EDMS outputs indicate that the difference between 2011 and 2015 emissions is 1,785 pounds per day. This emission difference is above SCAQMD's significance threshold and represents a substantial increase in emissions. It is not clear however that the scenario modeled for 2011 is equivalent to the scenario modeled for 2015. The Final EIR should explain this discrepancy, and clarify the operational air quality impacts.

Response: See response to Comment SRSA-AR00001-8 above, regarding the appropriate baseline and Project impacts. Table 4.1-14 in the Draft EIR (Table 4.1-15 in the revised Draft EIR) compares the 2011 Without Project and 2011 With Project conditions. The proposed Project would not affect the number or type of aircraft operations at the airport, nor would it change flight paths. However, it would result in a slight increase of average taxi time per operation of 0.01 minutes. This change in taxi time was assessed against both baseline (2011) (Table 4.1-14 in the Draft EIR; Table 4.1-15 in the revised Draft EIR) and the future (2015) Without Project condition (Table 4.1-15 in the Draft EIR; Table 4.1-16 in the revised Draft EIR).

SRSA-AR00001-10

Comment: Similar to the comment above, Table 4.1-15 shows 1 lb/day of NOx when comparing 2015 project and no-project emissions. The EDMS output files show a difference of approximately 12 lb/day. The 2015 project and no-project scenarios do not appear to be different in the same way that the 2011 scenario is different. This discrepancy should also be clarified in the Final EIR.

Response: The EDMS output files submitted to SCAQMD for the 2015 With Project scenario contained the emissions as a result of dynamic sequencing through the FAA's EDMS program. Dynamic sequencing is an automated function of EDMS to route aircraft around the airfield, as necessary for dispersion. As a result, these emissions vary slightly from the regional construction emissions presented in the inventory. However, the regional construction inventory values, presented in Table 4.1-11 of the Draft EIR, more accurately reflect anticipated construction emissions and were used to compute the incremental differences for all pollutants between the 2015 With Project and the 2015 Without Project scenarios.

SRSA-AR00001-11

Comment: The dispersion modeling conducted to determine localized NO2 impacts utilized a default in-stack NOx ratio of 0.1. EPA recommends using a ratio of 0.5 in the absence of source-specific information.[1]

Response: As SCAQMD correctly points out, EPA recommends using a default in-stack NO_x ratio of 0.5 in the absence of source-specific information. The National Aeronautics and Space Administration (NASA) has conducted a series of experiments measuring the components of aircraft exhaust including nitrogen oxide measurements. As part of these experiments, Aerodyne Research, under a grant from the University of Missouri-Rolla Center of Excellence for Aerospace Particulate Emissions Reduction Research (NASA Cooperative Agreement), compiled measurements of nitric oxide, nitrogen dioxide, and nitrous acid in aircraft engine exhausts.[2] The measurements were performed on a variety of engine types, power levels, and sampling distances. This research showed that at low power levels (power levels associated with idling or taxiing), approximately 80 percent of the total NO_x emissions from aircraft engines were NO_2. However, at high power levels (power levels associated with takeoff), the percentage of NO_2 emissions decreases to 7 percent.

Additional research conducted by Aerodyne Research (supported by NASA Cooperative Agreement NCC3-1084, a PARTNER[3] Grant, and the California Air Resources Board via the University of Missouri-Rolla Center of Excellence), showed that the NO_2 fraction of NO_x decreases with power, from over 98 percent at the lowest power setting (4 percent rated thrust or taxi/idle) to under 10 percent at higher power settings (65 to 100 percent rated thrust or climbout and takeoff).[4] For one specific engine type, the research found a total calculated NO_x

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[1] See page 5 of the memo available at this link: http://www.epa.gov/scram001/guidance/clarification/ Additional_Clarifications_AppendixW_Hourly-NO2-NAAQS_FINAL_03-01-2011.pdf

[2] Wormhoudt, Joda, Scott Herndon, Paul Yelvington, Richard Miake-Lye, and Changlie Wey. Nitrogen Oxide (NO/NO2/HONO) Emissions Measurements in Aircraft Exhausts, *Journal of Propulsion and Power* 23, no. 5 (2007): 906-11.

[3] The Partnership for AiR Transportation Noise and Emissions Reduction (PARTNER) is an aviation cooperative research organization funded by the FAA, NASA, Transport Canada, the U.S. Department of Defense, and the U.S. Environmental Protection Agency.

[4] Wood, Ezra, Scott Herndon, Michael Timko, Paul Yelvington, and Richard Miake-Lye. Speciation and Chemical Evolution of Nitrogen Oxides in Aircraft Exhaust Near Airports, *Environmental Science & Technology*, 2008, 42, 1884-1891.

emission of 3.3 kg per engine per landing-takeoff (LTO) cycle, of which 0.8 kg was emitted in the form of NO_2, or 24 percent per LTO cycle.

LAWA also reviewed other EIRs conducted at different airports in California to determine the stacking ratio utilized for different projects. A stacking ratio of 0.1 has been used on all projects at LAX, and on projects at San Francisco International Airport, Sacramento Mather Airport, and Oakland International Airport. A project at San Diego International Airport used a measured value of 0.2070.

For the proposed Project, the shift in runway use during the 110-day closure and the proximity of fenceline receptors to the runway ends results in a noticeable increase in NO_X emissions at northeastern and eastern portions of the airport when compared to the Without Project Scenario. The top 10 percent of receptors with the highest modeled NO_X concentrations are shown in Figure 1. At these locations, NO_x emissions associated with aircraft takeoffs (highest power settings) represent between 59 and 100 percent of the total NO_x emissions modeled (see Table 1 below). Other phases of the LTO cycle contribute between 0 and 38 percent of the total NO_X emissions.

Table 1

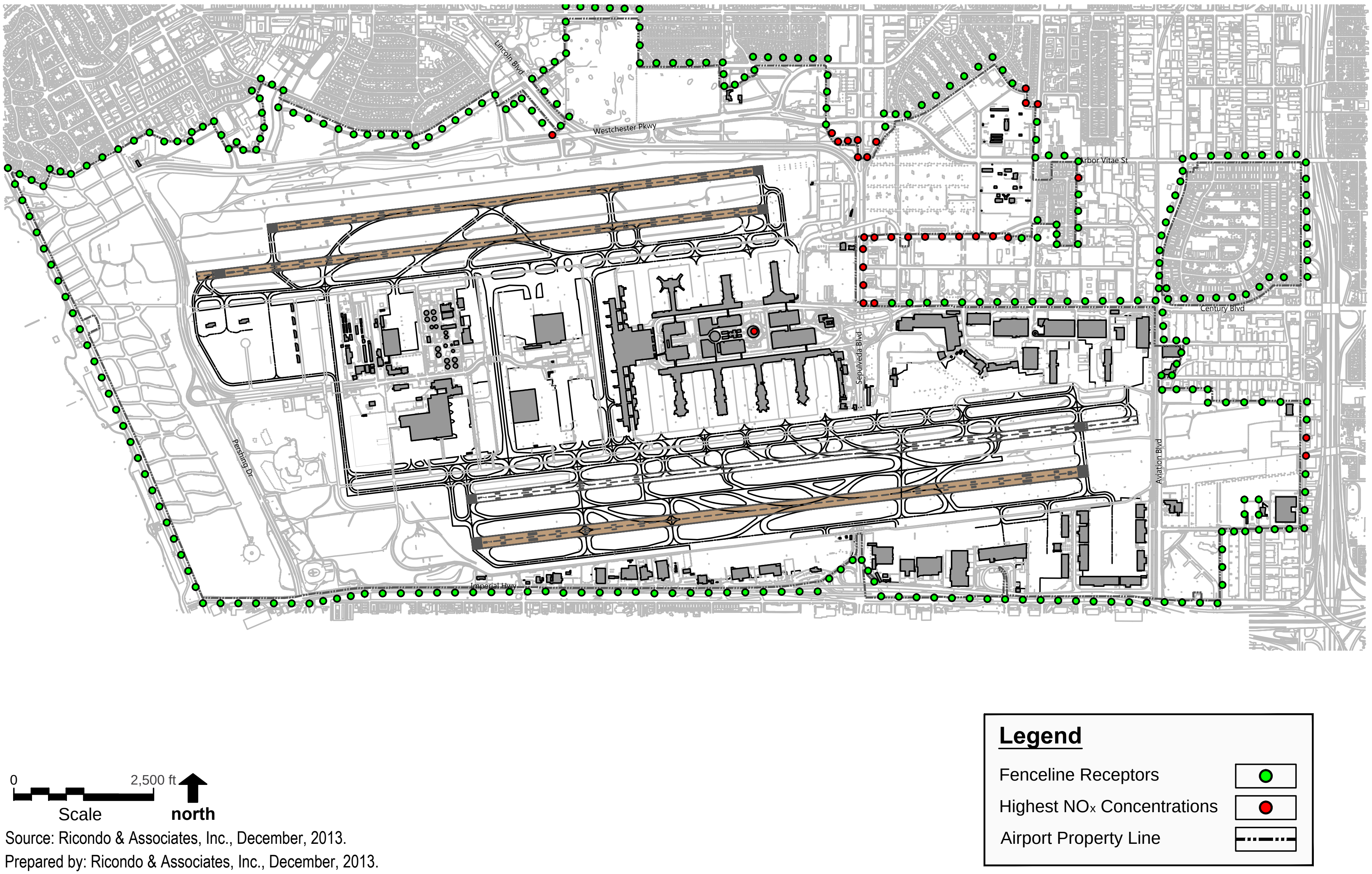
Percent NO_X Emissions by Source Type for Receptors with Highest NO_X Concentrations

	Approach	Landing	Takeoff	Taxi/Idle
Maximum	3%	6%	100%	38%
Minimum	0%	0%	59%	0%
Average	2%	2%	88%	9%

Source: Ricondo & Associates, Inc., December 2013.

In order to determine a source-specific NO_X to NO_2 stacking ratio, an aggregated weighted stacking ratio was computed using the following assumptions:

- Separate stacking ratios by LTO phase (based on research above):
  - Approach: 0.16 NO_2 to NO_x
  - Takeoff: 0.07 NO_2 to NO_x
  - Taxi/idle: 0.80 NO_2 to NO_x
- The average percent of each LTO phase (from Table 1)



Source: Ricondo & Associates, Inc., December, 2013.

Prepared by: Ricondo & Associates, Inc., December, 2013.

Runway 7L/25R RSA and Associated Improvements Project Draft EIR

Highest NO$_x$ Emissions

Figure

1

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An average of 88 percent of the NO_X emissions at the receptors with the highest NO_2 concentrations is associated with the aircraft takeoff portion of flight. Using the above assumptions, a weighted average stacking ratio of 0.135 was computed. Therefore, LAWA has concluded that a stack ratio of 0.135 is appropriate for aircraft operations and used this ratio in the revised analysis.

SRSA-AR00001-12

Comment: The dispersion modeling used only one year of meteorological data (met data) to determine air quality impacts. SCAQMD provides 5 years of met data on its website[5] as this is the recommended duration based on EPA guidance. The Draft EIR indicates that a screening analysis determined the worst case year from this 5 year period. It is not clear from reading the Draft EIR how this single year was chosen. It appears that the screening analysis did not consider different averaging periods or the inclusion of ambient ozone data. The Final EIR should discuss if the screening analysis took these parameters into account. If the screening analysis does not include consideration of how the 'worst case' impacts may change based on different averaging periods or chemistries, then the full 5-year data set should be used.

Response: The screening analysis identified the worst-case year for emissions based on determining the worst-year for NOx emissions (2005). Ambient ozone data for 2005 was then utilized in the modeling runs. Based on the comment from SCAQMD, the full 5-year data set was run and the results incorporated into the revised tables presented below.

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[5] http://www.aqmd.gov/smog/metdata/MeteorologicalData.html

Table 4.1-12

Peak Construction Concentrations for CO, NO_2 , and SO_2 Pollutants

Pollutant	Averaging Period	Project (ppm)	Background (ppm)	Total (ppm)	Threshold (ppm)	Significant?
CO	CAAQS 1-Hour	1.4	3	4	20	No
	CAAQS/ NAAQS 8-Hour	0.33	2.19	3	9	No
NO_2	CAAQS 1-Hour	0.115	0.098	0.213	0.18	**Yes**
	CAAQS Annual	0.003	0.014	0.017	0.030	No
	NAAQS 1-Hour	0.018	0.065	0.083	0.100	No
SO_2	CAAQS 1-Hour	0.051	0.012	0.063	0.25	No
	CAAQS 24-Hour	0.004	0.006	0.01	0.04	No
	NAAQS 1-Hour	0.032	0.008	0.040	0.075	No

Source: URS Corporation and Ricondo and Associates, Inc., December 2013.

Table 4.1-13

Peak Construction Concentration of PM_{10} and $PM_{2.5}$

Pollutant	Averaging Period	Project (µg/m^3)	Threshold (µg/m^3)	Significant?
PM_{10}	24-Hour	2.3	10.4	No
	Annual	0.3	1.0	No
$PM_{2.5}$	24-Hour	2.3	10.4	No
	Annual	0.3	1.0	No

Source: URS Corporation and Ricondo and Associates, Inc., December 2013.

Appendix A.1

Comment Letters on Draft EIR

SRSA-AS00001

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STATE OF CALIFORNIA Edmund G. Brown, Jr., *Governor*

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Boulevard
West Sacramento, CA 95691
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September 24, 2013

RECEIVED
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STATE CLEARING HOUSE

Ms. Evelyn Quintanilla
Los Angeles World Airports
City of Los Angeles
1 World Way, Suite 218B
Los Angeles, CA 90045

RE: SCH#2012101019 CEQA Notice of Completion; draft Environmental Impact Report (DEIR) for the **"LAX Runway 7L/25R Runway Safety Area (RSA) and Associated Improvements Project; "** located at Los Angeles International Airport (LAX); Los Angeles County, California

Dear Ms. Quintanilla:

The Native American Heritage Commission (NAHC) has reviewed the Court decision (170 Cal App 3rd 604), the court held that the NAHC has jurisdiction and special expertise, as a state agency, over affected Native American resources impacted by proposed projects, including archaeological places of religious significance to Native Americans, and to Native American burial sites.

The California Environmental Quality Act (CEQA) states that any project which includes archeological resources, is a significant effect requiring the preparation of an EIR (CEQA guidelines 15064.5(b). To adequately comply with this provision and mitigate project-related impacts on archaeological resources, the Commission recommends the following actions be required:

Contact the appropriate Information Center for a record search to determine :If a part or all of the area of project effect (APE) has been previously surveyed for cultural places(s), The NAHC recommends that known traditional cultural resources recorded on or adjacent to the APE be listed in the draft Environmental Impact Report (DEIR).

SRSA-AS00001-1

If an additional archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey. We suggest that this be coordinated with the NAHC, if possible. The final report containing site forms, site significance, and mitigation measurers should be submitted immediately to the planning department. All information regarding site locations, Native

American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure pursuant to California Government Code Section 6254.10.

SRSA-AS0001-1 Cont.

A list of appropriate Native American Contacts for consultation concerning the project site has been provided and is attached to this letter to determine if the proposed active might impinge on any cultural resources. Lack of surface evidence of archeological resources does not preclude their subsurface existence.

SRSA-AS00001-2

Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, pursuant to California Health & Safety Code Section 7050.5 and California Environmental Quality Act (CEQA) §15064.5(f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities. Also, California Public Resources Code Section 21083.2 require documentation and analysis of archaeological items that meet the standard in Section 15064.5 (a)(b)(f). Lead agencies should include in their mitigation plan provisions for the disposition of recovered artifacts, in consultation with culturally affiliated Native Americans. Lead agencies should include provisions for discovery of Native American human remains in their mitigation plan. Health and Safety Code §7050.5, CEQA §15064.5(e), and Public Resources Code §5097.98 mandates the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

SRSA-AS00001-3

Sincerely,

Dave Singleton
Program Analyst

CC: State Clearinghouse

Attachment: Native American Contacts list

SRSA-AS00002

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY
EDMUND G. BROWN, JR., Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 7, REGIONAL PLANNING
IGR/CEQA BRANCH
100 MAIN STREET, MS # 16
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November 1, 2013

Ms. Evelyn Quintanilla
Los Angeles World Airports
1 World Way, Room 218B
Los Angeles, CA 90045

IGR/CEQA No. 130943AL-MND
Runway 7L/25R RSA and Associated
Improvements Project
Vic. LA-01 / PM 25.921
SCH #: 2012101019

Dear Ms. Quintanilla:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the above referenced project. The proposed Project would include: (1) Runway 7L/25R Improvement including extending the Runway 7L/25R pavement, grading and compacting the RSA; constructing a blast pad west of the Runway 7L extension; several taxiways modifications as necessary; relocating the existing Localizer Antenna and shelter to the west; replacing the existing Approach Lighting System (ALS) towers with in-payment lights; and modifying the existing Runway and Taxiway lighting and markings in the newly constructed pavements; (2) Pavement Reconstruction of the eastern portions of Runway 7L/25R and Taxi way B including connecting taxiways and installation of in-pavement approach lights; (3) Pavement reconstruction of the aircraft parking apron west of Air Freight Building No. 8, including new markings. The proposed Project would not result in increased or decreased aviation activity at LAX compared to existing conditions.

SRSA-AS00002-1

Currently, the location #71 at Imperial Highway & Sepulveda Blvd. (SR-01) is operating at Level of Service (LOS) "F" during the PM peak hours (see Table 4.7-7, Page 4.7-27 of the Draft Environmental impact Report, DEIR). On Table 4.7-2 (page 4.7-13) of the DEIR, from 15:00 to 16:00, there are estimated of 320 construction trips. Caltrans requests that construction trips be avoided during PM peak hours.

SRSA-AS00002-2

Please be reminded that any work performed within the State Right-of-way will require an Encroachment Permit Caltrans. Any modifications to State facilities must meet all mandatory design standard and specifications. For information on the Permit process, please contact Caltrans District 7 Office of Permit at (213) 897-3631.

SRSA-AS00002-3

Storm water run-off is a sensitive issue for Los Angeles and Ventura counties. Please be mindful that projects should be designed to discharge clean run-off water. Additionally, discharge of storm water run-off is not permitted onto State highway facilities without any storm water management plan.

SRSA-AS00002-4

Transportation of heavy construction equipment and/or materials, which requires the use of oversized-transport vehicles on State highways, will require a transportation permit from Caltrans. It is recommended that large size truck trips be limited to off-peak commute periods. In addition, a truck/traffic construction management plan may be needed for this project.

SRSA-AS00002-5

If you have any questions, please feel free to contact Alan Lin the project coordinator at (213) 897-8391 and refer to IGR/CEQA No. 130943AL.

Sincerely,

Dianna Watson

DIANNA WATSON
IGR/CEQA Branch Chief

cc: Scott Morgan, State Clearinghouse

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

SRSA-AR00001

E-Mailed: November 8, 2013
EQuintanilla@lawa.org

November 8, 2013

Ms. Evelyn Quintanilla
Los Angeles World Airports
Capital Programming and Planning
1 World Way, Suite 218
Los Angeles, CA 90009-2216

Review of the Draft Environmental Impact Report (Draft EIR) for the Runway 7L/25 R RSA and Associated Improvements Project

The South Coast Air Quality Management District (SCAQMD) staff appreciates the opportunity to comment on the above-mentioned document. The Draft EIR includes quantification of air quality impacts during construction and subsequent operations of the proposed runway project. Supporting calculation and modeling files were also provided to SCAQMD staff and comments in this letter are based on a review of those files. The following comments are intended to provide guidance to the Lead Agency and should be incorporated into the Final Environmental Impact Report (Final EIR) as appropriate. We appreciate the lead agency's consideration of this late comment letter, and the willingness to discuss the project with our staff in detail. SRSA-AR00001-1

The Draft EIR concludes that operational air quality impacts and potential health risks during operation of the project are less than significant. In addition, only NOx emissions were found to present a significant impact during construction, both for regional and localized impacts. However, after reviewing the supporting files it appears that not all of the emissions sources were included prior to making these impact determinations. In particular, all of the airport emissions calculated using the EDMS software were not included. Aircraft will need to be re-routed onsite during construction as one of the runways will be temporarily closed. This re-routing activity was calculated in the supporting files provided to SCAQMD staff, but not presented in the Draft EIR. Because these emissions represent the majority of emissions from the project, they should be included prior to determining air quality impacts. The Final EIR should therefore be revised to include these emissions. SRSA-AR00001-2 In the event that the lead agency determines that the revised analysis results in additional air quality impacts, the Lead Agency should consider providing additional mitigation measures pursuant to Section 15126.4 of the California Environmental Quality Act (CEQA) Guidelines. Details regarding these comments are attached to this letter. SRSA-AR00001-3

Pursuant to Public Resources Code Section 21092.5, please provide the SCAQMD with written responses to all comments contained herein prior to the adoption of the Final EIR. Further, staff is available to work with the Lead Agency to address these issues and any other questions that may arise. Please contact Dan Garcia, Air Quality Specialist CEQA Section, at (909) 396-3304, if you have any questions regarding the enclosed comments. SRSA-AR00001-4

Sincerely,

Ian MacMillan
Program Supervisor, Inter-Governmental Review
Planning, Rule Development & Area Sources

Attachment

IM:DG

LAC130919-06
Control Number

Construction Emissions Quantification

1. The air quality analysis concludes that regional construction emissions for all pollutants except NOx from the proposed project will result in less than significant air quality impacts, however, the emission calculations that support this conclusion are not clearly presented in the Draft EIR. Specifically, it appears that the regional construction emissions analysis does not include the potential increase of emissions from aircraft operations (i.e., emissions resulting from additional taxiing time) during construction of the proposed project. Based on Table 4-1 (Assumed Taxi Times During Runway Closure) the lead agency determined that the proposed project will result in additional taxiing times during project construction. However, it does not appear that the lead agency included these emissions impacts that were quantified using the Federal Aviation Administration's (FAA's) Emissions and Dispersion Modeling System (EDMS) software. Therefore, the SCAQMD staff recommends that the Lead Agency modify the air quality analysis to include any additional emissions from aircraft operations during construction of the proposed project. SRSA-AR00001-5

Health Risk Assessment

2. The Draft EIR includes a Health Risk Assessment (HRA) that evaluates potential risks from construction activities. The HRA concludes that all health risks would be less than significant. SCAQMD staff is unable to verify if the determination of a less than significant impact may is valid. The very low non-carcinogenic results (HI <0.01) are surprising given that the recently approved Specific Plan Amendment Study determined that short term toxic impacts (primarily from jet engines) would exceed SCAQMD thresholds. The cause of this impact in the SPAS EIR was due to northward relocation of the runway and increased activity along it. Although this project does not include relocation of the northern runway, the activity level of individual runways will increase substantially during construction as a result of the closed runway. It is reasonable to infer that the health risks would therefore increase substantially with the increase in activity.

   Upon review of the HRA, it appears that emissions from re-routing activity at the airport (as calculated with EDMS) were not included in the health risk assessment. The Final EIR should include the potential health risks from emissions calculated by EDMS, especially including acute toxic impacts (e.g., from acrolein and formaldehyde). SRSA-AR00001-6

Mitigation

3. In the event that the lead agency determines that the revised analysis results in additional air quality impacts the SCAQMD staff recommends that the Lead Agency provide additional mitigation measures pursuant to Section 15126.4 of the California Environmental Quality Act (CEQA) Guidelines. Tier 4-final construction equipment is already assumed for the majority of vehicles used for this project, however some vehicles are assumed to only use tier 4-interim engines. The lead agency should investigate if additional tier 4-final equipment is available. In addition, haul trucks are assumed to meet 2007 emission standards. 2010 truck emission standards would provide an approximately 60% reduction in NOx emissions from SRSA-AR00001-7

SRSA-AR00001-7 Cont.

this source based on values presented in the Draft EIR calculation sheets. The lead agency should consider only using trucks meeting 2010 emissions standards.

Baseline

SRSA-AR00001-8

4. It is unclear how the Draft EIR treats the CEQA baseline for determining air quality impacts from this project. For example, Table 4.1-14 uses a traditional 'existing conditions' baseline, while Table 4.1-15 uses a future year 2015 baseline. While utilizing both baselines may be appropriate for this infrastructure project, the Final EIR should include additional explanation of the choice of baseline for determining impacts. This discussion should also apply to any modifications to the construction period impacts based on comments above.

Operational Impacts

SRSA-AR00001-9

5. The text of the Draft EIR indicates that Table 4.1-14 presents the incremental air quality impact from operating the project by comparing 2015 project emissions against 2011 emissions. However, from the raw EDMS output files provided to SCAQMD, it appears that there may be some errors in this table. For example, the table shows 1 lb/day of NOx, yet the EDMS outputs indicate that the difference between 2011 and 2015 emissions is 1,785 pounds per day. This emission difference is above SCAQMD's significance threshold and represents a substantial increase in emissions. It is not clear however that the scenario modeled for 2011 is equivalent to the scenario modeled for 2015. The Final EIR should explain this discrepancy, and clarify the operational air quality impacts.

SRSA-AR00001-10

Similar to the comment above, Table 4.1-15 shows 1 lb/day of NOx when comparing 2015 project and no-project emissions. The EDMS output files show a difference of approximately 12 lb/day. The 2015 project and no-project scenarios do not appear to be different in the same way that the 2011 scenario is different. This discrepancy should also be clarified in the Final EIR.

Dispersion Modeling Inputs

6. Some of the assumptions used to conduct the air dispersion modeling should be reviewed and revised as necessary based on the comments below.
   a. The dispersion modeling conducted to determine localized NO2 impacts utilized a default in-stack NOx ratio of 0.1. EPA recommends using a ratio of 0.5 in the absence of source-specific information.[1]
   b. The dispersion modeling used only one year of meteorological data (met data) to determine air quality impacts. SCAQMD provides 5 years of met data on its website[2] as this is the recommended duration based on EPA guidance. The Draft EIR indicates that a screening analysis determined the worst case year from this 5 year period. It is not clear from reading the Draft EIR how this single year was chosen. It appears that the screening analysis did not consider different averaging

SRSA-AR00001-11

SRSA-AR00001-12

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[1] See page 5 of the memo available at this link: http://www.epa.gov/scram001/guidance/clarification/Additional_Clarifications_AppendixW_Hourly-NO2-NAAQS_FINAL_03-01-2011.pdf

[2] http://www.aqmd.gov/smog/metdata/MeteorologicalData.html

SRSA-AR00001-12 Cont.

periods or the inclusion of ambient ozone data. The Final EIR should discuss if the screening analysis took these parameters into account. If the screening analysis does not include consideration of how the 'worst case' impacts may change based on different averaging periods or chemistries, then the full 5-year data set should be used.

APPENDIX B

Air Quality and Greenhouse Gas Emissions

1 INTRODUCTION

This Air Quality appendix was developed to assist with the public disclosure requirements established under the California Environmental Quality Act (CEQA). It provides information on the project elements analyzed in the air quality and greenhouse gas emissions analyses, background information on the regulatory setting, existing environmental setting, and the methodology and assumptions used to conduct the analyses, along with attachments providing relevant detailed data and calculations.

1.1 Project Location

The Airport is located on the western end of the Los Angeles Basin and is bounded on the north by the City of Los Angeles communities of Westchester and Playa Del Rey (which form the Westchester-Playa Del Rey Community Plan Area), on the east by the City of Inglewood and the community of Lennox (unincorporated Los Angeles County), to the south by the City of El Segundo and the community of Del Aire (unincorporated Los Angeles County), and to the west by the Pacific Ocean. A regional map of LAX is shown in **Figure 1**.

The proposed Project construction would take place in the south airfield of LAX within the Air Operations Area (AOA). The location of the project components are shown in **Figure 2**.

1.2 Project Components

The RSA Project would:

- Extend the Runway 7L/25R pavement 832 feet to the west. The Runway 7L threshold will remain at its current location for landings, resulting in an 832-foot displaced threshold;
- Implement declared distances to maintain existing take-off run available and take-off distance available;
- Grade and compact the RSA, approximately 500 feet wide by 168 feet long, beyond the new Runway 7L runway end;
- Grade but not pave an additional area approximately 500 feet wide by 957 feet long to RSA standards beyond the Runway 7L safety area;
- Construct a blast pad west of the Runway 7L extension;
- Extend parallel Taxiway H 832 feet to the west;
- Construct a new taxiway connector (B17) from Taxiway H to Taxiway C;
- Decommission Taxiway B16 from Taxiway H to Taxiway B;
- Reconstruct a portion of Taxiway B at the intersection with new Taxiway B17;
- Reconstruct a portion of Taxiway U from Taxiway B to Runway 7L/25R;

- Relocate the existing Runway 25R Localizer Antenna and shelter to the west of the unpaved area;
- Relocate other FAA equipment shelters west of Taxiway B17;
- Relocate existing service road west, beyond the proposed 957-foot grading extension and provide access roads to navaids and equipment shelters;
- Replace existing Approach Lighting System (ALS) towers where the new runway pavement would be constructed with in-pavement lights; and
- Modify the existing Runway and Taxiway lighting and markings in the newly constructed pavements.

The Pavement Reconstruction project elements include:

- Full-depth reconstruction of existing pavement from the Runway 25R threshold to Taxiway F (1,225 feet long by 150 feet wide by approximately 3 feet deep);
- Full-depth reconstruction of the keel section of Runway 7L/25R from Taxiway F westward to Taxiway J (600 feet long by 50 feet wide by approximately 3 feet deep);
- Replace existing pavement surface of the keel section of Runway 7L/25R keel from Taxiway J west to the Taxiway N (6,447 feet long by 50 feet wide);
- Full-depth reconstruction of Taxiway B, from its terminus near the Runway 25R threshold approximately 2,128 feet west to a point between Taxiway F and Taxiway C3, including connecting Taxiway C1 (2,128 feet long by 176 feet wide by approximately 3 feet deep);
- Replace existing aircraft apron pavement between Taxiway C1 and Air Freight Building No. 8;
- Replace existing jet blast fence east of Runway 25R; and
- Installation of in-pavement approach lights.

Source: LAWA 2013; ESRI Maps and Data - August 2013
Prepared by: URS Corporation

Runway 7L/25R RSA and Associated Improvements Project Draft EIR

Regional Map

Figure
1

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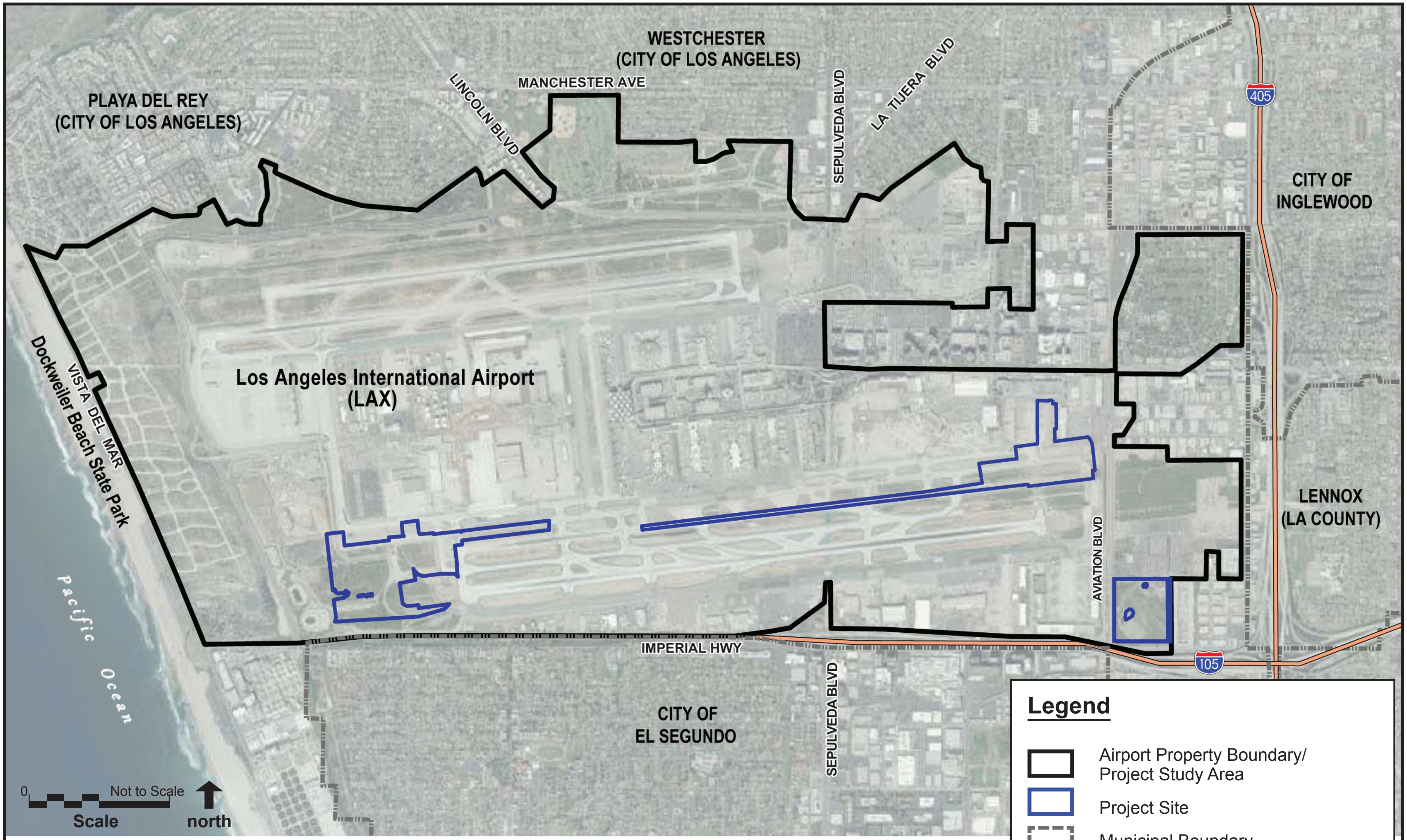

Source: LAWA 2013; ESRI Maps and Data - August 2013
Prepared by: URS Corporation

Runway 7L/25R RSA and Associated Improvements
Project Draft EIR

Project Components

Figure
2

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1.3 Pollutants of Interest

1.3.1 Criteria Pollutants

Six criteria pollutants were evaluated for the proposed Project, including ozone (O_3) using as surrogates volatile organic compounds (VOCs)[1] and oxides of nitrogen (NO_X), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (PM_{10}), and particulate matter with an aerodynamic diameter less than or equal to 2.5 micrometers ($PM_{2.5}$). These pollutants were analyzed because they were shown to have potentially significant impacts in the air quality analysis documented in Chapter 4.6, *Air Quality*, of the Los Angeles International Airport (LAX) Master Plan Final EIR.[2] In addition, these six criteria pollutants are considered to be pollutants of concern based on the type of emission sources associated with construction and operation of the proposed Project, and are thus included in this assessment. Although lead (Pb) is a criteria pollutant, it was not evaluated in the Air Quality or Greenhouse Gas Emission chapters of this EIR because the proposed Project would have negligible impacts on Pb levels in the Basin. The only source of lead emissions from LAX is from aviation gasoline (AvGas) associated with piston-engine general aviation aircraft; however, due to the low number of piston-engine general aviation aircraft operations at LAX, AvGas quantities are low and emissions from these sources would not be materially affected by the proposed Project. Sulfate compounds (e.g., ammonium sulfate) are generally not emitted directly into the air but are formed through various chemical reactions in the atmosphere; thus, sulfate is considered a secondary pollutant. All sulfur emitted by airport-related sources included in this analysis was assumed to be released and to remain in the atmosphere as SO_2. Therefore, no sulfate inventories or concentrations were estimated.

Following standard industry practice, the evaluation of O_3 was conducted by evaluating emissions of VOCs and NO_X, which are precursors in the formation of O_3. O_3 is a regional pollutant and ambient concentrations can only be predicted using regional photochemical models that account for all sources of precursors, which is beyond the scope of this analysis. Therefore, no photochemical O_3 modeling was conducted for the proposed Project. Additional information regarding the six criteria pollutants that were evaluated in the air quality analysis is presented below.

1.1.4.1 Ozone (O_3)

O_3, a component of smog, is formed in the atmosphere rather than being directly emitted from pollutant sources. O_3 forms as a result of VOCs and NO_X reacting in the presence of sunlight in the atmosphere. O_3 levels are highest in warm-weather months. VOCs and NO_X are termed "O_3 precursors" and their emissions are regulated in order to control the creation of O_3.

O_3 damages lung tissue and reduces lung function. Scientific evidence indicates that ambient levels of O_3 not only affect people with impaired respiratory systems (e.g., asthmatics), but also

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[1] The emissions of volatile organic compounds (VOC) and reactive organic gases (ROG) are essentially the same for the combustion emission sources that are considered in this EIR. This EIR will typically refer to organic emissions as VOC.

[2] City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Available: http://ourlax.org/pub_finalEIR.aspx.

healthy children and adults. O_3 can cause health effects such as chest discomfort, coughing, nausea, respiratory tract and eye irritation, and decreased pulmonary functions.

1.1.4.2 Nitrogen Dioxide (NO_2)

NO_2 is a reddish-brown to dark brown gas with an irritating odor. NO_2 forms when nitric oxide reacts with atmospheric oxygen. Most sources of NO_2 are man-made; the primary source of NO_2 is high-temperature combustion. Significant sources of NO_2 at airports are boilers, aircraft operations, and vehicle movements. NO_2 emissions from these sources are highest during high-temperature combustion, such as aircraft takeoff mode.

NO_2 may produce adverse health effects such as nose and throat irritation, coughing, choking, headaches, nausea, stomach or chest pains, and lung inflammation (e.g., bronchitis, pneumonia).

1.1.4.3 Carbon Monoxide (CO)

CO is an odorless, colorless gas that is toxic. It is formed by the incomplete combustion of fuels. The primary sources of this pollutant in Los Angeles County are automobiles and other mobile sources. The health effects associated with exposure to CO are related to its interaction with hemoglobin once it enters the bloodstream. At high concentrations, CO reduces the amount of oxygen in the blood, causing heart difficulties in people with chronic diseases, reduced lung capacity, and impaired mental abilities.

1.1.4.4 Particulate Matter (PM_{10}) and Fine Particulate Matter ($PM_{2.5}$)

Particulate matter consists of solid and liquid particles of dust, soot, aerosols, and other matter small enough to remain suspended in the air for a long period of time. PM_{10} refers to particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (microns, um or µm) and $PM_{2.5}$ refers to particulate matter with an aerodynamic diameter less than or equal to 2.5 micrometers. Particles smaller than 10 micrometers (i.e., PM_{10} and $PM_{2.5}$) represent that portion of particulate matter thought to represent the greatest hazard to public health.[3] PM_{10} and $PM_{2.5}$ can accumulate in the respiratory system and are associated with a variety of negative health effects. Exposure to particulate matter can aggravate existing respiratory conditions, increase respiratory symptoms and disease, decrease long-term lung function, and possibly cause premature death. The segments of the population that are most sensitive to the negative effects of particulate matter in the air are the elderly, individuals with cardiopulmonary disease, and children. Aside from adverse health effects, particulate matter in the air causes a reduction of visibility and damage to paints and building materials.

A portion of the particulate matter in the air comes from natural sources such as windblown dust and pollen. Man-made sources of particulate matter include fuel combustion, automobile exhaust, field burning, cooking, tobacco smoking, factories, and vehicle movement on, or other man-made disturbances of, unpaved areas. Secondary formation of particulate matter may

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[3] U.S. Environmental Protection Agency, Particle Pollution and Your Health, September 2003.

occur in some cases where gases like sulfur oxides (SO_X)[4] and NO_X interact with other compounds in the air to form particulate matter. In the Basin, both VOCs and ammonia are also considered precursors to $PM_{2.5}$. Fugitive dust generated by construction activities is a major source of suspended particulate matter.

The secondary creators of particulate matter, SO_X and NO_X, are also major precursors to acidic deposition (acid rain). While SO_X is a major precursor to particulate matter formation, NO_X has other environmental effects. NO_X reacts with ammonia, moisture, and other compounds to form nitric acid and related particles. Human health concerns include effects on breathing and the respiratory system, damage to lung tissue, and premature death. Small particles penetrate into sensitive parts of the lungs and can cause or worsen respiratory disease. NO_X has the potential to change the composition of some species of vegetation in wetland and terrestrial systems, to create the acidification of freshwater bodies, impair aquatic visibility, create eutrophication of estuarine and coastal waters, and increase the levels of toxins harmful to aquatic life.

1.1.4.5 Sulfur Dioxide (SO_2)

Sulfur oxides are formed when fuel containing sulfur (typically, coal and oil) is burned, and during other industrial processes. The term "sulfur oxides" accounts for distinct but related compounds, primarily SO_2 and sulfur trioxide. As a conservative assumption for this analysis, it was assumed that all SO_X are emitted as SO_2; therefore, SO_X and SO_2 are considered equivalent in this document. Higher SO_2 concentrations are usually found in the vicinity of large industrial facilities.

The physical effects of SO_2 include temporary breathing impairment, respiratory illness, and aggravation of existing cardiovascular disease. Children and the elderly are most susceptible to the negative effects of exposure to SO_2.

1.3.2 Greenhouse Gases

Parts of the earth's atmosphere act as an insulating blanket, trapping sufficient solar energy to keep the global average temperature in a suitable range. The blanket is a collection of atmospheric gases called GHGs. These gases – primarily water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone, chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6) – all act as effective global insulators, reflecting back to earth visible light and infrared radiation. Human activities, such as producing electricity and driving vehicles, have elevated the concentrations of these gases in the atmosphere. Many scientists believe that these elevated levels, in turn, are causing the earth's temperature to rise. A warmer earth may lead to changes in rainfall patterns, much smaller polar ice caps, a rise in sea level, and a wide range of impacts on plants, wildlife, and humans.

Climate change is driven by “forcings” and “feedbacks.” Radiative forcing is the difference between the incoming energy and outgoing energy in the climate system. A feedback is “an

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[4] The term SO_X accounts for distinct but related compounds, primarily SO_2 and, to a far lesser degree, sulfur trioxide. As a conservative assumption for this analysis, it was assumed that all SO_X is emitted as SO_2, therefore SO_X and SO_2 are considered equivalent in this document and only the latter term is used henceforth.

internal climate process that amplifies or dampens the climate response to a specific forcing."[5] The global warming potential (GWP) is the potential of a gas or aerosol to trap heat in the atmosphere; it is the "cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to a reference gas."[6] Individual GHG species have varying GWP and atmospheric lifetimes. The carbon dioxide equivalent (CO_2e) -- the mass emissions of an individual GHG multiplied by its GWP -- is a consistent methodology for comparing GHG emissions because it normalizes various GHG emissions to a consistent metric. The reference gas for GWP is CO_2; CO_2 has a GWP of 1. Compared to CH_4's GWP of 21, CH_4 has a greater global warming effect than CO_2 on a molecule-per-molecule basis. **Table 1-1** identifies the GWP of several select GHGs.

Table 1-1

Global Warming Potentials and Atmospheric Lifetimes of Select Greenhouse Gases

Gas	Atmospheric Lifetime (Years)	Global Warming Potential (100 Year Time Horizon)
Carbon Dioxide	50 - 200	1
Methane	12 ± 3	21
Nitrous Oxide	120	310
HFC-23	264	11,700
HFC-134a	14.6	1,300
HFC-152a	1.5	140
PFC: Perfluromethane (CF_4)	50,000	6,500
PFC: Perfluoroethane (C_2F_6)	10,000	9,200
Sulfur Hexafluoride (SF_6)	3,200	23,900

Source: Intergovernmental Panel on Climate Change, Climate Change 1995: The Science of Climate Change. Contribution of Working Group I to the Second Assessment Report (SAR) of the Intergovernmental Panel on Climate Change, 1996.[7]

2 REGULATORY SETTING

Air Quality is regulated by federal, State, and local laws. On the federal level, air quality is governed by the federal Clean Air Act (CAA) administered by the United States Environmental Protection Agency (USEPA). Additionally, air quality in California is governed by regulations under the California Clean Air Act (CCAA) administered by the California Air Resources Board (CARB) and by the regional air quality management districts. Air quality in the Los Angeles

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[5] National Research Council of the National Academies, Radiative Forcing of Climate Change: Expanding the Concept and Addressing Uncertainties, 2005.

[6] U.S. Environmental Protection Agency, Glossary of Climate Terms, Available: www.epa.gov/climatechange/glossary.html, Accessed October 10, 2013.

[7] GWP values have been updated in IPCC's subsequent assessment reports (e.g., Third Assessment Report [TAR], etc.). However, in accordance with international and U.S. convention to maintain the value of the carbon dioxide 'currency', GHG emission inventories are calculated using the GWPs from the IPCC SAR.

region is subject to the rules and regulations established by CARB and the South Coast Air Quality Management District (SCAQMD).

Greenhouse Gas emissions are primarily regulated on the State and local level with some federal regulations concerning GHG and fuel efficiency standards for passenger cars, light-duty trucks, and medium- and heavy-duty engines and vehicles from USEPA and the National Highway Traffic Safety Administration. Various international, federal, State, and local agencies also provide guidance concerning GHG emissions.

2.1 Federal/International

2.1.1 Criteria Pollutants

The USEPA is responsible for enforcing the CAA. Under the authority granted by the CAA, USEPA has established National Ambient Air Quality Standards (NAAQS) for the following criteria pollutants: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), respirable particulate matter or particulate matter sized 10 microns or less (PM_{10}), fine particulate matter or particulate matter sized 2.5 microns or less ($PM_{2.5}$), sulfur dioxide (SO_2), and lead (Pb). **Table 2-1** presents the NAAQS that are currently in effect for criteria air pollutants. O_3 is a secondary pollutant, meaning that it is formed from reactions of precursor compounds under certain conditions. The primary precursor compounds that can lead to the formation of O_3 include volatile organic compounds (VOCs) and oxides of nitrogen (NO_x).

The CAA also specifies future dates for achieving compliance with the NAAQS and mandates that states submit and implement a State Implementation Plan (SIP) for local areas not meeting these standards. These plans must include pollution control measures that demonstrate how the standards will be met. The 1990 amendments to the CAA identify specific emission reduction goals for areas not meeting the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or meet interim milestones.

LAX is located within the South Coast Air Basin (Basin), which is a sub-region of the South Coast Air Quality Management District's (SCAQMD's) jurisdiction including all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. The Basin is designated as a federal non-attainment area for O_3, $PM_{2.5}$, and Pb. The nonattainment designation under the CAA for O_3 is categorized into levels of severity based on the level of concentration above the standard, which is also used to set the required attainment date. The Basin is classified as an extreme nonattainment area for O_3. The Basin was reclassified on September 22, 1998 to attainment/maintenance for NO_2 and on June 11, 2007 for CO since concentrations of these pollutants dropped below the NO_2 and CO NAAQS for several years. More recently, the Los Angeles Basin was reclassified to attainment/maintenance for PM_{10} on July 26, 2013. Attainment/maintenance means that the pollutant is currently in attainment and that measures are included in the SIP to ensure that the NAAQS for that pollutant are not exceeded again (maintained). **Table 2-2** presents the NAAQS and CAAQS attainment designation for each of the federal criteria air pollutants.

Table 2-1

National and California Ambient Air Quality Standards

			NAAQS	
Pollutant	**Averaging Time**	**CAAQS**	**Primary**	**Secondary**
Ozone (O_3)	8-hour	0.07 ppm (137 µg/m3)	0.075 ppm (147 µg/m3)	Same as Primary
	1-Hour	0.09 ppm (180 µg/m3)	N/A	N/A
Carbon Monoxide (CO)	8-hour	9.0 ppm (10 mg/m3)	9.0 ppm (10 mg/m3)	N/A
	1-Hour	20 ppm (23 mg/m3)	35 ppm (40 mg/m3)	N/A
Nitrogen Dioxide (NO_2)	Annual	0.030 ppm (57 µg/m3)	0.053 ppm (100 µg/m3)	Same as Primary
	1-Hour	0.18 ppm (339 µg/m3)	100 ppb (188 µg/m3)	N/A [1]
Sulfur Dioxide (SO_2) [2]	Annual	N/A	0.03 ppm (80 µg/m3)	N/A
	24-Hour	0.04 ppm (105 µg/m3)	0.14 ppm (365 µg/m3)	N/A
	3-Hour	N/A	N/A	0.5 ppm (1300 µg/m3)
	1-Hour	0.25 ppm (655 µg/m3)	75 ppb (196 µg/m3)	N/A
Respirable Particulate Matter (PM_{10})	AAM	20 µg/m3	N/A	N/A
	24-Hour	50 µg/m3	150 µg/m3	Same as Primary
Fine Particulate Matter ($PM_{2.5}$)	AAM	12 µg/m3	15 µg/m3	Same as Primary
	24-Hour	N/A	35 µg/m3	Same as Primary
Lead (Pb)	Rolling 3-month Average	N/A	1.5 µg/m3	Same as Primary
	Monthly	1.5 µg/m3	N/A	N/A
Sulfates	24-Hour	25 µg/m3	N/A	N/A

Notes:

NAAQS = National Ambient Air Quality Standards	N/A = Not applicable
CAAQS = California Ambient Air Quality Standards	mg/m^3 = milligrams per cubic meter
ppm = parts per million (by volume)	AAM = Annual arithmetic mean
µg/m^3 = micrograms per cubic meter	

[1] On March 20, 2012, the USEPA took final action to retain the current secondary NAAQS for NO_2 (0.053 ppm averaged over a year) and SO_2 (0.5 ppm averaged over three hours, not to be exceeded more than once per year) (77 Federal Register [FR] 20264).

[2] On June 22, 2010, the 1-hour SO_2 NAAQS was updated and the previous 24-hour and annual primary NAAQS were revoked. The previous 1971 SO_2 NAAQS (24-hour: 0.14 ppm; annual: 0.030 ppm) remain in effect until one year after an area is designated for the 2010 NAAQS (75 FR 35520).

Source: California Air Resources Board, Ambient Air Quality Standards Chart, Available: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf.

Table 2-2

South Coast Air Basin Attainment Status

Pollutant	**National Standards**[1]	**California Standards**[2]
Ozone	Nonattainment - Extreme	Nonattainment
Carbon Monoxide	Attainment - Maintenance	Attainment
Nitrogen Dioxide	Attainment - Maintenance	Nonattainment
Sulfur Dioxide	Attainment	Attainment
PM_{10}	Attainment – Maintenance	Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
Lead	Nonattainment	Nonattainment

Note:

[1] Status as of July 31, 2013.

[2] Effective April 1, 2013.

Sources: U.S. Environmental Protection Agency. Green Book. Available at http://www.epa.gov/air/oaqps/greenbook/index.html. As of July 31, 2013; California Air Resources Board. "Area Designations Maps/State and National." Available at www.arb.ca.gov/desig/adm/adm.htm. Effective 04/01/1013.

2.1.1 Greenhouse Gases

International Governmental Panel on Climate Change

In 1988, the United Nations and the World Meteorological Organization established the IPCC to assess "the scientific, technical and socioeconomic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation."

United Nations Framework Convention on Climate Change

On March 21, 1994, the U.S. joined other countries around the world in signing the United Nations Framework Convention on Climate Change (UNFCCC). Under the Convention, governments gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG 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 (or Protocol) is a treaty made under the UNFCCC. Countries can sign the treaty to demonstrate their commitment to reduce their emissions of GHGs or engage in emissions trading. More than 160 countries, accounting for 55 percent of global emissions, are under the protocol. The U.S. symbolically signed the Protocol in 1998. However, in order for the Protocol to be formally ratified, it must be adopted by the U.S. Senate, which has not been done to date. The original GHG reduction commitments made under the Protocol expired at the end of 2012. A second commitment period was agreed to at the Doha, Qatar, meeting held December 8, 2012, which extended the commitment period to December 31, 2020.

Massachusetts et al. v. United States Environmental Protection Agency et al.

Massachusetts et. al. v. Environmental Protection Agency et. al. (549 U.S. 497 [2007]) was argued before the U.S. Supreme Court on November 29, 2006, in which it was petitioned that USEPA regulate four GHGs, including CO_2, under Section 202(a)(1) of the Clean Air Act (CAA). The Court issued an opinion on April 2, 2007, in which it held that petitioners have standing to challenge the USEPA and that the USEPA has statutory authority to regulate emissions of GHGs from motor vehicles.

Endangerment Finding

The USEPA subsequently published its endangerment finding for GHGs in the Federal Register,[8] which responds to this court case. The USEPA Administrator determined that six GHGs, taken in combination, endanger both the public health and welfare of current and future generations. Although the endangerment finding discusses the effects of six GHGs, it acknowledges that transportation sources only emit four of the key GHGs: CO_2, CH_4, N_2O, and HFCs. Further, the USEPA Administrator found that the combined emissions of these GHGs from new motor vehicles contribute to air pollution that endangers the public health and welfare under the CAA, Section 202(a).

GHG and Fuel Efficiency Standards for Passenger Cars and Light-Duty Trucks

In April 2010, the USEPA and National Highway Traffic Safety Administration (NHTSA) finalized GHG standards for new (model year 2012 through 2016) passenger cars, light-duty trucks, and medium-duty passenger vehicles. Under these standards, CO2 emission limits would decrease from 295 grams per mile (g/mi) in 2012 to 250 g/mi in 2016 for a combined fleet of cars and light trucks. If all of the necessary emission reductions were made from fuel economy improvements, then the standards would correspond to a combined fuel economy of 30.1 miles per gallon (mpg) in 2012 and 35.5 mpg in 2016. The agencies issued a joint Final Rule for a coordinated National Program for model years 2017 to 2025 light-duty vehicles on August 28, 2012, that would correspond to a combined fuel economy of 36.6 mpg in 2017 and 54.5 mpg in 2025.

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[8] U.S. Environmental Protection Agency, Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the CAA, Federal Register 74 (15 December 2009): 66496-66546.

GHG and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles

In October 2010, the USEPA and NHTSA announced a program to reduce GHG emissions and to improve fuel efficiency for medium- and heavy-duty vehicles (model years 2014 through 2018). These standards were signed into law on August 9, 2011. The two agencies' complementary standards form a new Heavy-Duty National Program that has the potential to reduce GHG emissions by 270 million metric tons and to reduce oil consumption by 530 million barrels over the life of the affected vehicles.

2.2 State of California

2.2.1 Criteria Pollutants

The California Clean Air Act (CCAA), signed into law in 1988, requires all areas of the state to achieve and maintain the CAAQS by the earliest practical date. The CAAQS are at least as stringent as, and in several cases more stringent than, the NAAQS and include several more pollutants such as visibility reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. The currently applicable CAAQS are presented with the NAAQS in Table 2-1. The attainment status with regard to the CAAQS is presented in Table 2-2 along with the federal attainment status for each criteria pollutant. Additionally, the area is in attainment for sulfates and unclassified for hydrogen sulfide and visibility reducing particles.

California Air Resources Board (CARB) has been granted jurisdiction over a number of air pollutant emission sources that operate in the State. Specifically, CARB has the authority to develop emission standards for on-road motor vehicles, as well as for stationary sources and some off-road mobile sources. In turn, CARB has granted authority to the regional air pollution control and air quality management districts to develop stationary source emission standards, issue air quality permits, and enforce permit conditions.

2.2.2 Greenhouse Gases

California Air Resources Board

In October 2008, CARB published draft preliminary guidance to agencies on how to establish interim significance thresholds for analyzing GHG emissions in Recommended Approaches for Setting Interim Thresholds for Greenhouse Gases under the California Environmental Quality Act. For industrial projects, the CARB guidance proposed that projects that emit less than 7,000 metric tons of CO_2e ($MTCO_2e$) per year (amortized), as well as meeting performance standards for construction and transportation, may be considered less than significant.

Title 24 Energy Standards

Although not originally intended to reduce GHG emissions, California's Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations, Title 24, Part 6) were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. The latest amendments were made in April 2008 and went into effect on January 1, 2010. The premise for the standards is that energy efficient buildings require less electricity, natural gas, and other fuels. Electricity production from fossil fuels and on-site fuel combustion (typically for water heating) results in GHG emissions. Therefore, increased energy efficiency in buildings results in fewer GHG emissions on a building-by-building basis.

California Assembly Bill 1493 (AB 1493) - Pavley

Enacted on July 22, 2002, this bill required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light-duty trucks. Regulations adopted by CARB apply to 2009 and later model year vehicles. CARB estimates that the regulation will reduce GHG emissions from the light-duty and passenger vehicle fleet by an estimated 18 percent in 2020 and by 27 percent in 2030, compared to recent years. In 2011, the U.S. Department of Transportation, USEPA, and California announced a single timeframe for proposing fuel and economy standards, thereby aligning the Pavley standards with the federal standards for passenger cars and light-duty trucks.

Executive Order S-3-05

California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following GHG emission reduction targets for all of California: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80 percent below 1990 levels.

California Assembly Bill 32 (AB 32)

AB 32, titled The California Global Warming Solutions Act of 2006 and signed by Governor Schwarzenegger in September 2006, requires CARB to adopt regulations to require the reporting and verification of Statewide GHG emissions and to monitor and enforce compliance with the program. In general, the bill requires CARB to reduce Statewide GHG emissions to the equivalent of those in 1990 by 2020. CARB adopted regulations in December 2007 for mandatory GHG emissions reporting. On August 24, 2011, CARB adopted the scoping plan indicating how emission reductions will be achieved. Part of the scoping plan includes an economy-wide cap-and-trade program. The final cap-and-trade plan was approved on October 21, 2011 and went into effect on January 1, 2013.

California Senate Bill 375 (SB 375)

SB 375 requires CARB to set regional targets for 2020 and 2035 to reduce GHG emissions from passenger vehicles. A regional target will be developed for each of the 18 metropolitan planning organizations (MPOs) in the State; the Southern California Association of Governments (SCAG) is the MPO that has jurisdiction over the Project area. A Regional Targets Advisory Committee (RTAC) was appointed by CARB to provide recommendations to be considered and methodologies to be used in CARB's target setting process. The final RTAC report was released on January 23, 2009.

Each MPO is required to develop Sustainable Community Strategies through integrated land use and transportation planning and to demonstrate an ability to attain the proposed reduction targets by 2020 and 2035. CARB issued an eight percent per capita reduction target to the

SCAG region for 2020 and a target of 13 percent by 2035. SCAG adopted the Regional Transportation Plan/Sustainable Community Strategies for the six-county southern California region on April 4, 2012.

Executive Order S-01-07 and the Low Carbon Fuel Standard

California Executive Order S-01-07 established a Statewide goal to reduce the carbon intensity of transportation fuels sold in California by at least 10 percent by 2020 from 2005. The Executive Order also mandated the creation of Low Carbon Fuel Standard (LCFS) for transportation fuels. The LCFS requires that the life-cycle GHG emissions for the mix of fuels sold in California decline on average. Each fuel provider may meet the standard by selling fuel with lower carbon content, using previously banked credits from selling fuel that exceeded the LCFS, or purchasing credit from other fuel providers who have earned credits. On December 29, 2011, U.S. District Judge Lawrence O'Neill granted an injunction to prevent CARB from implementing the LCFS because it violates a federal law on interstate commerce. CARB's motion to stay the decision was also subsequently denied on January 24, 2012 (Rocky Mountain Farmers Union v. Goldstene, E.D. Cal., No. 09-cv-02234).

Senate Bill 97 (SB 97)

SB 97 requires the Office of Planning and Research (OPR) to prepare guidelines to submit to the California Natural Resources Agency (CNRA) regarding feasible mitigation of GHG emissions or the effects of GHG emissions as required by CEQA. The CNRA adopted amendments to the State CEQA Guidelines for GHG emissions on December 30, 2009. The amendments became effective on March 18, 2010. The guidelines apply retroactively to any incomplete EIR, negative declaration, mitigated negative declaration, or other related document, and are reflected in this EIR.

Renewables Portfolio Standard

Senate Bill 1078 (SB 1078) (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010. In November 2008, the Governor signed Executive Order S-14-08, which expands the State’s Renewable Energy Standard (RPS) to 33 percent renewable power by 2020. On September 15, 2009, the Governor issued Executive Order S-21-0911 requiring CARB, under its AB 32 authority, to adopt regulations to meet a 33 percent RPS target by 2020. The CARB regulations would use a phased-in or tiered requirement to increase the amount of electricity from eligible renewable sources over an eight year period beginning in 2012. CARB adopted the regulations in September 2010. In March 2011, the Legislature passed SB X1-2, which was signed into law by the Governor the following month. SB X1-2 requires utilities to procure renewable energy products equal to 33 percent of retail sales by December 31, 2020 and also establishes interim targets: 20 percent by December 31, 2013 and 25 percent by December 31, 2016. SB X1-2 also applies to publicly-owned utilities in California. According to the most recent data available from the Los Angeles Department of Water and Power (LADWP), the utility provider for the City of Los Angeles, approximately 19 percent of its electricity purchases in 2011 were from eligible renewable sources.

2.3 Regional

2.3.1 Criteria Pollutants

South Coast Air Quality Management District

SCAQMD has jurisdiction over an area of 10,743 square miles consisting of Orange County and the urban, non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, and the Riverside County portions of the Salton Sea Air Basin and Mojave Desert Air Basin. The Basin is a sub-region of SCAQMD's jurisdiction and covers an area of 6,745 square miles. While air quality in this area has improved, the Basin requires continued diligence to meet air quality standards.

The SCAQMD has adopted a series of Air Quality Management Plans (AQMPs) to meet the CAAQS and NAAQS. SCAQMD and CARB have adopted the 2012 AQMP which incorporates the latest scientific and technological information and planning assumptions, including the 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), and updated emission inventory methodologies for various source categories.[9] The Final 2012 AQMP was adopted by the AQMD Governing Board on December 7, 2012. Therefore, the 2012 AQMP is the most appropriate plan to use for consistency analysis. The AQMP builds upon other agencies' plans to achieve federal standards for air quality in the Basin. It incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, and on-road and off-road mobile sources. The 2012 AQMP builds upon improvements in previous plans, and includes new and changing federal requirements, implementation of new technology measures, and the continued development of economically sound, flexible compliance approaches. In addition, it highlights the significant amount of emission reductions needed and the urgent need to identify additional strategies, especially in the area of mobile sources, to meet all federal criteria pollutant standards within the timeframes allowed under the federal CAA.

The 2012 AQMP's key undertaking is to bring the Basin into attainment with NAAQS for 24-hour $PM_{2.5}$ by 2014. It also intensifies the scope and pace of continued air quality improvement efforts toward meeting the 2023 8-hour O_3 standard deadline with new measures designed to reduce reliance on the CAA Section 182(e)(5) long-term measures for NO_X and VOC reductions. SCAQMD expects exposure reductions to be achieved through implementation of new and advanced control technologies as well as improvement of existing technologies.

The control measures in the 2012 AQMP consist of four components: 1) Basin-wide and Episodic Short-term $PM_{2.5}$ Measures; 2) Contingency Measures; 3) 8-hour O_3 Implementation Measures; and 4) Transportation and Control Measures provided by the Southern California Association of Governments (SCAG). The Plan includes eight short-term $PM_{2.5}$ control measures, 16 stationary source 8-hour O_3 measures, 10 early action measures for mobile sources and seven early action measures are proposed to accelerate near-zero and zero emission technologies for goods movement related sources, and five on-road and five off-road mobile source control measures. In general, the District's control strategy for stationary and mobile sources is based on the following approaches: 1) available cleaner technologies; 2) best

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[9] http://www.aqmd.gov/aqmp/2012aqmp/index.htm

management practices; 3) incentive programs; 4) development and implementation of zero-near-zero technologies and vehicles and control methods; and 5) emission reductions from mobile sources.

The SCAQMD also adopts rules to implement portions of the AQMP. At least one of these rules is applicable to the construction phase of the proposed Project. Rule 403 requires the implementation of best available fugitive dust control measures during active construction activities capable of generating fugitive dust emissions from on-site earth-moving activities, construction/demolition activities, and construction equipment travel on paved and unpaved roads. Also, SCAQMD Rule 1113 limits the amount of volatile organic compounds from architectural coatings and solvents, which lowers the emissions of odorous compounds.

The SCAQMD has developed CEQA operational and construction-related thresholds of significance for air pollutant emissions from projects proposed in the Basin. Construction and operational emission thresholds are summarized in **Table 2-3**.

Table 2-3

SCAQMD CEQA Thresholds of Significance for Air Pollutant Emissions in the South Coast Air Basin

	Mass Emission Thresholds lbs/day	
Pollutant	**Construction**	**Operations**
Carbon monoxide, CO	550	550
Volatile organic compounds, VOC[1]	75	55
Nitrogen oxides, NOx	100	55
Sulfur dioxide, SO_2	150	150
Inhalable particulate matter, PM_{10}	150	150
Fine particulate matter, $PM_{2.5}$	55	55
Lead, Pb[2]	3	3

Notes:

[1] The emissions of VOCs and reactive organic gases are essentially the same for the combustion emission sources that are considered in this EIR. This EIR will typically refer to organic emissions as VOCs.

[2] The only source of lead emissions from LAX is from aviation gasoline (AvGas) associated with piston-engine general aviation aircraft; however, due to the low number of piston-engine general aviation aircraft operations at LAX, AvGas quantities are low and emissions from these sources would not be materially affected by the Project.

Source: South Coast Air Quality Management District, "SCAQMD Air Quality Significance Thresholds," March 2011. Available: www.aqmd.gov/ceqa/handbook/signthres.pdf, Accessed October 28, 2013.

The SCAQMD has also developed operational and construction-related thresholds of significance for air pollutant concentration impacts from projects proposed in the Basin. These thresholds are summarized in **Table 2-4**. The SCAQMD's recommended thresholds for the evaluation of localized air quality impacts are based on the difference between the maximum monitored ambient pollutant concentrations in the area and the CAAQS or NAAQS. Therefore, the thresholds depend upon the concentrations of pollutants monitored locally with respect to a project site. For pollutants that already exceed the CAAQS or NAAQS (e.g., PM_{10} and $PM_{2.5}$), the thresholds are based on SCAQMD Rule 403 for construction and Rule 1303, Table A-2 for operations as described in the *Final Localized Significance Threshold Methodology*.

Table 2-4

SCAQMD CEQA Thresholds of Significance for Air Pollutant Concentrations in the South Coast Air Basin

	Project-Related Concentration Thresholds			
Pollutant	**Averaging Period**	**Construction**	**Operations**	**Project Only or Total**
PM_{10}	Annual	1.0 μg/m^3	1.0 μg/m^3	Project Only
PM_{10}	24-hour	10.4 μg/m^3	2.5 μg/m^3	Project Only
$PM_{2.5}$	24-hour	10.4 μg/m^3	2.5 μg/m^3	Project Only
CO	1-hour	20 ppm (23 mg/m^3)	20 ppm (23 mg/m^3)	Total incl. Background
CO	8-hour	9.0 ppm (10 mg/m^3)	9.0 ppm (10 mg/m^3)	Total incl. Background
NO_2	1-hour (State)	0.18 ppm (339 μg/m^3)	0.18 ppm (339 μg/m^3)	Total incl. Background
NO_2	1-hour (Federal)[3]	0.100 ppm (188 μg/m^3)	0.100 ppm (188 μg/m^3)	Total incl. Background
NO_2	Annual (State)[2]	0.030 ppm (57 μg/m^3)	0.030 ppm (57 μg/m^3)	Total incl. Background
SO_2	1-hour (State)	0.25 ppm (655 μg/m^3)	0.25 ppm (655 μg/m^3)	Total incl. Background
SO_2	1-hour (Federal)[4]	0.075 ppm (196 μg/m^3)	0.075 ppm (196 μg/m^3)	Total incl. Background
SO_2	24-hour	0.04 ppm (105 μg/m^3)	0.04 ppm (105 μg/m^3)	Total incl. Background

Notes:

[1] The concentration threshold for CO and NO2 is the CAAQS, which is at least as stringent as the NAAQS. The concentration threshold for PM_{10} and $PM_{2.5}$ has been developed by SCAQMD for construction or operational impacts associated with the proposed Project.

[2] The state standard is more stringent than the federal standard.

[3] To evaluate impacts of the proposed Project to ambient 1-hour NO_2 levels, the analysis includes both the current SCAQMD 1-hour state NO_2 threshold and the more stringent revised 1-hour federal ambient air quality standard of 188 μg/m^3. To attain the federal standard, the 3-year average of 98th percentile of the daily maximum 1-hour average at a receptor must not exceed 0.100 ppm.

[4] To attain the SO_2 federal 1-hour standard, the 3-year average of the 99th percentile of the daily maximum 1-hour averages at a receptor must not exceed 0.075 ppm.

Source: SCAQMD, 1993, 2011; USEPA, 2010a (75 FR 6474, Primary National Ambient Air Quality Standards for Nitrogen Dioxide, Final Rule, February 9, 2010) and 2010b (75 FR 35520, Primary National Ambient Air Quality Standard for Sulfur Dioxide, Final Rule, June 22, 2010).

The methodology requires that the anticipated increase in ambient air concentrations, determined using a computer-based air quality dispersion model, be compared to localized significance thresholds for PM_{10}, $PM_{2.5}$, NO_2, and CO.[10] The significance threshold for PM_{10} represents compliance with Rule 403 (Fugitive Dust) and Rule 1303 (New Source Review Requirements), while the thresholds for NO_2 and CO represent the allowable increase in concentrations above background levels in the vicinity of the Project site that would not cause or contribute to an exceedance of the relevant ambient air quality standards. The significance thresholds for $PM_{2.5}$ are intended to constrain emissions so as to aid in the progress toward attainment of the ambient air quality standards.[11] For the purposes of this analysis, the localized construction emissions resulting from development of the proposed Project were assessed with respect to the thresholds in Table 2-4 using detailed dispersion modeling.

Southern California Association of Governments

The Southern California Association of Governments (SCAG) is the metropolitan planning organization (MPO) representing six counties, including Los Angeles, and serving as a forum for the discussion of various planning and policy initiatives. As the federally designated MPO for the southern California region, SCAG is mandated by the federal government to research and develop plans for transportation, hazardous waste management, growth management, and air quality. Under the federal CAA, SCAG is also responsible for determining conformity of transportation projects, plans, and programs with applicable air quality plans.

2.3.2 Greenhouse Gases

South Coast Air Quality Management District

The SCAQMD has convened a GHG CEQA Significance Threshold Working Group to provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents. Members of the working group include government agencies implementing CEQA and representatives from various stakeholder groups that provide input to the SCAQMD staff on developing GHG CEQA significance thresholds.

SCAQMD released a draft guidance document regarding interim CEQA GHG significance thresholds in October 2008 and adopted this proposal in December 2008. SCAQMD proposed a tiered approach, whereby the level of detail and refinement needed to determine significance increases with a project's total GHG emissions. SCAQMD also proposed a screening level of 10,000 $MTCO_2e$ per year for industrial projects and 3,000 $MTCO_2e$ per year for residential and commercial projects, under which project impacts are considered "less than significant." The 10,000 $MTCO_2e$ per year screening level was intended to achieve the same policy objective of capturing 90 percent of the GHG emissions from new development projects in the industrial sector; similarly, the 3,000 $MTCO_2e$ per year screening level was intended to achieve the same policy objective of capturing 90 percent of the GHG emissions from new development projects

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[10] South Coast Air Quality Management District, Final Localized Significance Threshold Methodology, (2008).

[11] South Coast Air Quality Management District, Final Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, (2006).

in the residential and commercial sector.[12] For projects with GHG emissions increases greater than 10,000 $MTCO_2e$ per year (for industrial projects) or 3,000 $MTCO_2e$ (for residential and commercial projects), the use of a percent emission reduction target (e.g., 30 percent) was proposed to determine significance. This emission reduction target is a reduction below what is considered "business as usual." SCAQMD also proposes that projects amortize construction emissions over the 30-year lifetime of any given project. Proposed project construction emissions can be amortized by calculating total construction period emissions and dividing by the 30-year lifetime of the project.

The interim GHG significance threshold is for projects where the SCAQMD is lead agency. The SCAQMD has not adopted guidance for CEQA projects under other lead agencies.

2.4 Local Regulations and Directives

2.4.1 Criteria Pollutants

City of Los Angeles

The City of Los Angeles CEQA significance thresholds applicable to the proposed Project, as it pertains to criteria pollutant emissions, are shown in **Table 2-5**.

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[12] South Coast Air Quality Management District, Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold, (2008).

Table 2-5

City of LA CEQA Significance Thresholds

CEQA Subcategory	CEQA Significance Threshold
Construction Emissions	Would site preparation or construction activities for the proposed project result in substantial emissions that would not be controlled on site by existing regulations? Considers: Combustion Emissions from Construction Equipment Fugitive Dust Grading, Excavation and Hauling Heavy-Duty Equipment Travel on Unpaved Roads Other Mobile Source Emissions
Operational Emissions	• Result in a development and/or activity level equal to or greater than the thresholds provided in the CEQA Air Quality Handbook's Screening Table for Operation – Daily Thresholds of Potential Significance for Air Quality? • Conflict with the regional population forecast and distribution in the most recent Air Quality Management Plan (AQMP)? • Have the potential to create or be subjected to an objectionable odor or localized CO hot spot that could impact sensitive receptors? Operational emissions exceed any of the daily thresholds presented in Table 2-3. • Causes or contributes to an exceedance of the California 1-hour or 8-hour CO standards of 20 or 9.0 parts per million (ppm), respectively, at an intersection or roadway within 1/4 mile of a sensitive receptor.

2.4.2 Greenhouse Gases

Green LA

In May 2007, the City of Los Angeles introduced *Green LA - An Action Plan to Lead the Nation in Fighting Global Warming* (Green LA).[13] Green LA presents a framework targeted to reduce the City's GHG emissions by 35 percent below 1990 levels by 2030. The plan calls for an increase in the City's use of renewable energy to 35 percent by 2020 in combination with promoting water conservation, improving the transportation system, reducing waste generation,

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[13] City of Los Angeles, Green LA - An Action Plan to Lead the Nation in Fighting Global Warming, 2007.

greening the ports and airports, creating more parks and open space, and greening the economic sector. Green LA identifies objectives and actions in various focus areas, including airports. The goal for airports is to "green the airports," and the following actions are identified: 1) fully implement the Sustainability Performance Improvement Management System (discussed below); 2) develop and implement policies to meet the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED®) green building rating standards in future construction; 3) improve recycling, increase use of alternative fuel sources, increase use of recycled water, increase water conservation, reduce energy needs, and reduce GHG emissions; and 4) evaluate options to reduce aircraft-related GHG emissions.

Climate LA

In 2008, the City of Los Angeles followed up Green LA with an implementation plan called *Climate LA - Municipal Program Implementing the Green LA Climate Action Plan* (Climate LA).[14] A Departmental Action Plan for LAWA is included in Climate LA, which identifies goals to reduce CO_2 emissions 35 percent below 1990 levels by 2030 at LAX and the other three LAWA airports, implement sustainability practices, and develop programs to reduce the generation of waste and pollutants. Actions are specified in the areas of aircraft operations, ground vehicles, electrical consumption, building, and other actions.

LAWA Sustainability Plan

LAWA's Sustainability Plan, developed in April 2008, describes LAWA's current sustainability practices and sets goals and actions that LAWA will undertake to implement the initiatives described above (Green LA, Climate LA, and Sustainability Visions and Principles Policy).[15] The Sustainability Plan presents initiatives for the fiscal year 2008-2009 and long-term objectives and targets to meet the fundamental objectives identified above.

LAWA has also developed the *Sustainable Airport Planning, Design and Construction Guidelines for Implementation on All Airport Projects* (Guidelines).[16] The Guidelines were developed to provide a comprehensive set of performance standards focusing on sustainability specifically for Airport projects on a project-level basis. The Guidelines incorporate a "LAWA-Sustainable Rating System" based on the number of planning and design points and construction points a project achieves, as based on the criteria and performance standards defined in the Guidelines.

Based on the above, LAWA has taken steps to increase its sustainability practices related to daily Airport operations, many of which directly or indirectly contribute to a reduction in GHG emissions. Actions that LAWA has been undertaking include promoting and expanding the Fly Away non-stop shuttle service to the Airport in an effort to reduce the number of vehicle trips to the Airport, establishment of an employee Rideshare Program, use of alternative fuel vehicles, purchasing renewably generated Green Power from LADWP, and reducing electricity consumption by installing energy-efficient lighting, variable demand motors on terminal escalators, and variable frequency drives on fan units at terminals and LAWA buildings.

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[14] City of Los Angeles, Climate LA - Municipal Program Implementing the Green LA Climate Action Plan, 2008.

[15] Los Angeles World Airports, Sustainability Plan, April 2008.

[16] Los Angeles World Airports, Sustainable Airport Planning, Design and Construction Guidelines for Implementation on All Airport Projects, February 2010.

LAWA defines sustainability (and measures sustainable performance) as the Triple Bottom Line, consistent with the Global Reporting Initiative (GRI) and CEQA, which are the social, economic, and environmental impacts of the organization. All projects are subject to various sustainable requirements in the City of Los Angeles and at LAWA, including, but not limited to:

- LAGBC (Ordinance 181479);
- Low Impact Development (Ordinance 181899);
- Standard Urban Stormwater Mitigation Plan (Ordinance 173494);
- Demolition Debris Recycling Program (Ordinance 181519);
- LAX Construction & Maintenance Services – Recycling Program; and
- LAX Master Plan – Mitigation Monitoring and Reporting Program (MMRP). Highlights of the LAX Master Plan MMRP include, but are not limited to the following measures:
    - C-1: Work with LAWA to approve and coordinate staging areas, haul routes, etc.;
    - MM-AQ-2: Utilize on-site rock-crushing facility, when feasible, during construction to reuse rock/concrete and minimize off-site truck-haul trips; and
    - W-1: Maximize use of Reclaimed Water.

Given that the LAGBC has replaced LEED® in the LAMC, LAWA has based its new sustainable construction standards on the mandatory and voluntary tiers defined in the LAGBC. Should a project pose unique issues/circumstances based on the scope and/or location of work, LAWA may require more prescriptive approaches to resolving issues such as energy performance, site drainage, etc.

3 EXISTING ENVIRONMENTAL SETTING

3.1 Climatological Conditions

The airport is located within the South Coast Air Basin of California, a 6,745 square-mile area encompassing all of Orange County and the urban, non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The meteorological conditions at the airport are heavily influenced by the proximity of the airport to the Pacific Ocean to the west and the mountains to the north and east. This location tends to produce a regular daily reversal of wind direction: onshore (from the west) during the day and offshore (from the east) at night. Comparatively warm, moist Pacific air masses drifting over cooler air resulting from coastal upwelling of cooler water often form a bank of fog that is generally swept inland by the prevailing westerly (i.e., from the west) winds. The "marine layer" is generally 1,500 to 2,000 feet deep, extending only a short distance inland and rising during the morning hours producing a deck of low clouds. The air above is usually relatively warm, dry, and cloudless. The prevalent temperature inversion in the Basin tends to prevent vertical mixing of air through more than a shallow layer.

A dominating factor in the weather of California is the semi-permanent high-pressure area of the North Pacific Ocean. This pressure center moves northward in summer, holding storm tracks well to the north, and minimizing precipitation. Changes in the circulation pattern allow storm centers to approach California from the southwest during the winter months and large amounts of moisture are carried ashore. The Los Angeles region receives on average 10 to 15 inches of precipitation per year, of which 83 percent occurs during the months of November through March. Thunderstorms are light and infrequent, and on very rare occasions, trace amounts of snowfall have been reported at the airport.

The annual minimum mean, maximum mean, and overall mean temperatures at the airport are 55 degrees Fahrenheit (°F), 70°F, and 63°F, respectively. The prevailing wind direction at the airport is from the west-southwest with an average wind speed of roughly 6.4 knots (7.4 miles per hour [mph] or 3.3 meters per second [m/s]). Maximum recorded gusts range from 27 knots (31 mph or 13.9 m/s) in July to 54 knots (62 mph or 27.8 m/s) in March. The monthly average wind speeds range from 5.7 knots (6.5 mph or 2.9 m/s) in December to 7.4 knots (8.5 mph or 3.8 m/s) in April.[17]

3.2 Ambient Air Quality

In an effort to monitor the various concentrations of air pollutants throughout the basin, the SCAQMD has divided the region into 38 SRAs in which monitoring stations operate. The monitoring station that is most representative of existing air quality conditions at LAX is the Southwest Coastal Los Angeles Monitoring Station located at 7201 W. Westchester Parkway (referred to as the LAX Hastings site), less than 0.5-mile from Runway 6L-24R (northernmost LAX runway). This station monitors O_3, CO, SO_2, NO_2, and PM_{10}. The nearest representative monitoring station that monitors $PM_{2.5}$ is the South Coastal Los Angeles County 1 Station, which is located at 1305 E. Pacific Coast Highway (Long Beach). The most recent data available from the SCAQMD for these monitoring stations encompassed the years 2008 to 2012, as shown in **Table 3-1**.

The data shows the following pollutant trends (refer to Table 2-1 for NAAQS and CAAQS standards):

Ozone - The maximum 1-hour O_3 concentration recorded during the 2008 to 2012 period was 0.106 ppm, recorded in 2012. During the reporting period, the California standard was exceeded once. The maximum 8-hour O_3 concentration was 0.076 ppm recorded in 2008. The California standards were exceeded once during the reporting period, while the NAAQS were not violated.

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[17] Ruffner, J.A., Climates of the States: National Oceanic and Atmospheric Administration Narrative Summaries, Table, and Maps for Each State with Overview of State Climatologist Programs, Third Edition, Volume 1: Alabama-New Mexico, Gale Research Company, 1985.

Table 3-1

Southwest Coastal Los Angeles and South Coastal Los Angeles County
Monitoring Station Ambient Air Quality Data

Pollutant [1,2]	2008	2009	2010	2011	2012
Ozone (O_3)					
Maximum Concentration 1-hr period, ppm	0.086	0.077	0.089	0.078	0.106
Days over State Standard (0.09 ppm)	0	0	0	0	1
Maximum National Concentration 8-hr period, ppm	0.075	0.070	0.070	0.067	0.075
Days over Federal Standard (0.075 ppm)	0	0	0	0	0
Maximum California Concentration 8-hr period, ppm	0.076	0.070	0.070	0.067	0.075
Days over State Standard (0.07 ppm)	1	0	0	0	1
Carbon Monoxide (CO)					
Maximum Concentration 1-hr period, ppm	3.6	2.6	2.6	2.3	2.8
Days over State Standard (20.0 ppm)	0	0	0	0	0
Maximum Concentration 8-hr period, ppm	2.53	1.99	2.19	1.79	1.51
Days over State Standard (9.0 ppm)	0	0	0	0	0
Nitrogen Dioxide (NO_2)					
Maximum Concentration 1-hr period, ppm	0.094	0.077	0.076	0.098	0.077
98th Percentile Concentration 1-hr period, ppm	N/A	0.070	0.061	0.065	N/A
Days over State Standard (0.18 ppm)	0	0	0	0	0
Annual Arithmetic Mean (AAM), ppm	0.014	---	0.012	0.013	0.010
Exceed State Standard? (0.030 ppm)	No	No	No	No	No
Sulfur Dioxide (SO_2)					
Maximum Concentration 1-hr period, ppm	0.021	0.022	0.026	0.011	0.005
Days over State Standard (75 ppb)	0	0	0	0	0
99th Percentile Concentration 1-hr period, ppm	N/A	0.012	0.016	0.008	N/A
Maximum Concentration 24-hr period, ppm	0.004	0.006	0.004	0.002	0.001
Days over State Standard (140 ppb)	0	0	0	0	0
Annual Arithmetic Mean (AAM), ppm	0.001	---	0.000	0.000	0.000
Respirable Particulate Matter (PM_{10}) [3]					
Maximum National Concentration 24-hr period, µg/m^3	50	52	37	41	31
Days over Federal Standard (150 µg/m^3)	0	0	0	0	0
Maximum California Concentration 24-hr period, µg/m^3	50	52	37	41	30
Days over State Standard (50 µg/m^3)	0	6	*	0	0
Annual National Concentration, µg/m^3	25.6	25.6	20.6	21.7	19.8
Annual California Concentration, µg/m^3	25.5	25.5	---	21.4	19.5
Exceed State Standard? (20 µg/m^3)	Yes	Yes	*	Yes	No
Fine Particulate Matter ($PM_{2.5}$) [3]					
Maximum National Concentration 24-hr period, µg/m^3	57.2	63.0	35.0	39.7	49.8

Table 3-1

Southwest Coastal Los Angeles and South Coastal Los Angeles County Monitoring Station Ambient Air Quality Data

Pollutant [1,2]	**2008**	**2009**	**2010**	**2011**	**2012**
Days over Federal Standard (35 μg/m^3)	8	6	0	2	4
Maximum California Concentration 24-hr period, μg/m^3	57.2	63.0	35.0	39.7	49.8
Annual National Concentration, μg/m^3	14.1	12.8	10.3	11.3	10.4
Exceed State Standard? (12 μg/m^3)	Yes	Yes	No	No	No

Notes:

[1] Monitoring data from the Southwest Coastal Los Angeles Station (Station No. 820) was used for O_3, CO, NO_2, SO_2, and PM_{10} concentrations. Monitoring Data from the South Coastal Los Angeles County 1 Monitoring Station (Station No. 072) was used for $PM_{2.5}$ concentrations.

[2] An exceedance is not necessarily a violation. Violations are defined in 40 CFR 50 for NAAQS and 17 CCR 70200 for CAAQS.

[3] Statistics may include data that are related to an exceptional event.

Source: California Air Resource Board, iADAM: Air Quality Data Statistics, Available: http://www.arb.ca.gov/adam/, accessed April 4, 2013; California Air Resource Board, AQMIS2, Available: http://www.arb.ca.gov/aqmis2/aqmis2.php, accessed May 14, 2013.

Carbon Monoxide - The highest 1-hour CO concentration recorded was 3.6 ppm, recorded in 2008. The maximum 8-hour CO concentration recorded was 2.53 ppm recorded in 2008. As demonstrated by the data, the standards were not exceeded during the five-year period.

Nitrogen Dioxide - The highest 1-hour NO_2 concentration recorded was 0.098 ppm in 2011. The maximum 98th percentile 1-hour concentration was 0.07 ppm, recorded in 2009. The highest recorded NO_2 annual arithmetic mean was 0.014 ppm recorded in 2008. As shown, the standards were not exceeded during the five-year period.

Sulfur Dioxide - The highest 1-hour concentration of SO_2 was 0.026 ppm recorded in 2010, while the highest 99th percentile 1-hour concentration recorded was 0.008 ppm in 2011. The maximum 24-hour concentration was 0.006 ppm, recorded in 2009. The highest annual average concentration was 0.001, recorded in 2008. As shown, the standards were not exceeded during the five-year period.

Respirable Particulate Matter (PM_{10}) - The highest recorded 24-hour PM_{10} concentration recorded was 52 μg/m^3 in 2009. During the period 2008 to 2012, the CAAQS for 24-hour PM_{10} was exceeded between 0 and 1.6 percent of the time; the NAAQS was not violated. The maximum annual arithmetic mean recorded was 25.6 μg/m^3 in 2008 and 2009.

Fine Particulates ($PM_{2.5}$) - The maximum 24-hour $PM_{2.5}$ concentration recorded was 63.0 μg/m^3 in 2009. The 24-hour NAAQS was exceeded between 0 and 2.2 percent annually from 2008-2012. The highest annual geometric mean of 14.1 was recorded in 2008.

4 METHODOLOGY

4.1 Air Quality

The air quality analysis conducted for the proposed Project addresses construction emissions for 2014 and 2015, and operational emissions for 2015. Construction activities analyzed include on-site and off-site construction equipment, fugitive dust, fugitive VOCs, worker vehicle trips and temporary aircraft impacts from the runway closure that would occur during the temporary construction period. Operational sources included in the air quality analysis include aircraft.

As part of the air quality analysis for the proposed Project EIR, emission inventories were prepared and dispersion modeling was conducted. The results of these efforts were evaluated to ensure that the proposed Project complies with all federal, State, and local regulations.

4.1.1 Scope of Analysis

The air quality analysis conducted for the proposed Project addresses construction-related impacts and operational-related impacts. The basic steps involved in performing the analysis are listed below.

4.1.1.1 Scenarios

The notice of preparation (NOP) for the EIR was issued in October 2012; thus, 2011 was used as the baseline for the EIR as this represents the last full year of available data. The air quality analysis conducted for the proposed Project addresses construction-related impacts for the approximately two years of proposed construction activities, and operations-related impacts for the future horizon year of 2015.

Analyses for the following scenarios were conducted in the EIR:

- Baseline
  - Without Project – the baseline with 2011 activity levels
  - With Project – including the proposed Project with 2011 activity levels
- Future 2015
  - Without Project – the baseline with 2015 activity levels
  - With Project – including the proposed Project with 2015 activity levels

4.1.1.2 Types of Analysis

Below is an overview of the types of analyses performed for the EIR, including the emissions inventory and localized dispersion modeling. A detailed approach including technical assumptions, methodologies, databases, and models used to conduct the air quality analysis can be found in Sections 4.1.2 and 4.1.3.

4.1.1.2.1 Inventory

Criteria pollutant emission inventories were developed for the projected construction period of the proposed Project, anticipated to occur in 2014 and 2015. The basic construction inventory process steps are summarized below:

- Identify construction-related emissions sources associated with the proposed Project.
- Capture construction activities of site-preparation, construction of paved and concrete surface, material delivery, and construction employee commuter trips.
- Prepare emissions inventory of construction emissions for both construction years.
- Compare emissions inventories with appropriate CEQA thresholds for construction.
- Identify potential construction-related mitigation measures beyond LAX Master Plan commitments and mitigation measures (if required).

4.1.1.2.2 Dispersion Modeling

Air dispersion modeling was conducted to predict pollutant concentrations for construction sources, including the 2015 Without Project and 2015 Runway Closure (construction) scenarios. Basic components of dispersion modeling include inputting inventory data, meteorological data, and receptor locations into FAA's Emissions and Dispersion Modeling System (EDMS), Version 5.1.3.[18] Incremental concentrations were compared to CEQA Thresholds.

- Receptors were established along the airport fence line and in the CTA.
- Five years of hourly surface data collected at the SCAQMD's on-airport meteorological station at LAX was used in the modeling to determine peak concentrations.
- Background concentration data was obtained from SCAQMD and added to the modeled Project effects to estimate future concentrations associated with the construction of the proposed Project.

4.1.1.2.3 Cumulative impacts

The construction of various ongoing and anticipated future projects at LAX would potentially occur simultaneously with the proposed Project. Emissions for several of these related LAWA projects were estimated or obtained from publicly available and readily accessible environmental documents. The estimated mass emissions from these projects were added to those of the proposed Project and compared against SCAQMD CEQA thresholds.

4.1.2 Emissions Inventory Methodology

The criteria pollutant emission inventories were developed using standard industry software/models and federal, State, and locally approved methodologies. Results of the

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[18] U.S. Department of Transportation, Federal Aviation Administration, available: www.faa.gov/about/office_org/headquarters_offices/apl/research/models/edms_model/, accessed June 2013.

emission inventories were compared to mass daily emissions thresholds established by SCAQMD for the Basin.

The air quality assessment for the proposed Project was conducted in accordance with the SCAQMD's 1993 CEQA Air Quality Handbook and updates published on the SCAQMD website. Emissions estimating and modeling used in this analysis are consistent with those used in the preparation of the following documents:

- The LAX Master Plan Final EIR;
- The Final General Conformity Determination;
- The Final EIR for the South Airfield Improvement Project (SAIP);
- The Final EIR for the Crossfield Taxiway Project (CFTP);
- The Final EIR for the Bradley West Project; and
- The Final EIR for the LAX Specific Plan Amendment Study (SPAS);

Mass emissions inventories were prepared for construction and operation of the proposed Project. The construction inventories identify the peak year of construction emissions associated with completing the proposed Project between 2014 and 2015. Operational emissions were calculated for the 2011 baseline year (With and Without Project) and for 2015 With and Without the proposed Project. The following section discusses the assumptions associated with each Project-related inventory (construction and operation); cumulative effects are discussed in Section 4.1.4.

4.1.2.1 Construction Sources

This section describes the data and methodologies used to estimate emissions of criteria pollutants (CO, VOC, NO_X, SO_2, PM_{10} and $PM_{2.5}$) generated by construction of the proposed Project.[19] Estimates of construction-related emissions were developed using standard industry methodologies and techniques, and are consistent with methodologies used to estimate construction emissions in support of other EIR documents for projects at LAX. Emissions inventories for construction activity were prepared commensurate with the CEQA thresholds upon which the project were compared, as outlined in Section 2.3.1.

Construction emissions analyses generally require information such as the type of construction equipment to be used, equipment operating time, estimates of required construction material, and the number of employees anticipated to be on site. Resource requirements and activity schedules were developed by the LAX Development Program Team, an integrated team of the LAWA and consultant staff responsible for oversight and program management. This information generally consisted of overall construction Project schedules; construction equipment vehicle specifications; anticipated operating hours, land development areas, and facility areas; and quantities and sources of construction materials.

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[19] Various sources for emission factors used in this analysis may generate emissions of pollutants different from the standard criteria pollutants. For purposes of this analysis in comparing daily emissions to the SCAQMD mass daily significance thresholds, emissions of reactive organic compounds (ROG) and hydrocarbons (HC) are assumed to be equivalent to VOC and emissions of sulfur dioxide (SO_2) are assumed to be equivalent to SO_X.

Using the provided construction data, daily construction emissions estimates were developed based on a 6-day-per-week workweek. These daily emissions were compared against applicable SCAQMD mass daily significance thresholds. Annual emissions were based on the daily emissions estimates.

Emission estimates for criteria pollutants were developed for the following construction sources:

- Off-road construction equipment
- On-road construction equipment
- Construction worker commute vehicles and delivery/haul trucks
- Fugitive Dust
- Fugitive VOCs
- Aircraft Operations during Construction

Detailed data and calculations used to estimate criteria pollutant emissions generated from construction activities are provided in **Attachment B.1**.

Off-Road Construction Equipment

Off-road construction equipment includes dozers, loaders, sweepers, and other heavy-duty construction equipment that operates on a construction site, but are not licensed to travel on public roadways. Off-road equipment emissions were calculated as shown in **Equation 4-1**.

Equation 4-1

Off-Road On-Site Equipment Emissions

$$E = HP \times L \times H \times e \times EF$$

Where:

E = emissions (lb/month)

HP = horsepower

L = load factor

H = total hours per month of equipment operation

e = usage factor

EF = emission factor (lb/hp-hr)

Source: Ricondo & Associates, Inc., 2013.

Off-road equipment types, models, horsepower, load factor, and estimated hours of operation were established based on each construction task. Monthly hours of operation for a given piece of equipment were derived by multiplying operating hours per shift (assumed to be 10 hours for most equipment types), by the number of pieces of equipment assigned to a specific construction activity, and by the number of workdays in the month, assuming a 6-day-per-week workweek. A usage factor was applied to each equipment type derived from the OFFROAD2007 model. Emission factors for off-road equipment were obtained from several sources, as shown in **Table 4-1**.

Table 4-1

Construction Sources Pollutant and Model Summary

Construction Source	Pollutant(s)	Model/Reference
Off-Road Equipment	CO, SO_2	OFFROAD2007[1]
	VOC, NO_X, PM_{10}	OFFROAD2011[2] and USEPA tiered emissions standards[3]
	$PM_{2.5}$	CEIDARS[4]
On-Road On-Site Equipment	CO, VOC, NO_X, PM_{10}	EMFAC2011[5]
On-Road Off-Site Equipment	CO, VOC, NO_X, PM_{10}	EMFAC2011
Fugitive Dust	PM_{10}, $PM_{2.5}$	USEPA AP-42[6]
Fugitive VOCs	VOC	CalEEMod[7]
Aircraft Operations during Construction	CO, VOC, NO_X, SO_2, PM_{10}, $PM_{2.5}$	EDMS[8]

Notes:

1 California Air Resources Board, OFFROAD2007 Model, available: www.arb.ca.gov/msei/offroad/offroad.htm

2 California Air Resources Board, 2011 Inventory Model for In-Use Off-Road Equipment, available: www.arb.ca.gov/msei/categories.htm#offroad_motor_vehicles

3 South Coast Air Quality Management District off-road engine emission rates, available: www.aqmd.gov/ceqa/handbook/mitigation/**offroad**/TableII.xls

4 California Air Resources Board, California Emission Inventory and Reporting System (CEIDARS) – Particulate Matter Speciation Profiles – Summary of Overall Size Fractions and Reference Documentation.

5 California Air Resources Board, Research Division, EMFAC2011 On-Road Emissions Inventory Estimation Model.

6 U.S. Environmental Protection Agency, Compilation of Air Pollutant Emission Factors, Fifth Edition, Volume 1: Stationary Point and Area Sources (dates vary by chapter).

7 South Coast Air Quality Management District, California Emissions Estimator Model, prepared by ENVIRON International Corporation, available: http://www.caleemod.com/

8 U.S. Department of Transportation, Federal Aviation Administration, available: www.faa.gov/about/office_org/headquarters_offices/apl/research/models/edms_model/, accessed October 2013.

Source: Ricondo & Associates, Inc., 2013.

For CO and SO_2, emission factors were obtained from CARB's OFFROAD2007 emission factor model.[20] The model was run for the 2014 construction year; this is a conservative assumption as later years would have lower emissions rates. For each construction equipment type, the model generates emissions in tons per day for several horsepower ranges/bins. For each equipment type and horsepower bin combination, the emissions in tons per day were multiplied by 2,000 (pounds per ton) and divided by activity (hours per day), load factor (from the OFFROAD2007 data file), and average horsepower (from the OFFROAD2007 data file). Using this methodology, an emission factor in pounds per horsepower-hour (lb/hp-hr) was derived for each equipment type by horsepower bin. The emission factor applied to a given piece of equipment was then selected based on the horsepower of the equipment. It should be noted that the OFFROAD2007 model does not include every specific type of equipment assumed for construction of the proposed Project. Where necessary, specific equipment types were matched with an equivalent/representative OFFROAD2007 equipment type for purposes of selecting an appropriate emission factor.

Emission factors for VOC, NO_X, and PM_{10} were obtained and used based on construction-related air quality control measures developed for LAX. All off-road diesel-powered construction equipment greater than 50 horsepower was assumed to meet USEPA Tier 4 off-road emission standards for these pollutants. These emissions standards are reflected in emission factors reported in grams per horsepower-hour (g/hp-hr) for various horsepower ranges. The factors were converted to lb/hp-hr for emissions calculation purposes.

CARB's OFFROAD2011 emission factor model was used for deriving emission factors of VOC, NO_X, and PM_{10} for off-road construction equipment less than 50 horsepower. The computation of emission factors from OFFROAD2011 was performed essentially identical to the methodology described previously for deriving emission factors from OFFROAD2007.

$PM_{2.5}$ emission factors were derived using the PM_{10} emission factors and $PM_{2.5}$ size profiles derived from the CARB-approved CEIDARS database. In this case, a factor of 0.92 was applied to PM_{10} emission factors to derive $PM_{2.5}$ emission factors. This factor represents the size fraction of PM_{10} emissions that can be assumed to be $PM_{2.5}$ emissions with respect to diesel vehicle exhaust.

On-Road Construction Equipment

On-road on-site equipment emissions were generated for on-site pickup trucks, water trucks, haul trucks, dump trucks, cement trucks, and flatbed trucks that are licensed to travel on public roadways. **Equation 4-2** was used to calculate emissions from on-road on-site equipment. Emissions from on-road vehicles are calculated by applying an emission factor to the number of miles traveled by each vehicle per day. A usage factor was applied to each equipment type derived from the OFFROAD2007 model.

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[20] For gasoline powered off-road construction equipment, emission factors for all criteria would have been derived from OFFROAD2007, as the other emission factor sources described in this section pertain only to diesel-powered equipment. For purposes of this analysis, no gasoline powered off-road construction equipment was assumed.

Equation 4-2

On-Road Off-Site Equipment Emissions

$$E = VMT \times EF$$

Where:

E = emissions (lb/day)

VMT = vehicle miles traveled per day

EF = emission factor (lb/mi)

Source: Ricondo & Associates, Inc., 2013.

Emissions factors for all criteria pollutants (including $PM_{2.5}$) for on-road construction equipment were obtained from CARB's EMFAC2011 emission factor model. The EMFAC2011 model was run for the annual 2014 construction year.

EMFAC2011 contains a comprehensive list of vehicle categories. For this analysis, haul trucks, water trucks, cement trucks, end dump trucks, and flatbed trucks were assumed to be represented by the T7 tractor construction (diesel) EMFAC2011 vehicle category. This category is defined as heavy-heavy duty diesel single unit construction trucks. In accordance with construction-related air quality control measures developed for LAX, emission factors for these vehicles were modeled for model year 2007 and greater vehicles to represent compliance with USEPA 2007 on-road emissions standards. On-site pickup trucks were assumed to be represented by the LHD2 (gasoline) EMFAC2011 vehicle category, which is defined as light-heavy-duty trucks (10,001-140,000 lbs.).

For diesel vehicles, the EMFAC2011 factors account for running and idling emissions for all pollutants. Running emissions are expressed in grams per mile (g/mi), while idling emissions are expressed in grams per hour (g/hr). All emission factors for on-site gasoline vehicles were converted to g/mi and then converted to lb/hr by applying a grams-to-pound conversion factor and assuming an on-site vehicle speed of 20 mph.

Construction Worker Commute Vehicles and Delivery/Haul Trucks

On-road off-site trips include personal vehicles used by construction workers to access the construction site, as well as hauling trips for the transport of various materials to and from the site. The calculation for construction worker commuter vehicles and delivery/haul trucks is similar the same as that of on-site on-road vehicles, as shown in Equation 4-2.

Emission factors for on-road off-site vehicles were obtained from EMFAC2011 in the same way as described previously for on-road on-site vehicles, although emission factors were used in units of g/mi and applied to the VMT estimates to calculate total emissions. Emission factors were obtained assuming speeds associated with the trip type: employee vehicles had an assumed speed of 40 mph and delivery trips a speed of 35 mph.

The number of construction workers per crew per shift was calculated by the LAX Development Team. Total monthly construction workers for a given activity were calculated by multiplying the number of workers per crew by the number of working days in the month, assuming a 6-day-per-week workweek. Total monthly workers were converted to monthly vehicle trips by assuming a factor of 1.12 workers per vehicle per trip. Monthly VMT for construction worker vehicles was then calculated by multiplying the number of monthly vehicle trips by an assumed roundtrip distance of 26.6 miles. Construction worker vehicles were assumed to be all passenger cars (EMFAC2011 vehicle category LDA).

Off-site delivery trips include the delivery of construction materials, concrete, asphalt, and base material to the construction site; hauling trips include the hauling of excess cut/fill material and demolished pavement. The calculation of monthly VMT for on-road on-site hauling trips was based on quantities developed by the LAX Development Team. Trips for hauling vehicles were calculated over the course of the entire project and were divided by the number of days that the trips would take place over the course of the year for each construction activity in order to calculate daily VMT.

This vehicle mix is identified in CalEEMod as an option for modeling emissions from construction worker vehicles and represents a reasonable vehicle mix for such trips. For off-site hauling trips, the T-7 single construction EMFAC2011 vehicle category was assumed for all vehicles.

Fugitive Dust

Additional sources of PM_{10} and $PM_{2.5}$ emissions associated with construction activities are related to fugitive dust. Fugitive dust includes re-suspended road dust from both off- and on-road vehicles, as well as dust from grading, loading, unloading, and other activities.

Fugitive dust emissions (PM_{10} and $PM_{2.5}$) were calculated using the guidance from the USEPA's AP-42, the SCAQMD's CEQA Air Quality Handbook, and documentation associated with CalEEMod. The EPA provides a worst-case uncontrolled PM_{10} emissions rate of 38.2 pounds per acre-day. This emissions rate was used to calculate uncontrolled PM_{10} emissions using construction task acreage assumptions, as well as construction task durations. Notably, CARB specifies in the CalEEMod model that a maximum of 25 percent of this acreage would be disturbed on any given construction day, and that 20 percent of the PM_{10} emissions would occur as $PM_{2.5.}$ Emissions were calculated by multiplying this by the estimated disturbed area per construction phase. Fugitive dust emissions were calculated for the following construction activities:

- Vehicles traveling on paved roads. All off-site on-road vehicles are assumed to travel on paved roads.
- Vehicles traveling on unpaved roads. All on-road on-site vehicles are assumed to travel on unpaved roads.
- On-site construction activities, including: grading, loading, hauling and storage.

Water, as required under LAWA construction contracts and also being one of the main dust suppression measures recognized in SCAQMD Rule 402, was assumed to reduce fugitive dust emissions by 61 percent.

Fugitive VOCs

The primary source of construction-related fugitive VOC emissions is hot-mix asphalt paving. VOC emissions from asphalt paving operations result from evaporation of the petroleum distillate solvent, or diluent, used to liquefy asphalt cement. Based on the CARB default data contained within CalEEMod, an emission factor of 2.62 pounds of VOC (from asphalt curing) per acre of asphalt material was used to determine VOC emissions from asphalt paving. The only construction activities assumed to include significant asphalt paving is the pavement rehabilitation west of Air Freight Building No. 8, the 7L blast pad, and the reconfiguration of new service roads.

Aircraft Operations during Construction

To allow for the rehabilitation of portions of the Runway 7L/25R pavement, the runway must be temporarily closed for a period of time estimated at 3.5 months. During this time, the aircraft operations from this runway must be accommodated through the use of other runways at LAX. This shift in operations may cause airfield and/or airspace delays resulting in increased arrival and departure taxi times. An increase in taxi travel times can result in increased emissions.

To determine the taxi times during the runway closure period, real-time ASDE-X data from LAX was used from a period of seven days in 2013 for which Runway 7L/25R was closed due to the installation of runway status lights. Based on conversations with FAA air traffic controllers at LAX, this historical data would be a reasonable indicator of operations with the runway closure required for the proposed improvements. The taxi-in and taxi-out times for arrivals and departures were averaged over the period for which the runway was closed (January 26, 2013 – February 2, 2013) and when the runway was operating (January 1, 2013 – January 25, 2013; February 3, 2013 – March 31, 2013). The resulting difference in taxi times were added to the 2015 Without Project taxi times as shown in **Table 4-2** to establish the construction period taxi times for the runway closure period. The 2015 Without Project data was adjusted for the runway closure period taxi times. Annual emissions for the runway closure, and normal operations, were then normalized based on a 110-day closure. With the exception of aircraft taxi times, aircraft times in mode (i.e., approach, climbout, and takeoff) do not change during the runway closure period.

Table 4-2

Assumed Taxi Times During Runway Closure

		Taxi-In Time (minutes)		Taxi-Out Time (minutes)	
Year	**Operations**	**Without Project**	**During Runway Closure**	**Without Project**	**During Runway Closure**
2015	637,903	9.0	9.80	14.40	15.98

Source: FAA, Terminal Area Forecast, 2012; FAA, FAA's Aviation System Performance Metrics (ASPM) database for January 1, 2013 through March 31, 2013; ASDE-X radar data from ATAC Corporation, June 2013; URS Corporation, 2013; Ricondo & Associates, Inc., 2013.

4.1.2.2 Operational Sources

This section describes the data and methodologies used to estimate emissions of criteria pollutants (CO, VOC, NO_X, SO_2, PM_{10}, and $PM_{2.5}$) associated with the ongoing operations of the airport. In the context of CEQA, operational emissions provide an indication of the changes in emissions that completing and operating the proposed Project would have when comparing operational emissions without the proposed Project. As noted, neither the fleet composition nor operational levels of aircraft serving LAX would change as a result of the proposed Project, the only difference in emissions between the With and Without Project scenarios is attributable to the change in taxi time as a result of the Runway 7L extension. Therefore, sources for this analysis were limited to aircraft.

Estimates of operational emissions were developed for the proposed Project using standard industry methodologies and techniques, and are consistent with methodologies used to estimate operational emissions in support of other EIR documents for projects at LAX. Detailed data and calculations used to estimate criteria pollutant emissions generated from operational sources are provided in **Attachment B.4**.

Emissions for the 2011 With and Without Project conditions and 2015 With and Without Project scenarios were calculated using EDMS. EDMS was used as the primary model in developing airport emissions inventories for previous LAX EIR analyses, including the TBIT EIR and the SPAS Final EIR. EDMS inputs for the aircraft inventory are based on the following assumptions:

- Default time-in-mode for all modes except taxi/idle/delay (TAD).
- TAD time-in-mode taken from the respective arrival and departure times for each modeled scenario.
- Climbout, takeoff, and approach were adjusted to reflect the mixing height for LAX, 1,806 feet, rather than the default of 3,000 feet.
- Aircraft engine assignments based on JP Fleet data as available. Otherwise, default assignments were used.
- Annual aircraft operations based on the FAA 2011 TAF.

4.1.3 Dispersion Modeling Methodology

The proposed Project would not increase aircraft operational levels as compared to the existing conditions. A minimal increase of 0.01 minutes in the taxi time out would result in a small incremental increase in emissions associated with the operational phase that would not substantially increase air pollutant concentrations at sensitive receptors proximate to the Airport. Therefore, impacts related to operational localized concentrations would be less than significant. The following methodology pertains to localized concentrations for construction sources.

General Approach

The project-specific air quality modeling of localized construction impacts was conducted consistent with SCAQMD methodology. The USEPA and SCAQMD-approved dispersion model, AMS/EPA Regulatory Model (AERMOD), was used to model the air quality impacts of NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$ emissions. AERMOD can estimate the air quality impacts of single or multiple point, area, or volume sources using historical meteorological conditions.

Volume sources are three-dimensional sources of emissions that can be used to model releases from a variety of industrial uses, including moving diesel trucks and equipment; they were used to represent the emissions from trucks, heavy-duty construction equipment, and fugitive dust. Although the SCAQMD calculated PM_{10} deposition when it developed its mass emission LSTs, this analysis did not calculate PM_{10} deposition as a conservative approach. For the purpose of the dispersion modeling, the maximum daily emissions that could occur due to construction activities from all construction phases were selected for the LST analysis.

The general approach used for construction dispersion modeling is as follows:

1. Emission rates were established for the peak month of construction for each pollutant.[21] The maximum lbs/day were computed based on a peak month average day over the entire construction period. It was assumed that an average workday would result in 10 hours of emissions-generating activity. Therefore, the maximum daily emissions were divided by 10 to convert the maximum daily emissions into emission rates in units of pounds per hour. These emissions were then converted to grams/second.
2. The emissions rate for each construction phase (g/s) was divided by the number of areas for each source to create a series of emission volume sources by task.
3. Release heights were assigned to each source area based on location of exhaust of equipment.
4. Temporal factors were calculated based on the construction schedule and the assumed hours worked per week. As previously discussed, it is assumed there would be 10 work hours per day, and a 6 day workweek.

Detailed data used in dispersion modeling for construction activities are provided in **Attachment B.2**.

AERMOD Settings

The SCAQMD requires that AERMOD be run using USEPA regulatory default options, unless non-default options are justified; therefore, AERMOD was run using USEPA regulatory default options. Additional modeling options are listed below:

- Urban dispersion (Los Angeles County population of 9,862,049, as per SCAQMD guidance);
- Averaging periods: 1-hour (CO and NO_2), 8-hour (CO), 24-hour (PM_{10} and $PM_{2.5}$); Annual (NO_2, PM_{10} and $PM_{2.5}$)
- Flagpole receptor heights: 1.8 meters; and
- No building downwash (no point sources modeled).

Source and Receptor Locations

Construction activities were assumed to be located at the proposed Project site based on sub-tasks, as shown in Figure 2. Operational activities were assumed to be located at the respective on-airport locations for individual sources. Aircraft operations were distributed between the taxiways and runways, as well as on the approach and departure paths.

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[21] Not all sub-tasks/phases of the project fall in the maximum month of construction.

Receptor points are the geographic locations where the air dispersion model calculates air pollutant concentrations. These discrete Cartesian receptors were used to determine air quality impacts in the vicinity of the Project site. Field receptors were placed at the boundary of LAX (along the fence line), as well as at the Theme Building, as shown in **Figure 3**.

Meteorology

The meteorological data from the monitoring station located at the LAX Hastings site was used in the analysis. The meteorological data were obtained from the SCAQMD website, which were preprocessed using AERMET. AERMET is a meteorological preprocessor for organizing available meteorological data into a format suitable for use in the AERMOD air quality dispersion model. These files were also developed by the SCAQMD using site specific surface characteristics (i.e., surface albedo, surface roughness, and Bowen ratio) obtained using AERSURFACE. AERSURFACE is a tool that provides realistic and reproducible surface characteristic values, including albedo, Bowen ratio, and surface roughness length, for input into AERMET. The dataset used consisted of five years of hourly surface data collected at LAX for calendar years 2005 through 2009; the data included ambient temperature, wind speed, wind direction, and atmospheric stability parameters, as well as mixing height parameters from the appropriate upper air station. All five years of meteorological data were analyzed.

Ozone Limiting Method for NO_2 Modeling

AERMOD contains the ozone limiting method (OLM) and Plume Volume Molar Ratio Method (PVMRM) options, which are used to model the conversion of NO_X to NO_2. The OLM option was used in this modeling analysis. The SCAQMD provides hourly O_3 data for modeling conversion of NO_X to NO_2 using the OLM option. In addition, the following values were used in the analysis:

- Ambient Equilibrium NO_2/ NO_X Ratio: 0.90 (default)
- In-stack NO_2/ NO_X Ratio: 0.135[22]
- Default Ozone Value: 40 parts per billion (used only for missing data in the hourly O_3 data file provided by the SCAQMD)

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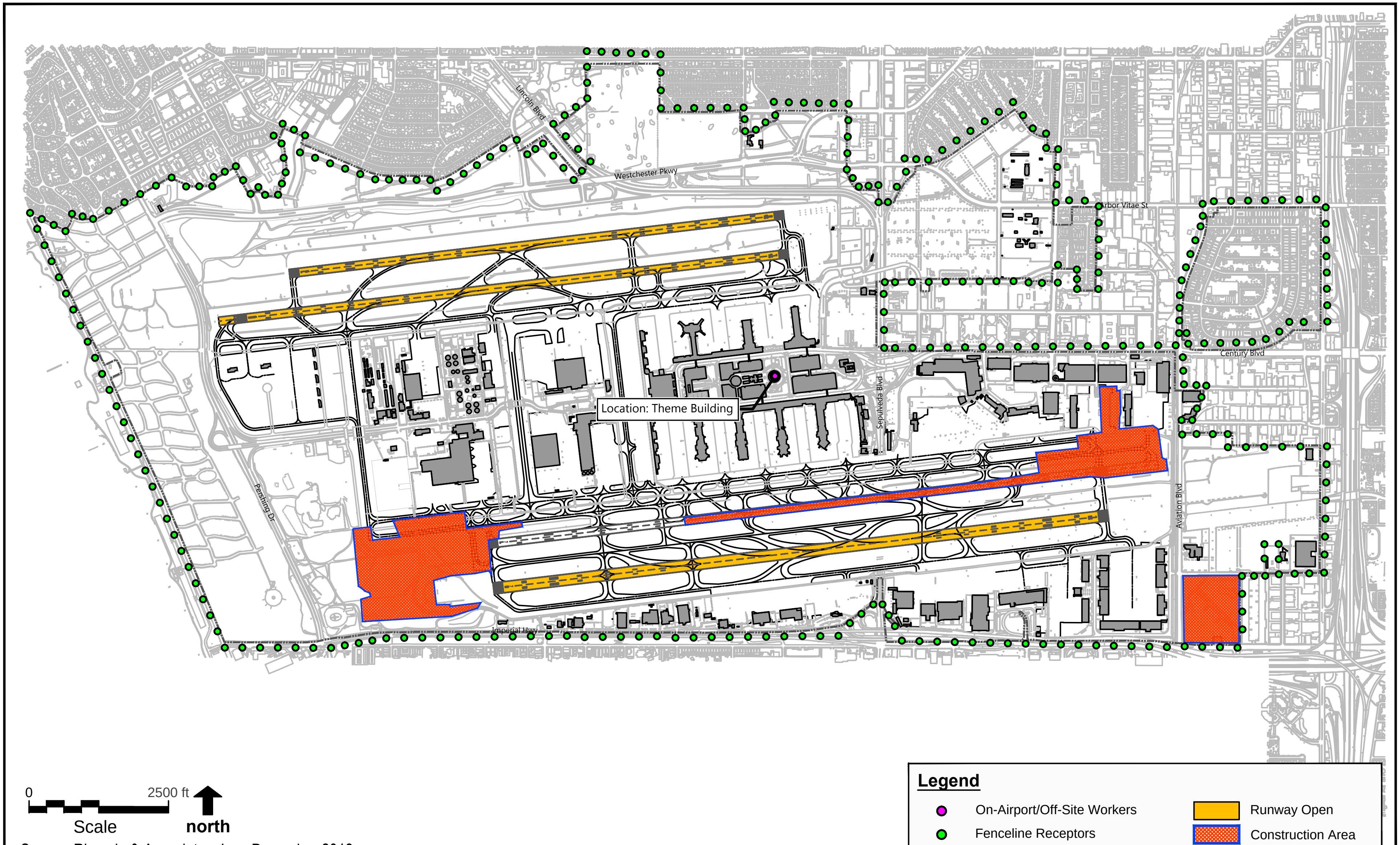
[22] A site-specific NO_2 /NO_X ratio was developed based on the project-specific sources contributing to the top 10% of receptors recording the highest NO_X concentrations.



Source: Ricondo & Associates, Inc., December 2013

Prepared by: Ricondo & Associates, Inc., December, 2013

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Dispersion Receptor Locations

Figure
3

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4.1.4 Cumulative Impacts

For disclosure purposes, a list of past, present, and probable future LAWA projects that could overlap in time for construction are provided below. The projects listed include related LAWA projects planned on the entire LAX property (3,650 acres) and not just the proposed Project site. Emissions for several of these related LAWA projects were estimated or obtained from publicly available and readily accessible environmental documents. Construction emissions for other projects were estimated based on the ratio of the project costs as compared to the proposed Project, the ratio of construction trip intensity, and the ratio of the emissions using the proposed Project as a reference baseline. Calculation details are provided in **Attachment B.3**.

1. West Aircraft Maintenance Area
2. Runway Safety Area Improvements-North Airfield
3. LAX Bradley West Project – Remaining Work
4. T-3 Connector (Part of BWP)
5. North Terminals Major Renovation (T-1)
6. South Terminals Major Renovation (T-5 through T-8)
7. Midfield Satellite Concourse: Phase 1 - North Concourse Project
8. Central Utility Plant Replacement Project – Remaining Work
9. Miscellaneous Projects/Improvements
10. LAX Northside Area Development
11. LAX Master Plan Alt. D/SPAS Alt. 3
12. Metro Crenshaw / LAX Transit Corridor and Station

4.2 Greenhouse Gas Emissions

The greenhouse gas emissions analysis conducted for the proposed Project addresses construction emissions for 2014 and 2015, and operational emissions from 2015. Construction activities analyzed include on-site and off-site construction equipment that would occur during the temporary construction period, estimated to be approximately two years. Operational sources for the proposed Project (2015) GHG analysis included aircraft and ground support equipment.

4.2.1 Construction Sources

In addition to criteria pollutant emissions, construction equipment is a source of GHG emissions. The Project-related construction sources for which GHG emissions were calculated are the same as those calculated for criteria pollutant emissions and include the following:

- Off-Road Construction Equipment
- On-Road Construction Equipment
- Construction Worker Commute Vehicles and Delivery/Haul Trucks

Similar to the methodology used to calculate emissions of criteria pollutants from construction equipment, GHG emissions were calculated on a daily basis assuming a 10 hour work day and a 6-day-per-week.

Detailed data and calculations used to estimate GHG emissions generated from construction activities are provided in **Attachment B.1**.

Off-Road Construction Equipment

In addition to criteria pollutants, OFFROAD2007 provides data for calculating emission factors for GHGs, including CO_2 and CH_4. For off-road on-site equipment, these emission factors were derived and applied using the same methodology described in Section 4.2.2.1 for CO and SO_2. For each equipment type, the appropriate emission factor for CH_4 was multiplied by its global warming potential (21) and added to the appropriate emission factor for CO_2 (with a global warming potential of 1) to calculate an emission factor of CO_{2e} in lb/hp-hr. This emission factor was then multiplied by equipment horsepower, load factor, an efficiency factor, and monthly operating hours, resulting in monthly GHG emissions.

On-Road On-Site Equipment

EMFAC2011 was used to obtain emission factors of CO_2. These emission factors were obtained and applied using the same methodology described in Section 4.2.2.1 for criteria pollutants. CO_2 emission factors obtained from EMFAC2011 and used in this analysis assume Pavley-I and Low Carbon Fuel Standard (LCFS) benefits.

Construction Worker Commute Vehicles and Delivery/Haul Trucks

GHG emission factors and resulting emissions for construction worker commute vehicles and delivery/haul trucks were obtained and applied using the same methodology described in Section 4.2.2.1 for criteria pollutants. Emission factors of CO_2e were calculated using the same methodology described previously for on-road construction equipment, except that emission factors were derived in lb/mi and multiplied by the daily VMT for each equipment type to estimate daily emissions.

Aircraft Operations during Construction

In addition to criteria pollutants, EDMS also provides aircraft CO_2 emissions. Inputs into EDMS were the same as those outlined in Section 4.1.2.2 for criteria pollutants. CH_4 and N_2O emissions are not directly estimated by EDMS; therefore, it was necessary to estimate emissions using other methods. Emissions were calculated using fuel burn (converted from lbs to gallons) from EDMS and emission factors (in g/gal of fuel) from the U.S. Energy Information Administration. Emission factors for CH_4 and N_2O are shown in **Table 4-3**. Once appropriate emissions for CH_4 and N_2O were calculated, $MTCO_2e$ was calculated by taking the sum of CO_2 emissions (multiplied by a global warming potential of 1), the CH_4 emissions (multiplied by a global warming potential of 21) and the N_2O emissions (multiplied by a global warming potential of 310).

Table 4-3

Jet Fuel GHG Emission Factors

Fuel Type	CH_4 (g/gal fuel)	N_20 (g/gal fuel)
Jet Fuel	0.27	0.31

Source: U.S. Energy Information Administration, "Voluntary Reporting of Greenhouse Gases Program Fuel Emission Coefficients," January 31, 2011, available: www.eia.gov/oiaf/1605/coefficients.html#tbl7.

4.2.2 Operational Sources

In addition to criteria pollutant emissions, operations are also a source of GHG emissions. The Project-related operational sources for which GHG emissions were calculated are the same as those calculated for criteria pollutant emissions and only include aircraft. Inputs into EDMS were the same as those outlined in Section 4.2.2.2 for criteria pollutants, and the methodology is the same as that outlined in section 4.2.1. Detailed data and calculations used to estimate GHG emissions generated from operational sources are provided in **Attachment B.4**.

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Appendix B (Air Quality and Greenhouse Gases)

Air Quality and Greenhouse Gas Assessment Files
Provided by Ricondo & Associates
December 2013

B.1 Construction – Criteria Pollutant and Greenhouse Gas Emissions Calculations

B.2 Construction – Localized Significance Thresholds (LST) Dispersion Modeling

B.3 Construction – Cumulative Emissions Analysis

B.4 Operations – Criteria Pollutant and Greenhouse Gas Emissions Calculations

Attachment B.1

Construction – Criteria Pollutant and Greenhouse Gas Emissions Calculations

- Criteria Pollutants and GHGs – Off-Road Emissions
  - 2007 Off-Road Emissions
  - 2011 Off-Road Emissions
- Criteria Pollutants and GHGs – On-Road Emissions
  - EMFAC 2011 Vehicle Emissions
- Activities, Crew, Equipment, and Schedule
  - Equipment Emissions Data
  - Emissions by Activity
  - Emissions by Crew
  - Emission Quantities by Phase
  - Hauling Emissions
  - Building Wrecking
  - Fugitive Dust Emissions
  - Paint Emissions
  - Pavement Crushing Emissions
- Monthly Emissions Summary

Attachment B.1

Construction – Criteria Pollutant and Greenhouse Gas Emissions Calculations

- Criteria Pollutants and GHGs – Off-Road Emissions
    - 2007 Off-Road Emissions
    - 2011 Off-Road Emissions

2007 OFF-ROAD EMISSIONS

								grams/bhp-hr							
CY	Season	AvgDays	Code	Equipment	Fuel		MaxHP	ROG Exhaust	CO Exhaust	NOX Exhaust	CO2 Exhaust	SO2 Exhaust	PM Exhaust	N2O Exhaust	CH4 Exhaust
2013	Annual	Mon-Sun	8.61E+13	Pavers	D	Pavers	25	0.45	1.45	2.72	338.56	0.00	0.14	-	0.04
2013	Annual	Mon-Sun	8.61E+13	Pavers	D	Pavers	50	1.24	3.26	2.67	253.92	0.00	0.28	-	0.11
2013	Annual	Mon-Sun	8.61E+13	Pavers	D	Pavers	120	0.52	1.91	3.16	261.56	0.00	0.28	-	0.05
2013	Annual	Mon-Sun	8.61E+13	Pavers	D	Pavers	175	0.46	2.02	3.57	332.51	0.00	0.20	-	0.04
2013	Annual	Mon-Sun	8.61E+13	Pavers	D	Pavers	250	0.38	1.10	3.53	352.66	0.00	0.14	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Pavers	D	Pavers	500	0.21	0.84	1.91	211.60	0.00	0.07	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Plate Compactors	D	Plate Compactors	15	0.15	0.80	0.95	130.45	0.00	0.04	-	0.01
2013	Annual	Mon-Sun	8.61E+13	Rollers	D	Rollers	15	0.22	1.17	1.39	191.12	0.00	0.05	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Rollers	D	Rollers	25	0.29	1.00	1.86	242.09	0.00	0.07	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Rollers	D	Rollers	50	0.93	2.64	2.34	235.72	0.00	0.22	-	0.08
2013	Annual	Mon-Sun	8.61E+13	Rollers	D	Rollers	120	0.37	1.54	2.36	222.97	0.00	0.20	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Rollers	D	Rollers	175	0.32	1.61	2.62	280.31	0.00	0.14	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Rollers	D	Rollers	250	0.23	0.71	2.38	277.76	0.00	0.08	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Rollers	D	Rollers	500	0.15	0.57	1.53	198.77	0.00	0.05	-	0.01
2013	Annual	Mon-Sun	8.61E+13	Scrapers	D	Scrapers	120	0.71	2.62	4.21	354.94	0.00	0.37	-	0.06
2013	Annual	Mon-Sun	8.61E+13	Scrapers	D	Scrapers	175	0.54	2.36	4.03	383.80	0.00	0.23	-	0.05
2013	Annual	Mon-Sun	8.61E+13	Scrapers	D	Scrapers	250	0.41	1.16	3.72	380.06	0.00	0.14	-	0.04
2013	Annual	Mon-Sun	8.61E+13	Scrapers	D	Scrapers	500	0.29	1.10	2.57	291.60	0.00	0.10	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Scrapers	D	Scrapers	750	0.33	1.26	3.02	335.83	0.00	0.12	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Paving Equipment	D	Paving Equipment	25	0.28	0.94	1.76	229.12	0.00	0.07	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Paving Equipment	D	Paving Equipment	50	1.06	2.77	2.28	217.06	0.00	0.24	-	0.10
2013	Annual	Mon-Sun	8.61E+13	Paving Equipment	D	Paving Equipment	120	0.41	1.50	2.48	206.00	0.00	0.22	-	0.04
2013	Annual	Mon-Sun	8.61E+13	Paving Equipment	D	Paving Equipment	175	0.36	1.58	2.80	261.85	0.00	0.16	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Paving Equipment	D	Paving Equipment	250	0.23	0.68	2.21	221.88	0.00	0.08	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Surfacing Equipment	D	Surfacing Equipment	50	0.43	1.27	1.23	127.98	0.00	0.11	-	0.04
2013	Annual	Mon-Sun	8.61E+13	Surfacing Equipment	D	Surfacing Equipment	120	0.37	1.59	2.47	241.03	0.00	0.20	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Surfacing Equipment	D	Surfacing Equipment	175	0.23	1.23	2.01	222.32	0.00	0.10	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Surfacing Equipment	D	Surfacing Equipment	250	0.19	0.61	2.03	244.70	0.00	0.07	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Surfacing Equipment	D	Surfacing Equipment	500	0.14	0.58	1.51	200.68	0.00	0.05	-	0.01
2013	Annual	Mon-Sun	8.61E+13	Surfacing Equipment	D	Surfacing Equipment	750	0.15	0.61	1.61	209.89	0.00	0.05	-	0.01
2013	Annual	Mon-Sun	8.61E+13	Signal Boards	D	Signal Boards	15	0.22	1.14	1.36	186.57	0.00	0.05	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Signal Boards	D	Signal Boards	50	1.04	3.14	3.10	328.32	0.00	0.27	-	0.09
2013	Annual	Mon-Sun	8.61E+13	Signal Boards	D	Signal Boards	120	0.44	1.97	2.95	303.18	0.00	0.24	-	0.04
2013	Annual	Mon-Sun	8.61E+13	Signal Boards	D	Signal Boards	175	0.40	2.16	3.46	400.57	0.00	0.18	-	0.04
2013	Annual	Mon-Sun	8.61E+13	Signal Boards	D	Signal Boards	250	0.30	0.97	3.62	463.19	0.01	0.11	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Trenchers	D	Trenchers	15	0.30	1.56	1.87	255.96	0.00	0.07	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Trenchers	D	Trenchers	25	0.72	2.46	4.56	597.25	0.01	0.18	-	0.07
2013	Annual	Mon-Sun	8.61E+13	Trenchers	D	Trenchers	50	1.42	3.70	3.11	298.63	0.00	0.32	-	0.13
2013	Annual	Mon-Sun	8.61E+13	Trenchers	D	Trenchers	120	0.48	1.77	2.97	245.30	0.00	0.25	-	0.04
2013	Annual	Mon-Sun	8.61E+13	Trenchers	D	Trenchers	175	0.51	2.24	4.02	372.98	0.00	0.22	-	0.05
2013	Annual	Mon-Sun	8.61E+13	Trenchers	D	Trenchers	250	0.43	1.29	4.08	404.42	0.00	0.16	-	0.04
2013	Annual	Mon-Sun	8.61E+13	Trenchers	D	Trenchers	500	0.27	1.18	2.58	282.41	0.00	0.10	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Trenchers	D	Trenchers	750	0.34	1.48	3.31	354.94	0.00	0.13	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Bore/Drill Rigs	D	Bore/Drill Rigs	15	0.36	1.91	2.28	312.85	0.00	0.09	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Bore/Drill Rigs	D	Bore/Drill Rigs	25	0.35	1.19	2.22	290.09	0.00	0.09	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Bore/Drill Rigs	D	Bore/Drill Rigs	50	0.26	2.07	2.33	281.56	0.00	0.11	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Bore/Drill Rigs	D	Bore/Drill Rigs	120	0.17	1.78	1.73	291.52	0.00	0.10	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Bore/Drill Rigs	D	Bore/Drill Rigs	175	0.18	1.95	1.80	365.66	0.00	0.08	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Bore/Drill Rigs	D	Bore/Drill Rigs	250	0.14	0.62	1.38	341.29	0.00	0.04	-	0.01
2013	Annual	Mon-Sun	8.61E+13	Bore/Drill Rigs	D	Bore/Drill Rigs	500	0.12	0.50	1.06	282.41	0.00	0.03	-	0.01
2013	Annual	Mon-Sun	8.61E+13	Bore/Drill Rigs	D	Bore/Drill Rigs	750	0.16	0.66	1.41	372.00	0.00	0.04	-	0.01
2013	Annual	Mon-Sun	8.61E+13	Bore/Drill Rigs	D	Bore/Drill Rigs	1000	0.19	0.76	2.70	421.06	0.00	0.07	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Excavators	D	Excavators	25	0.36	1.23	2.27	298.28	0.00	0.09	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Excavators	D	Excavators	50	0.74	2.58	2.23	226.96	0.00	0.19	-	0.07
2013	Annual	Mon-Sun	8.61E+13	Excavators	D	Excavators	120	0.41	1.96	2.57	278.29	0.00	0.22	-	0.04
2013	Annual	Mon-Sun	8.61E+13	Excavators	D	Excavators	175	0.31	1.73	2.32	290.87	0.00	0.13	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Excavators	D	Excavators	250	0.23	0.64	2.06	287.91	0.00	0.07	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Excavators	D	Excavators	500	0.16	0.48	1.34	212.04	0.00	0.05	-	0.01
2013	Annual	Mon-Sun	8.61E+13	Excavators	D	Excavators	750	0.17	0.53	1.53	234.30	0.00	0.05	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Concrete/Industrial Saws	D	Concrete/Industrial Saws	25	0.36	1.23	2.28	298.97	0.00	0.09	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Concrete/Industrial Saws	D	Concrete/Industrial Saws	50	0.87	2.65	2.59	274.05	0.00	0.22	-	0.08
2013	Annual	Mon-Sun	8.61E+13	Concrete/Industrial Saws	D	Concrete/Industrial Saws	120	0.40	1.83	2.70	280.28	0.00	0.22	-	0.04
2013	Annual	Mon-Sun	8.61E+13	Concrete/Industrial Saws	D	Concrete/Industrial Saws	175	0.41	2.26	3.53	415.23	0.00	0.18	-	0.04
2013	Annual	Mon-Sun	8.61E+13	Cement and Mortar Mixers	D	Cement and Mortar Mixers	15	0.23	1.17	1.42	191.12	0.00	0.06	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Cement and Mortar Mixers	D	Cement and Mortar Mixers	25	0.49	1.47	2.74	318.53	0.00	0.15	-	0.04
2013	Annual	Mon-Sun	8.61E+13	Cranes	D	Cranes	50	0.92	2.62	2.17	210.35	0.00	0.22	-	0.08
2013	Annual	Mon-Sun	8.61E+13	Cranes	D	Cranes	120	0.35	1.37	2.08	189.56	0.00	0.19	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Cranes	D	Cranes	175	0.27	1.25	2.01	208.25	0.00	0.12	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Cranes	D	Cranes	250	0.19	0.53	1.80	203.50	0.00	0.06	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Cranes	D	Cranes	500	0.14	0.48	1.29	163.39	0.00	0.05	-	0.01
2013	Annual	Mon-Sun	8.61E+13	Cranes	D	Cranes	750	0.16	0.54	1.49	183.28	0.00	0.05	-	0.01
2013	Annual	Mon-Sun	8.61E+13	Cranes	D	Cranes	9999	0.04	0.15	0.47	44.03	0.00	0.01	-	0.00
2013	Annual	Mon-Sun	8.61E+13	Graders	D	Graders	50	0.98	2.96	2.52	249.82	0.00	0.24	-	0.09
2013	Annual	Mon-Sun	8.61E+13	Graders	D	Graders	120	0.47	2.01	2.92	283.36	0.00	0.26	-	0.04
2013	Annual	Mon-Sun	8.61E+13	Graders	D	Graders	175	0.38	1.90	2.90	321.20	0.00	0.16	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Graders	D	Graders	250	0.27	0.79	2.57	312.28	0.00	0.09	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Graders	D	Graders	500	0.17	0.57	1.53	208.18	0.00	0.06	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Graders	D	Graders	750	0.24	0.80	2.21	293.77	0.00	0.08	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Off-Highway Trucks	D	Off-Highway Trucks	175	0.37	1.96	2.67	324.22	0.00	0.16	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Off-Highway Trucks	D	Off-Highway Trucks	250	0.25	0.70	2.25	302.17	0.00	0.07	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Off-Highway Trucks	D	Off-Highway Trucks	500	0.20	0.58	1.62	247.06	0.00	0.06	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Off-Highway Trucks	D	Off-Highway Trucks	750	0.21	0.62	1.81	267.16	0.00	0.06	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Off-Highway Trucks	D	Off-Highway Trucks	1000	0.25	0.76	2.71	283.37	0.00	0.08	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Crushing/Proc. Equipment	D	Crushing/Proc. Equipment	50	1.58	4.54	3.95	399.30	0.01	0.38	-	0.14
2013	Annual	Mon-Sun	8.61E+13	Crushing/Proc. Equipment	D	Crushing/Proc. Equipment	120	0.53	2.18	3.23	314.27	0.00	0.29	-	0.05

		grams/bhp-hr							
	MaxHP	ROG Exhau	CO Exhaust	NOX Exhau	CO2 Exhau	SO2 Exhaus	PM Exhaus	N2O Exhau	CH4 Exhaust
Bore/Drill Rigs	15	0.364169	1.910214	2.280565	312.8458	0.004868	0.088481	0	0.032858386
Bore/Drill Rigs	25	0.350892	1.194472	2.22425	290.0934	0.003681	0.089062	0	0.031660457
Bore/Drill Rigs	50	0.262179	2.069901	2.329711	281.5612	0.00364	0.108617	0	0.023655959
Bore/Drill Rigs	120	0.168814	1.775739	1.73241	291.5155	0.00342	0.097203	0	0.015231848
Bore/Drill Rigs	175	0.182366	1.953823	1.796392	365.6638	0.004114	0.078163	0	0.016454548
Bore/Drill Rigs	250	0.144164	0.622109	1.384645	341.2863	0.00384	0.040058	0	0.013007714
Bore/Drill Rigs	500	0.117446	0.500469	1.062901	282.4143	0.002772	0.032768	0	0.010596949
Bore/Drill Rigs	750	0.155234	0.659216	1.414738	372.002	0.00374	0.043315	0	0.014006481
Bore/Drill Rigs	1000	0.189006	0.756447	2.703645	421.0617	0.004234	0.07009	0	0.017053679
Cement and Mortar Mixers	15	0.225079	1.166967	1.420221	191.1203	0.002974	0.064517	0	0.020308482
Cement and Mortar Mixers	25	0.490608	1.474363	2.739398	318.5339	0.004042	0.150844	0	0.044266808
Concrete/Industrial Saws	25	0.360802	1.231009	2.28097	298.9668	0.003793	0.08844	0	0.032554572
Concrete/Industrial Saws	50	0.866311	2.647329	2.593026	274.0529	0.003543	0.223739	0	0.078165896
Concrete/Industrial Saws	120	0.402477	1.828138	2.704297	280.2815	0.003288	0.222739	0	0.036314888
Concrete/Industrial Saws	175	0.406643	2.255328	3.528473	415.2318	0.004672	0.182968	0	0.036690745
Cranes	50	0.9207	2.623269	2.171996	210.3461	0.002719	0.217113	0	0.083073265
Cranes	120	0.347364	1.367511	2.082159	189.5561	0.002224	0.186298	0	0.031342064
Cranes	175	0.267352	1.249602	2.013727	208.2497	0.002343	0.115398	0	0.02412278
Cranes	250	0.188757	0.534817	1.804955	203.4978	0.00229	0.06367	0	0.017031243
Cranes	500	0.140691	0.480063	1.290984	163.3851	0.001604	0.047023	0	0.012694281
Cranes	750	0.158716	0.538238	1.486233	183.2783	0.001843	0.053497	0	0.014320664
Cranes	9999	0.04307	0.151102	0.470078	44.03036	0.000443	0.01447	0	0.003886168
Crawler Tractors	50	1.066534	2.945007	2.383313	225.7041	0.002918	0.245016	0	0.096231628
Crawler Tractors	120	0.488861	1.83614	2.905526	248.7598	0.002918	0.256027	0	0.04410916
Crawler Tractors	175	0.433845	1.930612	3.247593	314.1134	0.003534	0.184878	0	0.039145102
Crawler Tractors	250	0.320026	0.907107	2.893219	301.4242	0.003392	0.111272	0	0.028875467
Crawler Tractors	500	0.230625	0.862148	2.031138	235.1691	0.002308	0.078785	0	0.020808966
Crawler Tractors	750	0.276752	1.029449	2.478266	281.0378	0.002826	0.095124	0	0.024970865
Crawler Tractors	1000	0.313211	1.225584	3.343219	298.5118	0.003001	0.107139	0	0.028260505
Crushing/Proc. Equipment	50	1.57967	4.544148	3.954631	399.305	0.005162	0.383294	0	0.142531081
Crushing/Proc. Equipment	120	0.530163	2.178873	3.232694	314.2679	0.003687	0.294611	0	0.047835735
Crushing/Proc. Equipment	175	0.5033	2.492305	3.949601	433.5312	0.004878	0.224029	0	0.045411922
Crushing/Proc. Equipment	250	0.335313	0.984257	3.665639	443.6722	0.004992	0.112541	0	0.030254775
Crushing/Proc. Equipment	500	0.236642	0.76929	2.458284	338.9654	0.003327	0.080167	0	0.02135184
Crushing/Proc. Equipment	750	0.25053	0.798256	2.68578	356.1209	0.003581	0.085673	0	0.022604967
Crushing/Proc. Equipment	9999	0.051121	0.166949	0.603975	59.3249	0.000596	0.017595	0	0.004612542
Dumpers/Tenders	25	0.175157	0.580693	1.089992	138.3348	0.001755	0.052583	0	0.015804146
Excavators	25	0.359845	1.228199	2.273931	298.2843	0.003785	0.085175	0	0.032468203
Excavators	50	0.74015	2.576998	2.230234	226.9554	0.002934	0.192649	0	0.066782581
Excavators	120	0.41069	1.956755	2.567216	278.2905	0.003264	0.221657	0	0.037055967
Excavators	175	0.313163	1.728429	2.315229	290.8733	0.003273	0.13279	0	0.028256163
Excavators	250	0.225423	0.642551	2.06131	287.9091	0.003239	0.067557	0	0.020339534
Excavators	500	0.157384	0.478168	1.339338	212.0413	0.002081	0.046822	0	0.014200489
Excavators	750	0.174998	0.528278	1.525922	234.3044	0.002356	0.05263	0	0.015789762
Graders	50	0.980108	2.960158	2.515183	249.8215	0.00323	0.23774	0	0.088433531
Graders	120	0.473978	2.007011	2.921521	283.3625	0.003324	0.25543	0	0.042766228
Graders	175	0.380277	1.903886	2.901534	321.1991	0.003614	0.163678	0	0.034311785
Graders	250	0.270691	0.785778	2.573767	312.277	0.003514	0.089605	0	0.024423966
Graders	500	0.168325	0.570508	1.527964	208.1847	0.002043	0.05516	0	0.015187727
Graders	750	0.238879	0.804683	2.213157	293.7717	0.002954	0.078943	0	0.021553651
Off-Highway Tractors	120	0.798828	2.718061	4.675223	354.3215	0.004156	0.407503	0	0.072076939
Off-Highway Tractors	175	0.530152	2.16037	3.97535	338.0359	0.003803	0.225795	0	0.047834757
Off-Highway Tractors	250	0.297787	0.851006	2.622353	236.6252	0.002662	0.109083	0	0.026868818
Off-Highway Tractors	750	0.395814	1.747885	3.513042	343.5995	0.003455	0.142459	0	0.035713667
Off-Highway Tractors	1000	0.445853	2.046574	4.561556	369.3571	0.003714	0.155996	0	0.040228646
Off-Highway Trucks	175	0.373571	1.964747	2.67115	324.2221	0.003648	0.156041	0	0.033706705
Off-Highway Trucks	250	0.253967	0.696096	2.245123	302.175	0.0034	0.074822	0	0.022915042
Off-Highway Trucks	500	0.19682	0.577128	1.620763	247.0572	0.002425	0.057472	0	0.017758737
Off-Highway Trucks	750	0.214103	0.623948	1.806586	267.1589	0.002686	0.063199	0	0.019318206
Off-Highway Trucks	1000	0.248729	0.75788	2.710896	283.37	0.002849	0.081436	0	0.022442418
Other Construction Equipment	15	0.355782	1.866222	2.228043	305.6409	0.004756	0.086443	0	0.032101648
Other Construction Equipment	25	0.290071	0.98743	1.838712	239.8104	0.003043	0.073624	0	0.026172632
Other Construction Equipment	50	0.683235	2.406698	2.345418	253.9171	0.003283	0.185963	0	0.061647251
Other Construction Equipment	120	0.380239	1.99464	2.655599	305.6409	0.003585	0.214384	0	0.03430832
Other Construction Equipment	175	0.242435	1.522196	2.076503	276.0844	0.003106	0.108834	0	0.021874537
Other Construction Equipment	500	0.131726	0.474845	1.377778	230.6412	0.002264	0.044559	0	0.011885383
Pavers	25	0.44734	1.449779	2.722259	338.5561	0.004296	0.136396	0	0.040362762
Pavers	50	1.239164	3.258778	2.674055	253.9169	0.003283	0.279519	0	0.111807712
Pavers	120	0.524368	1.911511	3.158932	261.558	0.003068	0.275571	0	0.047312877
Pavers	175	0.460694	2.01749	3.569169	332.5103	0.003741	0.199331	0	0.041567641
Pavers	250	0.375876	1.103166	3.532495	352.6626	0.003968	0.137095	0	0.033914718
Pavers	500	0.206394	0.839463	1.912355	211.5974	0.002077	0.074176	0	0.018622582
Paving Equipment	25	0.277136	0.943399	1.756721	229.1169	0.002907	0.070341	0	0.025005543
Paving Equipment	50	1.058098	2.765758	2.280661	217.0582	0.002806	0.238635	0	0.095470512
Paving Equipment	120	0.411027	1.496208	2.480132	206.0041	0.002417	0.216881	0	0.037086294
Paving Equipment	175	0.359608	1.575583	2.803619	261.8479	0.002946	0.156014	0	0.032446881
Paving Equipment	250	0.231779	0.6827	2.214648	221.8816	0.002497	0.084752	0	0.020913022
Plate Compactors	15	0.151848	0.796502	0.950927	130.4473	0.00203	0.037249	0	0.013700958
Rollers	15	0.222474	1.166967	1.393217	191.1203	0.002974	0.054054	0	0.020073481
Rollers	25	0.292823	0.996799	1.856158	242.0858	0.003072	0.074323	0	0.026420958
Rollers	50	0.929524	2.641152	2.342874	235.715	0.003047	0.221946	0	0.083869453
Rollers	120	0.372762	1.535825	2.36375	222.9737	0.002616	0.201715	0	0.033633749
Rollers	175	0.323248	1.606875	2.621787	280.3099	0.003154	0.142575	0	0.029166123
Rollers	250	0.229031	0.705233	2.381399	277.7616	0.003125	0.081832	0	0.020665103
Rollers	500	0.150024	0.57267	1.525889	198.7652	0.001951	0.05376	0	0.013536423

2007 OFF-ROAD EMISSIONS

								grams/bhp-hr							
CY	Season	AvgDays	Code	Equipment	Fuel		MaxHP	ROG Exhaust	CO Exhaust	NOX Exhaust	CO2 Exhaust	SO2 Exhaust	PM Exhaust	N2O Exhaust	CH4 Exhaust
2013	Annual	Mon-Sun	8.61E+13	Crushing/Proc. Equipment	D	Crushing/Proc. Equipment	175	0.50	2.49	3.95	433.53	0.00	0.22	-	0.05
2013	Annual	Mon-Sun	8.61E+13	Crushing/Proc. Equipment	D	Crushing/Proc. Equipment	250	0.34	0.98	3.67	443.67	0.00	0.11	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Crushing/Proc. Equipment	D	Crushing/Proc. Equipment	500	0.24	0.77	2.46	338.97	0.00	0.08	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Crushing/Proc. Equipment	D	Crushing/Proc. Equipment	750	0.25	0.80	2.69	356.12	0.00	0.09	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Crushing/Proc. Equipment	D	Crushing/Proc. Equipment	9999	0.05	0.17	0.60	59.32	0.00	0.02	-	0.00
2013	Annual	Mon-Sun	8.61E+13	Rough Terrain Forklifts	D	Rough Terrain Forklifts	50	1.07	3.43	3.01	307.16	0.00	0.27	-	0.10
2013	Annual	Mon-Sun	8.61E+13	Rough Terrain Forklifts	D	Rough Terrain Forklifts	120	0.36	1.64	2.27	236.06	0.00	0.20	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Rough Terrain Forklifts	D	Rough Terrain Forklifts	175	0.35	1.88	2.71	323.73	0.00	0.15	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Rough Terrain Forklifts	D	Rough Terrain Forklifts	250	0.23	0.69	2.35	309.89	0.00	0.08	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Rough Terrain Forklifts	D	Rough Terrain Forklifts	500	0.17	0.52	1.55	232.76	0.00	0.05	-	0.01
2013	Annual	Mon-Sun	8.61E+13	Rubber Tired Loaders	D	Rubber Tired Loaders	25	0.37	1.26	2.34	307.16	0.00	0.09	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Rubber Tired Loaders	D	Rubber Tired Loaders	50	1.09	3.30	2.83	282.59	0.00	0.27	-	0.10
2013	Annual	Mon-Sun	8.61E+13	Rubber Tired Loaders	D	Rubber Tired Loaders	120	0.37	1.57	2.27	222.69	0.00	0.20	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Rubber Tired Loaders	D	Rubber Tired Loaders	175	0.32	1.63	2.46	275.56	0.00	0.14	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Rubber Tired Loaders	D	Rubber Tired Loaders	250	0.23	0.67	2.20	270.30	0.00	0.08	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Rubber Tired Loaders	D	Rubber Tired Loaders	500	0.17	0.58	1.56	215.01	0.00	0.06	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Rubber Tired Loaders	D	Rubber Tired Loaders	750	0.23	0.79	2.18	293.64	0.00	0.08	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Rubber Tired Loaders	D	Rubber Tired Loaders	1000	0.24	0.84	2.70	269.38	0.00	0.08	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Rubber Tired Dozers	D	Rubber Tired Dozers	175	0.55	2.19	4.03	335.60	0.00	0.23	-	0.05
2013	Annual	Mon-Sun	8.61E+13	Rubber Tired Dozers	D	Rubber Tired Dozers	250	0.44	1.24	3.78	332.91	0.00	0.16	-	0.04
2013	Annual	Mon-Sun	8.61E+13	Rubber Tired Dozers	D	Rubber Tired Dozers	500	0.29	1.29	2.48	240.29	0.00	0.10	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Rubber Tired Dozers	D	Rubber Tired Dozers	750	0.29	1.29	2.53	241.18	0.00	0.10	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Rubber Tired Dozers	D	Rubber Tired Dozers	1000	0.34	1.56	3.38	268.48	0.00	0.12	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Tractors/Loaders/Backhoes	D	Tractors/Loaders/Backhoes	25	0.35	1.19	2.24	287.82	0.00	0.10	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Tractors/Loaders/Backhoes	D	Tractors/Loaders/Backhoes	50	0.81	2.90	2.62	275.30	0.00	0.22	-	0.07
2013	Annual	Mon-Sun	8.61E+13	Tractors/Loaders/Backhoes	D	Tractors/Loaders/Backhoes	120	0.26	1.33	1.73	195.53	0.00	0.14	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Tractors/Loaders/Backhoes	D	Tractors/Loaders/Backhoes	175	0.26	1.52	2.00	262.79	0.00	0.11	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Tractors/Loaders/Backhoes	D	Tractors/Loaders/Backhoes	250	0.22	0.67	2.12	311.59	0.00	0.07	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Tractors/Loaders/Backhoes	D	Tractors/Loaders/Backhoes	500	0.21	0.68	1.87	312.85	0.00	0.06	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Tractors/Loaders/Backhoes	D	Tractors/Loaders/Backhoes	750	0.21	0.68	1.93	312.85	0.00	0.06	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Crawler Tractors	D	Crawler Tractors	50	1.07	2.95	2.38	225.70	0.00	0.25	-	0.10
2013	Annual	Mon-Sun	8.61E+13	Crawler Tractors	D	Crawler Tractors	120	0.49	1.84	2.91	248.76	0.00	0.26	-	0.04
2013	Annual	Mon-Sun	8.61E+13	Crawler Tractors	D	Crawler Tractors	175	0.43	1.93	3.25	314.11	0.00	0.18	-	0.04
2013	Annual	Mon-Sun	8.61E+13	Crawler Tractors	D	Crawler Tractors	250	0.32	0.91	2.89	301.42	0.00	0.11	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Crawler Tractors	D	Crawler Tractors	500	0.23	0.86	2.03	235.17	0.00	0.08	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Crawler Tractors	D	Crawler Tractors	750	0.28	1.03	2.48	281.04	0.00	0.10	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Crawler Tractors	D	Crawler Tractors	1000	0.31	1.23	3.34	298.51	0.00	0.11	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Skid Steer Loaders	D	Skid Steer Loaders	25	0.37	1.13	2.11	250.28	0.00	0.11	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Skid Steer Loaders	D	Skid Steer Loaders	50	0.47	2.05	2.07	231.51	0.00	0.14	-	0.04
2013	Annual	Mon-Sun	8.61E+13	Skid Steer Loaders	D	Skid Steer Loaders	120	0.16	1.04	1.24	161.64	0.00	0.09	-	0.01
2013	Annual	Mon-Sun	8.61E+13	Off-Highway Tractors	D	Off-Highway Tractors	120	0.80	2.72	4.68	354.32	0.00	0.41	-	0.07
2013	Annual	Mon-Sun	8.61E+13	Off-Highway Tractors	D	Off-Highway Tractors	175	0.53	2.16	3.98	338.04	0.00	0.23	-	0.05
2013	Annual	Mon-Sun	8.61E+13	Off-Highway Tractors	D	Off-Highway Tractors	250	0.30	0.85	2.62	236.63	0.00	0.11	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Off-Highway Tractors	D	Off-Highway Tractors	750	0.40	1.75	3.51	343.60	0.00	0.14	-	0.04
2013	Annual	Mon-Sun	8.61E+13	Off-Highway Tractors	D	Off-Highway Tractors	1000	0.45	2.05	4.56	369.36	0.00	0.16	-	0.04
2013	Annual	Mon-Sun	8.61E+13	Dumpers/Tenders	D	Dumpers/Tenders	25	0.18	0.58	1.09	138.33	0.00	0.05	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Other Construction Equipment	D	Other Construction Equipm	15	0.36	1.87	2.23	305.64	0.00	0.09	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Other Construction Equipment	D	Other Construction Equipm	25	0.29	0.99	1.84	239.81	0.00	0.07	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Other Construction Equipment	D	Other Construction Equipm	50	0.68	2.41	2.35	253.92	0.00	0.19	-	0.06
2013	Annual	Mon-Sun	8.61E+13	Other Construction Equipment	D	Other Construction Equipm	120	0.38	1.99	2.66	305.64	0.00	0.21	-	0.03
2013	Annual	Mon-Sun	8.61E+13	Other Construction Equipment	D	Other Construction Equipm	175	0.24	1.52	2.08	276.08	0.00	0.11	-	0.02
2013	Annual	Mon-Sun	8.61E+13	Other Construction Equipment	D	Other Construction Equipm	500	0.13	0.47	1.38	230.64	0.00	0.04	-	0.01

		grams/bhp-hr							
	MaxHP	ROG Exhau	CO Exhaust	NOX Exhau	CO2 Exhau	SO2 Exhaus	PM Exhaus	N2O Exhau	CH4 Exhaust
Rough Terrain Forklifts	50	1.071669	3.427179	3.008586	307.1578	0.003971	0.272461	0	0.096694974
Rough Terrain Forklifts	120	0.361089	1.635425	2.266188	236.0563	0.002769	0.200149	0	0.032580532
Rough Terrain Forklifts	175	0.350385	1.880688	2.708293	323.7346	0.003643	0.153487	0	0.03161473
Rough Terrain Forklifts	250	0.234802	0.689145	2.350656	309.888	0.003487	0.075427	0	0.02118577
Rough Terrain Forklifts	500	0.165461	0.518605	1.550982	232.7572	0.002285	0.053	0	0.014929282
Rubber Tired Dozers	175	0.549364	2.192019	4.033384	335.5983	0.003776	0.231399	0	0.049568208
Rubber Tired Dozers	250	0.441835	1.239635	3.777037	332.9132	0.003746	0.159761	0	0.039866114
Rubber Tired Dozers	500	0.291322	1.290595	2.477059	240.2883	0.002359	0.102794	0	0.026285488
Rubber Tired Dozers	750	0.293226	1.293942	2.526266	241.1832	0.002425	0.10392	0	0.026457303
Rubber Tired Dozers	1000	0.340462	1.561848	3.380329	268.4786	0.002699	0.117658	0	0.030719372
Rubber Tired Loaders	25	0.370687	1.264735	2.343463	307.1577	0.003897	0.090863	0	0.033446471
Rubber Tired Loaders	50	1.088427	3.303357	2.828646	282.5852	0.003653	0.265105	0	0.098206975
Rubber Tired Loaders	120	0.36694	1.56941	2.273942	222.6893	0.002612	0.198492	0	0.033108433
Rubber Tired Loaders	175	0.320854	1.62608	2.462904	275.5643	0.003101	0.138726	0	0.028950143
Rubber Tired Loaders	250	0.228348	0.668493	2.200067	270.2987	0.003041	0.075642	0	0.020603454
Rubber Tired Loaders	500	0.169384	0.58031	1.556641	215.0104	0.00211	0.055625	0	0.015283211
Rubber Tired Loaders	750	0.232733	0.792203	2.1838	293.6427	0.002952	0.077096	0	0.020999119
Rubber Tired Loaders	1000	0.235381	0.835412	2.704326	269.3774	0.002709	0.081393	0	0.021238101
Scrapers	120	0.709381	2.624574	4.211503	354.9377	0.004164	0.371544	0	0.064006334
Scrapers	175	0.536519	2.360461	4.034422	383.801	0.004318	0.229102	0	0.048409259
Scrapers	250	0.408679	1.162661	3.716211	380.0566	0.004276	0.143459	0	0.036874422
Scrapers	500	0.289053	1.098786	2.56625	291.5951	0.002862	0.09971	0	0.026080777
Scrapers	750	0.334276	1.264434	3.016874	335.8259	0.003377	0.116007	0	0.030161192
Signal Boards	15	0.217177	1.139183	1.360046	186.5699	0.002903	0.053076	0	0.019595544
Signal Boards	50	1.044562	3.135588	3.098129	328.3174	0.004244	0.268653	0	0.094249115
Signal Boards	120	0.4445	1.97094	2.951283	303.1759	0.003556	0.243595	0	0.04010648
Signal Boards	175	0.397989	2.161859	3.456181	400.5728	0.004507	0.177636	0	0.035909889
Signal Boards	250	0.2962	0.970663	3.62219	463.194	0.005212	0.105284	0	0.026725665
Skid Steer Loaders	25	0.365923	1.125696	2.114754	250.2767	0.003176	0.114038	0	0.033016664
Skid Steer Loaders	50	0.469001	2.052617	2.067223	231.506	0.002993	0.142375	0	0.042317225
Skid Steer Loaders	120	0.162031	1.038591	1.235053	161.637	0.001896	0.092454	0	0.014619826
Surfacing Equipment	50	0.432443	1.273008	1.233041	127.9824	0.001654	0.107665	0	0.039018643
Surfacing Equipment	120	0.366692	1.593207	2.465759	241.0334	0.002827	0.19529	0	0.03308602
Surfacing Equipment	175	0.231742	1.225873	2.006767	222.3236	0.002502	0.101544	0	0.020909735
Surfacing Equipment	250	0.185973	0.612082	2.027969	244.7024	0.002753	0.068211	0	0.016780015
Surfacing Equipment	500	0.138976	0.58218	1.505728	200.6764	0.00197	0.051429	0	0.012539583
Surfacing Equipment	750	0.147675	0.608547	1.61201	209.8911	0.00211	0.05443	0	0.013324503
Tractors/Loaders/Backhoes	25	0.354041	1.191352	2.243799	287.8181	0.003652	0.102482	0	0.031944527
Tractors/Loaders/Backhoes	50	0.810669	2.901824	2.624932	275.3044	0.003559	0.216209	0	0.073145319
Tractors/Loaders/Backhoes	120	0.262489	1.333825	1.72557	195.5286	0.002294	0.144772	0	0.023683996
Tractors/Loaders/Backhoes	175	0.256079	1.519177	1.995042	262.7905	0.002957	0.110904	0	0.023105565
Tractors/Loaders/Backhoes	250	0.218457	0.665087	2.115489	311.5943	0.003506	0.067133	0	0.019711001
Tractors/Loaders/Backhoes	500	0.207755	0.675227	1.874309	312.8457	0.00352	0.063581	0	0.018745431
Tractors/Loaders/Backhoes	750	0.20918	0.675141	1.9328	312.8458	0.00352	0.064712	0	0.018873988
Trenchers	15	0.297956	1.562903	1.865917	255.9647	0.003983	0.072817	0	0.026884128
Trenchers	25	0.72078	2.459208	4.556732	597.2511	0.007578	0.176677	0	0.065034811
Trenchers	50	1.420712	3.70359	3.113628	298.6255	0.00386	0.320404	0	0.12818853
Trenchers	120	0.484297	1.770512	2.972035	245.2995	0.002877	0.252719	0	0.043697318
Trenchers	175	0.506681	2.237465	4.022812	372.9771	0.004197	0.220041	0	0.045717052
Trenchers	250	0.427012	1.286064	4.079743	404.4243	0.00455	0.159684	0	0.038528569
Trenchers	500	0.27079	1.180254	2.582716	282.4144	0.002772	0.100223	0	0.024432913
Trenchers	750	0.342669	1.481945	3.30566	354.9378	0.003569	0.127032	0	0.030918437

2011 OFF-ROAD EMISSIONS

CalendarYear	AirBasin	Equipment Class	EquipmentTypeID	Equipment Type	HorsepowerBin	BaseNOx	BasePM	BaseHC	ScenNOx	ScenPM	ScenHC	BaseActivity (hours/year)	ScenActivity	BasePopulation	ScenPopulation	**Nox EMFAC lbs/hr**	**PM EMFAC lbs/hr**	**PM2.5 EMFAC lbs/hr**	**HC EMFAC lbs/hr**
2014	SC	Construction and Mining	11	Bore/Drill Rigs	50	1.43	0.10	0.18	1.43	0.10	0.18	12,305	12,305	38	38	0.2320	0.0166	0.0153	0.0300
2014	SC	Construction and Mining	11	Bore/Drill Rigs	120	8.17	0.49	0.52	8.09	0.48	0.51	42,266	42,266	118	118	0.3868	0.0231	0.0212	0.0245
2014	SC	Construction and Mining	11	Bore/Drill Rigs	175	8.80	0.40	0.55	8.80	0.40	0.55	26,297	26,297	92	92	0.6691	0.0307	0.0282	0.0419
2014	SC	Construction and Mining	11	Bore/Drill Rigs	250	11.29	0.34	0.58	11.00	0.33	0.56	27,128	27,128	92	92	0.8322	0.0250	0.0230	0.0425
2014	SC	Construction and Mining	11	Bore/Drill Rigs	500	11.57	0.37	0.61	11.24	0.36	0.59	18,232	18,232	64	64	1.2692	0.0410	0.0377	0.0671
2014	SC	Construction and Mining	11	Bore/Drill Rigs	750	11.27	0.38	0.62	11.10	0.38	0.61	13,795	13,795	32	32	1.6340	0.0556	0.0511	0.0895
2014	SC	Construction and Mining	11	Bore/Drill Rigs	1000	1.12	0.02	0.03	1.12	0.02	0.03	735	735	1	1	3.0383	0.0593	0.0546	0.0883
2014	SC	Construction and Mining	11	Bore/Drill Rigs	9999	5.38	0.13	0.18	5.38	0.13	0.18	858	858	1	1	12.5414	0.3043	0.2799	0.4178
2014	SC	Construction and Mining	12	Cranes	50	0.55	0.06	0.16	0.55	0.06	0.16	7,055	7,055	18	18	0.1572	0.0157	0.0144	0.0451
2014	SC	Construction and Mining	12	Cranes	120	25.08	1.86	2.51	24.67	1.83	2.46	84,778	84,778	214	214	0.5916	0.0440	0.0404	0.0593
2014	SC	Construction and Mining	12	Cranes	175	53.22	2.88	4.12	52.97	2.86	4.10	133,158	133,158	322	322	0.7993	0.0432	0.0398	0.0619
2014	SC	Construction and Mining	12	Cranes	250	84.23	3.88	5.86	83.33	3.82	5.79	153,829	153,829	361	361	1.0951	0.0504	0.0464	0.0762
2014	SC	Construction and Mining	12	Cranes	500	103.26	4.29	6.59	101.93	4.22	6.49	152,450	152,450	346	346	1.3547	0.0563	0.0518	0.0864
2014	SC	Construction and Mining	12	Cranes	750	18.60	0.65	0.99	18.60	0.65	0.99	23,856	23,856	51	51	1.5589	0.0543	0.0500	0.0833
2014	SC	Construction and Mining	12	Cranes	1000	11.73	0.58	0.87	11.73	0.58	0.87	3,391	3,391	8	8	6.9186	0.3429	0.3155	0.5128
2014	SC	Construction and Mining	12	Cranes	9999	0.18	0.00	0.01	0.18	0.00	0.01	236	236	1	1	1.4921	0.0356	0.0327	0.0651
2014	SC	Construction and Mining	13	Crawler Tractors	50	1.79	0.21	0.59	1.78	0.21	0.58	13,865	13,865	45	45	0.2576	0.0301	0.0277	0.0844
2014	SC	Construction and Mining	13	Crawler Tractors	120	100.92	8.44	9.81	100.47	8.39	9.75	325,227	325,227	776	776	0.6206	0.0519	0.0477	0.0603
2014	SC	Construction and Mining	13	Crawler Tractors	175	102.08	5.57	7.73	100.95	5.49	7.63	207,718	207,718	508	508	0.9828	0.0536	0.0493	0.0745
2014	SC	Construction and Mining	13	Crawler Tractors	250	93.26	3.63	5.63	92.10	3.56	5.54	154,007	154,007	371	371	1.2111	0.0471	0.0433	0.0732
2014	SC	Construction and Mining	13	Crawler Tractors	500	224.81	8.74	13.68	221.24	8.56	13.42	244,636	244,636	596	596	1.8379	0.0714	0.0657	0.1118
2014	SC	Construction and Mining	13	Crawler Tractors	750	75.63	2.76	4.43	75.43	2.75	4.42	57,189	57,189	122	122	2.6450	0.0966	0.0889	0.1551
2014	SC	Construction and Mining	13	Crawler Tractors	1000	15.08	0.44	0.80	15.08	0.44	0.80	5,188	5,188	11	11	5.8136	0.1708	0.1572	0.3075
2014	SC	Construction and Mining	13	Crawler Tractors	9999	6.78	0.18	0.31	6.78	0.18	0.31	1,558	1,558	3	3	8.7010	0.2286	0.2103	0.4020
2014	SC	Construction and Mining	14	Excavators	50	54.37	4.17	7.47	54.35	4.16	7.46	727,548	727,548	1,104	1,104	0.1495	0.0114	0.0105	0.0205
2014	SC	Construction and Mining	14	Excavators	120	82.45	6.16	6.83	82.07	6.12	6.78	464,602	464,602	799	799	0.3549	0.0265	0.0244	0.0294
2014	SC	Construction and Mining	14	Excavators	175	156.47	7.72	10.86	155.19	7.63	10.74	542,031	542,031	1,015	1,015	0.5773	0.0285	0.0262	0.0401
2014	SC	Construction and Mining	14	Excavators	250	189.21	6.12	10.62	185.27	5.88	10.30	460,572	460,572	872	872	0.8216	0.0266	0.0244	0.0461
2014	SC	Construction and Mining	14	Excavators	500	242.63	7.95	14.01	236.60	7.62	13.57	510,069	510,069	887	887	0.9514	0.0312	0.0287	0.0549
2014	SC	Construction and Mining	14	Excavators	750	22.60	0.72	1.25	22.75	0.73	1.27	26,405	26,405	45	45	1.7120	0.0547	0.0503	0.0949
2014	SC	Construction and Mining	14	Excavators	1000	4.68	0.15	0.25	3.96	0.11	0.18	2,019	2,019	4	4	4.6323	0.1480	0.1362	0.2454
2014	SC	Construction and Mining	14	Excavators	9999	5.05	0.13	0.23	5.05	0.13	0.23	2,128	2,128	3	3	4.7483	0.1225	0.1127	0.2205
2014	SC	Construction and Mining	15	Graders	50	0.51	0.07	0.20	0.51	0.07	0.20	4,372	4,372	14	14	0.2311	0.0306	0.0282	0.0902
2014	SC	Construction and Mining	15	Graders	120	22.08	1.84	2.32	21.76	1.81	2.29	53,149	53,149	150	150	0.8310	0.0692	0.0637	0.0874
2014	SC	Construction and Mining	15	Graders	175	173.04	9.73	13.93	171.99	9.65	13.83	296,533	296,533	701	701	1.1671	0.0656	0.0604	0.0940
2014	SC	Construction and Mining	15	Graders	250	199.22	6.44	11.18	199.08	6.43	11.17	376,728	376,728	557	557	1.0576	0.0342	0.0314	0.0594
2014	SC	Construction and Mining	15	Graders	500	37.28	1.43	2.61	37.08	1.42	2.59	75,600	75,600	104	104	0.9861	0.0380	0.0349	0.0689
2014	SC	Construction and Mining	15	Graders	1000	0.90	0.03	0.06	0.90	0.03	0.06	270	270	0	0	6.6646	0.2319	0.2134	0.4206
2014	SC	Construction and Mining	15	Graders	9999	8.94	0.27	0.49	8.94	0.27	0.49	1,520	1,520	2	2	11.7702	0.3550	0.3266	0.6488
2014	SC	Construction and Mining	16	Off-Highway Tractors	50	26.13	2.64	6.43	25.59	2.53	6.09	251,152	251,152	423	423	0.2081	0.0210	0.0194	0.0512
2014	SC	Construction and Mining	16	Off-Highway Tractors	120	41.62	3.43	3.87	40.12	3.28	3.69	178,558	178,558	308	308	0.4661	0.0384	0.0354	0.0433
2014	SC	Construction and Mining	16	Off-Highway Tractors	175	27.81	1.43	1.95	27.52	1.41	1.92	72,176	72,176	117	117	0.7707	0.0397	0.0365	0.0539
2014	SC	Construction and Mining	16	Off-Highway Tractors	250	26.17	0.94	1.55	26.13	0.94	1.54	44,971	44,971	76	76	1.1640	0.0418	0.0385	0.0688
2014	SC	Construction and Mining	16	Off-Highway Tractors	500	52.50	1.88	3.10	51.23	1.81	3.01	80,966	80,966	131	131	1.2968	0.0465	0.0428	0.0765
2014	SC	Construction and Mining	16	Off-Highway Tractors	750	13.20	0.44	0.73	13.07	0.43	0.72	11,850	11,850	19	19	2.2280	0.0749	0.0689	0.1229
2014	SC	Construction and Mining	16	Off-Highway Tractors	1000	1.14	0.06	0.08	0.21	0.01	0.01	193	193	0	0	11.7828	0.5995	0.5515	0.8237
2014	SC	Construction and Mining	16	Off-Highway Tractors	9999	7.24	0.27	0.48	4.31	0.14	0.24	895	895	2	2	16.1909	0.6088	0.5601	1.0692
2014	SC	Construction and Mining	17	Off-Highway Trucks	50	2.60	0.27	0.61	2.60	0.27	0.61	36,487	36,487	25	25	0.1426	0.0148	0.0137	0.0336
2014	SC	Construction and Mining	17	Off-Highway Trucks	120	3.58	0.29	0.35	3.39	0.27	0.33	16,376	16,376	14	14	0.4368	0.0354	0.0326	0.0432
2014	SC	Construction and Mining	17	Off-Highway Trucks	175	60.28	3.38	4.90	60.01	3.36	4.87	171,909	171,909	135	135	0.7013	0.0393	0.0362	0.0570
2014	SC	Construction and Mining	17	Off-Highway Trucks	250	136.04	6.01	10.03	128.61	5.57	9.43	266,094	266,094	231	231	1.0225	0.0452	0.0416	0.0754
2014	SC	Construction and Mining	17	Off-Highway Trucks	500	476.87	18.51	33.13	463.87	17.77	32.19	631,437	631,437	514	514	1.5104	0.0586	0.0539	0.1049
2014	SC	Construction and Mining	17	Off-Highway Trucks	750	217.39	9.30	15.70	197.81	8.18	14.21	128,428	128,428	117	117	3.3854	0.1448	0.1332	0.2445
2014	SC	Construction and Mining	17	Off-Highway Trucks	1000	159.75	4.71	8.64	157.55	4.63	8.48	65,531	65,531	54	54	4.8757	0.1437	0.1322	0.2638
2014	SC	Construction and Mining	17	Off-Highway Trucks	9999	209.30	6.56	12.37	207.69	6.50	12.22	47,604	47,604	35	35	8.7933	0.2755	0.2535	0.5197
2014	SC	Construction and Mining	18	Other Construction Equipment	50	13.56	1.22	2.62	13.56	1.22	2.62	139,974	139,974	327	327	0.1937	0.0175	0.0161	0.0374
2014	SC	Construction and Mining	18	Other Construction Equipment	120	56.96	4.45	5.18	56.74	4.43	5.15	229,034	229,034	576	576	0.4974	0.0388	0.0357	0.0452
2014	SC	Construction and Mining	18	Other Construction Equipment	175	30.39	1.61	2.25	29.76	1.56	2.19	66,898	66,898	179	179	0.9087	0.0481	0.0442	0.0671
2014	SC	Construction and Mining	18	Other Construction Equipment	250	34.69	1.29	2.02	34.20	1.26	1.99	59,661	59,661	161	161	1.1629	0.0431	0.0397	0.0676
2014	SC	Construction and Mining	18	Other Construction Equipment	500	95.84	3.61	5.78	92.19	3.40	5.51	123,703	123,703	313	313	1.5495	0.0583	0.0536	0.0935
2014	SC	Construction and Mining	18	Other Construction Equipment	750	33.78	1.15	1.85	30.66	0.98	1.61	28,963	28,963	65	65	2.3326	0.0792	0.0729	0.1277
2014	SC	Construction and Mining	18	Other Construction Equipment	1000	4.12	0.11	0.17	4.12	0.11	0.17	2,440	2,440	6	6	3.3802	0.0888	0.0817	0.1390
2014	SC	Construction and Mining	18	Other Construction Equipment	9999	3.13	0.09	0.14	2.90	0.08	0.14	1,143	1,143	3	3	5.4761	0.1504	0.1384	0.2531
2014	SC	Construction and Mining	19	Pavers	50	1.71	0.18	0.47	1.71	0.18	0.47	16,924	16,924	53	53	0.2022	0.0210	0.0193	0.0555
2014	SC	Construction and Mining	19	Pavers	120	20.24	1.58	1.85	20.15	1.57	1.83	89,184	89,184	257	257	0.4539	0.0354	0.0325	0.0414
2014	SC	Construction and Mining	19	Pavers	175	25.31	1.27	1.83	25.19	1.26	1.82	60,635	60,635	174	174	0.8349	0.0418	0.0384	0.0605
2014	SC	Construction and Mining	19	Pavers	250	12.24	0.31	0.51	12.23	0.31	0.51	30,261	30,261	75	75	0.8091	0.0206	0.0189	0.0336
2014	SC	Construction and Mining	19	Pavers	500	3.44	0.11	0.17	3.44	0.11	0.17	7,532	7,532	19	19	0.9136	0.0303	0.0279	0.0446
2014	SC	Construction and Mining	19	Pavers	750	0.31	0.01	0.02	0.31	0.01	0.02	376	376	1	1	1.6708	0.0716	0.0658	0.0945
2014	SC	Construction and Mining	20	Paving Equipment	50	1.97	0.17	0.34	1.96	0.16	0.33	27,673	27,673	65	65	0.1422	0.0122	0.0112	0.0247
2014	SC	Construction and Mining	20	Paving Equipment	120	12.12	0.93	1.07	12.00	0.91	1.05	54,311	54,311	133	133	0.4465	0.0341	0.0314	0.0394
2014	SC	Construction and Mining	20	Paving Equipment	175	9.36	0.45	0.62	9.31	0.44	0.61	30,730	30,730	73	73	0.6090	0.0293	0.0269	0.0401
2014	SC	Construction and Mining	20	Paving Equipment	250	4.98	0.18	0.28	4.46	0.15	0.24	11,053	11,053	26	26	0.9009	0.0327	0.0301	0.0512
2014	SC	Construction and Mining	20	Paving Equipment	500	6.14	0.22	0.34	6.12	0.22	0.34	9,992	9,992	24	24	1.2299	0.0440	0.0405	0.0690
2014	SC	Construction and Mining	20	Paving Equipment	750	2.46	0.06	0.11	2.46	0.06	0.11	2,635	2,635	6	6	1.8665	0.0430	0.0395	0.0853
2014	SC	Construction and Mining	20	Paving Equipment	1000	0.56	0.01	0.02	0.56	0.01	0.02	370	370	1	1	3.0141	0.0729	0.0671	0.1190
2014	SC	Construction and Mining	21	Rollers	50	33.30	3.00	6.71	33.20	2.98	6.65	417,161	417,161	1,338	1,338	0.1597	0.0144	0.0132	0.0322
2014	SC	Construction and Mining	21	Rollers	120	68.96	5.15	6.22	68.21	5.08	6.13	297,111	297,111	997	997	0.4642	0.0347	0.0319	0.0419
2014	SC	Construction and Mining	21	Rollers	175	53.21	2.49	3.45	52.35	2.43	3.37	186,363	186,363	577	577	0.5711	0.0267	0.0245	0.0370
2014	SC	Construction and Mining	21	Rollers	250	9.21	0.33	0.53	9.43	0.33	0.55	19,784	19,784	71	71	0.9311	0.0330	0.0304	0.0539
2014	SC	Construction and Mining	21	Rollers	500	6.41	0.26	0.40	5.65	0.22	0.34	7,873	7,873	29	29	1.6295	0.0671	0.0617	0.1022
2014	SC	Construction and Mining	21	Rollers	750	0.46	0.02	0.03	0.46	0.02	0.03	250	250	1	1	3.7031	0.1379	0.1269	0.2188
2014	SC	Construction and Mining	22	Rough Terrain Forklifts	50	1.64	0.14	0.31	1.64	0.14	0.31	14,975	14,975	61	61	0.2190	0.0183	0.0168	0.0409
2014	SC	Construction and Mining	22	Rough Terrain Forklifts	120	126.39	7.41	8.25	125.39	7.32	8.14	657,545	657,545	2,603	2,603	0.3844	0.0225	0.0207	0.0251
2014	SC	Construction and Mining	22	Rough Terrain Forklifts	175	19.24	0.76	1.00	18.59	0.72	0.95	90,078	90,078	348	348	0.4272	0.0169	0.0155	0.0222
2014	SC	Construction and Mining	22	Rough Terrain Forklifts	250	2.59	0.11	0.18	1.27	0.04	0.07	4,594	4,594	20	20	1.1276	0.0499	0.0459	0.0763
2014	SC	Construction and Mining	22	Rough Terrain Forklifts	500	0.84	0.03	0.04	0.64	0.01	0.03	1,098	1,098	5	5	1.5388	0.0471	0.0433	0.0781
2014	SC	Construction and Mining	22	Rough Terrain Forklifts	750	0.42	0.02	0.03	0.04	0.00	0.00	102	102	1	1	8.3526	0.4441	0.4085	0.6689
2014	SC	Construction and Mining	23	Rubber Tired Dozers	50	1.83	0.24	0.67	1.83	0.24	0.67	15,146	15,146	18	18	0.2411	0.0318	0.0292	0.0887

Equipment Type	HorsepowerBin	**Nox EMFAC g/bhp-hr**	**PM EMFAC g/bhp-hr**	**PM2.5 EMFAC g/bhp-hr**	**HC EMFAC g/bhp-hr**
Bore/Drill Rigs	50	2.11	0.15	0.14	0.27
Bore/Drill Rigs	120	1.46	0.09	0.08	0.09
Bore/Drill Rigs	175	1.74	0.08	0.07	0.11
Bore/Drill Rigs	250	1.51	0.05	0.04	0.08
Bore/Drill Rigs	500	1.15	0.04	0.03	0.06
Bore/Drill Rigs	750	0.99	0.03	0.03	0.05
Bore/Drill Rigs	1000	1.38	0.03	0.02	0.04
Bore/Drill Rigs	9999	0.57	0.01	0.01	0.02
Cranes	50	1.43	0.14	0.13	0.41
Cranes	120	2.24	0.17	0.15	0.22
Cranes	175	2.07	0.11	0.10	0.16
Cranes	250	1.99	0.09	0.08	0.14
Cranes	500	1.23	0.05	0.05	0.08
Cranes	750	0.94	0.03	0.03	0.05
Cranes	1000	3.14	0.16	0.14	0.23
Cranes	9999	0.07	0.00	0.00	0.00
Crawler Tractors	50	2.34	0.27	0.25	0.77
Crawler Tractors	120	2.35	0.20	0.18	0.23
Crawler Tractors	175	2.55	0.14	0.13	0.19
Crawler Tractors	250	2.20	0.09	0.08	0.13
Crawler Tractors	500	1.67	0.06	0.06	0.10
Crawler Tractors	750	1.60	0.06	0.05	0.09
Crawler Tractors	1000	2.64	0.08	0.07	0.14
Crawler Tractors	9999	0.40	0.01	0.01	0.02
Excavators	50	1.36	0.10	0.10	0.19
Excavators	120	1.34	0.10	0.09	0.11
Excavators	175	1.50	0.07	0.07	0.10
Excavators	250	1.49	0.05	0.04	0.08
Excavators	500	0.86	0.03	0.03	0.05
Excavators	750	1.04	0.03	0.03	0.06
Excavators	1000	2.10	0.07	0.06	0.11
Excavators	9999	0.22	0.01	0.01	0.01
Graders	50	2.10	0.28	0.26	0.82
Graders	120	3.14	0.26	0.24	0.33
Graders	175	3.03	0.17	0.16	0.24
Graders	250	1.92	0.06	0.06	0.11
Graders	500	0.90	0.03	0.03	0.06
Graders	1000	3.03	0.11	0.10	0.19
Graders	9999	0.53	0.02	0.01	0.03
Off-Highway Tractors	50	1.89	0.19	0.18	0.46
Off-Highway Tractors	120	1.76	0.15	0.13	0.16
Off-Highway Tractors	175	2.00	0.10	0.09	0.14
Off-Highway Tractors	250	2.11	0.08	0.07	0.12
Off-Highway Tractors	500	1.18	0.04	0.04	0.07
Off-Highway Tractors	750	1.35	0.05	0.04	0.07
Off-Highway Tractors	1000	5.35	0.27	0.25	0.37
Off-Highway Tractors	9999	0.74	0.03	0.03	0.05
Off-Highway Trucks	50	1.29	0.13	0.12	0.30
Off-Highway Trucks	120	1.65	0.13	0.12	0.16
Off-Highway Trucks	175	1.82	0.10	0.09	0.15
Off-Highway Trucks	250	1.86	0.08	0.08	0.14
Off-Highway Trucks	500	1.37	0.05	0.05	0.10
Off-Highway Trucks	750	2.05	0.09	0.08	0.15
Off-Highway Trucks	1000	2.21	0.07	0.06	0.12
Off-Highway Trucks	9999	0.40	0.01	0.01	0.02
Other Construction Equipment	50	1.76	0.16	0.15	0.34
Other Construction Equipment	120	1.88	0.15	0.14	0.17
Other Construction Equipment	175	2.36	0.12	0.11	0.17
Other Construction Equipment	250	2.11	0.08	0.07	0.12
Other Construction Equipment	500	1.41	0.05	0.05	0.08
Other Construction Equipment	750	1.41	0.05	0.04	0.08
Other Construction Equipment	1000	1.53	0.04	0.04	0.06
Other Construction Equipment	9999	0.25	0.01	0.01	0.01
Pavers	50	1.84	0.19	0.18	0.50
Pavers	120	1.72	0.13	0.12	0.16
Pavers	175	2.17	0.11	0.10	0.16
Pavers	250	1.47	0.04	0.03	0.06
Pavers	500	0.83	0.03	0.03	0.04
Pavers	750	1.01	0.04	0.04	0.06
Paving Equipment	50	1.29	0.11	0.10	0.22
Paving Equipment	120	1.69	0.13	0.12	0.15
Paving Equipment	175	1.58	0.08	0.07	0.10
Paving Equipment	250	1.64	0.06	0.05	0.09
Paving Equipment	500	1.12	0.04	0.04	0.06
Paving Equipment	750	1.13	0.03	0.02	0.05
Paving Equipment	1000	1.37	0.03	0.03	0.05
Rollers	50	1.45	0.13	0.12	0.29
Rollers	120	1.76	0.13	0.12	0.16
Rollers	175	1.48	0.07	0.06	0.10
Rollers	250	1.69	0.06	0.06	0.10
Rollers	500	1.48	0.06	0.06	0.09
Rollers	750	2.24	0.08	0.08	0.13
Rough Terrain Forklifts	50	1.99	0.17	0.15	0.37
Rough Terrain Forklifts	120	1.45	0.09	0.08	0.09
Rough Terrain Forklifts	175	1.11	0.04	0.04	0.06
Rough Terrain Forklifts	250	2.05	0.09	0.08	0.14
Rough Terrain Forklifts	500	1.40	0.04	0.04	0.07
Rough Terrain Forklifts	750	5.06	0.27	0.25	0.40
Rubber Tired Dozers	50	2.19	0.29	0.27	0.81

2011 OFF-ROAD EMISSIONS

CalendarYear	AirBasin	Equipment Class	EquipmentTypeID	Equipment Type	HorsepowerBin	BaseNOx	BasePM	BaseHC	ScenNOx	ScenPM	ScenHC	BaseActivity (hours/year)	ScenActivity	BasePopulation	ScenPopulation	Nox EMFAC lbs/hr	PM EMFAC lbs/hr	PM2.5 EMFAC lbs/hr	HC EMFAC lbs/hr
2014	SC	Construction and Mining	23	Rubber Tired Dozers	120	13.62	1.22	1.45	13.62	1.22	1.45	40,024	40,024	53	53	0.6807	0.0609	0.0561	0.0724
2014	SC	Construction and Mining	23	Rubber Tired Dozers	175	11.78	0.67	0.95	11.78	0.67	0.95	18,366	18,366	27	27	1.2828	0.0734	0.0675	0.1036
2014	SC	Construction and Mining	23	Rubber Tired Dozers	250	9.93	0.49	0.74	9.93	0.49	0.74	13,549	13,549	21	21	1.4658	0.0722	0.0664	0.1096
2014	SC	Construction and Mining	23	Rubber Tired Dozers	500	114.94	5.36	8.34	113.92	5.31	8.26	91,635	91,635	141	141	2.5086	0.1171	0.1077	0.1820
2014	SC	Construction and Mining	23	Rubber Tired Dozers	750	12.64	0.46	0.76	12.04	0.43	0.71	6,619	6,619	9	9	3.8187	0.1404	0.1291	0.2288
2014	SC	Construction and Mining	24	Rubber Tired Loaders	50	5.28	0.59	1.52	5.23	0.58	1.50	51,565	51,565	67	67	0.2047	0.0228	0.0209	0.0588
2014	SC	Construction and Mining	24	Rubber Tired Loaders	120	169.74	14.77	17.12	167.40	14.53	16.84	683,442	683,442	828	828	0.4967	0.0432	0.0398	0.0501
2014	SC	Construction and Mining	24	Rubber Tired Loaders	175	348.24	19.54	27.81	345.85	19.32	27.58	921,784	921,784	1,085	1,085	0.7556	0.0424	0.0390	0.0603
2014	SC	Construction and Mining	24	Rubber Tired Loaders	250	420.60	14.32	25.75	418.83	14.24	25.61	928,112	928,112	964	964	0.9064	0.0309	0.0284	0.0555
2014	SC	Construction and Mining	24	Rubber Tired Loaders	500	531.94	20.24	35.71	518.14	19.53	34.72	782,366	782,366	896	896	1.3598	0.0517	0.0476	0.0913
2014	SC	Construction and Mining	24	Rubber Tired Loaders	750	86.45	3.42	6.04	86.81	3.43	6.06	75,352	75,352	79	79	2.2945	0.0908	0.0836	0.1603
2014	SC	Construction and Mining	24	Rubber Tired Loaders	1000	34.15	1.00	1.75	34.15	0.99	1.74	15,288	15,288	14	14	4.4674	0.1302	0.1198	0.2283
2014	SC	Construction and Mining	24	Rubber Tired Loaders	9999	12.96	0.37	0.70	12.96	0.37	0.70	3,358	3,358	3	3	7.7192	0.2227	0.2049	0.4162
2014	SC	Construction and Mining	25	Scrapers	50	0.13	0.02	0.05	0.13	0.02	0.05	1,026	1,026	3	3	0.2582	0.0344	0.0317	0.1013
2014	SC	Construction and Mining	25	Scrapers	120	6.87	0.51	0.58	6.87	0.51	0.58	21,671	21,671	45	45	0.6336	0.0472	0.0434	0.0533
2014	SC	Construction and Mining	25	Scrapers	175	82.86	4.40	6.23	81.98	4.34	6.15	117,342	117,342	289	289	1.4123	0.0750	0.0690	0.1062
2014	SC	Construction and Mining	25	Scrapers	250	109.57	5.02	7.64	107.28	4.90	7.46	101,732	101,732	280	280	2.1540	0.0987	0.0908	0.1502
2014	SC	Construction and Mining	25	Scrapers	500	675.41	27.45	43.06	658.95	26.58	41.83	521,338	521,338	1,232	1,232	2.5911	0.1053	0.0969	0.1652
2014	SC	Construction and Mining	25	Scrapers	750	248.68	9.53	15.20	242.54	9.17	14.75	161,069	161,069	351	351	3.0879	0.1184	0.1089	0.1887
2014	SC	Construction and Mining	25	Scrapers	1000	10.15	0.47	0.73	10.15	0.47	0.73	1,500	1,500	6	6	13.5304	0.6308	0.5804	0.9800
2014	SC	Construction and Mining	25	Scrapers	9999	19.71	0.74	1.13	19.71	0.74	1.13	2,635	2,635	6	6	14.9609	0.5610	0.5161	0.8611
2014	SC	Construction and Mining	26	Skid Steer Loaders	50	21.19	1.34	2.59	21.08	1.33	2.55	262,908	262,908	927	927	0.1612	0.0102	0.0094	0.0197
2014	SC	Construction and Mining	26	Skid Steer Loaders	120	110.84	6.49	6.96	110.50	6.46	6.92	960,974	960,974	2,990	2,990	0.2307	0.0135	0.0124	0.0145
2014	SC	Construction and Mining	26	Skid Steer Loaders	175	0.78	0.04	0.05	0.78	0.04	0.05	3,020	3,020	12	12	0.5161	0.0235	0.0216	0.0311
2014	SC	Construction and Mining	26	Skid Steer Loaders	250	0.51	0.02	0.03	0.53	0.02	0.03	1,786	1,786	7	7	0.5732	0.0204	0.0187	0.0321
2014	SC	Construction and Mining	26	Skid Steer Loaders	500	0.12	0.00	0.01	0.12	0.00	0.01	359	359	1	1	0.6903	0.0243	0.0223	0.0421
2014	SC	Construction and Mining	26	Skid Steer Loaders	750	0.10	0.00	0.00	0.10	0.00	0.00	193	193	0	0	1.0331	0.0428	0.0393	0.0507
2014	SC	Construction and Mining	26	Skid Steer Loaders	1000	0.56	0.02	0.04	0.26	0.01	0.01	167	167	1	1	6.7147	0.2404	0.2212	0.4282
2014	SC	Construction and Mining	27	Surfacing Equipment	50	0.23	0.02	0.04	0.23	0.02	0.04	3,572	3,572	16	16	0.1286	0.0103	0.0095	0.0224
2014	SC	Construction and Mining	27	Surfacing Equipment	120	2.07	0.15	0.17	2.07	0.15	0.17	12,743	12,743	52	52	0.3255	0.0231	0.0212	0.0272
2014	SC	Construction and Mining	27	Surfacing Equipment	175	1.11	0.05	0.08	1.11	0.05	0.08	3,881	3,881	18	18	0.5741	0.0277	0.0255	0.0392
2014	SC	Construction and Mining	27	Surfacing Equipment	250	2.15	0.06	0.11	2.08	0.06	0.10	5,690	5,690	26	26	0.7560	0.0228	0.0210	0.0381
2014	SC	Construction and Mining	27	Surfacing Equipment	500	5.11	0.16	0.26	5.11	0.16	0.26	10,893	10,893	43	43	0.9382	0.0302	0.0278	0.0472
2014	SC	Construction and Mining	27	Surfacing Equipment	750	3.97	0.12	0.17	3.97	0.12	0.17	5,911	5,911	22	22	1.3428	0.0422	0.0388	0.0587
2014	SC	Construction and Mining	27	Surfacing Equipment	1000	1.12	0.03	0.05	1.12	0.03	0.05	724	724	3	3	3.1045	0.0758	0.0697	0.1331
2014	SC	Construction and Mining	27	Surfacing Equipment	9999	0.27	0.01	0.01	0.27	0.01	0.01	185	185	1	1	2.9042	0.0654	0.0602	0.1018
2014	SC	Construction and Mining	28	Tractors/Loaders/Backhoes	50	50.81	4.66	10.58	50.45	4.59	10.37	603,894	603,894	1,297	1,297	0.1683	0.0154	0.0142	0.0350
2014	SC	Construction and Mining	28	Tractors/Loaders/Backhoes	120	918.61	72.32	79.38	913.74	71.78	78.77	4,876,841	4,876,841	8,805	8,805	0.3767	0.0297	0.0273	0.0326
2014	SC	Construction and Mining	28	Tractors/Loaders/Backhoes	175	143.48	7.24	10.18	142.20	7.15	10.07	492,559	492,559	985	985	0.5826	0.0294	0.0270	0.0413
2014	SC	Construction and Mining	28	Tractors/Loaders/Backhoes	250	82.73	2.69	4.55	81.92	2.64	4.50	200,658	200,658	394	394	0.8246	0.0268	0.0246	0.0454
2014	SC	Construction and Mining	28	Tractors/Loaders/Backhoes	500	100.83	3.42	5.82	100.17	3.39	5.76	171,624	171,624	356	356	1.1750	0.0399	0.0367	0.0678
2014	SC	Construction and Mining	28	Tractors/Loaders/Backhoes	750	13.55	0.49	0.80	13.55	0.49	0.80	13,685	13,685	25	25	1.9809	0.0717	0.0660	0.1175
2014	SC	Construction and Mining	28	Tractors/Loaders/Backhoes	1000	2.00	0.04	0.07	2.00	0.04	0.07	1,492	1,492	2	2	2.6869	0.0596	0.0548	0.0989
2014	SC	Construction and Mining	28	Tractors/Loaders/Backhoes	9999	40.24	1.21	2.00	41.24	1.27	2.09	9,176	9,176	17	17	8.7716	0.2630	0.2419	0.4354
2014	SC	Construction and Mining	29	Trenchers	50	17.77	1.63	3.43	17.74	1.63	3.41	147,602	147,602	425	425	0.2408	0.0221	0.0204	0.0464
2014	SC	Construction and Mining	29	Trenchers	120	19.10	1.49	1.80	18.87	1.47	1.77	57,519	57,519	197	197	0.6641	0.0520	0.0478	0.0624
2014	SC	Construction and Mining	29	Trenchers	175	4.29	0.22	0.32	4.18	0.21	0.31	6,805	6,805	26	26	1.2624	0.0652	0.0600	0.0942
2014	SC	Construction and Mining	29	Trenchers	250	6.84	0.27	0.43	6.81	0.27	0.43	8,686	8,686	31	31	1.5746	0.0628	0.0578	0.0996
2014	SC	Construction and Mining	29	Trenchers	500	7.78	0.29	0.45	7.78	0.29	0.45	8,962	8,962	28	28	1.7357	0.0640	0.0589	0.1004
2014	SC	Construction and Mining	29	Trenchers	750	1.46	0.05	0.08	1.46	0.05	0.08	2,325	2,325	6	6	1.2520	0.0420	0.0387	0.0667
2014	SC	Construction and Mining	29	Trenchers	1000	0.62	0.03	0.04	0.62	0.03	0.04	99	99	0	0	12.4905	0.5657	0.5204	0.8897
2014	SC	Construction and Mining	36	Sweepers/Scrubbers	50	16.41	1.72	4.18	16.34	1.71	4.15	158,979	158,979	250	250	0.2065	0.0217	0.0200	0.0526
2014	SC	Construction and Mining	36	Sweepers/Scrubbers	120	34.39	3.04	3.43	33.74	2.97	3.35	124,966	124,966	203	203	0.5504	0.0486	0.0447	0.0549
2014	SC	Construction and Mining	36	Sweepers/Scrubbers	175	11.50	0.64	0.92	11.08	0.61	0.88	15,186	15,186	23	23	1.5146	0.0842	0.0774	0.1208
2014	SC	Construction and Mining	36	Sweepers/Scrubbers	250	4.37	0.17	0.27	4.37	0.17	0.27	6,354	6,354	10	10	1.3764	0.0545	0.0501	0.0856
2014	SC	Construction and Mining	36	Sweepers/Scrubbers	500	1.09	0.05	0.07	1.09	0.05	0.07	1,193	1,193	2	2	1.8298	0.0790	0.0727	0.1148
2014	SC	Construction and Mining	36	Sweepers/Scrubbers	1000	0.51	0.01	0.02	0.51	0.01	0.02	298	298	0	0	3.4348	0.0874	0.0804	0.1116

Equipment Type	HorsepowerBin	Nox EMFAC g/bhp-hr	PM EMFAC g/bhp-hr	PM2.5 EMFAC g/bhp-hr	HC EMFAC g/bhp-hr
Rubber Tired Dozers	120	2.58	0.23	0.21	0.27
Rubber Tired Dozers	175	3.33	0.19	0.18	0.27
Rubber Tired Dozers	250	2.66	0.13	0.12	0.20
Rubber Tired Dozers	500	2.28	0.11	0.10	0.17
Rubber Tired Dozers	750	2.31	0.08	0.08	0.14
Rubber Tired Loaders	50	1.86	0.21	0.19	0.53
Rubber Tired Loaders	120	1.88	0.16	0.15	0.19
Rubber Tired Loaders	175	1.96	0.11	0.10	0.16
Rubber Tired Loaders	250	1.65	0.06	0.05	0.10
Rubber Tired Loaders	500	1.23	0.05	0.04	0.08
Rubber Tired Loaders	750	1.39	0.05	0.05	0.10
Rubber Tired Loaders	1000	2.03	0.06	0.05	0.10
Rubber Tired Loaders	9999	0.35	0.01	0.01	0.02
Scrapers	50	2.34	0.31	0.29	0.92
Scrapers	120	2.40	0.18	0.16	0.20
Scrapers	175	3.66	0.19	0.18	0.28
Scrapers	250	3.91	0.18	0.16	0.27
Scrapers	500	2.35	0.10	0.09	0.15
Scrapers	750	1.87	0.07	0.07	0.11
Scrapers	1000	6.14	0.29	0.26	0.44
Scrapers	9999	0.68	0.03	0.02	0.04
Skid Steer Loaders	50	1.46	0.09	0.09	0.18
Skid Steer Loaders	120	0.87	0.05	0.05	0.05
Skid Steer Loaders	175	1.34	0.06	0.06	0.08
Skid Steer Loaders	250	1.04	0.04	0.03	0.06
Skid Steer Loaders	500	0.63	0.02	0.02	0.04
Skid Steer Loaders	750	0.63	0.03	0.02	0.03
Skid Steer Loaders	1000	3.05	0.11	0.10	0.19
Surfacing Equipment	50	1.17	0.09	0.09	0.20
Surfacing Equipment	120	1.23	0.09	0.08	0.10
Surfacing Equipment	175	1.49	0.07	0.07	0.10
Surfacing Equipment	250	1.37	0.04	0.04	0.07
Surfacing Equipment	500	0.85	0.03	0.03	0.04
Surfacing Equipment	750	0.81	0.03	0.02	0.04
Surfacing Equipment	1000	1.41	0.03	0.03	0.06
Surfacing Equipment	9999	0.13	0.00	0.00	0.00
Tractors/Loaders/Backhoes	50	1.53	0.14	0.13	0.32
Tractors/Loaders/Backhoes	120	1.43	0.11	0.10	0.12
Tractors/Loaders/Backhoes	175	1.51	0.08	0.07	0.11
Tractors/Loaders/Backhoes	250	1.50	0.05	0.04	0.08
Tractors/Loaders/Backhoes	500	1.07	0.04	0.03	0.06
Tractors/Loaders/Backhoes	750	1.20	0.04	0.04	0.07
Tractors/Loaders/Backhoes	1000	1.22	0.03	0.02	0.04
Tractors/Loaders/Backhoes	9999	0.40	0.01	0.01	0.02
Trenchers	50	2.19	0.20	0.18	0.42
Trenchers	120	2.51	0.20	0.18	0.24
Trenchers	175	3.27	0.17	0.16	0.24
Trenchers	250	2.86	0.11	0.10	0.18
Trenchers	500	1.58	0.06	0.05	0.09
Trenchers	750	0.76	0.03	0.02	0.04
Trenchers	1000	5.67	0.26	0.24	0.40
Sweepers/Scrubbers	50	1.87	0.20	0.18	0.48
Sweepers/Scrubbers	120	2.08	0.18	0.17	0.21
Sweepers/Scrubbers	175	3.93	0.22	0.20	0.31
Sweepers/Scrubbers	250	2.50	0.10	0.09	0.16
Sweepers/Scrubbers	500	1.66	0.07	0.07	0.10
Sweepers/Scrubbers	1000	1.56	0.04	0.04	0.05

Attachment B.1

Construction – Criteria Pollutant and Greenhouse Gas Emissions Calculations

- Criteria Pollutants and GHGs – On-Road Emissions
    - EMFAC 2011 Vehicle Emissions

EMFAC 2011 VEHICLE EMISSIONS

EMFAC2011 Emission Rates
Region Type: County
Region: Los Angeles
Calendar Year: 2014
Season: Annual
Vehicle Classification: EMFAC2011 Categories

ON-ROAD TRUCKS

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	VMT (miles/day)	ROG_RUNEX (gms/mile)	TOG_RUNEX (gms/mile)	CO_RUNEX (gms/mile)	NOX_RUNEX (gms/mile)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pavley I+LCFS) (gms/mile)	PM10_RUNEX (gms/mile)	PM2_5_RUNEX (gms/mile)
Los Angeles	2014	Annual	T7 tractor construction	DSL	2007	20	393.64	0.67	0.77	2.06	10.91	2195.26	2162.33	0.08	0.07
Los Angeles	2014	Annual	T7 tractor construction	DSL	2008	20	418.40	0.63	0.72	1.94	10.18	2195.26	2162.33	0.07	0.07
Los Angeles	2014	Annual	T7 tractor construction	DSL	2009	20	293.97	0.58	0.66	1.79	8.99	2195.26	2162.33	0.07	0.06
Los Angeles	2014	Annual	T7 tractor construction	DSL	2010	20	251.73	0.35	0.40	1.07	3.46	2121.91	2090.08	0.06	0.06
Los Angeles	2014	Annual	T7 tractor construction	DSL	2011	20	273.40	0.32	0.36	0.97	2.84	2121.91	2090.08	0.05	0.05
Los Angeles	2014	Annual	T7 tractor construction	DSL	2012	20	259.19	0.29	0.32	0.87	2.14	2121.91	2090.08	0.05	0.04
Los Angeles	2014	Annual	T7 tractor construction	DSL	2013	20	329.79	0.24	0.27	0.72	1.68	2117.03	2085.27	0.04	0.03
Los Angeles	2014	Annual	T7 tractor construction	DSL	2014	20	415.67	0.22	0.25	0.67	1.43	2117.03	2085.27	0.03	0.03
Los Angeles	2014	Annual	T7 tractor construction	DSL	2015	20	90.86	0.20	0.23	0.61	1.18	2117.03	2085.27	0.03	0.03
						20 mph		0.42	0.47	1.28	5.37	2,150.17	2,117.91	0.06	0.05
Los Angeles	2014	Annual	T7 tractor construction	DSL	2007	30	1095.62	0.51	0.58	1.87	8.82	1922.57	1893.73	0.07	0.07
Los Angeles	2014	Annual	T7 tractor construction	DSL	2008	30	1164.54	0.48	0.55	1.75	8.23	1922.57	1893.73	0.07	0.06
Los Angeles	2014	Annual	T7 tractor construction	DSL	2009	30	818.22	0.44	0.51	1.62	7.26	1922.57	1893.73	0.06	0.06
Los Angeles	2014	Annual	T7 tractor construction	DSL	2010	30	700.64	0.27	0.30	0.97	2.80	1858.33	1830.46	0.06	0.05
Los Angeles	2014	Annual	T7 tractor construction	DSL	2011	30	760.96	0.24	0.27	0.88	2.29	1858.33	1830.46	0.05	0.05
Los Angeles	2014	Annual	T7 tractor construction	DSL	2012	30	721.41	0.22	0.25	0.79	1.73	1858.33	1830.46	0.04	0.04
Los Angeles	2014	Annual	T7 tractor construction	DSL	2013	30	917.90	0.18	0.20	0.65	1.35	1854.06	1826.24	0.04	0.03
Los Angeles	2014	Annual	T7 tractor construction	DSL	2014	30	1156.96	0.17	0.19	0.60	1.15	1854.06	1826.24	0.03	0.03
Los Angeles	2014	Annual	T7 tractor construction	DSL	2015	30	252.90	0.15	0.17	0.55	0.95	1854.06	1826.24	0.03	0.03
						30 mph		0.32	0.36	1.15	4.34	1,883.08	1,854.83	0.05	0.05
Los Angeles	2014	Annual	T7 tractor construction	DSL	2007	35	885.82	0.45	0.51	1.82	8.02	1818.29	1791.02	0.08	0.07
Los Angeles	2014	Annual	T7 tractor construction	DSL	2008	35	941.54	0.42	0.48	1.71	7.48	1818.29	1791.02	0.07	0.07
Los Angeles	2014	Annual	T7 tractor construction	DSL	2009	35	661.54	0.39	0.44	1.58	6.61	1818.29	1791.02	0.07	0.06
Los Angeles	2014	Annual	T7 tractor construction	DSL	2010	35	566.48	0.23	0.26	0.94	2.54	1757.54	1731.17	0.06	0.05
Los Angeles	2014	Annual	T7 tractor construction	DSL	2011	35	615.24	0.21	0.24	0.85	2.09	1757.54	1731.17	0.05	0.05
Los Angeles	2014	Annual	T7 tractor construction	DSL	2012	35	583.26	0.19	0.22	0.77	1.58	1757.54	1731.17	0.05	0.04
Los Angeles	2014	Annual	T7 tractor construction	DSL	2013	35	742.13	0.16	0.18	0.64	1.23	1753.49	1727.19	0.04	0.03
Los Angeles	2014	Annual	T7 tractor construction	DSL	2014	35	935.41	0.14	0.16	0.59	1.05	1753.49	1727.19	0.03	0.03
Los Angeles	2014	Annual	T7 tractor construction	DSL	2015	35	204.47	0.13	0.15	0.54	0.87	1753.49	1727.19	0.03	0.03
						35 mph		0.28	0.31	1.13	3.95	1,780.94	1,754.23	0.06	0.05
Los Angeles	2014	Annual	T7 tractor construction	DSL	2007	40	809.18	0.39	0.45	1.81	7.40	1735.39	1709.36	0.08	0.08
Los Angeles	2014	Annual	T7 tractor construction	DSL	2008	40	860.08	0.37	0.42	1.70	6.90	1735.39	1709.36	0.08	0.07
Los Angeles	2014	Annual	T7 tractor construction	DSL	2009	40	604.31	0.34	0.39	1.57	6.09	1735.39	1709.36	0.07	0.07
Los Angeles	2014	Annual	T7 tractor construction	DSL	2010	40	517.47	0.20	0.23	0.94	2.35	1677.41	1652.24	0.06	0.06
Los Angeles	2014	Annual	T7 tractor construction	DSL	2011	40	562.01	0.18	0.21	0.85	1.92	1677.41	1652.24	0.06	0.05
Los Angeles	2014	Annual	T7 tractor construction	DSL	2012	40	532.80	0.17	0.19	0.77	1.45	1677.41	1652.24	0.05	0.05
Los Angeles	2014	Annual	T7 tractor construction	DSL	2013	40	677.93	0.14	0.16	0.63	1.14	1673.54	1648.44	0.04	0.04
Los Angeles	2014	Annual	T7 tractor construction	DSL	2014	40	854.48	0.13	0.14	0.58	0.97	1673.54	1648.44	0.03	0.03
Los Angeles	2014	Annual	T7 tractor construction	DSL	2015	40	186.78	0.12	0.13	0.53	0.80	1673.54	1648.44	0.03	0.03
						40 mph		0.24	0.28	1.12	3.64	1,699.74	1,674.24	0.06	0.05

EMFAC 2011 VEHICLE EMISSIONS

EMFAC2011 Emission Rates
Region Type: County
Region: Los Angeles
Calendar Year: 2014
Season: Annual
Vehicle Classification: EMFAC2011 Categories

EMPLOYEE VEHICLES

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	VMT (miles/day)	ROG_RUNEX (gms/mile)	TOG_RUNEX (gms/mile)	CO_RUNEX (gms/mile)	NOX_RUNEX (gms/mile)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pavley I+LCFS) (gms/mile)	PM10_RUNEX (gms/mile)	PM2_5_RUNEX (gms/mile)
Los Angeles	2014	Annual	LDA	GAS	Aggregated	35 mph	14,588,306.02	0.04	0.05	1.41	0.12	319.91	285.49	0.00	0.00
Los Angeles	2014	Annual	LDA	GAS	Aggregated	40 mph	11,038,966.54	0.04	0.05	1.34	0.12	297.82	265.54	0.00	0.00

EMFAC2011 Emission Rates
Region Type: County
Region: Los Angeles
Calendar Year: 2014
Season: Annual
Vehicle Classification: EMFAC2011 Categories

0N-SITE LIGHT DUTY TRUCKS

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	VMT (miles/day)	ROG_RUNEX (gms/mile)	TOG_RUNEX (gms/mile)	CO_RUNEX (gms/mile)	NOX_RUNEX (gms/mile)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pavley I+LCFS) (gms/mile)	PM10_RUNEX (gms/mile)	PM2_5_RUNEX (gms/mile)
Los Angeles	2014	Annual	LHD2	GAS	Aggregated	20 mph	50,633.73	0.26	0.31	3.67	0.51	1,006.07	990.98	0.00	0.00
Los Angeles	2014	Annual	LHD2	GAS	Aggregated	25 mph	95,079.98	0.19	0.23	2.80	0.53	768.01	756.49	0.00	0.00
Los Angeles	2014	Annual	LHD2	GAS	Aggregated	30 mph	108,995.37	0.14	0.17	2.26	0.56	619.43	610.14	0.00	0.00
Los Angeles	2014	Annual	LHD2	GAS	Aggregated	35 mph	82,012.25	0.11	0.14	1.93	0.59	527.85	519.93	0.00	0.00

Attachment B.1

Construction – Criteria Pollutant and Greenhouse Gas Emissions Calculations

- Activities, Crew, Equipment, and Schedule
    - Equipment Emissions Data
    - Emissions by Activity
    - Emissions by Crew
    - Emission Quantities by Phase
    - Hauling Emissions
    - Building Wrecking
    - Fugitive Dust Emissions
    - Paint Emissions
    - Pavement Crushing Emissions

EQUIPMENT EMISSION DATA

Emission Rates for Specific Equipment

				Emission Rates (lb/hr)								Emissions (lbs/day)							
Equipment	**Emission Tier**	**Brake Horsepower**	**Hours/day**	**ROG**	**CO**	**NOX**	**SOX**	**PM10**	**PM2.5**	**CO2**	**CH4**	**ROG**	**CO**	**NOX**	**SOX**	**PM10**	**PM2.5**	**CO2**	**CH4**
Hyd. Crane, 12 Ton	4f	130	10	0.0115	0.392	0.0247	0.001	0.0012	0.001	54.278	0.009	0.12	3.92	0.25	0.01	0.01	0.01	543	0.09
Backhoe Loader, 48 HP	4	83	10	0.0094	0.531	0.1684	0.001	0.0010	0.001	50.331	0.013	0.09	5.31	1.68	0.01	0.01	0.01	503	0.13
Dump Truck, 12 CY, 400 HP	4f	400	10	0.0018	0.0056	0.0237	0.0000	0.0002	0.0002	9.4721	0.0000	0.02	0.06	0.24	0.00	0.00	0.00	95	0.00
Crawler Loader, 3 CY	4f	499	10	0.0557	0.638	0.1193	0.002	0.0060	0.005	236.322	0.017	0.56	6.38	1.19	0.02	0.06	0.05	2,363	0.17
Hyd. Crane 25 tons	4f	130	10	0.0115	0.392	0.0247	0.001	0.0012	0.001	54.278	0.009	0.12	3.92	0.25	0.01	0.01	0.01	543	0.09
Air Compressor, 250 cfm	4	78	10	0.0100	0.343	0.1784	0.001	0.0011	0.001	52.511	0.006	0.10	3.43	1.78	0.01	0.01	0.01	525	0.06
Dozer, 200 HP	4f	305	10	0.0372	0.833	0.0797	0.003	0.0040	0.004	223.653	0.027	0.37	8.33	0.80	0.03	0.04	0.04	2,237	0.27
Sheepsft Roller Towed	4f	232	10	0.0283	0.360	0.0606	0.002	0.0030	0.003	141.940	0.011	0.28	3.60	0.61	0.02	0.03	0.03	1,419	0.11
Dozer, 300 HP	4f	305	10	0.0372	0.833	0.0797	0.003	0.0040	0.004	223.653	0.027	0.37	8.33	0.80	0.03	0.04	0.04	2,237	0.27
Hyd. Excavator, 1 CY	4f	222	10	0.0261	0.314	0.0560	0.002	0.0028	0.002	140.784	0.010	0.26	3.14	0.56	0.02	0.03	0.02	1,408	0.10
Hyd. Excavator, 3.5 CY	4f	428	10	0.0504	0.451	0.1080	0.002	0.0054	0.005	199.898	0.013	0.50	4.51	1.08	0.02	0.05	0.05	1,999	0.13
Hyd. Crane 55 tons	4f	230	10	0.0271	0.271	0.0580	0.001	0.0029	0.003	103.094	0.009	0.27	2.71	0.58	0.01	0.03	0.03	1,031	0.09
S.P. Crane, 4x4, 5 Ton	4f	125	10	0.0111	0.377	0.0238	0.001	0.0012	0.001	52.191	0.009	0.11	3.77	0.24	0.01	0.01	0.01	522	0.09
S.P. Crane, 4x4, 12 Ton	4f	130	10	0.0115	0.392	0.0247	0.001	0.0012	0.001	54.278	0.009	0.12	3.92	0.25	0.01	0.01	0.01	543	0.09
Asphalt Paver, 130 HP	4	200	10	0.0256	0.889	0.2745	0.002	0.0027	0.002	146.480	0.018	0.26	8.89	2.74	0.02	0.03	0.02	1,465	0.18
Tandem Roller, 10 Ton	4	145	10	0.0168	0.491	0.2996	0.001	0.0018	0.002	71.214	0.011	0.17	4.91	3.00	0.01	0.02	0.02	712	0.11
Roller, Pneum., Whl., 12 Ton	4	145	10	0.0168	0.491	0.2996	0.001	0.0018	0.002	71.214	0.011	0.17	4.91	3.00	0.01	0.02	0.02	712	0.11
Grader, 30,000 lbs	4f	275	10	0.0347	0.476	0.0743	0.002	0.0037	0.003	189.155	0.015	0.35	4.76	0.74	0.02	0.04	0.03	1,892	0.15
Paving Machine and Equipment	4f	450	10	0.0493	0.832	0.1056	0.002	0.0053	0.005	209.733	0.018	0.49	8.32	1.06	0.02	0.05	0.05	2,097	0.18
Grader, 30,000 lbs	4f	275	10	0.0347	0.476	0.0743	0.002	0.0037	0.003	189.155	0.015	0.35	4.76	0.74	0.02	0.04	0.03	1,892	0.15
Paving Machine and Equipment	4f	335	10	0.0367	0.814	0.0786	0.003	0.0039	0.003	260.225	0.025	0.37	8.14	0.79	0.03	0.04	0.03	2,602	0.25
Paving Machine and Equipment	4f	200	10	0.0219	0.889	0.0469	0.002	0.0023	0.002	146.480	0.018	0.22	8.89	0.47	0.02	0.02	0.02	1,465	0.18
Paving Machine and Equipment		70	10	0.2243	0.502	0.1991	0.001	0.0157	0.014	39.150	0.017	2.24	5.02	1.99	0.01	0.16	0.14	392	0.17
Concrete Saw		10	10	0.1710	0.027	0.0414	0.000	0.0030	0.003	6.585	0.001	1.71	0.27	0.41	0.00	0.03	0.03	66	0.01
Scraper, Towed, 10 CY	4f	450	10	0.0669	1.089	0.1434	0.003	0.0072	0.006	289.026	0.026	0.67	10.89	1.43	0.03	0.07	0.06	2,890	0.26
Truck Tractor, 6x4, 380 HP	4f	460	10	0.0542	0.006	0.0237	0.000	0.000	0.000	9.472	0.000	0.54	0.06	0.24	0.00	0.00	0.00	95	0.00
Compactor, Roller, Vibratory, 25 Ton	4f	315	10	0.0364	0.489	0.0781	0.002	0.0039	0.003	192.720	0.014	0.36	4.89	0.78	0.02	0.04	0.03	1,927	0.14
Truck Tractor, 6x4, 450 HP	4f	460	10	0.002	0.006	0.0237	0.000	0.000	0.000	9.472	0.000	0.02	0.06	0.24	0.00	0.00	0.00	95	0.00
Hyd. Hammer (1200 lbs) (connect to Excavator)	4f	222	10	0.0261	0.314	0.0560	0.002	0.0028	0.002	140.784	0.010	0.26	3.14	0.56	0.02	0.03	0.02	1,408	0.10
FE Loader, W.M., 4 CY	4f	499	10	0.0557	0.638	0.1193	0.002	0.0060	0.005	236.322	0.017	0.56	6.38	1.19	0.02	0.06	0.05	2,363	0.17
Pavt. Rem. Bucket (connect to Excavator)	4f	222	10	0.0261	0.314	0.0560	0.002	0.0028	0.002	140.784	0.010	0.26	3.14	0.56	0.02	0.03	0.02	1,408	0.10
Dist. Tanker, 3000 Gallon	4f	330	10	0.005	0.014	0.0592	0.000	0.001	0.001	23.680	0.000	0.05	0.14	0.59	0.00	0.01	0.01	237	0.00
Pvmt. Profiler, 750 HP	4f	750	10	0.0697	1.387	0.1494	0.003	0.0075	0.007	349.555	0.031	0.70	13.87	1.49	0.03	0.07	0.07	3,496	0.31
Road Sweeper, S.P., 8' wide	4	170	10	0.005	0.014	0.0592	0.000	0.001	0.001	23.680	0.000	0.05	0.14	0.59	0.00	0.01	0.01	237	0.00
FE Loader, W.M., 1.5 CY	4f	220	10	0.0245	0.324	0.0526	0.001	0.0026	0.002	130.982	0.010	0.25	3.24	0.53	0.01	0.03	0.02	1,310	0.10
Ripper, beam, and shank (connect to Excavator)	4f	222	10	0.0261	0.314	0.0560	0.002	0.0028	0.002	140.784	0.010	0.26	3.14	0.56	0.02	0.03	0.02	1,408	0.10
Stabilizers, 310 HP	4f	430	10	0.0400	0.795	0.0857	0.003	0.0043	0.004	272.689	0.019	0.40	7.95	0.86	0.03	0.04	0.04	2,727	0.19
1 Flatbed Truck, Gas, 3 Ton	4f	360	10	0.002	0.006	0.0237	0.000	0.000	0.000	9.472	0.000	0.02	0.06	0.24	0.00	0.00	0.00	95	0.00
Truck Tractor, 220 HP	4f	220	10	0.002	0.006	0.0237	0.000	0.000	0.000	9.472	0.000	0.02	0.06	0.24	0.00	0.00	0.00	95	0.00
Line Rem., 11 HP, walk behind		11	10	0.0115	0.048	0.0060	0.000	0.0002	0.000	7.405	0.001	0.11	0.48	0.06	0.00	0.00	0.00	74	0.01
Paint Thermo. Striper, TM	4	85	10	0.0109	0.373	0.1944	0.001	0.0012	0.001	57.224	0.006	0.11	3.73	1.94	0.01	0.01	0.01	572	0.06
Heating Kettle, 115 Gallon	4	85	10	0.0109	0.373	0.1944	0.001	0.0012	0.001	57.224	0.006	0.11	3.73	1.94	0.01	0.01	0.01	572	0.06
Crane, Flatbed Mounted, 3 ton	4f	250	10	0.0222	0.295	0.0476	0.001	0.0024	0.002	112.058	0.009	0.22	2.95	0.48	0.01	0.02	0.02	1,121	0.09
Flatbed Truck - 10 Wheel	4f	360	10	0.002	0.006	0.0237	0.000	0.000	0.000	9.472	0.000	0.02	0.06	0.24	0.00	0.00	0.00	95	0.00
Crane RT 50 Ton	4f	200	10	0.0178	0.236	0.0381	0.001	0.0019	0.002	89.647	0.008	0.18	2.36	0.38	0.01	0.02	0.02	896	0.08
Crane - Track	4f	287	10	0.0255	0.338	0.0546	0.001	0.0027	0.002	128.643	0.011	0.25	3.38	0.55	0.01	0.03	0.02	1,286	0.11
Front End Loader	4f	220	10	0.0245	0.324	0.0526	0.001	0.0026	0.002	130.982	0.010	0.25	3.24	0.53	0.01	0.03	0.02	1,310	0.10
Motor Grader	4	140	10	0.0176	0.587	0.3151	0.001	0.0019	0.002	99.048	0.011	0.18	5.87	3.15	0.01	0.02	0.02	990	0.11
Compactor		33	10	0.1228	0.145	0.1535	0.000	0.0052	0.005	22.216	0.002	1.23	1.45	1.54	0.00	0.05	0.05	222	0.02
Light Plant		16.5	10	0.3397	0.072	0.0639	0.000	0.0053	0.005	11.108	0.001	3.40	0.72	0.64	0.00	0.05	0.05	111	0.01
Welder		38.9	10	0.3397	0.171	0.1507	0.000	0.0125	0.011	26.188	0.003	3.40	1.71	1.51	0.00	0.13	0.11	262	0.03
Fork Lift	4	80	10	0.0099	0.351	0.1771	0.001	0.0011	0.001	53.857	0.006	0.10	3.51	1.77	0.01	0.01	0.01	539	0.06
Truckmixer, 10 CY	4f	360	10	0.002	0.006	0.0237	0.000	0.0002	0.000	9.472	0.000	0.02	0.06	0.24	0.00	0.00	0.00	95	0.00
Concrete Pump	4f	290	10	0.0371	1.274	0.0796	0.002	0.0040	0.004	195.233	0.022	0.37	12.74	0.80	0.02	0.04	0.04	1,952	0.22
Generator	4f	749	10	0.0959	3.291	0.2056	0.006	0.0103	0.009	504.240	0.057	0.96	32.91	2.06	0.06	0.10	0.09	5,042	0.57
Vibrator		8	10	0.3397	0.035	0.0310	0.000	0.0026	0.002	5.386	0.001	3.40	0.35	0.31	0.00	0.03	0.02	54	0.01

			Emission Rates (grams/mile)								Emission Rates (lbs)							
Onroad Vehicles	Distance	Speed	**ROG**	**CO**	**Nox**	**SOx**	**PM10**	**PM2.5**	**CO2**	**CH4**	**ROG**	**CO**	**Nox**	**SOx**	**PM10**	**PM2.5**	**CO2**	**CH4**
Employee vehicles	26.6	40 mph	0.035	1.345	0.122	0.000	0.002	0.001	297.823	0.00	0.0021	0.0788	0.0071	-	0.0001	0.0001	17	-
3/4 ton pickup truck Ford F250	2	20 mph	0.264	3.668	0.512	0.000	0.004	0.003	1,006.07	0.00	0.0012	0.0162	0.0023	-	0.0000	0.0000	4	-
T7 tractor	2	20 mph	0.416	1.276	5.372	0.000	0.056	0.052	2,150.17	0.00	0.0018	0.0056	0.0237	-	0.0002	0.0002	9	-
1 Dist. Tanker, 3000 Gallon	5	20 mph	0.416	1.276	5.372	0.000	0.056	0.052	2,150.17	0.00	0.0046	0.0140	0.0592	-	0.0006	0.0006	24	-
1 Road Sweeper, S.P., 8' wide	5	20 mph	0.416	1.276	5.372	0.000	0.056	0.052	2,150.17	0.00	0.0046	0.0140	0.0592	-	0.0006	0.0006	24	-

EQUIPMENT EMISSION DATA

Load Factors

EquipmentTypeID	Adj ARB LF
A/C Tug Narrow Body	0.536
A/C Tug Wide Body	0.536
Baggage Tug	0.3685
Belt Loader	0.335
Bobtail	0.3685
Cargo Loader	0.335
Cargo Tractor	0.3618
Forklift (GSE)	0.201
Lift (GSE)	0.335
Other GSE	0.335
Bore/Drill Rigs	0.5025
Cranes	0.2881
Crawler Tractors	0.4288
Excavators	0.3819
Graders	0.4087
Off-Highway Tractors	0.4355
Off-Highway Trucks	0.3819
Other Construction Equipment	0.4154
Pavers	0.4154
Paving Equipment	0.3551
Rollers	0.3752
Rough Terrain Forklifts	0.402
Rubber Tired Dozers	0.3953
Rubber Tired Loaders	0.3618
Scrapers	0.4824
Skid Steer Loaders	0.3685
Surfacing Equipment	0.3015
Tractors/Loaders/Backhoes	0.3685
Trenchers	0.5025
Aerial Lifts	0.3082
Forklifts	0.201
Other General Industrial	0.3417
Other Material Handling	0.3953
Drill Rig (Mobile)	0.5025
Workover Rig (Mobile)	0.5025
Sweepers/Scrubbers	0.4556
Passenger Stand	0.3953

EQUIPMENT EMISSION DATA

	Usage Rates
Aerial Lifts	18%
Asphalt Pavers	19%
Bore/Drill Rigs	39%
Cement and Mortar Mixers	4%
Concrete/Industrial Saws	29%
Cranes	60%
Crawler Tractors	49%
Crushing/Proc. Equipment	46%
Dumpers/Tenders	32%
Excavators	67%
Generator Sets	6%
Graders	45%
Off-Highway Tractors	52%
Off-Highway Trucks	94%
Other Construction Equipment	33%
Pavers	39%
Paving Equipment	40%
Plate Compactors	10%
Pressure Washers	6%
Rollers	33%
Rough Terrain Forklifts	54%
Rubber Tired Dozers	76%
Rubber Tired Loaders	46%
Scrapers	53%
Signal Boards	36%
Skid Steer Loaders	15%
Skid Steer Loaders	40%
Surfacing Equipment	24%
Surfacing Equipment	21%
Tampers/Rammers	9%
Tractors/Loaders/Backhoes	45%
Trenchers	30%
Welders	10%
Air Compressors	27%
Sweepers/Scrubbers	25%
Plate Compactors	29%

ACT	TITLE	Duratio	Number	Type of Crew
1000	**MOBILIZATION**			
Act. 1081	Field Office, Plants & Temp Facilities	60		
	FIELD OFFICE AND FACILITIES		1	Estimated Crews
	CLEARING AND GRUBBING		1/2	B-11A Crews (work half of the
2000	**PHASE 1 TAXIWAY C OBJECT FREE AREA @ C17**			
Act. 2001	**Setup Barricades and Job Site Conditions**	**2**		
Act. 2011				
	Asphalt Pavement and Topsoil Removal	5	7	B-38 Crews
	SETUP BARRICADES		2	"2-Carp" Crews
		SEEDIN	6	"2-Carp" Crews
Act. 2021	**Subgrade Prep**	**4**		
	SUBGRADE FILL		2	B-10m Crews
	SUBGRADE COMPACTION		2	B-10D Crews
	ELECTRICAL DEMOLITION/DUCT/CABLES		11	"2-Elec" Crews
Act. 2032	**Paving Econocrete**	**3**	**3**	**B-74 Crews**
Act. 2041	**PCC Paving (Side Form Paving)**	**2**		
	PLAIN PCC PAVEMENT, 19" THICK, EDGE FORM		3	B-26 Crews
	REINFORCING PCC PAVEMENT		1.5	"2-Rodmen" Crews
	ELECTRICAL LIGHTS IN PAVEMENT		3	"2-Elec" Crews
Act. 2051	**Aggregate Base (Shoulders PMB & AGG)**	**2**		
	CRUSSHED AGGREGATE BASE COURSE		1	B-36C Crews
	PROCESSED MATERIAL BASE		2	B-25 Crews
Act. 2061	**Asphalt Surface (Shoulders)**	**2**		
	ASPHALT (GREENBOOK)		7	B-25C Crews
	INFIELD PAINTING (GREEN) and ROAD MARKING		3	B-79 Crews
Act. 2071	**Finish Light Fixture Installations**	**1**	**11**	**"2-Elec" Crews**
3000	**PHASE 2 TAXW CONSTR OUTSIDE RWY TRSA &**			
3001	**Ph 2A Taxiway Work West of Existing Runway**			
Act. 3011	**Set Up Barricades**	**1**	**2**	**"2-Carp" Crews**
Act. 3021	**Asphalt Pavement and Topsoil Removal**	**5**	**7**	**B-38 Crews**
Act. 3031	**Exiting PCC Pavement Removal**	**18**	**6**	**B-38 Crews**
Act. 3041	**Demo Existing Storm Drain**	**2**		
	REMOVAL OF STORM DRAIN PIPE, 8"-18", AND CATCH		2	B-6 Crews
	REMOVAL OF STORM DRAIN PIPE, 21"-30"		2	B-13B Crews
Act. 3051	**Grading for Taxiway and Shoulders**	**11**	**14**	**B-33B Crews**
Act. 3061	**Storm Drain**	**7**		
	CONSTRUCT 12" to 24" RCP STORM DRAIN		1	B-21 Crews
	CONSTRUCT 30" RCP STORM DRAIN		1/7	B-13 Crews (work over 1 days out of 7
	INSTALL 12" D.I.P.		1/7	B-21A Crews (work over 1 days out of
	TRENCH EXCAVATION		4/7	B-12A Crews
	UTILITY BEDDING		4/7	B-6 Crews(work over 4 days out of 7
Act. 3071	**Subgrade Prep**	**4**		
	SUBGRADE FILL		2	B-10m Crews
	SUBGRADE COMPACTION		2	B-10D Crews
	ELECTRICAL DEMOLITION/DUCT/CABLES		11	"2-Elec" Crews
Act. 3083	**Paving Econocrete**	**6**	**3**	**B-74 Crews**
Act. 3091	**PCC Paving (Side Form)**	**8**		
	PLAIN PCC PAVEMENT, 19" THICK, EDGE FORM		3	B-26 Crews
	REINFORCING PCC PAVEMENT		1.5	"2-Rodmen" Crews
	ELECTRICAL LIGHTS IN PAVEMENT		3	"2-Elec" Crews
Act. 3101	**Aggregate Base (Shoulders PMB & AGG)**	**4**		
	CRUSSHED AGGREGATE BASE COURSE		1	B-36C Crews
	PROCESSED MATERIAL BASE		2	B-25 Crews
Act. 3111	**Asphalt Surface (Shoulders & Pad)**	**3**		
	ASPHALT (GREENBOOK)		8	B-25C Crews
	INFIELD PAINTING (GREEN) and ROAD MARKING		3	B-79 Crews
Act. 3121	**Finish Light Fixture Installations**	**3**	**11**	**"2-Elec" Crews**
3141	**Phase 2B - Pave Temp Txwy U Outside 220'**			
Act. 3151	**Set Up Barricades**	**1**	**2**	**"2-Carp" Crews**
Act. 3161	**Asphalt Pavement and Topsoil Removal**	**3**	**7**	**B-38 Crews**
Act. 3171	**Subgrade Prep and Soil Stabilization**	**2**		
	SUBGRADE FILL		2	B-10m Crews
	SUBGRADE COMPACTION		2	B-10D Crews
	SUBGRADE FABRIC STABILIZATION		2	B-6 Crews
	ELECTRICAL DEMOLITION/DUCT/CABLES		11	"2-Elec" Crews
Act. 3181	**Pave Asphalt Base Cse (Full Strength Pvmt**	**3**		
	ASPHALT (GREENBOOK)		7	B-25C Crews
	INFIELD PAINTING (GREEN) and ROAD MARKING		3	B-79 Crews
3221	**Phase 2C**			
Act. 3231	**Asphalt Pavement & Topsoil Removal**	**1**	**7**	**B-38 Crews**
Act. 3241	**Subgrade Prep and Soil Stabilization**	**1**		
	SUBGRADE FILL		2	B-10m Crews
	SUBGRADE COMPACTION		2	B-10D Crews
	SUBGRADE FABRIC STABILIZATION		2	B-6 Crews
	ELECTRICAL DEMOLITION/DUCT/CABLES		11	"2-Elec" Crews
Act. 3251	**Pave Asphalt Base Cse (Full Strength Pvmt**	**3**		
	ASPHALT (GREENBOOK)		7	B-25C Crews
	INFIELD PAINTING (GREEN) and ROAD MARKING		3	B-79 Crews
Act. 3291	**Temp Taxiway Pvment Marking, Lighting &**	**2**		
Act. 3301	**Relocate Runway 7L Threshold**			
Act. 3311	**Paint Obliteration**			
Act. 3321	**Temporary Marking, Lighting & Signage**			

ACT	TypeofCrew	Number of Crews	ROG	CO	Nox	SOx	PM10	PM2.5	CO2	CH4
1000										
1081			**0**	**3**	**0**	**0**	**0**	**0**	**874**	**0**
	Estimated	1								
	B-11A	0.5	0	3	0	0	0	0	874	0
2000										
2001										
2011			**5**	**71**	**15**	**0**	**0**	**0**	**23444**	**2**
	B-38	7	5	70	15	0	0	0	23124	2
	2 Carp	2	0	0	0	0	0	0	80	0
	2 Carp	6	0	1	0	0	0	0	240	0
2021			**2**	**35**	**4**	**0**	**0**	**0**	**10228**	**1**
	B-10m	2	1	13	1	0	0	0	3477	0
	B-10D	2	1	20	2	0	0	0	6316	1
	2 Elec	11	0	2	0	0	0	0	436	0
2032	**B-74**	**3**	**2**	**39**	**6**	**0**	**0**	**0**	**14561**	**1**
2041			**1**	**20**	**3**	**0**	**0**	**0**	**5869**	**0**
	B-26	3	1	19	3	0	0	0	5690	0
	2 Rodmen	1.5	0	0	0	0	0	0	59	0
	2 Elec	3	0	1	0	0	0	0	119	0
2051			**1**	**23**	**7**	**0**	**0**	**0**	**5327**	**1**
	B-36C	1	1	11	1	0	0	0	3385	0
	B-25	2	0	12	5	0	0	0	1942	0
2051asp			0.0							
2061			**1**	**36**	**16**	**0**	**0**	**0**	**6155**	**1**
	B-25C	7	1	27	11	0	0	0	4444	0
	B-79	3	0	9	5	0	0	0	1710	0
2061asp			0.0							
2071	**2 Elec**	**11**	**0**	**2**	**0**	**0**	**0**	**0**	**436**	**0**
3000										
3001										
3011	**2 Carp**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**80**	**0**
3021	**B-38**	**7**	**5**	**70**	**15**	**0**	**0**	**0**	**23124**	**2**
3031	**B-38**	**6**	**4**	**60**	**13**	**0**	**0**	**0**	**19821**	**2**
3041			**0**	**10**	**2**	**0**	**0**	**0**	**2091**	**0**
	B-6	2	0	5	2	0	0	0	574	0
	B-13B	2	0	5	1	0	0	0	1516	0
3051	**B-33B**	**14**	**10**	**194**	**21**	**1**	**1**	**1**	**51630**	**5**
3051dust							**26**	**4**		
3061			**0**	**5**	**1**	**0**	**0**	**0**	**1080**	**0**
	B-21	1	0	1	0	0	0	0	226	0
	B-13	0.142857143	0	0	0	0	0	0	66	0
	B-21A	0.142857143	0	0	0	0	0	0	61	0
	B-12A	0.571428571	0	1	0	0	0	0	563	0
	B-6	0.571428571	0	2	0	0	0	0	164	0
3071			**2**	**35**	**4**	**0**	**0**	**0**	**10228**	**1**
	B-10m	2	1	13	1	0	0	0	3477	0
	B-10D	2	1	20	2	0	0	0	6316	1
	2 Elec	11	0	2	0	0	0	0	436	0
3083	**B-74**	**3**	**2**	**39**	**6**	**0**	**0**	**0**	**14561**	**1**
3091			**1**	**20**	**3**	**0**	**0**	**0**	**5869**	**0**
	B-26	3	1	19	3	0	0	0	5690	0
	2 Rodmen	1.5	0	0	0	0	0	0	59	0
	2 Elec	3	0	1	0	0	0	0	119	0
3101			**1**	**23**	**7**	**0**	**0**	**0**	**5327**	**1**
	B-36C	1	1	11	1	0	0	0	3385	0
	B-25	2	0	12	5	0	0	0	1942	0
3101asp			0.0							
3111			**1**	**40**	**17**	**0**	**0**	**0**	**6789**	**1**
	B-25C	8	1	31	13	0	0	0	5079	1
	B-79	3	0	9	5	0	0	0	1710	0
3111asp			0.0							
3121	**2 Elec**	**11**	**0**	**2**	**0**	**0**	**0**	**0**	**436**	**0**
3141										
3151	**2 Carp**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**80**	**0**
3161	**B-38**	**7**	**5**	**70**	**15**	**0**	**0**	**0**	**23124**	**2**
3171			**2**	**40**	**5**	**0**	**0**	**0**	**10803**	**1**
	B-10m	2	1	13	1	0	0	0	3477	0
	B-10D	2	1	20	2	0	0	0	6316	1
	B-6	2	0	5	2	0	0	0	574	0
	2 Elec	11	0	2	0	0	0	0	436	0
3181			**1**	**36**	**16**	**0**	**0**	**0**	**6155**	**1**
	B-25C	7	1	27	11	0	0	0	4444	0
	B-79	3	0	9	5	0	0	0	1710	0
3181asp			0.0							
3221										
3231	**B-38**	**7**	**5**	**70**	**15**	**0**	**0**	**0**	**23124**	**2**
3241			**2**	**40**	**5**	**0**	**0**	**0**	**10803**	**1**
	B-10m	2	1	13	1	0	0	0	3477	0
	B-10D	2	1	20	2	0	0	0	6316	1
	B-6	2	0	5	2	0	0	0	574	0
	2 Elec	11	0	2	0	0	0	0	436	0
3251			**1**	**36**	**16**	**0**	**0**	**0**	**6155**	**1**

ACT	TITLE	Duratio	Number	Type of Crew
	RUNWAY AND TAXIWAY PAINTING		4	B-79 Crews
	ELECTRICAL LIGHTS and OTHER ITEMS		8	"2-Elec" Crews
4000	PHASE 3 RWY 7L EXTENSION & NAVAIDS INSIDE TRSA			
Act. 4001	Asphalt Pavement and Topsoil Removal	7	7	B-38 Crews
Act. 4011	Existing PCC Pavement Removal	14	6	B-38 Crews
Act. 4021	Demo Existing Storm Drain	4		
	REMOVAL OF STORM DRAIN PIPE, 8"-18", AND CATCH		2	B-6 Crews
	REMOVAL OF STORM DRAIN PIPE, 21"-30"		2	B-13B Crews
Act. 4031	Grading	17	14	B-33B Crews
Act. 4041	Storm Drain	12		
	CONSTRUCT 12" to 24" RCP STORM DRAIN		1	B-21 Crews
	CONSTRUCT 30" RCP STORM DRAIN		1/4	B-13 Crews (work over 3 days out of
	INSTALL 12" D.I.P.		1/6	B-21A Crews (work over 2 days out of
	TRENCH EXCAVATION		1/2	B-12A Crews (work over 6 days out of
	UTILITY BEDDING		1/2	B-6 Crews (work over 6 days out of 12
Act. 4051	Storm Retention System	12	3	B-13 Crews
Act. 4061	Subgrade Prep	6		
	SUBGRADE FILL		2	B-10m Crews
	SUBGRADE COMPACTION		2	B-10D Crews
	ELECTRICAL DEMOLITION/DUCT/CABLES		11	"2-Elec" Crews
Act. 4073	Paving Econocrete	13	3	B-74 Crews
Act. 4081	PCC Paving (Slip Form Paving)	12		
	PLAIN PCC PAVEMENT, 19" THICK, SLIP FORM		1	B-26A Crews
	ELECTRICAL LIGHTS IN PAVEMENT		3	"2-Elec" Crews
Act. 4091	Aggregate Base (Shoulders & PAD, PMB &	7		
	CRUSSHED AGGREGATE BASE COURSE		1	B-36C Crews
	PROCESSED MATERIAL BASE		2	B-25 Crews
Act. 4101	4" Asphalt Surface (Shoulders & Pad)	5		
	ASPHALT (GREENBOOK)		7	B-25C Crews
	INFIELD PAINTING (GREEN) and ROAD MARKING		3	B-79 Crews
Act. 4111	Finish Light Fixture Insallations	2	11	"2-Elec" Crews
Act. 4121	PCC Sawcut	1	1	B-71 Crews
5000	PHASE 4 REMOVE TEMP & FINAL PERM MRKG (OFF PK)			
Act. 5001	Remove Temp and Install Perm Markings	2		
	REMOVAL OF PAVEMENT MARKINGS		4	B-78B Crews
	RUNWAY AND TAXIWAY PAINTING		8	B-79 Crews
Act. 5011	Flight Check (Maint Ck) 07L MALSR	4	1	Flight Check (Estimated)
6001	Relocation of Runway 25R Localizer Antenna			
Act. 6011	Comp Civil Engr Sub-base Work on Runway	1	2	"2-Elec" Crews
Act. 6021	Remove Existing Rwy 25R Localizer Antenna	2	2	"2-Elec" Crews
Act. 6031	Infrastructure Loc Equip Shelter to Loc	5	3	"2-Elec" Crews
Act. 6051	Joint & Contractor Acceptance Testing	1	3	"2-Elec" Crews
Act. 6061	Energize Localizer	1	1	"2-Elec" Crews
Act. 6071	Localizer Flight Check	1	1	"2-Elec" Crews
Act. 6081	Rwy 25R Loc 500 Hour Burn In	24	1/5	"2-Elec" Crews (1 crew part time
Act. 6101	Comp Civil Engr Sub-base Work on Runway	1	2	"2-Elec" Crews
Act. 6111	Install New Inpavement Sta 0 Threshold	3	2	"2-Elec" Crews
Act. 6121	Install Infrastructure for Sta 2 - 10 w/ lights	10	3	"2-Elec" Crews
Act. 6131	Order Extensions & Finalize MALSR Threshold	17	2	"2-Elec" Crews
Act. 6141	Finalize Cable and Light Installation	3	3	"2-Elec" Crews
1000	MOBILIZATION			
1081	Field Office, Plants & Temp Facilities	60		
	Field Office and Facilities		1	Setup (Estimated)
	Clearing and Grubbing		1/2	B-11A (work half of duration)
	NEW AIRFREIGHT BUILDING CONSTRUCTION			
20080	Earthwork	36		
	Excavation		1	B12-D
	Hauling		3	B-34C
20090	Foundation	60	1	Foundation (Estimated)
20096	Building Construction	180	1	Building (Estimated)
20100	EAST END - PHASE 1 (TAXIWAY C)			
20110	Remove Chain Link Fence and Guard Rails	1		
	Remove Chain Link Fence and Guard Rails		3	B-6
	Relocation of K-Rail Barriers		1	B-80B
20120	Setup Barricades and Job Site Conditions	1	1	B-80B
20130	Demo Airfreight Building 8 and Foundation			
20132	Demo Airfreight Building 8	28	5	B-8
20142	Demo Building Foundation	12	10	B-9
20144	Demo Electrical	3	3	Electrical (Estimated)
20146	Existing Asphalt Pavement Removal	11		
	Asphalt Pavement Removal		6	B-38
	Asphalt Pavement Sawcut		1/2	B-89 (work half of duration)
20150	Existing PCC Pavement Removal	15		
	PCC Pavement Removal		10	B-38
	PCC Pavement Sawcut		1/2	B-89 (work half of duration)
20160	Remove Existing Slab/Foundation under 3" AC on	o 13	12	B-9
20172	Demo Existing Storm Drain	7		
	Removal of Storm Drain Pipe		2	B-13B

ACT	TypeofCrew	Number of Crews	ROG	CO	Nox	SOx	PM10	PM2.5	CO2	CH4
	B-25C	7	1	27	11	0	0	0	4444	0
	B-79	3	0	9	5	0	0	0	1710	0
3251asp			0.0							
3291										
3301										
3311										
3321			0	13	6	0	0	0	2598	0
	B-79	4	0	12	6	0	0	0	2281	0
	2 Elec	8	0	1	0	0	0	0	317	0
4000										
4001	B-38	7	5	70	15	0	0	0	23124	2
4011	B-38	6	4	60	13	0	0	0	19821	2
4021			0	10	2	0	0	0	2091	0
	B-6	2	0	5	2	0	0	0	574	0
	B-13B	2	0	5	1	0	0	0	1516	0
4031	B-33B	14	10	194	21	1	1	1	51630	5
4031dust							26	4		
4041			0	5	1	0	0	0	1049	0
	B-21	1	0	1	0	0	0	0	226	0
	B-13	0.25	0	1	0	0	0	0	116	0
	B-21A	0.166666667	0	0	0	0	0	0	71	0
	B-12A	0.5	0	1	0	0	0	0	492	0
	B-6	0.5	0	1	0	0	0	0	144	0
4051	B-13	3	0	9	1	0	0	0	1393	0
4061			2	35	4	0	0	0	10228	1
	B-10m	2	1	13	1	0	0	0	3477	0
	B-10D	2	1	20	2	0	0	0	6316	1
	2 Elec	11	0	2	0	0	0	0	436	0
4073	B-74	3	2	39	6	0	0	0	14561	1
4081			2	18	3	0	0	0	4036	0
	B-26A	1	2	17	3	0	0	0	3917	0
	2 Elec	3	0	1	0	0	0	0	119	0
4091			1	23	7	0	0	0	5327	1
	B-36C	1	1	11	1	0	0	0	3385	0
	B-25	2	0	12	5	0	0	0	1942	0
4091asp			0.0							
4101			1	36	16	0	0	0	6155	1
	B-25C	7	1	27	11	0	0	0	4444	0
	B-79	3	0	9	5	0	0	0	1710	0
4101asp			0.0							
4111	2 Elec	11	0	2	0	0	0	0	436	0
4121	B-71	1	0	8	1	0	0	0	2192	0
5000										
5001			1	25	13	0	0	0	4901	0
	B-78B	4	0	1	0	0	0	0	340	0
	B-79	8	1	24	12	0	0	0	4561	0
5011	Field Check (Estimated)	1	0	1	0	0	0	0	122	0
6001										
6011	2 Elec	2	0	0	0	0	0	0	79	0
6021	2 Elec	2	0	0	0	0	0	0	79	0
6031	2 Elec	3	0	1	0	0	0	0	119	0
6051	2 Elec	3	0	1	0	0	0	0	119	0
6061	2 Elec	1	0	0	0	0	0	0	40	0
6071	2 Elec	1	0	0	0	0	0	0	40	0
6081	2 Elec	0.2	0	0	0	0	0	0	8	0
6101	2 Elec	2	0	0	0	0	0	0	79	0
6111	2 Elec	2	0	0	0	0	0	0	79	0
6121	2 Elec	3	0	1	0	0	0	0	119	0
6131	2 Elec	2	0	0	0	0	0	0	79	0
6141	2 Elec	3	0	1	0	0	0	0	119	0
1000										
1081			0	5	1	0	0	0	1310	0
	Setup (Estimated)	1	0	2	0	0	0	0	436	0
	B-11A	0.5	0	3	0	0	0	0	874	0
20080			0	0	0	0	0	0	0	0
	B-12D		0	0	0	0	0	0	0	0
	B-34C		0	0	0	0	0	0	0	0
20090	Foundation (Estimated)		0	0	0	0	0	0	0	0
20096	Building (Estimated)		0	0	0	0	0	0	0	0
20096paint			0							
20100										
20110			0	0	0	0	0	0	0	0
	B-6		0	0	0	0	0	0	0	0
	B-80B		0	0	0	0	0	0	0	0
20120	B-80B		0	0	0	0	0	0	0	0
20130										
20132	B-8		0	0	0	0	0	0	0	0

ACT	TITLE	Duratio	Number	Type of Crew
	Removal of Catch Basin		1/7	B-9 (work over 1 day out of 7 days)
20174	**Demo Existing Water Line**	**5**	**2**	**B-21B**
20176	**Demo Existing Sewer Line**	**3**		
	Removal of Concrete Sewer Pipe		1	B-6
	Removal of Manhole		1/3	B-9 (work over 1 day out of 3 days)
20178	**Demo Existing Fuel Line**	**2**	**1**	**B-1B**
20190	**Grading for New Service Road Construction Area**	**3**	**4**	**B-33B**
20200	**Service Road AC Paving**			
20210	**6" Lime Treated Subgrade**	**1**		
	Backfill		1	B-10M
	Lime Soil Stabilization and Compaction		2	B-74
20220	**12" PMB**	**1**	**2**	**B-25**
20230	**4" AC and Prime Coat**	**1**		
	AC Paving		3	B-25
	Prime Coat		1	B-45
20240	**Grading for Taxiway and Shoulders**	**4**	**7**	**B-33B**
20250	**Grading for Rest of Airfreight Building Area**	**5**	**7**	**B-33B**
20260	**Construct Storm Drain**	**4**		
	Construct 18"-24" RCP Storm Drain		3	B-21
Con	*truct EllipticalStorm Drains, Catch Basins and*		4	B-13
	Trench Excavation		2	B-12A
	Utility Bedding		1	B-6
20270	**Construct Storm Drainage Filtration System (out of**	**e 12**	**1**	**B-13**
20274	**Electrical Installation Conduits/Fixtures**	**5**	**12**	**Electrical (Estimated)**
20280	**PCC Paving**			
20290	**6" Lime Treated Subgrade**	**2**		
	Backfill		1	B-10M
	Lime Soil Stabilization and Compaction		3	B-74
20300	**6" Asphalt Treated Base**	**2**	**2**	**B-25**
20310	**23" PCC**	**2**	**3**	**B-26A**
20340	**Shoulder AC Paving**			
20350	**Geodrid**	**1**	**1**	**B-6**
20360	**19.5" PMB**	**2**	**2**	**B-25**
20370	**6" Asphalt Treated Base**	**1**	**2**	**B-25**
20380	**3" AC**	**1**	**2**	**B-25**
20390	**Erosion Control AC Paving**			
20400	**6" Lime Treated Subgrade**	**3**		
	Backfill		2	B-10M
	Lime Soil Stabilization and Compaction		4	B-74
20410	**6" PMB**	**2**	**3**	**B-25**
20420	**3" AC**	**2**	**2**	**B-25**
20426	**PCC Curing (3-weeks)**	**24**	**1**	**2 Clab**
20430	**Finish Electrical Installation/Wiring**	**10**	**9**	**Electrical (Estimated)**
20460	**Finish Pavement Markings**	**2**	**3**	**B-79**
22100	**EAST END - PHASE 2 (TAXILANE C1)**			
22105	**Setup Barricades and Job Site Conditions**	**1**	**1**	**B-80B**
22108	**Demo Electrical**	**1**	**1**	**Electrical (Estimated)**
22110	**Existing Asphalt Pavement Removal**	**3**		
	Asphalt Pavement Removal		6	B-38
	Asphalt Pavement Sawcut		1/2	B-89 (work half of duration)
22120	**Existing PCC Pavement Removal**	**4**		
	PCC Pavement Removal		5	B-38
	PCC Pavement Sawcut		3	B-89
22140	**Demo Existing Storm Drain**	**2**	**1**	**B-13B**
22160	**Grading**	**4**	**4**	**B-33B**
22170	**Construct Storm Drain**	**1**		
	Construct 18"-24" RCP Storm Drain		1/2	B-21 (work half of duration)
Cons	*truct Elliptical Storm Drains, Catch Basins and*		1	B-13
	Trench Excavation		1/2	B-12A (work half of duration)
	Utility Bedding		1/2	B-6 (work half of duration)
22172	**Electrical Installation Conduits/Fixtures**	**2**	**4**	**Electrical (Estimated)**
22180	**PCC Paving**			
22190	**6" Lime Treated Subgrade**	**1**		
	Backfill		1	B-10M
	Lime Soil Stabilization and Compaction		2	B-74
22200	**6" Asphalt Treated Base**	**1**	**1**	**B-25**
22210	**23" PCC**	**4**		
	PCC Pavement		1	B-26A
	Steel Reinforcement		1	2 Rodmen
22240	**Shoulder AC Paving**			
22250	**Geodrid**	**1**	**1/2**	**B-6 (work half of duration)**

ACT	TypeofCrew	Number of Crews	ROG	CO	Nox	SOx	PM10	PM2.5	CO2	CH4
20132demo	**B-8**						**3**			
20142	**B-9**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
20144	**Electrical (Estimated)**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
20146			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	B-38		0	0	0	0	0	0	0	0
	B-89		0	0	0	0	0	0	0	0
20150			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	B-38		0	0	0	0	0	0	0	0
	B-89		0	0	0	0	0	0	0	0
20160	**B-9**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
20172			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	B-13B		0	0	0	0	0	0	0	0
	B-9		0	0	0	0	0	0	0	0
20174	**B-21B**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
20176			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	B-6		0	0	0	0	0	0	0	0
	B-9		0	0	0	0	0	0	0	0
20178	**B-1B**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
20190	**B-33B**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
20190dust							**7**	**1**		
20200										
20210			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	B-10M		0	0	0	0	0	0	0	0
	B-74		0	0	0	0	0	0	0	0
20220	**B-25**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
20220asp			0.0							
20230			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	B-25		0	0	0	0	0	0	0	0
	B-45		0	0	0	0	0	0	0	0
20230asp			0.0							
20240	**B-33B**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
20240dust							**13**	**2**		
20250	**B-33B**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
20250dust							**13**	**2**		
20260			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	B-21		0	0	0	0	0	0	0	0
Con	B-13		0	0	0	0	0	0	0	0
	B-12A		0	0	0	0	0	0	0	0
	B-6		0	0	0	0	0	0	0	0
20270	**B-13**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
20274	**Electrical (Estimated)**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
20280										
20290			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	B-10M		0	0	0	0	0	0	0	0
	B-74		0	0	0	0	0	0	0	0
20300	**B-25**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
20300asp			0.0							
20310	**B-26A**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
20340										
20350	**B-6**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
20360	**B-25**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
20360asp			0.0							
20370	**B-25**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
20370asp			0.0							
20380	**B-25**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
20380asp			0.0							
20390										
20400			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	B-10M		0	0	0	0	0	0	0	0
	B-74		0	0	0	0	0	0	0	0
20410	**B-25**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
20410asp			0.0							
20420	**B-25**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
20420asp			0.0							
20426	**2 Clab**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
20430	**Electrical (Estimated)**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
20460	**B-79**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
22100										
22105	**B-80B**	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**753**	**0**
22108	**Electrical (Estimated)**	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**340**	**0**
22110			**4**	**60**	**13**	**0**	**0**	**0**	**19894**	**2**

Emissions by Activity

ACT	TITLE	Duratio	Number	Type of Crew
22260	19.5" PMB	1	1	B-25
22270	6" Asphalt Treated Base	1	1/2	B-25 (work half of duration)
22280	3" AC	1	1/2	B-25 (work half of duration)
22290	Erosion Control AC Paving			
22300	6" Lime Treated Subgrade	1		
	Backfill		1	B-10M
	Lime Soil Stabilization and Compaction		2	B-74
22310	6" PMB	1	1	B-25
22320	3" AC	1	1	B-25
22330	PCC Curing (3-weeks)	24	1	2 Clab
22340	Finish Electrical Installation/Wiring	6	2	Electrical (Estimated)
22350	Finish Pavement Markings	1	2	B-79
24100	EAST END - PHASE 3 (TAXILANE B1)			
24105	Setup Barricades and Job Site Conditions	1	1	B-80B
24108	Demo Electrical	3	2	Electrical (Estimated)
24110	Existing Asphalt Pavement Removal	5		
	Asphalt Pavement Removal		6	B-38
	Asphalt Pavement Sawcut		1/5	B-89 (work over 1 day out of 5 days)
24160	Grading	5	4	B-33B
24170	Full Strength AC Paving			
24172	18" Lime Treated Subgrade	2		
	Backfill		1	B-10M
	Lime Soil Stabilization and Compaction		2	B-74
24174	22" PMB	2	2	B-25
24176	12" Crushed Aggregate Base	1	1	B-36C
24178	5" AC and Prime Coat	1		
	AC Paving		1	B-25
	Prime Coat		1	B-45
24180	Service Road AC Paving			
24182	6" Lime Treated Subgrade	1		
	Backfill		1/2	B-10M (work half of duration)
	Lime Soil Stabilization and Compaction		1	B-74
24184	12" PMB	1	1	B-25
24186	4" AC and Prime Coat	1		
	AC Paving		2	B-25
	Prime Coat		1	B-45
24187	Electrical Installation Conduits/Fixtures	3	10	Electrical (Estimated)
24188	PCC Paving			
24190	6" Lime Treated Subgrade	1		
	Backfill		1	B-10M
	Lime Soil Stabilization and Compaction		3	B-74
24200	6" Asphalt Treated Base	1	2	B-25
24210	23" PCC	2	2	B-26A
24240	Shoulder AC Paving			
24250	Geodrid	1	1/2	B-6 (work half of duration)
24260	19.5" PMB	1	1	B-25
24270	6" Asphalt Treated Base	1	1/2	B-25 (work half of duration)
24280	3" AC	1	1/2	B-25 (work half of duration)
24290	Erosion Control AC Paving			
24300	6" Lime Treated Subgrade	1		
	Backfill		1/2	B-10M (work half of duration)
	Lime Soil Stabilization and Compaction		2	B-74
24310	6" PMB	1	1	B-25
24320	3" AC	1	1/2	B-25 (work half of duration)
24330	PCC Curing (3-weeks)	24	1	2 Clab
24340	Finish Electrical Installation/Wiring	8	6	Electrical (Estimated)
24350	Finish Pavement Markings	2	1	B-79
26100	EAST END - PHASE 4 (TAXIWAY B)			
26105	Setup Barricades and Job Site Conditions	1	1	B-80B
26108	Demo Electrical	2	3	Electrical (Estimated)
26110	Existing Asphalt Pavement Removal	3	6	B-38
26120	Existing PCC Pavement Removal	6	5	B-38
26160	Grading	4	4	B-33B
26162	Electrical Installation Conduits/Fixtures	4	12	Electrical (Estimated)
26180	PCC Paving			
26190	6" Lime Treated Subgrade	1		
	Backfill		1	B-10M
	Lime Soil Stabilization and Compaction		3	B-74
26200	6" Asphalt Treated Base	1	2	B-25
26210	23" PCC	2	2	B-26A
26240	Shoulder AC Paving			

ACT	TypeofCrew	Number of Crews	ROG	CO	Nox	SOx	PM10	PM2.5	CO2	CH4
	B-38	6	4	60	13	0	0	0	19821	2
	B-89	0.5	0	0	0	0	0	0	74	0
22120			5	51	12	0	0	0	16960	1
	B-38	5	3	50	11	0	0	0	16517	1
	B-89	3	2	1	1	0	0	0	443	0
22140	B-13B	1	0	2	0	0	0	0	758	0
22160	B-33B	4	3	55	6	0	0	0	14751	2
22160dust							7	1		
22170			0	6	1	0	0	0	1213	0
	B-21	0.5	0	1	0	0	0	0	113	0
Cons	B-13	1	0	3	0	0	0	0	464	0
	B-12A	0.5	0	1	0	0	0	0	492	0
	B-6	0.5	0	1	0	0	0	0	144	0
22172	Electrical (Estimated)	4	0	7	1	0	0	0	1359	0
22180										
22190			2	32	4	0	0	0	11446	1
	B-10M	1	0	6	1	0	0	0	1738	0
	B-74	2	2	26	4	0	0	0	9707	1
22200	B-25	1	0	6	3	0	0	0	971	0
22200asp			0.0							
22210			2	17	3	0	0	0	3957	0
	B-26A	1	2	17	3	0	0	0	3917	0
	2 Rodmen	1	0	0	0	0	0	0	40	0
22240										
22250	B-6	0.5	0	1	0	0	0	0	144	0
22260	B-25	1	0	6	3	0	0	0	971	0
22260asp			0.0							
22270	B-25	0.5	0	3	1	0	0	0	485	0
22270asp			0.0							
22280	B-25	0.5	0	3	1	0	0	0	485	0
22280asp			0.0							
22290										
22300			2	32	4	0	0	0	11446	1
	B-10M	1	0	6	1	0	0	0	1738	0
	B-74	2	2	26	4	0	0	0	9707	1
22310	B-25	1	0	6	3	0	0	0	971	0
22310asp			0.0							
22320	B-25	1	0	6	3	0	0	0	971	0
22320asp			0.0							
22330	2 Clab	1	0	0	0	0	0	0	40	0
22340	Electrical (Estimated)	2	0	4	0	0	0	0	679	0
22350	B-79	2	0	6	3	0	0	0	1140	0
24100										
24105	B-80B	1	0	2	0	0	0	0	753	0
24108	Electrical (Estimated)	2	0	4	0	0	0	0	679	0
24110			4	60	13	0	0	0	19850	2
	B-38	6	4	60	13	0	0	0	19821	2
	B-89	0.2	0	0	0	0	0	0	30	0
24160	B-33B	4	3	55	6	0	0	0	14751	2
24160dust							7	1		
24170										
24172			2	32	4	0	0	0	11446	1
	B-10M	1	0	6	1	0	0	0	1738	0
	B-74	2	2	26	4	0	0	0	9707	1
24174	B-25	2	0	12	5	0	0	0	1942	0
24174asp			0.0							
24176	B-36C	1	1	11	1	0	0	0	3385	0
24178			1	6	3	0	0	0	1323	0
	B-25	1	0	6	3	0	0	0	971	0
	B-45	1	1	0	1	0	0	0	352	0
24178asp			0.0							
24180										
24182			1	16	2	0	0	0	5723	0
	B-10M	0.5	0	3	0	0	0	0	869	0
	B-74	1	1	13	2	0	0	0	4854	0
24184	B-25	1	0	6	3	0	0	0	971	0
24184asp			0.0							
24186			1	12	6	0	0	0	2293	0
	B-25	2	0	12	5	0	0	0	1942	0
	B-45	1	1	0	1	0	0	0	352	0
24186asp			0.0							

ACT	TITLE	Duratio	Number	Type of Crew
26250	Geodrid	1	1/2	B-6 (work half of duration)
26260	19.5" PMB	1	2	B-25
26270	6" Asphalt Treated Base	1	1	B-25
26280	3" AC	1	1/2	B-25 (work half of duration)
26290	Erosion Control AC Paving			
26300	6" Lime Treated Subgrade	1		
	Backfill		1/2	B-10M (work half of duration)
	Lime Soil Stabilization and Compaction		1/2	B-74 (work half of duration)
26310	6" PMB	1	1/2	B-25 (work half of duration)
26320	3" AC	1	1/2	B-25 (work half of duration)
26330	PCC Curing (3-weeks)	24	1	2 Clab
26340	Finish Electrical Installation/Wiring	10	8	Electrical (Estimated)
26350	Finish Pavement Markings	1	1	B-79
28100	EAST END - PHASE 5 (TAXIWAY B AND TAXIWAY F)			
28105	Setup Barricades and Job Site Conditions	1	1	B-80B
28108	Demo Electrical	4	6	Electrical (Estimated)
28110	Existing Asphalt Pavement Removal	6		
	Asphalt Pavement Removal		12	B-38
	Asphalt Pavement Sawcut		1/3	B-89 (work over 2 days out of 6 days)
28120	Existing PCC Pavement Removal	15	15	B-38
28140	Demo Existing Storm Drain	3		
	Removal of Storm Drain Pipe		3	B-13B
	Removal of Catch Basin		1/3	B-9 (work over 1 day out of 3 days)
28160	Grading	7	10	B-33B
28170	Construct Storm Drain	3		
	Construct 18"-24" RCP Storm Drain		1	B-21
Cons	*truct Elliptical Storm Drains, Catch Basins and*		3	B-13
	Trench Excavation		1	B-12A
	Utility Bedding		1/2	B-6 (work half of duration)
28172	Electrical Installation Conduits/Fixtures	10	17	Electrical (Estimated)
28180	PCC Paving			
28190	6" Lime Treated Subgrade	2		
	Backfill		2	B-10M
	Lime Soil Stabilization and Compaction		7	B-74
28200	6" Asphalt Treated Base	2	3	B-25
28210	23" PCC	4		
	PCC Pavement		4	B-26A
	Steel Reinforcement		1/2	2 Rodmen
28240	Shoulder AC Paving			
28250	Geodrid	1	2	B-6
28260	19.5" PMB	3	4	B-25
28270	6" Asphalt Treated Base	2	3	B-25
28280	3" AC	2	2	B-25
28290	Erosion Control AC Paving			
28300	6" Lime Treated Subgrade	2		
	Backfill		1	B-10M
	Lime Soil Stabilization and Compaction		3	B-74
28310	6" PMB	1	3	B-25
28320	3" AC	1	2	B-25
28330	PCC Curing (3-weeks)	24	1	2 Clab
28340	Finish Electrical Installation/Wiring	15	18	Electrical (Estimated)
28350	Finish Pavement Markings	3	3	B-79
30100	EAST END - PHASE 6 (RUNWAY 25R AND TAXIWAY F)			
30105	Setup Barricades and Job Site Conditions	1	1	B-80B
30108	Demo Electrical	2	3	Electrical (Estimated)
30110	Existing Asphalt Pavement Removal	3		
	Asphalt Pavement Removal		4	B-38
	Asphalt Pavement Sawcut		1/3	B-89 (work over 1 day out of 3 days)
30120	Existing PCC Pavement Removal	7	8	B-38
30160	Grading	3	5	B-33B
30162	Electrical Installation Conduits/Fixtures	4	11	Electrical (Estimated)
30180	PCC Paving			
30190	6" Lime Treated Subgrade	2		
	Backfill		1	B-10M
	Lime Soil Stabilization and Compaction		2	B-74
30200	6" Asphalt Treated Base	1	2	B-25
30210	23" PCC	2		
	PCC Pavement		2	B-26A
	Steel Reinforcement		1	2 Rodmen
30240	Shoulder AC Paving			
30250	Geodrid	1	1/2	B-6 (work half of duration)

ACT	TypeofCrew	Number of Crews	ROG	CO	Nox	SOx	PM10	PM2.5	CO2	CH4
24187	Electrical (Estimated)	10	1	18	2	0	0	0	3397	0
24188										
24190			3	45	6	0	0	0	16300	1
	B-10M	1	0	6	1	0	0	0	1738	0
	B-74	3	2	39	6	0	0	0	14561	1
24200	B-25	2	0	12	5	0	0	0	1942	0
24200asp			0.0							
24210	B-26A	2	4	34	5	0	0	0	7835	1
24240										
24250	B-6	0.5	0	1	0	0	0	0	144	0
24260	B-25	1	0	6	3	0	0	0	971	0
24260asp			0.0							
24270	B-25	0.5	0	3	1	0	0	0	485	0
24270asp			0.0							
24280	B-25	0.5	0	3	1	0	0	0	485	0
24280asp			0.0							
24290										
24300			2	29	4	0	0	0	10577	1
	B-10M	0.5	0	3	0	0	0	0	869	0
	B-74	2	2	26	4	0	0	0	9707	1
24310	B-25	1	0	6	3	0	0	0	971	0
24310asp			0.0							
24320	B-25	0.5	0	3	1	0	0	0	485	0
24320asp			0.0							
24330	2 Clab	1	0	0	0	0	0	0	40	0
24340	Electrical (Estimated)	6	0	11	1	0	0	0	2038	0
24350	B-79	1	0	3	2	0	0	0	570	0
26100										
26105	B-80B	1	0	2	0	0	0	0	753	0
26108	Electrical (Estimated)	3	0	5	1	0	0	0	1019	0
26110	B-38	6	4	60	13	0	0	0	19821	2
26120	B-38	5	3	50	11	0	0	0	16517	1
26160	B-33B	4	3	55	6	0	0	0	14751	2
26160dust							7	1		
26162	Electrical (Estimated)	12	1	21	3	0	0	0	4077	0
26180										
26190			3	45	6	0	0	0	16300	1
	B-10M	1	0	6	1	0	0	0	1738	0
	B-74	3	2	39	6	0	0	0	14561	1
26200	B-25	2	0	12	5	0	0	0	1942	0
26200asp			0.0							
26210	B-26A	2	4	34	5	0	0	0	7835	1
26240										
26250	B-6	0.5	0	1	0	0	0	0	144	0
26260	B-25	2	0	12	5	0	0	0	1942	0
26260asp			0.0							
26270	B-25	1	0	6	3	0	0	0	971	0
26270asp			0.0							
26280	B-25	0.5	0	3	1	0	0	0	485	0
26280asp			0.0							
26290										
26300			1	10	1	0	0	0	3296	0
	B-10M	0.5	0	3	0	0	0	0	869	0
	B-74	0.5	0	6	1	0	0	0	2427	0
26310	B-25	0.5	0	3	1	0	0	0	485	0
26310asp			0.0							
26320	B-25	0.5	0	3	1	0	0	0	485	0
26320asp			0.0							
26330	2 Clab	1	0	0	0	0	0	0	40	0
26340	Electrical (Estimated)	8	0	14	2	0	0	0	2718	0
26350	B-79	1	0	3	2	0	0	0	570	0
28100										
28105	B-80B	1	0	2	0	0	0	0	753	0
28108	Electrical (Estimated)	6	0	11	1	0	0	0	2038	0
28110			8	120	25	0	1	1	39691	3
	B-38	12	8	120	25	0	1	1	39641	3
	B-89	0.333333333	0	0	0	0	0	0	49	0
28120	B-38	15	10	150	32	1	1	1	49552	4
28140			1	7	1	0	0	0	2365	0
	B-13B	3	1	7	1	0	0	0	2275	0
	B-9	0.333333333	0	1	0	0	0	0	91	0

ACT	TITLE	Duratio	Number	Type of Crew
30260	19.5" PMB	1	1/2	B-25 (work half of duration)
30270	6" Asphalt Treated Base	1	1/2	B-25 (work half of duration)
30280	3" AC	1	1/2	B-25 (work half of duration)
30330	PCC Curing (3-weeks)	18	1	2 Clab
30340	Finish Electrical Installation/Wiring	10	7	Electrical (Estimated)
30350	Finish Pavement Markings	2	1	B-79
32100	EAST END - PHASE 7 (RUNWAY 25R AND TAXIWAY G)			
32105	Setup Barricades and Job Site Conditions	1	1	B-80B
32120	Existing PCC Pavement Removal	6		
	PCC Pavement Removal		8	B-38
	PCC Pavement Sawcut		3	B-89
32150	Demo Electrical	2	1	Electrical (Estimated)
32160	Grading	2	3	B-33B
32162	Electrical Installation Conduits/Fixtures	2	8	Electrical (Estimated)
32180	PCC Paving			
32190	3.5" Asphalt Treated Base	1	1	B-25
32210	17.5" PCC	2	1	B-26A
32330	PCC Curing (3-weeks)	18	1	2 Clab
32340	Finish Electrical Installation/Wiring	6	4	Electrical (Estimated)
32344	PCC Sealing & Grooving	2	3	B-71
32350	Finish Pavement Markings	1	1	B-79
	EAST END - PHASE 8 (RUNWAY 25R)			
34100	Phase 8-A (Runway 25R, west of Sepulveda Bridge)			
34105	Setup Barricades and Job Site Conditions	1	1	B-80B
34120	Existing PCC Pavement Removal	14		
	PCC Pavement Removal		16	B-38
	PCC Pavement Sawcut		4	B-89
34150	Demo Electrical	4	2	Electrical (Estimated)
34160	Grading	2	4	B-33B
34162	Electrical Installation Conduits/Fixtures	5	11	Electrical (Estimated)
34180	PCC Paving			
34190	3.5" Asphalt Treated Base	1	4	B-25
34210	17.5" PCC	2	2	B-26A
34330	PCC Curing (3-weeks)	24	1	2 Clab
34340	Finish Electrical Installation/Wiring	10	9	Electrical (Estimated)
34344	PCC Sealing & Grooving	5	5	B-71
34350	Finish Pavement Markings	2	3	B-79
36100	Phase 8-B (Runway 25R, between Taxiway G to Taxiway F)			
36120	Existing PCC Pavement Removal	14		
	PCC Pavement Removal		16	B-38
	PCC Pavement Sawcut		4	B-89
36150	Demo Electrical	3	3	Electrical (Estimated)
36160	Grading	4	4	B-33B
36162	Electrical Installation Conduits/Fixtures	6	12	Electrical (Estimated)
36180	17.5" PCC Paving			
36190	3.5" Asphalt Treated Base	1	2	B-25
36210	17.5" PCC	2	1	B-26A
37180	23" PCC Paving			
37190	6" Lime Treated Subgrade	2		
	Backfill		1	B-10M
	Lime Soil Stabilization and Compaction		3	B-74
37200	6" Asphalt Treated Base	1	2	B-25
37210	23" PCC	4	2	B-26A
37240	Shoulder AC Paving			
37250	Geodrid	1	1/2	B-6 (work half of duration)
37260	19.5" PMB	1		B-25
37270	6" Asphalt Treated Base	1	1/2	B-25 (work half of duration)
37280	3" AC	1	1/2	B-25 (work half of duration)
37330	PCC Curing (3-weeks)	24	1	2 Clab
37340	Finish Electrical Installation/Wiring	10	11	Electrical (Estimated)
37346	PCC Sealing & Grooving	6	4	B-71
37350	Finish Pavement Markings	2	2	B-79
38100	Phase 8-C (Runway 25R, east of Taxiway F)			
38108	Demo Electrical	3	4	Electrical (Estimated)
38110	Existing Asphalt Pavement Removal	4		
	Asphalt Pavement Removal		10	B-38
	Asphalt Pavement Sawcut		1/2	B-89
38120	Existing PCC Pavement Removal	15		
	PCC Pavement Removal		16	B-38
	PCC Pavement Sawcut		1/4	B-89 (work over 4 days out of 15 days)
38140	Demo Existing Storm Drain	2	3	B-13B

ACT	TypeofCrew	Number of Crews	ROG	CO	Nox	SOx	PM10	PM2.5	CO2	CH4
28160	B-33B	10	7	138	15	0	1	1	36878	4
28160dust							18	3		
28170			1	14	2	0	0	0	2747	0
	B-21	1	0	1	0	0	0	0	226	0
Cons	B-13	3	0	9	1	0	0	0	1393	0
	B-12A	1	0	2	0	0	0	0	984	0
	B-6	0.5	0	1	0	0	0	0	144	0
28172	Electrical (Estimated)	17	1	30	4	0	0	0	5775	0
28180										
28190			6	104	15	0	1	1	37453	3
	B-10M	2	1	13	1	0	0	0	3477	0
	B-74	7	6	91	14	0	1	1	33976	2
28200	B-25	3	1	18	8	0	0	0	2913	0
28200asp			0.0							
28210			7	68	10	0	1	1	15689	2
	B-26A	4	7	68	10	0	1	1	15670	2
	2 Rodmen	0.5	0	0	0	0	0	0	20	0
28240										
28250	B-6	2	0	5	2	0	0	0	574	0
28260	B-25	4	1	24	10	0	0	0	3883	0
28260asp			0.0							
28270	B-25	3	1	18	8	0	0	0	2913	0
28270asp			0.0							
28280	B-25	2	0	12	5	0	0	0	1942	0
28280asp			0.0							
28290										
28300			3	45	6	0	0	0	16300	1
	B-10M	1	0	6	1	0	0	0	1738	0
	B-74	3	2	39	6	0	0	0	14561	1
28310	B-25	3	1	18	8	0	0	0	2913	0
28310asp			0.0							
28320	B-25	2	0	12	5	0	0	0	1942	0
28320asp			0.0							
28330	2 Clab	1	0	0	0	0	0	0	40	0
28340	Electrical (Estimated)	18	1	32	4	0	0	0	6115	0
28350	B-79	3	0	9	5	0	0	0	1710	0
30100										
30105	B-80B	1	0	2	0	0	0	0	753	0
30108	Electrical (Estimated)	3	0	5	1	0	0	0	1019	0
30110			3	40	9	0	0	0	13263	1
	B-38	4	3	40	8	0	0	0	13214	1
	B-89	0.333333333	0	0	0	0	0	0	49	0
30120	B-38	8	5	80	17	0	1	0	26428	2
30160	B-33B	5	4	69	8	0	0	0	18439	2
30160dust							9	1		
30162	Electrical (Estimated)	11	1	20	3	0	0	0	3737	0
30180										
30190			2	32	4	0	0	0	11446	1
	B-10M	1	0	6	1	0	0	0	1738	0
	B-74	2	2	26	4	0	0	0	9707	1
30200	B-25	2	0	12	5	0	0	0	1942	0
30200asp			0.0							
30210			4	34	5	0	0	0	7874	1
	B-26A	2	4	34	5	0	0	0	7835	1
	2 Rodmen	1	0	0	0	0	0	0	40	0
30240										
30250	B-6	0.5	0	1	0	0	0	0	144	0
30260	B-25	0.5	0	3	1	0	0	0	485	0
30260asp			0.0							
30270	B-25	0.5	0	3	1	0	0	0	485	0
30270asp			0.0							
30280	B-25	0.5	0	3	1	0	0	0	485	0
30280asp			0.0							
30330	2 Clab	1	0	0	0	0	0	0	40	0
30340	Electrical (Estimated)	7	0	12	2	0	0	0	2378	0
30350	B-79	1	0	3	2	0	0	0	570	0
32100										
32105	B-80B	1	0	2	0	0	0	0	753	0
32120			7	81	18	0	1	1	26871	2
	B-38	8	5	80	17	0	1	0	26428	2
	B-89	3	2	1	1	0	0	0	443	0

Emissions by Activity

ACT	TITLE	Duratio	Number	Type of Crew
38160	Grading	6	8	B-33B
38170	Construct Storm Drain	4		
Cons	*truct Elliptical Storm Drains, Catch Basins and*		4	B-13
	Trench Excavation		1/2	B-12A (work half of duration)
	Utility Bedding		1/2	B-6 (work half of duration)
38172	Electrical Installation Conduits/Fixtures	6	13	Electrical (Estimated)
38180	PCC Paving			
38190	6" Lime Treated Subgrade	3		
	Backfill		1	B-10M
	Lime Soil Stabilization and Compaction		4	B-74
38200	6" Asphalt Treated Base	2	3	B-25
38210	23" PCC	4		
	PCC Pavement		3	B-26A
	Steel Reinforcement		1/2	2 Rodmen
38240	Shoulder AC Paving			
38250	Geodrid	1	1	B-6
38260	19.5" PMB	2	2	B-25
38270	6" Asphalt Treated Base	1	2	B-25
38280	3" AC	1	2	B-25
38290	Erosion Control AC Paving			
38300	6" Lime Treated Subgrade	2		
	Backfill		1	B-10M
	Lime Soil Stabilization and Compaction		4	B-74
38310	6" PMB	1	3	B-25
38320	3" AC	1	3	B-25
38330	PCC Curing (3-weeks)	24	1	2 Clab
38340	Finish Electrical Installation/Wiring	14	9	Electrical (Estimated)
38345	PCC Sealing & Grooving	5	5	B-71
38350	Finish Pavement Markings	2	3	B-79

ACT	TypeofCrew	Number of Crews	ROG	CO	Nox	SOx	PM10	PM2.5	CO2	CH4
32150	Electrical (Estimated)	1	0	2	0	0	0	0	340	0
32160	B-33B	3	2	41	5	0	0	0	11064	1
32160dust							5	1		
32162	Electrical (Estimated)	8	0	14	2	0	0	0	2718	0
32180										
32190	B-25	1	0	6	3	0	0	0	971	0
32190asp			0.0							
32210	B-26A	1	2	17	3	0	0	0	3917	0
32330	2 Clab	1	0	0	0	0	0	0	40	0
32340	Electrical (Estimated)	4	0	7	1	0	0	0	1359	0
32344	B-71	3	1	23	3	0	0	0	6577	1
32350	B-79	1	0	3	2	0	0	0	570	0
34100										
34105	B-80B	1	0	2	0	0	0	0	753	0
34120			13	161	35	1	1	1	53446	4
	B-38	16	11	160	34	1	1	1	52855	4
	B-89	4	2	1	1	0	0	0	591	0
34150	Electrical (Estimated)	2	0	4	0	0	0	0	679	0
34160	B-33B	4	3	55	6	0	0	0	14751	2
34160dust							7	1		
34162	Electrical (Estimated)	11	1	20	3	0	0	0	3737	0
34180										
34190	B-25	4	1	24	10	0	0	0	3883	0
34190asp			0.0							
34210	B-26A	2	4	34	5	0	0	0	7835	1
34330	2 Clab	1	0	0	0	0	0	0	40	0
34340	Electrical (Estimated)	9	1	16	2	0	0	0	3057	0
34344	B-71	5	2	38	5	0	0	0	10961	1
34350	B-79	3	0	9	5	0	0	0	1710	0
36100										
36120			13	161	35	1	1	1	53446	4
	B-38	16	11	160	34	1	1	1	52855	4
	B-89	4	2	1	1	0	0	0	591	0
36150	Electrical (Estimated)	3	0	5	1	0	0	0	1019	0
36160	B-33B	4	3	55	6	0	0	0	14751	2
36160dust							7	1		
36162	Electrical (Estimated)	12	1	21	3	0	0	0	4077	0
36180										
36190	B-25	2	0	12	5	0	0	0	1942	0
36190asp			0.0							
36210	B-26A	1	2	17	3	0	0	0	3917	0
37180										
37190			3	45	6	0	0	0	16300	1
	B-10M	1	0	6	1	0	0	0	1738	0
	B-74	3	2	39	6	0	0	0	14561	1
37200	B-25	2	0	12	5	0	0	0	1942	0
37200asp			0.0							
37210	B-26A	2	4	34	5	0	0	0	7835	1
37240										
37250	B-6	0.5	0	1	0	0	0	0	144	0
37260	B-25		0	0	0	0	0	0	0	0
37260asp			0.0							
37270	B-25	0.5	0	3	1	0	0	0	485	0
37270asp			0.0							
37280	B-25	0.5	0	3	1	0	0	0	485	0
37280asp			0.0							
37330	2 Clab	1	0	0	0	0	0	0	40	0
37340	Electrical (Estimated)	11	1	20	3	0	0	0	3737	0
37346	B-71	4	2	31	4	0	0	0	8769	1
37350	B-79	2	0	6	3	0	0	0	1140	0
38100										
38108	Electrical (Estimated)	4	0	7	1	0	0	0	1359	0
38110			7	100	21	0	1	1	33108	3
	B-38	10	7	100	21	0	1	1	33034	3
	B-89	0.5	0	0	0	0	0	0	74	0
38120			11	160	34	1	1	1	52892	4
	B-38	16	11	160	34	1	1	1	52855	4
	B-89	0.25	0	0	0	0	0	0	37	0
38140	B-13B	3	1	7	1	0	0	0	2275	0
38160	B-33B	8	6	111	12	0	1	1	29503	3

Emissions by Activity

ACT	**TITLE**	**Duratio**	**Number**	**Type of Crew**

ACT	TypeofCrew	**Number of Crews**	ROG	CO	Nox	SOx	PM10	PM2.5	CO2	CH4
38160dust							**15**	**2**		
38170			**0**	**14**	**1**	**0**	**0**	**0**	**2493**	**0**
Cons	B-13	4	0	12	1	0	0	0	1857	0
	B-12A	0.5	0	1	0	0	0	0	492	0
	B-6	0.5	0	1	0	0	0	0	144	0
38172	**Electrical (Estimated)**	**13**	**1**	**23**	**3**	**0**	**0**	**0**	**4416**	**0**
38180										
38190			**4**	**58**	**8**	**0**	**0**	**0**	**21153**	**2**
	B-10M	1	0	6	1	0	0	0	1738	0
	B-74	4	3	52	8	0	0	0	19415	1
38200	**B-25**	**3**	**1**	**18**	**8**	**0**	**0**	**0**	**2913**	**0**
38200asp			0.0							
38210			**6**	**51**	**8**	**0**	**0**	**0**	**11772**	**1**
	B-26A	3	6	51	8	0	0	0	11752	1
	2 Rodmen	0.5	0	0	0	0	0	0	20	0
38240										
38250	**B-6**	**1**	**0**	**3**	**1**	**0**	**0**	**0**	**287**	**0**
38260	**B-25**	**2**	**0**	**12**	**5**	**0**	**0**	**0**	**1942**	**0**
38260asp			0.0							
38270	**B-25**	**2**	**0**	**12**	**5**	**0**	**0**	**0**	**1942**	**0**
38270asp			0.0							
38280	**B-25**	**2**	**0**	**12**	**5**	**0**	**0**	**0**	**1942**	**0**
38280asp			0.0							
38290										
38300			**4**	**58**	**8**	**0**	**0**	**0**	**21153**	**2**
	B-10M	1	0	6	1	0	0	0	1738	0
	B-74	4	3	52	8	0	0	0	19415	1
38310	**B-25**	**3**	**1**	**18**	**8**	**0**	**0**	**0**	**2913**	**0**
38310asp			0.0							
38320	**B-25**	**3**	**1**	**18**	**8**	**0**	**0**	**0**	**2913**	**0**
38320asp			0.0							
38330	**2 Clab**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**40**	**0**
38340	**Electrical (Estimated)**	**9**	**1**	**16**	**2**	**0**	**0**	**0**	**3057**	**0**
38345	**B-71**	**5**	**2**	**38**	**5**	**0**	**0**	**0**	**10961**	**1**
38350	**B-79**	**3**	**0**	**9**	**5**	**0**	**0**	**0**	**1710**	**0**
Sub A/A1	**2 Elec**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**79**	**0**
Sub B/B1	**2 Elec**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**79**	**0**
Sub C	**2 Elec**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**79**	**0**
Sub D	**2 Elec**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**79**	**0**
Sub E	**2 Elec**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**79**	**0**
Sub F/F1	**2 Elec**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**79**	**0**
W_GRADE			15	290	32	1	50	9	77371	8
BLASTPAD			3	46	21	0	0	0	7090	1
GRD_GDG			5	100	11	0	17	3	26721	3
GRD_PVG			2	40	18	0	0	0	6148	1
EAPN_PVR			11	167	36	1	1	1	55891	5
EAPN_GDG			6	106	12	0	18	3	28451	3
EAPN_PVG			5	84	39	0	0	0	13093	2
			485	7965	1605	23	219	68	2290197	198

EQUIPMENT EMISSION DATA

Emissions by Crew

Crews:	**Quantities**	**Usage Rate**	**ROG**	**CO**	**Nox**	**SOx**	**PM10**	**PM2.5**	**CO2**	**CH4**
2 Carp			**0.0048**	**0.1801**	**0.0164**	**-**	**0.0002**	**0.0002**	**40.0324**	**-**
Employee vehicles	2	1.124	0.0046	0.1771	0.0160	-	0.0002	0.0002	39.2124	-
1 Pickup Trucks, 3/4 Ton	0.5	37%	0.0002	0.0030	0.0004	-	0.0000	0.0000	0.8199	-
2 Clab			**0.0047**	**0.1786**	**0.0162**	**-**	**0.0002**	**0.0002**	**39.6224**	**-**
Employee vehicles	**2**		0.0046	0.1771	0.0160	-	0.0002	0.0002	39.2124	-
1 Pickup Trucks, 3/4 Ton	0.25	37%	0.0001	0.0015	0.0002	-	0.0000	0.0000	0.4100	-
2 Elec			**0.0047**	**0.1786**	**0.0162**	**-**	**0.0002**	**0.0002**	**39.6224**	**-**
Employee vehicles	**2**		0.0046	0.1771	0.0160	-	0.0002	0.0002	39.2124	-
1 Pickup Trucks, 3/4 Ton	0.25	37%	0.0001	0.0015	0.0002	-	0.0000	0.0000	0.4100	-
2 Rodmen			**0.0047**	**0.1786**	**0.0162**	**-**	**0.0002**	**0.0002**	**39.6224**	**-**
Employee vehicles	**2**		0.0046	0.1771	0.0160	-	0.0002	0.0002	39.2124	-
1 Pickup Trucks, 3/4 Ton	0.25	37%	0.0001	0.0015	0.0002	-	0.0000	0.0000	0.4100	-
B-1B			**0.0789**	**2.7127**	**0.1812**	**0.0038**	**0.0079**	**0.0070**	**405.5478**	**0.0540**
Employee vehicles	**4**		0.0092	0.3542	0.0320	-	0.0004	0.0004	78.4249	-
1 Pickup Trucks, 3/4 Ton	0.25	37%	0.0001	0.0015	0.0002	-	0.0000	0.0000	0.4100	-
1 Hyd. Crane,12 Ton	1	60%	0.07	2.36	0.15	0.00	0.01	0.01	326.71	0.05
B-6			**0.0498**	**2.6697**	**0.7870**	**0.0029**	**0.0049**	**0.0044**	**287.1699**	**0.0606**
Employee vehicles	**3**		0.0069	0.2656	0.0240	-	0.0003	0.0003	58.8187	-
1 Pickup Trucks, 3/4 Ton	0.25	37%	0.0001	0.0015	0.0002	-	0.0000	0.0000	0.4100	-
Backhoe Loader, 48 HP	1	45%	0.04	2.40	0.76	0.00	0.00	0.00	227.94	0.06
B-8			**0.3747**	**6.0613**	**1.1990**	**0.0143**	**0.0400**	**0.0357**	**########**	**0.1301**
Employee vehicles	**8**		0.0185	0.7083	0.0640	-	0.0008	0.0008	156.8498	-
1 Dump Truck, 12 CY, 400 HP	2	94%	0.03	0.11	0.45	0.00	0.00	0.00	178.33	0.00
1 Crawler Loader, 3 CY	1	45%	0.25	2.89	0.54	0.01	0.03	0.02	1070.27	0.08
1 Hyd. Crane 25 tons	1	60%	0.07	2.36	0.15	0.00	0.01	0.01	326.71	0.05
1 Pickup Trucks, 3/4 Ton	0.25	37%	0.0001	0.0015	0.0002	-	0.0000	0.0000	0.4100	-
B-9			**0.0448**	**1.5810**	**0.6321**	**0.0020**	**0.0041**	**0.0036**	**272.6362**	**0.0196**
Employee vehicles	**5**		0.0116	0.4427	0.0400	-	0.0005	0.0005	98.0311	-
1 Air Compressor, 250 cfm	1	33%	0.03	1.14	0.59	0.00	0.00	0.00	174.20	0.02
1 Pickup Trucks, 3/4 Ton	0.25	37%	0.0001	0.0015	0.0002	-	0.0000	0.0000	0.4100	-
B-10D			**0.5704**	**10.1002**	**1.2269**	**0.0352**	**0.0609**	**0.0542**	**########**	**0.3102**
Employee vehicles	**1.5**		0.0035	0.1328	0.0120	-	0.0002	0.0001	29.4093	-
1 Pickup Trucks, 3/4 Ton	0.25	37%	0.0001	0.0015	0.0002	-	0.0000	0.0000	0.4100	-
Dozer, 200 HP	1	76%	0.28	6.36	0.61	0.02	0.03	0.03	1708.58	0.20
Sheepsft Roller Towed	1	100%	0.28	3.60	0.61	0.02	0.03	0.03	1419.40	0.11
B-10M			**0.2876**	**6.4964**	**0.6208**	**0.0192**	**0.0306**	**0.0272**	**########**	**0.2046**
Employee vehicles	**1.5**		0.0035	0.1328	0.0120	-	0.0002	0.0001	29.4093	-
1 Pickup Trucks, 3/4 Ton	0.25	37%	0.0001	0.0015	0.0002	-	0.0000	0.0000	0.4100	-
Dozer, 300 HP	1	76%	0.28	6.36	0.61	0.02	0.03	0.03	1708.58	0.20
B-11A			**0.2888**	**6.5406**	**0.6248**	**0.0192**	**0.0306**	**0.0273**	**########**	**0.2046**
Employee vehicles	**2**		0.0046	0.1771	0.0160	-	0.0002	0.0002	39.2124	-
1 Pickup Trucks, 3/4 Ton	0.25	37%	0.0001	0.0015	0.0002	-	0.0000	0.0000	0.4100	-
Dozer, 200 HP	1	76%	0.28	6.36	0.61	0.02	0.03	0.03	1708.58	0.20
B-12A			**0.1802**	**2.2873**	**0.3922**	**0.0106**	**0.0190**	**0.0169**	**984.4978**	**0.0668**
Employee vehicles	**2**		0.0046	0.1771	0.0160	-	0.0002	0.0002	39.2124	-
1 Pickup Trucks, 3/4 Ton	0.25	37%	0.0001	0.0015	0.0002	-	0.0000	0.0000	0.4100	-
1 Hyd. Excavator, 1 C.Y.	1	67%	0.18	2.11	0.38	0.01	0.02	0.02	944.88	0.07
B-12D			**0.3430**	**3.2040**	**0.7411**	**0.0132**	**0.0365**	**0.0325**	**########**	**0.0898**
Employee vehicles	**2**		0.0046	0.1771	0.0160	-	0.0002	0.0002	39.2124	-
1 Pickup Trucks, 3/4 Ton	0.25	37%	0.0001	0.0015	0.0002	-	0.0000	0.0000	0.4100	-
1 Hyd. Excavator, 3.5 C.Y.	1	67%	0.34	3.03	0.72	0.01	0.04	0.03	1341.62	0.09
B-13			**0.0858**	**2.9783**	**0.2052**	**0.0038**	**0.0082**	**0.0073**	**464.3664**	**0.0540**
Employee vehicles	**7**		0.0162	0.6198	0.0560	-	0.0007	0.0007	137.2436	-
1 Pickup Trucks, 3/4 Ton	0.25	37%	0.0001	0.0015	0.0002	-	0.0000	0.0000	0.4100	-
1 Hyd. Crane 25 tons	1	60%	0.07	2.36	0.15	0.00	0.01	0.01	326.71	0.05
B-13B			**0.1793**	**2.2521**	**0.4056**	**0.0070**	**0.0182**	**0.0162**	**758.1976**	**0.0519**
Employee vehicles	**7**		0.0162	0.6198	0.0560	-	0.0007	0.0007	137.2436	-
1 Pickup Trucks, 3/4 Ton	0.25	37%	0.0001	0.0015	0.0002	-	0.0000	0.0000	0.4100	-
1 Hyd. Crane 55 tons	1	60%	0.16	1.63	0.35	0.01	0.02	0.02	620.54	0.05

EQUIPMENT EMISSION DATA

Emissions by Crew

Crews:	Quantities	Usage Rate	ROG	CO	Nox	SOx	PM10	PM2.5	CO2	CH4
B-21			**0.0416**	**1.4446**	**0.0998**	**0.0018**	**0.0040**	**0.0035**	**226.1053**	**0.0260**
Employee vehicles	**3.5**		0.0081	0.3099	0.0280	-	0.0004	0.0003	68.6218	-
1 Pickup Trucks, 3/4 Ton	0.25	37%	0.0001	0.0015	0.0002	-	0.0000	0.0000	0.4100	-
1 S.P. Crane, 4x4, 5 Ton	0.5	60%	0.03	1.13	0.07	0.00	0.00	0.00	157.07	0.03
B-21A			**0.0812**	**2.8012**	**0.1892**	**0.0038**	**0.0080**	**0.0071**	**425.1540**	**0.0540**
Employee vehicles	**5**		0.0116	0.4427	0.0400	-	0.0005	0.0005	98.0311	-
1 Pickup Trucks, 3/4 Ton	0.25	37%	0.0001	0.0015	0.0002	-	0.0000	0.0000	0.4100	-
1 S.P. Crane, 4x4, 12 Ton	1	60%	0.07	2.36	0.15	0.00	0.01	0.01	326.71	0.05
B-21B			**0.0544**	**1.8929**	**0.1318**	**0.0024**	**0.0051**	**0.0046**	**299.2280**	**0.0332**
Employee vehicles	**5**		0.0116	0.4427	0.0400	-	0.0005	0.0005	98.0311	-
1 Pickup Trucks, 3/4 Ton	0.25	33%	0.0001	0.0013	0.0002	-	0.0000	0.0000	0.3676	-
1 S.P. Crane, 4x4, 12 Ton	1	37%	0.04	1.45	0.09	0.00	0.00	0.00	200.83	0.03
B-25			**0.1864**	**5.9455**	**2.6128**	**0.0087**	**0.0184**	**0.0164**	**970.8560**	**0.1066**
Employee vehicles	**11**		0.0254	0.9739	0.0880	-	0.0012	0.0011	215.6684	-
1 Asphalt Paver, 130 HP	1	19%	0.05	1.69	0.52	0.00	0.01	0.00	278.88	0.03
1 Pickup Trucks, 3/4 Ton	0.25	37%	0.0001	0.0015	0.0002	-	0.0000	0.0000	0.4100	-
1 Tandem Roller, 10 Ton	1	33%	0.06	1.64	1.00	0.00	0.01	0.01	237.95	0.04
1 Roller, Pneum., Whl., 12 Ton	1	33%	0.06	1.64	1.00	0.00	0.01	0.01	237.95	0.04
B-25C			**0.1188**	**3.8638**	**1.5718**	**0.0059**	**0.0119**	**0.0106**	**634.8741**	**0.0708**
Employee vehicles	**6**		0.0139	0.5312	0.0480	-	0.0006	0.0006	117.6373	-
1 Pickup Trucks, 3/4 Ton	0.25	37%	0.0001	0.0015	0.0002	-	0.0000	0.0000	0.4100	-
1 Asphalt Paver, 130 HP	1	19%	0.05	1.69	0.52	0.00	0.01	0.00	278.88	0.03
1 Tandem Roller, 10 Ton	1	33%	0.06	1.64	1.00	0.00	0.01	0.01	237.95	0.04
B-26			**0.3767**	**6.4175**	**0.8408**	**0.0177**	**0.0388**	**0.0345**	**########**	**0.1396**
Employee vehicles	**11**		0.0254	0.9739	0.0880	-	0.0012	0.0011	215.6684	-
1 Pickup Trucks, 3/4 Ton	0.25	37%	0.0001	0.0015	0.0002	-	0.0000	0.0000	0.4100	-
Grader, 30,000 lbs	1	45%	0.15	2.13	0.33	0.01	0.02	0.01	844.83	0.07
Paving Machine and Equipment	1	40%	0.20	3.32	0.42	0.01	0.02	0.02	835.91	0.07
B-26A			**1.8594**	**17.0463**	**2.5781**	**0.0389**	**0.1511**	**0.1345**	**########**	**0.3945**
Employee vehicles	**11**		0.0254	0.9739	0.0880	-	0.0012	0.0011	215.6684	-
Grader, 30,000 lbs	1	45%	0.15	2.13	0.33	0.01	0.02	0.01	844.83	0.07
1 Pickup Trucks, 3/4 Ton	0.25	37%	0.0001	0.0015	0.0002	-	0.0000	0.0000	0.4100	-
Paving Machine and Equipment	1	40%	0.20	8.32	1.06	0.02	0.05	0.05	2,097	0.18
Paving Machine and Equipment	1	40%	0.09	3.54	0.19	0.01	0.01	0.01	583.81	0.07
Paving Machine and Equipment	1	40%	0.89	2.00	0.79	0.00	0.06	0.06	156.04	0.07
Concrete Saw	1	29%	0.50	0.08	0.12	0.00	0.01	0.01	19.31	0.00
B-33B			**0.7106**	**13.8268**	**1.5281**	**0.0389**	**0.0759**	**0.0675**	**########**	**0.3915**
Employee vehicles	**1.75**		0.0040	0.1549	0.0140	-	0.0002	0.0002	34.3109	-
Dozer, 300 HP	1.25	76%	0.36	7.95	0.76	0.02	0.04	0.03	2135.73	0.26
1 Pickup Trucks, 3/4 Ton	0.25	37%	0.0001	0.0015	0.0002	-	0.0000	0.0000	0.4100	-
Scraper, Towed, 10 C.Y.	1	53%	0.35	5.72	0.75	0.01	0.04	0.03	1517.39	0.14
B-34C			**0.0197**	**0.1429**	**0.2310**	**-**	**0.0024**	**0.0022**	**109.1814**	**-**
Employee vehicles	**1**		0.0023	0.0885	0.0080	-	0.0001	0.0001	19.6062	-
1 Truck Tractor, 6x4, 380 H.P.	1	94%	0.02	0.05	0.22	0.00	0.00	0.00	89.17	0.00
1 Pickup Trucks, 3/4 Ton	0.25	37%	0.0001	0.0015	0.0002	-	0.0000	0.0000	0.4100	-
B-36C			**0.5895**	**10.6200**	**1.4643**	**0.0360**	**0.0629**	**0.0561**	**########**	**0.3186**
Employee vehicles	**5**		0.0116	0.4427	0.0400	-	0.0005	0.0005	98.0311	-
1 Grader, 30,000 lbs	1	45%	0.15	2.13	0.33	0.01	0.02	0.01	844.83	0.07
Dozer, 300 HP	1	76%	0.28	6.36	0.61	0.02	0.03	0.03	1708.58	0.20
1 Compactor, Roller,Vibratory, 25 Ton	1	33%	0.12	1.63	0.26	0.01	0.01	0.01	643.94	0.05
1 Truck Tractor, 6x4, 450 HP	1	94%	0.02	0.05	0.22	0.00	0.00	0.00	89.17	0.00
1 Pickup Trucks, 3/4 Ton	0.25	37%	0.0001	0.0015	0.0002	-	0.0000	0.0000	0.4100	-
B-38			**0.6615**	**9.9989**	**2.1039**	**0.0349**	**0.0702**	**0.0624**	**########**	**0.2714**
Employee vehicles	**5**		0.0116	0.4427	0.0400	-	0.0005	0.0005	98.0311	-
Backhoe Loader, 48 HP	1	45%	0.04	2.40	0.76	0.00	0.00	0.00	227.94	0.06
1 Pickup Trucks, 3/4 Ton	0.25	37%	0.0001	0.0015	0.0002	-	0.0000	0.0000	0.4100	-
Hyd. Hammer (1200 lbs) (connect to Excavator)	1	67%	0.18	2.11	0.38	0.01	0.02	0.02	944.88	0.07
FE Loader, W.M., 4 CY	1	46%	0.26	2.93	0.55	0.01	0.03	0.02	1087.31	0.08
Pavt. Rem. Bucket (connect to Excavator)	1	67%	0.18	2.11	0.38	0.01	0.02	0.02	944.88	0.07
B-45			**0.5578**	**0.3637**	**0.7959**	**-**	**0.0084**	**0.0077**	**351.7005**	**-**
Employee vehicles	**2**		0.0046	0.1771	0.0160	-	0.0002	0.0002	39.2124	-
1 Dist. Tanker, 3000 Gallon	1	94%	0.04	0.13	0.56	0.00	0.01	0.01	222.91	0.00
1 Truck Tractor, 6x4, 380 H.P.	1	94%	0.51	0.05	0.22	0.00	0.00	0.00	89.17	0.00
1 Pickup Trucks, 3/4 Ton	0.25	37%	0.0001	0.0015	0.0002	-	0.0000	0.0000	0.4100	-

EQUIPMENT EMISSION DATA

Emissions by Crew

Crews:	Quantities	Usage Rate	ROG	CO	Nox	SOx	PM10	PM2.5	CO2	CH4
B-71			**0.4185**	**7.6737**	**1.0405**	**0.0205**	**0.0442**	**0.0394**	**########**	**0.1685**
Employee vehicles	**7**		0.0162	0.6198	0.0560	-	0.0007	0.0007	137.2436	-
1 Pvmt. Profiler, 750 HP	1	40%	0.28	5.53	0.60	0.01	0.03	0.03	1393.18	0.12
1 Pickup Trucks, 3/4 Ton	0.25	37%	0.0001	0.0015	0.0002	-	0.0000	0.0000	0.4100	-
1 Road Sweeper, S.P., 8' wide	1	25%	0.01	0.03	0.15	0.00	0.00	0.00	58.75	0.00
1 FE Loader, W.M., 1.5 CY	1	46%	0.11	1.49	0.24	0.01	0.01	0.01	602.64	0.05
B-74			**0.8066**	**12.9700**	**1.9385**	**0.0518**	**0.0858**	**0.0764**	**########**	**0.3343**
Employee vehicles	**8**		0.0185	0.7083	0.0640	-	0.0008	0.0008	156.8498	-
1 Pickup Trucks, 3/4 Ton	0.25	37%	0.0001	0.0015	0.0002	-	0.0000	0.0000	0.4100	-
1 Grader, 30,000 lbs	1	45%	0.15	2.13	0.33	0.01	0.02	0.01	844.83	0.07
1 Ripper, beam and 1 shank (connect to Excavator)	1	67%	0.18	2.11	0.38	0.01	0.02	0.02	944.88	0.07
1 Stabailizers, 310 HP	2	40%	0.32	6.34	0.68	0.02	0.03	0.03	2173.65	0.15
1 Compactor, Roller,Vibratory, 25 Ton	1	33%	0.12	1.63	0.26	0.01	0.01	0.01	643.94	0.05
1 Truck Tractor, 220 HP	1	94%	0.02	0.05	0.22	0.00	0.00	0.00	89.17	0.00
B-78B			**0.0466**	**0.3742**	**0.0755**	**0.0003**	**0.0011**	**0.0010**	**85.0061**	**0.0028**
Employee vehicles	**2.25**		0.0052	0.1992	0.0180	-	0.0002	0.0002	44.1140	-
1 Pickup Trucks, 3/4 Ton	1	37%	0.0004	0.0060	0.0008	-	0.0000	0.0000	1.6398	-
1 Line Rem., 11 H.P., walk behind	1	33%	0.04	0.16	0.02	0.00	0.00	0.00	24.57	0.00
1 Road Sweeper, S.P., 8' wide	0.25	25%	0.00	0.01	0.04	0.00	0.00	0.00	14.69	0.00
B-79			**0.1019**	**2.9852**	**1.5544**	**0.0045**	**0.0106**	**0.0095**	**570.1320**	**0.0426**
Employee vehicles	**5**		0.0116	0.4427	0.0400	-	0.0005	0.0005	98.0311	-
1 Paint Thermo. Striper, TM	1	33%	0.04	1.24	0.64	0.00	0.00	0.00	189.83	0.02
1 Heating Kettle, 115 Gallon	1	33%	0.04	1.24	0.64	0.00	0.00	0.00	189.83	0.02
1 Flatbed Truck, Gas, 3 Ton	1	94%	0.02	0.05	0.22	0.00	0.00	0.00	89.17	0.00
1 Pickup Trucks, 3/4 Ton	2	37%	0.0009	0.0120	0.0017	-	0.0000	0.0000	3.2797	-
B-80B			**0.1430**	**2.1283**	**0.3187**	**0.0076**	**0.0147**	**0.0131**	**753.3392**	**0.0565**
Employee vehicles	**4**		0.0092	0.3542	0.0320	-	0.0004	0.0004	78.4249	-
1 Pickup Trucks, 3/4 Ton	0.25	37%	0.0001	0.0015	0.0002	-	0.0000	0.0000	0.4100	-
1 Crane, Flatbed Mounted, 3 ton	1	60%	0.13	1.77	0.29	0.01	0.01	0.01	674.50	0.06
B-89			**0.5233**	**0.3095**	**0.3603**	**0.0002**	**0.0113**	**0.0101**	**147.6899**	**0.0021**
Employee vehicles	**2**		0.0046	0.1771	0.0160	-	0.0002	0.0002	39.2124	-
1 Flatbed Truck, Gas, 3 Ton	1	94%	0.02	0.05	0.22	0.00	0.00	0.00	89.17	0.00
1 Concrete Saw	1	29%	0.50	0.08	0.12	0.00	0.01	0.01	19.31	0.00
Building (Estimated)			**4.4632**	**18.5673**	**7.3047**	**0.0519**	**0.2078**	**0.1852**	**########**	**0.4082**
Employee vehicles	**20**		0.0462	1.7708	0.1601	-	0.0021	0.0019	392.1244	-
Crane RT 50 Ton	1	60%	0.11	1.42	0.23	0.01	0.01	0.01	539.60	0.05
Crane - Track	2	60%	0.31	4.07	0.66	0.02	0.03	0.03	1548.66	0.13
Flatbed Truck - 10 Wheel	4	94%	0.07	0.21	0.89	0.00	0.01	0.01	356.66	0.00
Front End Loader	2	46%	0.23	2.98	0.48	0.01	0.02	0.02	1205.28	0.09
Motor Grader	1	45%	0.08	2.62	1.41	0.00	0.01	0.01	442.38	0.05
Compactor	1	29%	0.36	0.42	0.45	0.00	0.02	0.01	64.43	0.01
Light Plant	6	6%	1.13	0.24	0.21	0.00	0.02	0.02	36.85	0.00
Welder	6	10%	2.04	1.03	0.90	0.00	0.08	0.07	157.13	0.02
Fork Lift	2	54%	0.11	3.80	1.91	0.01	0.01	0.01	581.56	0.07
1 Pickup Trucks, 3/4 Ton	2	37%	0.0009	0.0120	0.0017	-	0.0000	0.0000	3.2797	-
Electrical (Estimated)			**0.0584**	**1.7824**	**0.2394**	**0.0018**	**0.0055**	**0.0049**	**339.7196**	**0.0260**
Employee vehicles	**7**		0.0162	0.6198	0.0560	-	0.0007	0.0007	137.2436	-
1 S.P. Crane, 4x4, 5 Ton	0.5	60%	0.03	1.13	0.07	0.00	0.00	0.00	157.07	0.03
1 Flatbed Truck	0.5	94%	0.01	0.03	0.11	0.00	0.00	0.00	44.58	0.00
1 Pickup Trucks, 3/4 Ton	0.5	37%	0.0002	0.0030	0.0004	-	0.0000	0.0000	0.8199	-
Foundation (Estimated)			**4.0476**	**4.0481**	**0.6837**	**0.0050**	**0.0394**	**0.0351**	**728.0589**	**0.0480**
Employee vehicles	**14**		0.0324	1.2396	0.1120	-	0.0015	0.0013	274.4871	-
Truckmixer, 10 CY	6	4%	0.00	0.01	0.06	0.00	0.00	0.00	25.14	0.00
Concrete Pump	1	4%	0.02	0.56	0.04	0.00	0.00	0.00	86.35	0.01
Generator	1	6%	0.05	1.82	0.11	0.00	0.01	0.01	278.79	0.03
Vibrator	4	29%	3.94	0.41	0.36	0.00	0.03	0.03	62.47	0.01
1 Pickup Trucks, 3/4 Ton	0.5	37%	0.0002	0.0030	0.0004	-	0.0000	0.0000	0.8199	-
Field Check (Estimated)			**0.0143**	**0.5474**	**0.0503**	**-**	**0.0006**	**0.0006**	**122.0693**	**-**
Employee vehicles	**6**		0.0139	0.5312	0.0480	-	0.0006	0.0006	117.6373	-
Pickup Trucks, 3/4 Ton	1	37%	0.0004	0.0162	0.0023	-	0.0000	0.0000	4	-
Setup (Estimated)			**0.0764**	**1.5914**	**0.2718**	**0.0033**	**0.0077**	**0.0069**	**435.9094**	**0.0300**
Employee vehicles	**5**		0.0116	0.4427	0.0400	-	0.0005	0.0005	98.0311	-
1 Hyd. Crane 25 tons	0.25	60%	0.02	0.59	0.04	0.00	0.00	0.00	81.68	0.01
Grader, 30,000 lbs	0.25	45%	0.04	0.53	0.08	0.00	0.00	0.00	211.21	0.02
1 Flatbed Truck, Gas, 3 Ton	0.5	94%	0.01	0.03	0.11	0.00	0.00	0.00	44.58	0.00
1 Pickup Trucks, 3/4 Ton	0.25	37%	0.0001	0.0015	0.0002	-	0.0000	0.0000	0.4100	-

Runway 7L-25R Safety Area Improvements and Pavement Rehabilitation
Quantity Summary by Phase
6/24/2013 20 <-- Haul truck capacity (cy) 20 <-- Haul truck capacity (cy) 10 <-- Mixer capacity (cy) 20 <-- Haul truck capacity (cy) 20 <-- Haul truck capacity (cy) 20 <-- Haul truck capacity (cy)
4 8 13 19 22 28

Phase		Pavement Demo (CY)	Hauling Trips	Common Ex. (cy)	Material to Remain (cy)	Net Excavation Export (cy)	Hauling Trips
1A	x	1,870	94	124,474	29,000	95,474	4,774
1B	x	1,762	88	5,904		5,904	295
1C*			-			-	-
2A	x	911	46	2,946		2,946	147
3A*			-	-		-	-
3B	x	180	9	690		690	35
3C	x	5,027	251	6,004		6,004	300
4A	x	372	19	1,304		1,304	65
5A	x	984	49	175		175	9
5B	x	5,315	266	9,073		9,073	454
6A*			-			-	-
6B	x	1,110	56	4,178		4,178	209
6C	x	1,022	51	4,320		4,320	216
6D		4,664	233	23,388		23,388	1,169
7B		1,418	71	3,426		3,426	171
7C		6,656	333	80,391		80,391	4,020
8A West		3,975	199	107,635	29,000	78,635	3,932
8A KEEL		10,345	517	4,224		4,224	211
8B		1,938	97	8,783		8,783	439
8A/C		6,900	345	-		-	-
8A/D		6,049	302	-		-	-
		60,498	3,025	386,915	58,000	328,915	16,446

Phase	PCCP (sy)	PCCP (in)	PCCP (cy)	Hauling Trips	4" ACP (sf)	5" ACP (sf)	ACP (tons)	Total ACP (cy)	Hauling Trips
1A	7,583	19	4,002	400	130,022	91,467	6,109	3,017	151
1B	4,449	19	2,348	235	55,700	1,940	1,453	718	36
1C*				-				-	-
2A	2,554	19	1,348	135	22,515	1,624	614	303	15
3A*			-	-	-	-	-	-	-
3B	949	19	501	50	-	-	-	-	-
3C	12,496	19	6,595	659	33,407	24,136	1,439	785	39
4A	734	4	82	8	3,718	10,030	406	201	10
5A	-	-	-	-	31,293	-	782	386	19
5B	10,083	23	6,442	644	83,341	-	2,084	1,029	51
6A*				-				-	-
6B	398	23	254	25	6,189	31,002	1,124	555	28
6C	-	-	-	-	-	36,828	1,151	568	28
6D	-	-	-	-	17,384	185,987	6,247	3,085	154
7B	1,381	23	882	88	4,075	21,873	785	388	19
7C	50,298	23	32,135	3,214	535,364	29,867	13,561	7,070	354
8A West	20,215	19	10,669	1,067	227,497	-	5,687	2,809	140
8A KEEL	17,743	19	17,618	1,762	-	-	-	-	-
8B	5,839	19	4,416	442	129,228	-	3,231	1,595	80
8A/C	10,350	19	5,463	546			-	-	-
8A/D	9,074	19	4,789	479			-	-	-
	154,147	286	97,544	9,754	1,279,733	434,754	44,672		1,125

Phase	Base Prep, Agg + PMB (cy)	Hauling Trips	Lime Treated (sy)	ATB (CF)	ATB (CY)	Hauling Trips	ATB (tons)
1A	13,032		-	34,124	1,264	63	2,559
1B	2,995		-	20,021	742	37	1,502
1C*						-	
2A	1,368		-	11,492	426	21	862
3A*	-		-	-	-	-	-
3B	211		-	4,272	158	8	320
3C	9,128		-	56,231	2,083	104	4,217
4A	803		-	3,303	122	6	248
5A	773		-	-	-	-	-
5B	4,902		16,107	45,374	1,681	84	3,403
6A*						-	
6B	3,577		3,843	1,793	66	3	134
6C	3,865		4,092	-	-	-	-
6D	19,946		20,665	-	-	-	-
7B	2,396		1,596	6,215	230	12	466
7C	16,353		75,860	226,343	8,383	419	16,976
8A West	16,253		-	90,967	3,369	168	6,823
8A KEEL	2,314			66,537	2,464	123	4,990
8B			-	26,277	973	49	1,971
8A/C	-		-	38,813	1,438	72	2,911
8A/D	-		-	34,028	1,260	63	2,552
	97,916	-	122,163	665,788	24,659	1,233	49,934

* - Quantities for these subphases are included in the larger overall phase area

Hauling Emissions

miles per roundtrip --> 17.8 Average speed --> 35 mph

	Pavement Demo					Emissions (lbs/day)						
	Phase	Total Trips	Total VMT	Days	Daily VMT	CO	ROG	NOx	SOx	PM10	PM2.5	CO2
		3,025										
4	1A	94	1,664	23	72	0.179	0.044	0.630	0.000	0.009	0.008	283.865
4	4A	19	331									
4	8B	97	1,724									
4	1B	88	1,568									
4	2A	46	810									
		249	4,434	5	887	2.199	0.540	7.718	0.000	0.108	0.099	3478.635
4	3B	9	160									
4	3C	251	4,474									
		260	4,634	10	463	1.149	0.282	4.033	0.000	0.056	0.052	1817.817
	8A											
4	8A West	199	3,538	21	168	0.418	0.103	1.466	0.000	0.020	0.019	660.803
4	8A KEEL	517	9,207	34	271	0.671	0.165	2.357	0.000	0.033	0.030	1062.305
4	5A	49	876									
4	5B	266	4,730									
		315	5,606	15	374	0.927	0.227	3.253	0.000	0.045	0.042	1466.070
4	6B	56	988									
4	6C	51	910									
		107	1,898	4	475	1.177	0.289	4.130	0.000	0.058	0.053	1861.485
4	6D	233	4,151	12	346	0.858	0.211	3.011	0.000	0.042	0.039	1357.038
4	7B	71	1,262									
4	7C	333	5,924									
		404	7,186	15	479	1.188	0.292	4.170	0.000	0.058	0.053	1879.318
4	8A/C	345	6,141									
4	8A/D	302	5,384									
		647	11,525	6	1,921	4.762	1.169	16.717	0.000	0.233	0.214	7534.937

miles per roundtrip --> 17.8 Average speed --> 35 mph

	Excavation Material Removal					Emissions (lbs/day)						
	Phase	Total Trips	Total VMT	Days	Daily VMT	CO	ROG	NOx	SOx	PM10	PM2.5	CO2
		16,446										
8	1A	4,774	84,972	11	7,725	19.152	4.702	67.230	0.000	0.937	0.862	30302.195
8	4A	65	1,161									
8	8B	439	7,817									
8	1B	295	5,255									
8	2A	147	2,622									
		947	16,854	4	4,213	10.447	2.565	36.671	0.000	0.511	0.470	16528.551
8	3B	35	614									
8	3C	300	5,344									
		335	5,958	3	1,986	4.924	1.209	17.285	0.000	0.241	0.222	7790.773
	8A											
8	8A West	3,932	69,986	16	4,374	10.845	2.662	38.069	0.000	0.530	0.488	17158.591
8	8A KEEL	211	3,759	11	342	0.847	0.208	2.974	0.000	0.041	0.038	1340.540
8	5A	9	156									
8	5B	454	8,075									
		462	8,230	7	1,176	2.915	0.716	10.233	0.000	0.143	0.131	4612.213
8	6B	209	3,719									
8	6C	216	3,845									
		425	7,563	4	1,891	4.688	1.151	16.457	0.000	0.229	0.211	7417.414
8	6D	1,169	20,816	18	1,156	2.867	0.704	10.065	0.000	0.140	0.129	4536.391
8	7B	171	3,049									
8	7C	4,020	71,548									
		4,191	74,597	8	9,325	23.119	5.675	81.155	0.000	1.130	1.040	36578.444
8	8A/C	-	-									
8	8A/D	-	-									
		-	-	2	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Hauling Emissions

miles per roundtrip --> 17.8 Average speed --> 35 mph

	Cocrete Delivery					Emissions (lbs/day)						
	Phase	Total Trips	Total VMT	Days	Daily VMT	CO	ROG	NOx	SOx	PM10	PM2.5	CO2
		9,754										
13	**1A**	400	7,124	9	792	1.963	0.482	6.889	0.000	0.096	0.088	3105.056
13	**4A**	8	145									
13	**8B**	442	7,860									
13	**1B**	235	4,180									
13	**2A**	135	2,399									
		819	14,584	2	7,292	18.080	4.438	63.466	0.000	0.884	0.813	28605.561
13	**3B**	50	892									
13	**3C**	659	11,739									
		710	12,631	9	1,403	3.480	0.854	12.214	0.000	0.170	0.157	5505.324
	8A											
13	8A West	1,067	18,991	15	1,266	3.139	0.771	11.019	0.000	0.153	0.141	4966.434
13	8A KEEL	1,762	31,360	30	1,045	2.592	0.636	9.098	0.000	0.127	0.117	4100.579
13	**5A**	-	-									
13	**5B**	644	11,467									
		644	11,467	9	1,274	3.159	0.775	11.089	0.000	0.154	0.142	4997.938
13	**6B**	25	453									
13	**6C**	-	-									
		25	453	10	45	0.112	0.028	0.394	0.000	0.005	0.005	177.699
13	**6D**	-	-	0	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000
13	**7B**	88	1,571									
13	**7C**	3,214	57,201									
		3,302	58,771	16	3,673	9.107	2.236	31.969	0.000	0.445	0.410	14409.124
13	**8A/C**	546	9,723									
13	**8A/D**	479	8,525									
		1,025	18,248	8	2,281	5.655	1.388	19.852	0.000	0.277	0.254	8947.738

miles per roundtrip --> 17.8 Average speed --> 35 mph

	Asphalt Delivery					Emissions (lbs/day)						
	Phase	Total Trips	Total VMT	Days	Daily VMT	CO	ROG	NOx	SOx	PM10	PM2.5	CO2
		1,125										
19	**1A**	151	2,685	11	244	0.605	0.149	2.124	0.000	0.030	0.027	957.477
19	**4A**	10	179									
19	**8B**	80	1,420									
19	**1B**	36	639									
19	**2A**	15	270									
		141	2,507	4	627	1.554	0.381	5.455	0.000	0.076	0.070	2458.474
19	**3B**	-	-									
19	**3C**	39	699									
		39	699	2	349	0.866	0.213	3.040	0.000	0.042	0.039	1370.151
	8A											
19	8A West	140	2,500	5	500	1.240	0.304	4.351	0.000	0.061	0.056	1961.120
19	8A KEEL	-	-	3	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000
19	**5A**	19	344									
19	**5B**	51	916									
		71	1,260	3	420	1.041	0.256	3.654	0.000	0.051	0.047	1646.989
19	**6B**	28	494									
19	**6C**	28	506									
		56	1,000	2	500	1.239	0.304	4.350	0.000	0.061	0.056	1960.639
19	**6D**	154	2,745	13	211	0.524	0.129	1.838	0.000	0.026	0.024	828.448
19	**7B**	19	345									
19	**7C**	354	6,293									
		373	6,638	6	1,106	2.743	0.673	9.628	0.000	0.134	0.123	4339.764
19	**8A/C**	-	-									
19	**8A/D**	-	-									
		-	-	0	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Hauling Emissions

miles per roundtrip --> 17.8 Average speed --> 35 mph

	Base Material Delivery					Emissions (lbs/day)						
	Phase	Total Trips	Total VMT	Days	Daily VMT	CO	ROG	NOx	SOx	PM10	PM2.5	CO2
		-										
22	1A	-	-	4	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22	4A	-	-									
22	8B	-	-									
22	1B	-	-									
22	2A	-	-									
		-	-	3	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22	3B	-	-									
22	3C	-	-									
		-	-	3	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	8A											
22	8A West	-	-	7	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22	8A KEEL	-	-	3	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22	5A	-	-									
22	5B	-	-									
		-	-	4	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22	6B	-	-									
22	6C	-	-									
		-	-	2	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22	6D	-	-	0	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22	7B	-	-									
22	7C	-	-									
		-	-	7	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22	8A/C	-	-									
22	8A/D	-	-									
		-	-	0	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000

miles per roundtrip --> 17.8 Average speed --> 35 mph

	Asphalt Treated Base Delivery					Emissions (lbs/day)						
	Phase	Total Trips	Total VMT	Days	Daily VMT	CO	ROG	NOx	SOx	PM10	PM2.5	CO2
		1,233										
28	1A	63	1,125	4	281	0.697	0.171	2.447	0.000	0.034	0.031	1103.112
28	4A	6	109									
28	8B	49	866									
28	1B	37	660									
28	2A	21	379									
		113	2,014	3	671	1.664	0.409	5.842	0.000	0.081	0.075	2633.215
28	3B	8	141									
28	3C	104	1,854									
		112	1,994	2	997	2.472	0.607	8.679	0.000	0.121	0.111	3911.677
	8A											
28	8A West	168	2,999	6	500	1.239	0.304	4.350	0.000	0.061	0.056	1960.434
28	8A KEEL	123	2,193	7	313	0.777	0.191	2.727	0.000	0.038	0.035	1229.095
28	5A	-	-									
28	5B	84	1,496									
		84	1,496	4	374	0.927	0.228	3.254	0.000	0.045	0.042	1466.786
28	6B	3	59									
28	6C	-	-									
		3	59	3	20	0.049	0.012	0.171	0.000	0.002	0.002	77.261
28	6D	-	-	0	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28	7B	12	205									
28	7C	419	7,461									
		431	7,666	6	1,278	3.168	0.778	11.120	0.000	0.155	0.143	5011.869
28	8A/C	72	1,279									
28	8A/D	63	1,122									
		135	2,401	1	2,401	5.953	1.461	20.897	0.000	0.291	0.268	9418.671

Asphalt Paving Emissions

Emission Factor (lbs/acre) ---> 2.62

Phase	Asphalt Area (sf)	Area (acres)	ROG (lbs)
1A	221,489	5.08	13.32
1B	57,640	1.32	3.47
1C*	-	0.00	0.00
2A	24,139	0.55	1.45
3A*	-	0.00	0.00
3B	-	0.00	0.00
3C	57,543	1.32	3.46
4A	13,748	0.32	0.83
5A	31,293	0.72	1.88
5B	83,341	1.91	5.01
6A*	-	0.00	0.00
6B	37,191	0.85	2.24
6C	36,828	0.85	2.22
6D	203,371	4.67	12.23
7B	25,948	0.60	1.56
7C	565,231	12.98	34.00
8A West	227,497	5.22	13.68
8A KEEL	-	0.00	0.00
8B	129,228	2.97	7.77
8A/C	-	0.00	0.00
8A/D	-	0.00	0.00

Phase	Asphalt Area (sf)	Area (acres)	ROG (lbs)	Paving Days	ROG (lbs per day)
Phase 1A	221,489	5.08	13.32	11	1.21
Phase 4A	13,748	0.32	0.83		
Phase 8B	129,228	2.97	7.77		
Phase 1B	57,640	1.32	3.47		
Phase 2A	24,139	0.55	1.45		
	224,755	5.16	13.52	4	3.38
Phase 3B	-	0.00	0.00		
Phase 3C	57,543	1.32	3.46		
	57,543	1.32	3.46	2	1.73
Phase 8A					
8A West	227,497	5.22	13.68		
8A KEEL	-	0.00	0.00		
	227,497	5.22	13.68	2	6.84
Phase 5A	31,293	0.72	1.88		
Phase 5B	83,341	1.91	5.01		
	114,634	2.63	6.89	3	2.30
Phase 6B	37,191	0.85	2.24		
Phase 6C	36,828	0.85	2.22		
	74,019	1.70	4.45	2	2.23
Phase 7B	25,948	0.60	1.56		
Phase 7C	565,231	12.98	34.00		
	591,179	13.57	35.56	6	5.93

BUILDING WRECKING

Building Wrecking

Width (ft)	550
Length (ft)	130
Floor Area (ft2)	71,500
CalEEMod Emissions	**2.82**

FUGITIVE DUST EMISSIONS

Grading Emissions

Dust Emission Factors

Emission Rate (tons/acre/month) TSP	1.2	
Emission Rate (lbs/acre/day) TSP	109.0909091	
Aerodynamic Particle Size Multiplier for TSP to PM10	0.35	AP42 - Chapter 13.2.4
Aerodynamic Particle Size Multiplier for TSP to PM2.5	0.053	
Emission Rate (lbs/acre/day) PM10	38.2	
Emission Rate (lbs/acre/day) PM2.5	5.8	
Dust Control Efficiency	61%	

Emissions by Activity

						Controlled Emissions (lbs/day)	
Description	**Activity Code**	**Crews**	**Area (ft2)**	**Percent Disturbed per day**	**Area Disturbed (acres)**	**PM10**	**PM2.5**
Phase 2 Taxiway Work West of Existing Runway End	3051	14	292,500	0.25	1.7	25.6	3.9
Phase 3 7L extension & NavAids Inside TRSA	4031	14	292,500	0.25	1.7	25.6	3.9
Grading for New Service Road Construction Area - Phase 1 (Taxiway C)	20190	4	83,571	0.25	0.5	7.3	1.1
Grading for Taxiway and Shoulders - Phase 1 Taxiway C	20240	7	146,250	0.25	0.9	12.8	1.9
Grading for Rest of Airfreight Building Area - Phase 1 Taxiway C	20250	7	146,250	0.25	0.9	12.8	1.9
Grading - East End Phase 2 (Taxilane C1)	22160	4	83,571	0.25	0.5	7.3	1.1
Grading - East End - Phase 3 (Taxiway B1)	24160	4	83,571	0.25	0.5	7.3	1.1
Grading - East End - Phase 4 (Taxiway B)	26160	4	83,571	0.25	0.5	7.3	1.1
Grading - East End - Phase 5 (Taxiway B and Taxiway F)	28160	10	208,929	0.25	1.2	18.3	2.8
Grading - East End - Phase 6 (Runway 25R and Taxiway F)	30160	5	104,464	0.25	0.6	9.1	1.4
Grading - East End - Phase 7 (Runway 25R and Taxiway G)	32160	3	62,679	0.25	0.4	5.5	0.8
Grading - East End - Phase 8-A (Runway 25R, west of Sepulveda Bridge)	34160	4	83,571	0.25	0.5	7.3	1.1
Phase 8-B (Runway 25R, between Taxiway G to Taxiway F)	36160	4	83,571	0.25	0.5	7.3	1.1
Phase 8 - C (Runway 25R, east of Taxiway F)	38160	8	167,143	0.25	1.0	14.6	2.2
						168.1	

Activity Codes based on use of scraper in crew B-33B

Area disturbed for all construction activities that involves grading is based on ratio of area of disturbance and equipment for Activity Code 3051 where 750' x 650' disturbed divided by 14 scrapers.

Thoughts on Demo

PAINT EMISSIONS

Paint Emissions

Emission Factor (lb/ft2)	0.002316	Assumes nonflat paints
Floor Area (ft2)	60,000	
Surface Area to be painted (ft2)	90,000	
Painting Duration (days)	20	
Emissions (lbs/day)	10.4	

Calculation from Appendix A of the CalEEMod User's Guide, Feb 2011.

PAVEMENT CRUSHING EMISSIONS

Pavement Crushing Emissions

Based on methodologies included in AP-42 and data from HNTB for the LAX SAIP EIR

Data

Runway material to be crushed:

Portland concrete cement:	245,000	tons	77.29%
Asphalt:	72,000	tons	22.71%
	317,000	tons	100.00%

Source: Tony Fermelia (HNTB)

Assumptions:

Average throughput for crusher:

Crushing of concrete:	175	tons/hour
Crushing of asphalt:	300	tons/hour

Source: Tony Fermelia (HNTB), based on conversations with crushing contractors

Pro-rated throughput: 203 tons/hour

Crusher operating hours: 1610 hours/year *Source: HNTB*

Emission Factors (lb/ton):

Source	Total PM-10
Tertiary Crushing (controlled)	0.00054
Fines Crushing (controlled)	0.0012
Screening (controlled)	0.00074
Fines Screening (controlled)	0.0022
Conveyer Transfer Point (controlled)	0.000046
Total	0.004726 lb/ton

Source: AP-42 Table 11.19.2-2 Emission Factors For Crushed Stone Processing Operations

Calculations

Total Rock Crishing Fugitive Dust Emissions (PM-10 tons/year) 0.77

*Pro-rated throughput * PM-10 Emission Factor * 1/2000 * Operating hours = Tons of PM-10 emissions*

PAVEMENT CRUSHING EMISSIONS

LAX South RSA Crushing Assumptions

Pavement to be crushed (cy):	60,498
Conversion to cubic feet (cf):	1,633,457

Mix of pavement types:

Asphalt	50%
Concrete	50%

Asphalt to be crushed (cf):	816,729
Concrete to be crushed (cf):	816,729

Asphalt density (lbs/cf):	145	<-- assumption from National Asphalt Association
Weight of asphalt (lbs):	118,425,660	
Weight of asphalt (tons):	59,213	

Concrete density (lbs/cf):	145	<-- assumption from Portland Cement Associatior
Weight of asphalt (lbs):	118,425,660	
Weight of asphalt (tons):	59,213	

Total weight (tons):

Asphalt	59,213
Concrete	59,213
	118,426

Crusher throughput (tons/hr):	238
Crusher operating hours:	601
Emission factor (lb/ton):	0.004726
Total fugitive dust (PM10):	0.34

2014	2015
0.17	0.17

PAVEMENT CRUSHING EMISSIONS

Crusher Operating Emissions

Assumed horsepower: 450

Emission factors (grams/hp-hr)		Emissions (tons/year)	2014	2015
CO	0.77	0.23	0.11	0.11
ROG	0.14	0.04	0.02	0.02
NOx	0.30	0.09	0.04	0.04
SOx	0.00	0.00	0.00	0.00
PM10	0.015	0.00	0.00	0.00
PM2.5	0.01335	0.00	0.00	0.00
CO2	338.97	101.13	50.49	50.64
CH4	0.02	0.01	0.00	0.00

grams to tons: 1.10231E-06

CY 2015 phases		Pavement demo in 2015 (cy)	
7C	16.3%	1,085	
8A	100.0%	14,320	
8B	100.0%	1,938	
8C	100.0%	6,900	
8D	100.0%	6,049	
	Total 2015 -->	30,292	50.07%
	Total 2014 -->	30,292	49.93%
	Total Project -->	60,498	

NEW PROJECTS EMISSIONS

Methodology/Notes

This sheet calculates emissions assocated with projects/activities additional to Refinement #2 that comprise the Proposed Action.
The area (s.f.) for each additional project/activity was compared to the area of a similar Refinement #2 project/activity for which construction activity estimates were provided, to derive a scaling factor. The scaling factor was applied to the applicable number of crews.

The emissions estimates include fugitive dust (PM10 and PM2.5) for grading activities and VOC emissions associated with asphalt curing for asphalt paving activities.

Monthly truck trips and employee vehicle trips were provided for Refinement #2. The Refinement #2 alternative has been modified to eliminate several projects/activities, including the Taxiway C extension, a new GSE facility, and service roads near the Runway 25R end. Emissions for these activities have been eliminated from Refinement #2. However, because the employee and truck trips were provided in aggregage (not project/activity specific), emissions associated with these vehicle trips were not reduced to reflect the eliminated projects/activities. Instead, it was assumed that these vehicle trips would cover any applicable trips associated with the new project/activities addressed on this sheet. Employee trip emissions specific to each new Proposed Action project are calculated below. Emissions for truck trips associated with hauling excess material offsite were estimated for the additional grading west of Runway 7L. All other truck trips associated with each project are assumed to be covered by the aggregate truck trips remaining in the analysis after removal of specific projects, as mentioned previously.

		Emissions for Additional Projects (lbs/day)							
ID	**Activity**	**ROG**	**CO**	**NOx**	**SOx**	**PM10**	**PM2.5**	**CO2**	**CH4**
W_GRADE	Grading west of Runway 7L	14.964	289.537	32.064	0.824	49.978	8.752	77370.713	8.290
BLASTPAD	Runway 7L blast pad (asphalt)	2.764	45.683	20.885	0.081	0.154	0.137	7090.298	0.970
GRD_GDG	Green access road grading	5.168	99.995	11.074	0.285	17.260	3.023	26720.802	2.863
GRD_PVG	Green access road (asphalt)	2.397	39.614	18.111	0.070	0.134	0.119	6148.290	0.841
EAPN_PVR	East side asphalt apron - pavement removal	11.332	166.633	35.986	0.608	1.214	1.080	55890.639	4.731
EAPN_GDG	East side asphalt apron - grading	5.503	106.471	11.791	0.303	18.378	3.218	28451.499	3.048
EAPN_PVG	East side asphalt apron - paving	5.104	84.359	38.567	0.150	0.284	0.253	13093.024	1.791

NEW PROJECTS EMISSIONS

Grading west of Runway 7L								
Area (s.f.)	553,045							
Reference activity								
Phase 2 Taxiway Work West of Existing Runway End - Act# 3051								
Area (s.f.)	292,500							
Scale Factor	1.89							
Duration (days)	11							
Number of crews	14							
Scaled crews	26							
On-Site Equipment Emissions								
Reference activity emissions (lbs/day)	ROG	CO	Nox	SOx	PM10	PM2.5	CO2	CH4
Emissions per crew (B-33B)	0.565	10.938	1.211	0.031	0.061	0.054	2922.900	0.313
Total emissions (lbs/day)	**14.964**	**289.537**	**32.064**	**0.824**	**1.603**	**1.427**	**77370.713**	**8.290**
Fugitive dust (controlled)								
Reference project emissions (lbs/day)								
PM10					25.585			
PM2.5						3.874		
Scaled project emissions (lbs/day)								
PM10					**48.375**			
PM2.5						**7.325**		
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
Total on-site emissions (lbs/day)	**14.964**	**289.537**	**32.064**	**0.824**	**49.978**	**8.752**	**77,370.713**	**8.290**

Runway 7L blast pad (asphalt)								
Area (s.f.)	110,132							
Reference activity								
Rwy 7L Extension asphalt shoulders - Act# 4101								
Area (s.f.)	45,000							
Scale Factor	2.45							
Duration (days)	5							
Number of crews	7							
Scaled crews	17							
On-Site Equipment Emissions								
Reference activity emissions (lbs/day)	ROG	CO	Nox	SOx	PM10	PM2.5	CO2	CH4
Emissions per crew (B-25C)	0.084	2.667	1.219	0.005	0.009	0.008	413.871	0.057
Total emissions (lbs/day)	**1.439**	**45.683**	**20.885**	**0.081**	**0.154**	**0.137**	**7,090.298**	**0.970**
Asphalt VOC emissions								
CalEEMod emission factor (lbs/acre)	2.62							
Acres	2.5							
VOC emissions (divided by days - lbs/day)	**1.325**							
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
Total on-site emissions (lbs/day)	**2.764**	**45.683**	**20.885**	**0.081**	**0.154**	**0.137**	**7,090.298**	**0.970**

NEW PROJECTS EMISSIONS

Green access road grading								
Area (s.f.)	191,000							
Reference activity								
Phase 2 Taxiway Work West of Existing Runway End - Act# 3051								
Area (s.f.)	292,500							
Scale Factor	0.65							
Duration (days)	11							
Number of crews	14							
Scaled crews	9							
On-Site Equipment Emissions								
Reference activity emissions (lbs/day)	ROG	CO	Nox	SOx	PM10	PM2.5	CO2	CH4
Emissions per crew (B-33B)	0.565	10.938	1.211	0.031	0.061	0.054	2922.900	0.313
Total emissions (lbs/day)	5.168	99.995	11.074	0.285	0.554	0.493	26720.802	2.863
Fugitive dust (controlled)								
Reference project emissions (lbs/day)								
PM10					25.585			
PM2.5						3.874		
Scaled project emissions (lbs/day)								
PM10					**16.707**			
PM2.5						**2.530**		
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
Total on-site emissions (lbs/day)	**5.168**	**99.995**	**11.074**	**0.285**	**17.260**	**3.023**	**26,720.802**	**2.863**

Green access road (asphalt)								
Area (s.f.)	95,500							
Reference activity								
Rwy 7L Extension asphalt shoulders - Act# 4101								
Area (s.f.)	45,000							
Scale Factor	2.12							
Duration (days)	5							
Number of crews	7							
Scaled crews	15							
On-Site Equipment Emissions								
Reference activity emissions (lbs/day)	ROG	CO	Nox	SOx	PM10	PM2.5	CO2	CH4
Emissions per crew (B-25C)	0.084	2.667	1.219	0.005	0.009	0.008	413.871	0.057
Total emissions (lbs/day)	**1.248**	**39.614**	**18.111**	**0.070**	**0.134**	**0.119**	**6,148.290**	**0.841**
Asphalt VOC emissions								
CalEEMod emission factor (lbs/acre)	2.62							
Acres	2.2							
VOC emissions (divided by days - lbs/day)	**1.149**							
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
Total on-site emissions (lbs/day)	**2.397**	**39.614**	**18.111**	**0.070**	**0.134**	**0.119**	**6,148.290**	**0.841**

NEW PROJECTS EMISSIONS

East side asphalt apron - pavement removal								
Area (s.f.)	203,371							
Reference activity								
East End - Phase 4 (Taxiway B) - Act# 26160								
Area (s.f.)	46,656							
Scale Factor	4.36							
Duration (days)	6							
Number of crews	5							
Scaled crews	22							
On-Site Equipment Emissions								
Reference activity emissions (lbs/day)	ROG	CO	Nox	SOx	PM10	PM2.5	CO2	CH4
Emissions per crew (B-38)	0.520	7.646	1.651	0.028	0.056	0.050	2,564.411	0.217
Total emissions (lbs/day)	**11.332**	**166.633**	**35.986**	**0.608**	**1.214**	**1.080**	**55,890.639**	**4.731**
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
Total on-site emissions (lbs/day)	**11.332**	**166.633**	**35.986**	**0.608**	**1.214**	**1.080**	**55,890.639**	**4.731**

East side asphalt apron - grading								
Area (s.f.)	203,371							
Reference activity								
Phase 2 Taxiway Work West of Existing Runway End - Act# 3051								
Area (s.f.)	292,500							
Scale Factor	0.70							
Duration (days)	11							
Number of crews	14							
Scaled crews	10							
On-Site Equipment Emissions								
Reference activity emissions (lbs/day)	ROG	CO	Nox	SOx	PM10	PM2.5	CO2	CH4
Emissions per crew (B-33B)	0.565	10.938	1.211	0.031	0.061	0.054	2922.900	0.313
Total emissions (lbs/day)	**5.503**	**106.471**	**11.791**	**0.303**	**0.589**	**0.525**	**28451.499**	**3.048**
Fugitive dust (controlled)								
Reference project emissions (lbs/day)								
PM10					25.585			
PM2.5						3.874		
Scaled project emissions (lbs/day)								
PM10					**17.789**			
PM2.5						**2.694**		
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
Total on-site emissions (lbs/day)	**5.503**	**106.471**	**11.791**	**0.303**	**18.378**	**3.218**	**28,451.499**	**3.048**

NEW PROJECTS EMISSIONS

East side asphalt apron - paving								
Area (s.f.)	203,371							
Reference activity								
Rwy 7L Extension asphalt shoulders - Act# 4101								
Area (s.f.)	45,000							
Scale Factor	4.52							
Duration (days)	5							
Number of crews	7							
Scaled crews	32							
On-Site Equipment Emissions								
Reference activity emissions (lbs/day)	ROG	CO	Nox	SOx	PM10	PM2.5	CO2	CH4
Emissions per crew (B-25C)	0.084	2.667	1.219	0.005	0.009	0.008	413.871	0.057
Total emissions (lbs/day)	**2.657**	**84.359**	**38.567**	**0.150**	**0.284**	**0.253**	**13,093.024**	**1.791**
Asphalt VOC emissions								
CalEEMod emission factor (lbs/acre)	2.62							
Acres	4.7							
VOC emissions (divided by days - lbs/day)	**2.446**							
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
Total on-site emissions (lbs/day)	**5.104**	**84.359**	**38.567**	**0.150**	**0.284**	**0.253**	**13,093.024**	**1.791**

Attachment B.1

Construction – Criteria Pollutant and Greenhouse Gas Emissions Calculations

- Monthly Emissions Summary

Max Total Emissions (lbs/month)

	Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15
CO	-	65	85	3,075	6,254	692	4,256	5,950	4,000	2,540	5,894	6,170	5,667	1,988
ROG	-	3	4	225	373	64	255	445	256	204	410	427	458	136
NOx	-	6	8	1,055	1,510	284	819	2,081	914	1,262	1,588	1,406	1,644	472
SOx	-	0	0	9	17	1	13	16	12	6	18	20	16	4
PM10	-	0	0	24	577	7	211	49	348	21	44	44	46	10
PM2.5	-	0	0	21	121	6	52	44	73	19	39	39	41	9
CO2	-	17,482	22,727	1,072,625	1,998,738	236,939	1,279,743	2,028,112	1,223,714	825,963	1,963,930	2,021,387	1,845,911	462,449
CH4	-	2	3	76	171	15	114	138	107	54	155	162	136	37
CO2e (tons/year)	-	8	10	487	908	108	582	921	556	375	892	918	839	210

Attachment B.2

Construction – Localized Significance Thresholds (LST) Dispersion Modeling

- Receptor Locations
- Dispersion Result Summaries
  - CO
  - NO_2
  - SO_2
  - PM_{10}
  - $PM_{2.5}$

Attachment B.2

Construction – Localized Significance Thresholds (LST) Dispersion Modeling

- Receptor Locations

Runway 7L/25R and Associated Improvements Project Draft EIR
Construction Dispersion Receptor Locations

		UTM (meters)		
Receptor ID	**Type**	**X**	**Y**[1]	**Coordinates**
Receptor_1	Recreational	367379	755396	367379, 755396
Receptor_2	Recreational	367340	755485	367340, 755485
Receptor_3	Recreational	367301	755573	367301, 755573
Receptor_4	Recreational	367263	755661	367263, 755661
Receptor_5	Recreational	367224	755749	367224, 755749
Receptor_6	Recreational	367186	755838	367186, 755838
Receptor_7	Recreational	367147	755926	367147, 755926
Receptor_8	Recreational	367109	756014	367109, 756014
Receptor_9	Recreational	367070	756103	367070, 756103
Receptor_10	Recreational	367032	756191	367032, 756191
Receptor_11	Recreational	366993	756279	366993, 756279
Receptor_12	Recreational	366954	756367	366954, 756367
Receptor_13	Recreational	366916	756456	366916, 756456
Receptor_14	Recreational	366877	756544	366877, 756544
Receptor_15	Recreational	366839	756632	366839, 756632
Receptor_16	Recreational	366800	756720	366800, 756720
Receptor_17	Recreational	366762	756809	366762, 756809
Receptor_18	Recreational	366723	756897	366723, 756897
Receptor_19	Recreational	366685	756985	366685, 756985
Receptor_20	Recreational	366646	757074	366646, 757074
Receptor_21	Recreational	366607	757162	366607, 757162
Receptor_22	Recreational	366569	757250	366569, 757250
Receptor_23	Recreational	366530	757338	366530, 757338
Receptor_24	Recreational	366492	757427	366492, 757427
Receptor_25	Recreational	366453	757515	366453, 757515
Receptor_26	Recreational	366415	757603	366415, 757603
Receptor_27	Recreational	366376	757692	366376, 757692
Receptor_28	Residential	366338	757780	366338, 757780
Receptor_29	Residential	366402	757746	366402, 757746
Receptor_30	Residential	366467	757713	366467, 757713
Receptor_31	Residential	366531	757679	366531, 757679
Receptor_32	Residential	366567	757773	366567, 757773
Receptor_33	Residential	366625	757758	366625, 757758
Receptor_34	Residential	366682	757744	366682, 757744
Receptor_35	Residential	366768	757788	366768, 757788
Receptor_36	Residential	366854	757833	366854, 757833
Receptor_37	Residential	366941	757877	366941, 757877
Receptor_38	Residential	367027	757922	367027, 757922
Receptor_39	Residential	367113	757966	367113, 757966
Receptor_40	Residential	367192	757916	367192, 757916
Receptor_41	Residential	367264	757916	367264, 757916
Receptor_42	Residential	367335	757916	367335, 757916
Receptor_43	Residential	367343	757966	367343, 757966
Receptor_44	Residential	367404	757995	367404, 757995
Receptor_45	Residential	367465	758024	367465, 758024
Receptor_46	School	367504	757948	367504, 757948
Receptor_47	School	367544	757873	367544, 757873
Receptor_48	School	367587	757909	367587, 757909
Receptor_49	School	367623	757866	367623, 757866
Receptor_50	School	367694	757866	367694, 757866
Receptor_51	School	367716	757927	367716, 757927
Receptor_52	School	367737	757988	367737, 757988
Receptor_53	School	367727	758067	367727, 758067
Receptor_54	School	367716	758146	367716, 758146
Receptor_55	Residential	367673	758189	367673, 758189
Receptor_56	School	367723	758254	367723, 758254
Receptor_57	School	367784	758221	367784, 758221
Receptor_58	School	367845	758189	367845, 758189
Receptor_59	Residential	367816	758096	367816, 758096
Receptor_60	Residential	367898	758066	367898, 758066
Receptor_61	Residential	367980	758035	367980, 758035
Receptor_62	Residential	368062	758005	368062, 758005
Receptor_63	Residential	368144	757975	368144, 757975
Receptor_64	Residential	368226	757945	368226, 757945
Receptor_65	Residential	368301	757943	368301, 757943
Receptor_66	Residential	368376	757941	368376, 757941
Receptor_67	Residential	368452	757940	368452, 757940
Receptor_68	Residential	368527	757938	368527, 757938
Receptor_69	Residential	368563	757880	368563, 757880
Receptor_70	Residential	368636	757926	368636, 757926
Receptor_71	Residential	368709	757971	368709, 757971

Note:

1 3,000,000 meters has been subtracted from the actual y coordinate for input into EDMS.

Runway 7L/25R and Associated Improvements Project Draft EIR
Construction Dispersion Receptor Locations

		UTM (meters)		
Receptor ID	**Type**	**X**	**Y[1]**	**Coordinates**
Receptor_72	Residential	368782	758017	368782, 758017
Receptor_73	Residential	368855	758062	368855, 758062
Receptor_74	Residential	368928	758108	368928, 758108
Receptor_75	Residential	369001	758153	369001, 758153
Receptor_76	Residential	369058	758074	369058, 758074
Receptor_77	Residential	369102	758103	369102, 758103
Receptor_78	Residential	369145	758132	369145, 758132
Receptor_79	Residential	369200	758065	369200, 758065
Receptor_80	Residential	369255	757998	369255, 757998
Receptor_81	Residential	369310	757931	369310, 757931
Receptor_82	Residential	369356	757981	369356, 757981
Receptor_83	Residential	369403	758031	369403, 758031
Receptor_84	Recreational	369336	758100	369336, 758100
Receptor_85	Recreational	369269	758170	369269, 758170
Receptor_86	Recreational	369202	758239	369202, 758239
Receptor_87	Recreational	369264	758285	369264, 758285
Receptor_88	Recreational	369326	758330	369326, 758330
Receptor_89	Recreational	369389	758376	369389, 758376
Receptor_90	Recreational	369389	758462	369389, 758462
Receptor_91	Recreational	369389	758548	369389, 758548
Receptor_92	Residential	369389	758634	369389, 758634
Receptor_93	Residential	369469	758630	369469, 758630
Receptor_94	Residential	369549	758625	369549, 758625
Receptor_95	Residential	369630	758621	369630, 758621
Receptor_96	Residential	369710	758617	369710, 758617
Receptor_97	Residential	369791	758613	369791, 758613
Receptor_98	Residential	369791	758514	369791, 758514
Receptor_99	Residential	369791	758416	369791, 758416
Receptor_100	Residential	369791	758318	369791, 758318
Receptor_101	Residential	369881	758318	369881, 758318
Receptor_102	Residential	369972	758318	369972, 758318
Receptor_103	Residential	370062	758318	370062, 758318
Receptor_104	Residential	370153	758318	370153, 758318
Receptor_105	Residential	370243	758318	370243, 758318
Receptor_106	School	370247	758254	370247, 758254
Receptor_107	School	370250	758189	370250, 758189
Receptor_108	School	370308	758196	370308, 758196
Receptor_109	School	370361	758236	370361, 758236
Receptor_110	School	370415	758275	370415, 758275
Receptor_111	Residential	370408	758347	370408, 758347
Receptor_112	Residential	370490	758344	370490, 758344
Receptor_113	Residential	370572	758341	370572, 758341
Receptor_114	Residential	370654	758338	370654, 758338
Receptor_115	Residential	370735	758335	370735, 758335
Receptor_116	Residential	370817	758333	370817, 758333
Receptor_117	Offsite Worker	370814	758243	370814, 758243
Receptor_118	Offsite Worker	370810	758153	370810, 758153
Receptor_119	Offsite Worker	370807	758063	370807, 758063
Receptor_120	Offsite Worker	370803	757974	370803, 757974
Receptor_121	Offsite Worker	370835	757927	370835, 757927
Receptor_122	Offsite Worker	370868	757880	370868, 757880
Receptor_123	Offsite Worker	370921	757884	370921, 757884
Receptor_124	Offsite Worker	370975	757887	370975, 757887
Receptor_125	Offsite Worker	370975	757794	370975, 757794
Receptor_126	Offsite Worker	371026	757794	371026, 757794
Receptor_127	Offsite Worker	371076	757877	371076, 757877
Receptor_128	Offsite Worker	371126	757959	371126, 757959
Receptor_129	Offsite Worker	371119	758031	371119, 758031
Receptor_130	Residential	371183	758027	371183, 758027
Receptor_131	Residential	371248	758024	371248, 758024
Receptor_132	Residential	371326	758075	371326, 758075
Receptor_133	Residential	371404	758127	371404, 758127
Receptor_134	Residential	371481	758178	371481, 758178
Receptor_135	Residential	371559	758230	371559, 758230
Receptor_136	Residential	371637	758281	371637, 758281
Receptor_137	Residential	371715	758333	371715, 758333
Receptor_138	Residential	371769	758261	371769, 758261
Receptor_139	Residential	371822	758189	371822, 758189
Receptor_140	Residential	371894	758160	371894, 758160
Receptor_141	Residential	371894	758081	371894, 758081
Receptor_142	Residential	371959	758074	371959, 758074

Note:

1 3,000,000 meters has been subtracted from the actual y coordinate for input into EDMS.

Runway 7L/25R and Associated Improvements Project Draft EIR
Construction Dispersion Receptor Locations

		UTM (meters)		
Receptor ID	**Type**	**X**	**Y**[1]	**Coordinates**
Receptor_143	Offsite Worker	371953	757977	371953, 757977
Receptor_144	Offsite Worker	371948	757880	371948, 757880
Receptor_145	Offsite Worker	371943	757783	371943, 757783
Receptor_146	Offsite Worker	372016	757794	372016, 757794
Receptor_147	Offsite Worker	372102	757791	372102, 757791
Receptor_148	Offsite Worker	372178	757760	372178, 757760
Receptor_149	Offsite Worker	372177	757670	372177, 757670
Receptor_150	Offsite Worker	372176	757579	372176, 757579
Receptor_151	Offsite Worker	372174	757489	372174, 757489
Receptor_152	Offsite Worker	372173	757398	372173, 757398
Receptor_153	Offsite Worker	372171	757308	372171, 757308
Receptor_154	Offsite Worker	372055	757309	372055, 757309
Receptor_155	Residential	372055	757363	372055, 757363
Receptor_156	Offsite Worker	372055	757416	372055, 757416
Receptor_157	Offsite Worker	371952	757442	371952, 757442
Receptor_158	Offsite Worker	371950	757345	371950, 757345
Receptor_159	Offsite Worker	371864	757344	371864, 757344
Receptor_160	Offsite Worker	371790	757347	371790, 757347
Receptor_161	Offsite Worker	371708	757356	371708, 757356
Receptor_162	Offsite Worker	371615	757356	371615, 757356
Receptor_163	Offsite Worker	371523	757356	371523, 757356
Receptor_164	Offsite Worker	371430	757356	371430, 757356
Receptor_165	Offsite Worker	371338	757356	371338, 757356
Receptor_166	Offsite Worker	371245	757356	371245, 757356
Receptor_167	Offsite Worker	371153	757356	371153, 757356
Receptor_168	Offsite Worker	371061	757356	371061, 757356
Receptor_169	Offsite Worker	371005	757357	371005, 757357
Receptor_170	Offsite Worker	370998	757293	370998, 757293
Receptor_171	Offsite Worker	370998	757194	370998, 757194
Receptor_172	Offsite Worker	370998	757096	370998, 757096
Receptor_173	Offsite Worker	370998	756998	370998, 756998
Receptor_174	Offsite Worker	371057	756997	371057, 756997
Receptor_175	Offsite Worker	371153	756997	371153, 756997
Receptor_176	Offsite Worker	371249	756997	371249, 756997
Receptor_177	Offsite Worker	371345	756997	371345, 756997
Receptor_178	Offsite Worker	371440	756997	371440, 756997
Receptor_179	Offsite Worker	371536	756997	371536, 756997
Receptor_180	Offsite Worker	371632	756997	371632, 756997
Receptor_181	Offsite Worker	371728	756997	371728, 756997
Receptor_182	Offsite Worker	371824	756997	371824, 756997
Receptor_183	Offsite Worker	371920	756997	371920, 756997
Receptor_184	Offsite Worker	372016	756997	372016, 756997
Receptor_185	Offsite Worker	372111	756997	372111, 756997
Receptor_186	Offsite Worker	372207	756997	372207, 756997
Receptor_187	Offsite Worker	372303	756997	372303, 756997
Receptor_188	Offsite Worker	372399	756997	372399, 756997
Receptor_189	Offsite Worker	372495	756997	372495, 756997
Receptor_190	Offsite Worker	372591	756997	372591, 756997
Receptor_191	Offsite Worker	372610	757063	372610, 757063
Receptor_192	Offsite Worker	372612	757132	372612, 757132
Receptor_193	Offsite Worker	372614	757201	372614, 757201
Receptor_194	Offsite Worker	372616	757270	372616, 757270
Receptor_195	Offsite Worker	372627	757351	372627, 757351
Receptor_196	Offsite Worker	372651	757422	372651, 757422
Receptor_197	Offsite Worker	372676	757494	372676, 757494
Receptor_198	Offsite Worker	372704	757569	372704, 757569
Receptor_199	Offsite Worker	372733	757645	372733, 757645
Receptor_200	Offsite Worker	372746	757702	372746, 757702
Receptor_201	Offsite Worker	372746	757768	372746, 757768
Receptor_202	School	372807	757781	372807, 757781
Receptor_203	School	372901	757782	372901, 757782
Receptor_204	Offsite Worker	372994	757783	372994, 757783
Receptor_205	Offsite Worker	373087	757783	373087, 757783
Receptor_206	Offsite Worker	373180	757784	373180, 757784
Receptor_207	Offsite Worker	373274	757785	373274, 757785
Receptor_208	Offsite Worker	373367	757786	373367, 757786
Receptor_209	Offsite Worker	373418	757742	373418, 757742
Receptor_210	Offsite Worker	373418	757653	373418, 757653
Receptor_211	Offsite Worker	373419	757564	373419, 757564
Receptor_212	Offsite Worker	373419	757475	373419, 757475
Receptor_213	Offsite Worker	373420	757386	373420, 757386

Note:

1 3,000,000 meters has been subtracted from the actual y coordinate for input into EDMS.

Runway 7L/25R and Associated Improvements Project Draft EIR
Construction Dispersion Receptor Locations

		UTM (meters)		
Receptor ID	**Type**	**X**	**Y**[1]	**Coordinates**
Receptor_214	Offsite Worker	373420	757297	373420, 757297
Receptor_215	Offsite Worker	373421	757207	373421, 757207
Receptor_216	Offsite Worker	373421	757118	373421, 757118
Receptor_217	Offsite Worker	373292	757117	373292, 757117
Receptor_218	Offsite Worker	373213	757118	373213, 757118
Receptor_219	Offsite Worker	373158	757066	373158, 757066
Receptor_220	Offsite Worker	373084	757026	373084, 757026
Receptor_221	Offsite Worker	373009	757011	373009, 757011
Receptor_222	Offsite Worker	372922	757009	372922, 757009
Receptor_223	Offsite Worker	372835	757007	372835, 757007
Receptor_224	Offsite Worker	372747	757006	372747, 757006
Receptor_225	Offsite Worker	372660	757004	372660, 757004
Receptor_226	Offsite Worker	372651	757063	372651, 757063
Receptor_227	Offsite Worker	372629	756931	372629, 756931
Receptor_228	Offsite Worker	372631	756857	372631, 756857
Receptor_229	Offsite Worker	372634	756783	372634, 756783
Receptor_230	Offsite Worker	372702	756778	372702, 756778
Receptor_231	Offsite Worker	372756	756775	372756, 756775
Receptor_232	Offsite Worker	372729	756712	372729, 756712
Receptor_233	Offsite Worker	372703	756650	372703, 756650
Receptor_234	Offsite Worker	372677	756588	372677, 756588
Receptor_235	Offsite Worker	372619	756588	372619, 756588
Receptor_236	Offsite Worker	372622	756509	372622, 756509
Receptor_237	Offsite Worker	372700	756511	372700, 756511
Receptor_238	Offsite Worker	372789	756510	372789, 756510
Receptor_239	Offsite Worker	372871	756509	372871, 756509
Receptor_240	Offsite Worker	372871	756437	372871, 756437
Receptor_241	Offsite Worker	372970	756437	372970, 756437
Receptor_242	Offsite Worker	373069	756437	373069, 756437
Receptor_243	Offsite Worker	373168	756437	373168, 756437
Receptor_244	Offsite Worker	373267	756437	373267, 756437
Receptor_245	Offsite Worker	373412	756437	373412, 756437
Receptor_246	Offsite Worker	373409	756339	373409, 756339
Receptor_247	Offsite Worker	373406	756240	373406, 756240
Receptor_248	Offsite Worker	373403	756142	373403, 756142
Receptor_249	Offsite Worker	373400	756042	373400, 756042
Receptor_250	Offsite Worker	373397	755944	373397, 755944
Receptor_251	Offsite Worker	373393	755846	373393, 755846
Receptor_252	Offsite Worker	373390	755747	373390, 755747
Receptor_253	Offsite Worker	373309	755744	373309, 755744
Receptor_254	Offsite Worker	373229	755743	373229, 755743
Receptor_255	Offsite Worker	373143	755741	373143, 755741
Receptor_256	Offsite Worker	373143	755823	373143, 755823
Receptor_257	Offsite Worker	373143	755906	373143, 755906
Receptor_258	Offsite Worker	373065	755906	373065, 755906
Receptor_259	Offsite Worker	373065	755827	373065, 755827
Receptor_260	Offsite Worker	373068	755733	373068, 755733
Receptor_261	Offsite Worker	373007	755733	373007, 755733
Receptor_262	Offsite Worker	372941	755733	372941, 755733
Receptor_263	Offsite Worker	372941	755636	372941, 755636
Receptor_264	Offsite Worker	372941	755539	372941, 755539
Receptor_265	Offsite Worker	372941	755442	372941, 755442
Receptor_266	Offsite Worker	372913	755342	372913, 755342
Receptor_267	Offsite Worker	372817	755346	372817, 755346
Receptor_268	Offsite Worker	372720	755349	372720, 755349
Receptor_269	Offsite Worker	372624	755352	372624, 755352
Receptor_270	Offsite Worker	372527	755349	372527, 755349
Receptor_271	Offsite Worker	372431	755353	372431, 755353
Receptor_272	Offsite Worker	372334	755356	372334, 755356
Receptor_273	Offsite Worker	372237	755359	372237, 755359
Receptor_274	Offsite Worker	372141	755362	372141, 755362
Receptor_275	Offsite Worker	372044	755366	372044, 755366
Receptor_276	Offsite Worker	371948	755369	371948, 755369
Receptor_277	Offsite Worker	371851	755372	371851, 755372
Receptor_278	Offsite Worker	371755	755375	371755, 755375
Receptor_279	Offsite Worker	371658	755378	371658, 755378
Receptor_280	Offsite Worker	371562	755382	371562, 755382
Receptor_281	Offsite Worker	371465	755385	371465, 755385
Receptor_282	Offsite Worker	371368	755388	371368, 755388
Receptor_283	Offsite Worker	371272	755391	371272, 755391
Receptor_284	Offsite Worker	371175	755395	371175, 755395

Note:

1 3,000,000 meters has been subtracted from the actual y coordinate for input into EDMS.

Runway 7L/25R and Associated Improvements Project Draft EIR
Construction Dispersion Receptor Locations

		UTM (meters)		
Receptor ID	**Type**	**X**	**Y**[1]	**Coordinates**
Receptor_285	Offsite Worker	371079	755398	371079, 755398
Receptor_286	Offsite Worker	371042	755478	371042, 755478
Receptor_287	Offsite Worker	371009	755538	371009, 755538
Receptor_288	Offsite Worker	370975	755597	370975, 755597
Receptor_289	Offsite Worker	370925	755597	370925, 755597
Receptor_290	Offsite Worker	370860	755547	370860, 755547
Receptor_291	Offsite Worker	370796	755497	370796, 755497
Receptor_292	Offsite Worker	370733	755428	370733, 755428
Receptor_293	Offsite Worker	370634	755428	370634, 755428
Receptor_294	Offsite Worker	370536	755428	370536, 755428
Receptor_295	Offsite Worker	370437	755428	370437, 755428
Receptor_296	Offsite Worker	370338	755427	370338, 755427
Receptor_297	Residential	370239	755427	370239, 755427
Receptor_298	Residential	370138	755427	370138, 755427
Receptor_299	Residential	370040	755427	370040, 755427
Receptor_300	Residential	369941	755426	369941, 755426
Receptor_301	Residential	369842	755426	369842, 755426
Receptor_302	School	369741	755435	369741, 755435
Receptor_303	School	369643	755434	369643, 755434
Receptor_304	Residential	369544	755434	369544, 755434
Receptor_305	Residential	369445	755434	369445, 755434
Receptor_306	Residential	369346	755434	369346, 755434
Receptor_307	Offsite Worker	369249	755442	369249, 755442
Receptor_308	Offsite Worker	369151	755442	369151, 755442
Receptor_309	Offsite Worker	369052	755442	369052, 755442
Receptor_310	Residential	368953	755441	368953, 755441
Receptor_311	Residential	368854	755441	368854, 755441
Receptor_312	Residential	368755	755441	368755, 755441
Receptor_313	Residential	368657	755441	368657, 755441
Receptor_314	Residential	368558	755440	368558, 755440
Receptor_315	Residential	368459	755440	368459, 755440
Receptor_316	Residential	368360	755440	368360, 755440
Receptor_317	Residential	368262	755439	368262, 755439
Receptor_318	Residential	368186	755427	368186, 755427
Receptor_319	Residential	368111	755414	368111, 755414
Receptor_320	Offsite Worker	368035	755402	368035, 755402
Receptor_321	Offsite Worker	367960	755389	367960, 755389
Receptor_322	Offsite Worker	367863	755390	367863, 755390
Receptor_323	Offsite Worker	367766	755392	367766, 755392
Receptor_324	Offsite Worker	367669	755393	367669, 755393
Receptor_325	Offsite Worker	367572	755394	367572, 755394
Receptor_326	Offsite Worker	367475	755395	367475, 755395
Receptor_327	On-Site Occupational	370403	756882	370403, 756882

Note:

1 3,000,000 meters has been subtracted from the actual y coordinate for input into EDMS.

Attachment B.2

Construction – Localized Significance Thresholds (LST) Dispersion Modeling

- Dispersion Result Summaries
    - CO
    - NO_2
    - SO_2
    - PM_{10}
    - $PM_{2.5}$

Runway 7L/25R and Associated Improvements Project Draft EIR
Construction Dispersion

	CO 1-Hr								CO 8-Hr							
Receptor ID	**Project**	**NP**	**Project Increase (ug/m3)**	**Project Increase (ppm)**	**Ambient**	**Total**	**Threshold**	**Exceeds?**	**Project**	**NP**	**Project Increase (ug/m3)**	**Project Increase (ppm)**	**Ambient**	**Total**	**Threshold**	**Exceeds?**
Receptor_1	1,851	1,593	257	0.225	3	3	20	No	512	479	33	0.029	3	3	9	No
Receptor_2	1,812	1,580	232	0.203	3	3	20	No	541	507	34	0.029	3	3	9	No
Receptor_3	1,713	1,540	173	0.151	3	3	20	No	567	536	31	0.027	3	3	9	No
Receptor_4	1,744	1,689	55	0.048	3	3	20	No	590	563	26	0.023	3	3	9	No
Receptor_5	1,791	1,742	48	0.042	3	3	20	No	607	587	20	0.017	3	3	9	No
Receptor_6	1,764	1,732	32	0.028	3	3	20	No	618	605	14	0.012	3	3	9	No
Receptor_7	1,659	1,827	(168)	(0.146)	3	3	20	No	622	613	9	0.008	3	3	9	No
Receptor_8	1,707	1,963	(256)	(0.224)	3	3	20	No	620	613	6	0.006	3	3	9	No
Receptor_9	1,664	1,930	(266)	(0.232)	3	3	20	No	611	605	6	0.005	3	3	9	No
Receptor_10	1,485	1,734	(249)	(0.217)	3	3	20	No	597	589	7	0.006	3	3	9	No
Receptor_11	1,422	1,460	(38)	(0.033)	3	3	20	No	578	567	10	0.009	3	3	9	No
Receptor_12	1,468	1,461	7	0.006	3	3	20	No	556	541	15	0.014	3	3	9	No
Receptor_13	1,567	1,463	103	0.090	3	3	20	No	533	511	22	0.020	3	3	9	No
Receptor_14	1,663	1,599	64	0.056	3	3	20	No	510	479	31	0.027	3	3	9	No
Receptor_15	1,683	1,650	33	0.028	3	3	20	No	486	446	41	0.035	3	3	9	No
Receptor_16	1,616	1,604	12	0.010	3	3	20	No	479	425	54	0.047	3	3	9	No
Receptor_17	1,495	1,490	4	0.004	3	3	20	No	478	416	62	0.054	3	3	9	No
Receptor_18	1,436	1,368	68	0.060	3	3	20	No	477	407	70	0.061	3	3	9	No
Receptor_19	1,401	1,325	76	0.067	3	3	20	No	476	398	78	0.068	3	3	9	No
Receptor_20	1,458	1,433	25	0.022	3	3	20	No	469	385	84	0.073	3	3	9	No
Receptor_21	1,528	1,501	27	0.024	3	3	20	No	455	368	87	0.076	3	3	9	No
Receptor_22	1,599	1,536	63	0.055	3	3	20	No	432	346	86	0.075	3	3	9	No
Receptor_23	1,559	1,548	11	0.010	3	3	20	No	405	342	63	0.055	3	3	9	No
Receptor_24	1,513	1,553	(40)	(0.035)	3	3	20	No	396	336	60	0.052	3	3	9	No
Receptor_25	1,546	1,556	(10)	(0.008)	3	3	20	No	386	328	58	0.050	3	3	9	No
Receptor_26	1,581	1,552	28	0.025	3	3	20	No	374	319	55	0.048	3	3	9	No
Receptor_27	1,589	1,527	62	0.054	3	3	20	No	377	359	18	0.016	3	3	9	No
Receptor_28	1,551	1,466	84	0.073	3	3	20	No	392	372	20	0.017	3	3	9	No
Receptor_29	1,591	1,507	84	0.073	3	3	20	No	397	377	20	0.017	3	3	9	No
Receptor_30	1,628	1,546	83	0.072	3	3	20	No	403	383	20	0.017	3	3	9	No
Receptor_31	1,662	1,582	80	0.070	3	3	20	No	408	387	20	0.018	3	3	9	No
Receptor_32	1,632	1,522	110	0.096	3	3	20	No	441	418	23	0.020	3	3	9	No
Receptor_33	1,666	1,551	115	0.100	3	3	20	No	451	428	24	0.021	3	3	9	No
Receptor_34	1,701	1,581	121	0.105	3	3	20	No	462	438	24	0.021	3	3	9	No
Receptor_35	1,856	1,740	116	0.101	3	3	20	No	494	468	26	0.023	3	3	9	No
Receptor_36	2,031	1,856	175	0.153	3	3	20	No	523	495	27	0.024	3	3	9	No
Receptor_37	2,189	2,055	134	0.117	3	3	20	No	547	520	27	0.023	3	3	9	No
Receptor_38	2,322	2,139	182	0.159	3	3	20	No	564	540	24	0.021	3	3	9	No
Receptor_39	2,355	2,137	218	0.190	3	3	20	No	572	552	20	0.018	3	3	9	No
Receptor_40	2,453	2,225	228	0.199	3	3	20	No	601	576	25	0.021	3	3	9	No
Receptor_41	2,487	2,241	246	0.215	3	3	20	No	616	591	24	0.021	3	3	9	No
Receptor_42	2,505	2,243	262	0.229	3	3	20	No	629	605	24	0.021	3	3	9	No
Receptor_43	2,505	1,955	550	0.481	3	3	20	No	606	589	17	0.015	3	3	9	No
Receptor_44	2,674	2,079	595	0.520	3	4	20	No	595	583	12	0.010	3	3	9	No
Receptor_45	2,788	2,163	626	0.546	3	4	20	No	590	549	41	0.036	3	3	9	No
Receptor_46	2,822	2,185	637	0.556	3	4	20	No	632	616	16	0.014	3	3	9	No
Receptor_47	2,814	2,179	635	0.555	3	4	20	No	686	659	27	0.024	3	3	9	No
Receptor_48	2,956	2,280	676	0.591	3	4	20	No	666	646	20	0.017	3	3	9	No
Receptor_49	2,996	2,308	688	0.601	3	4	20	No	702	675	27	0.023	3	3	9	No
Receptor_50	3,147	2,413	734	0.641	3	4	20	No	708	683	25	0.022	3	3	9	No
Receptor_51	3,190	2,388	802	0.701	3	4	20	No	694	586	109	0.095	3	3	9	No
Receptor_52	3,174	2,384	789	0.689	3	4	20	No	697	645	52	0.046	3	3	9	No
Receptor_53	3,023	2,300	724	0.632	3	4	20	No	676	627	48	0.042	3	3	9	No
Receptor_54	2,819	2,187	633	0.553	3	4	20	No	647	545	102	0.089	3	3	9	No
Receptor_55	2,717	2,123	594	0.518	3	4	20	No	625	527	98	0.086	3	3	9	No
Receptor_56	2,463	1,994	469	0.410	3	3	20	No	610	514	95	0.083	3	3	9	No
Receptor_57	2,508	2,030	478	0.418	3	3	20	No	630	531	99	0.086	3	3	9	No
Receptor_58	2,551	2,066	485	0.424	3	3	20	No	651	549	102	0.089	3	3	9	No
Receptor_59	2,921	2,260	661	0.577	3	4	20	No	685	576	109	0.095	3	3	9	No
Receptor_60	2,969	2,303	666	0.582	3	4	20	No	715	601	114	0.100	3	3	9	No
Receptor_61	3,018	2,347	671	0.586	3	4	20	No	748	627	121	0.105	3	3	9	No
Receptor_62	3,060	2,389	671	0.586	3	4	20	No	784	656	127	0.111	3	3	9	No
Receptor_63	3,097	2,431	666	0.582	3	4	20	No	824	688	135	0.118	3	3	9	No
Receptor_64	3,129	2,472	657	0.574	3	4	20	No	868	724	144	0.126	3	3	9	No
Receptor_65	3,197	2,416	780	0.682	3	4	20	No	887	739	147	0.129	3	3	9	No
Receptor_66	3,364	2,579	785	0.686	3	4	20	No	898	750	148	0.129	3	3	9	No
Receptor_67	3,547	2,527	1,020	0.890	3	4	20	No	898	753	145	0.127	3	3	9	No
Receptor_68	3,804	2,622	1,182	1.032	3	4	20	No	908	776	132	0.115	3	3	9	No
Receptor_69	4,014	2,744	1,270	1.109	3	4	20	No	982	832	150	0.131	3	3	9	No
Receptor_70	4,041	2,649	1,392	1.216	3	4	20	No	960	797	163	0.143	3	3	9	No
Receptor_71	3,802	2,424	1,378	1.203	3	4	20	No	937	698	238	0.208	3	3	9	No
Receptor_72	3,538	2,710	828	0.723	3	4	20	No	898	689	208	0.182	3	3	9	No
Receptor_73	3,451	2,738	714	0.623	3	4	20	No	873	708	166	0.145	3	3	9	No
Receptor_74	3,179	2,859	321	0.280	3	3	20	No	889	724	165	0.144	3	3	9	No
Receptor_75	3,165	2,720	445	0.388	3	3	20	No	920	748	172	0.150	3	3	9	No
Receptor_76	3,413	2,974	439	0.383	3	3	20	No	1,029	846	183	0.160	3	3	9	No
Receptor_77	3,326	2,865	461	0.403	3	3	20	No	1,031	845	187	0.163	3	3	9	No
Receptor_78	3,142	2,621	520	0.455	3	3	20	No	1,017	829	188	0.164	3	3	9	No
Receptor_79	3,162	2,640	522	0.456	3	3	20	No	1,097	899	197	0.172	3	3	9	No
Receptor_80	3,376	3,017	359	0.314	3	3	20	No	1,169	964	205	0.179	3	3	9	No
Receptor_81	3,631	3,258	373	0.326	3	3	20	No	1,227	1,018	209	0.182	3	3	9	No
Receptor_82	3,301	2,956	344	0.301	3	3	20	No	1,119	918	201	0.176	3	3	9	No
Receptor_83	3,049	2,469	580	0.507	3	4	20	No	1,030	833	197	0.172	3	3	9	No
Receptor_84	3,004	2,687	317	0.277	3	3	20	No	999	804	195	0.171	3	3	9	No
Receptor_85	2,939	2,627	312	0.272	3	3	20	No	960	770	190	0.166	3	3	9	No
Receptor_86	2,720	2,419	301	0.263	3	3	20	No	912	730	182	0.159	3	3	9	No

	CO 1-Hr								CO 8-Hr							
Receptor ID	Project	NP	Project Increase (ug/m3)	Project Increase (ppm)	Ambient	Total	Threshold	Exceeds?	Project	NP	Project Increase (ug/m3)	Project Increase (ppm)	Ambient	Total	Threshold	Exceeds?
Receptor_87	2,697	2,407	289	0.253	3	3	20	No	857	676	181	0.158	3	3	9	No
Receptor_88	2,522	2,248	274	0.240	3	3	20	No	800	622	178	0.156	3	3	9	No
Receptor_89	2,299	1,855	445	0.389	3	3	20	No	745	573	172	0.150	3	3	9	No
Receptor_90	2,178	1,757	421	0.368	3	3	20	No	686	525	162	0.141	3	3	9	No
Receptor_91	2,071	1,671	400	0.350	3	3	20	No	636	485	151	0.132	3	3	9	No
Receptor_92	1,974	1,594	380	0.332	3	3	20	No	595	454	141	0.123	3	3	9	No
Receptor_93	2,089	1,706	382	0.334	3	3	20	No	592	451	141	0.123	3	3	9	No
Receptor_94	2,250	1,758	492	0.430	3	3	20	No	613	508	105	0.091	3	3	9	No
Receptor_95	2,399	1,781	618	0.540	3	4	20	No	627	514	113	0.098	3	3	9	No
Receptor_96	2,409	1,819	591	0.516	3	4	20	No	636	510	125	0.109	3	3	9	No
Receptor_97	2,311	1,779	532	0.465	3	3	20	No	640	518	122	0.106	3	3	9	No
Receptor_98	2,394	1,843	551	0.481	3	3	20	No	687	560	127	0.111	3	3	9	No
Receptor_99	2,478	1,908	571	0.498	3	3	20	No	738	605	133	0.116	3	3	9	No
Receptor_100	2,567	1,976	592	0.517	3	4	20	No	792	653	139	0.122	3	3	9	No
Receptor_101	2,396	1,909	487	0.426	3	3	20	No	797	669	127	0.111	3	3	9	No
Receptor_102	2,368	1,981	387	0.338	3	3	20	No	790	673	116	0.101	3	3	9	No
Receptor_103	2,375	2,068	307	0.269	3	3	20	No	776	670	106	0.092	3	3	9	No
Receptor_104	2,360	2,228	132	0.115	3	3	20	No	765	668	97	0.085	3	3	9	No
Receptor_105	2,381	2,343	38	0.033	3	3	20	No	767	677	91	0.079	3	3	9	No
Receptor_106	2,455	2,414	41	0.036	3	3	20	No	800	706	94	0.082	3	3	9	No
Receptor_107	2,537	2,540	(2)	(0.002)	3	3	20	No	837	740	97	0.085	3	3	9	No
Receptor_108	2,565	2,651	(87)	(0.076)	3	3	20	No	840	747	93	0.081	3	3	9	No
Receptor_109	2,559	2,517	42	0.037	3	3	20	No	826	741	85	0.074	3	3	9	No
Receptor_110	2,598	2,469	129	0.113	3	3	20	No	809	734	75	0.065	3	3	9	No
Receptor_111	2,489	2,350	139	0.121	3	3	20	No	772	699	72	0.063	3	3	9	No
Receptor_112	2,654	2,636	18	0.016	3	3	20	No	762	705	57	0.050	3	3	9	No
Receptor_113	2,654	2,730	(76)	(0.066)	3	3	20	No	729	690	39	0.034	3	3	9	No
Receptor_114	2,554	2,577	(23)	(0.020)	3	3	20	No	756	708	48	0.042	3	3	9	No
Receptor_115	2,282	2,344	(62)	(0.054)	3	3	20	No	779	739	40	0.035	3	3	9	No
Receptor_116	2,372	1,863	510	0.445	3	3	20	No	788	754	34	0.029	3	3	9	No
Receptor_117	2,583	2,013	571	0.499	3	3	20	No	837	806	31	0.027	3	3	9	No
Receptor_118	2,817	2,220	597	0.521	3	4	20	No	891	862	28	0.025	3	3	9	No
Receptor_119	3,066	2,452	614	0.537	3	4	20	No	948	922	26	0.023	3	3	9	No
Receptor_120	3,308	2,686	621	0.543	3	4	20	No	1,007	983	23	0.020	3	3	9	No
Receptor_121	3,327	2,757	570	0.498	3	3	20	No	1,011	991	20	0.018	3	3	9	No
Receptor_122	3,121	2,605	516	0.450	3	3	20	No	1,013	888	126	0.110	3	3	9	No
Receptor_123	3,044	2,829	215	0.187	3	3	20	No	1,014	897	116	0.102	3	3	9	No
Receptor_124	2,933	2,633	300	0.262	3	3	20	No	996	887	109	0.095	3	3	9	No
Receptor_125	2,980	2,624	356	0.310	3	3	20	No	1,059	960	98	0.086	3	3	9	No
Receptor_126	2,763	2,463	300	0.262	3	3	20	No	1,015	970	44	0.039	3	3	9	No
Receptor_127	2,635	2,273	362	0.316	3	3	20	No	941	879	63	0.055	3	3	9	No
Receptor_128	2,514	2,126	388	0.339	3	3	20	No	877	797	80	0.070	3	3	9	No
Receptor_129	2,482	2,211	271	0.237	3	3	20	No	855	858	(4)	(0.003)	3	3	9	No
Receptor_130	2,379	2,017	362	0.316	3	3	20	No	822	732	90	0.078	3	3	9	No
Receptor_131	2,169	2,068	101	0.088	3	3	20	No	795	715	80	0.070	3	3	9	No
Receptor_132	2,036	2,002	34	0.030	3	3	20	No	750	682	68	0.059	3	3	9	No
Receptor_133	1,969	1,929	40	0.035	3	3	20	No	710	651	59	0.051	3	3	9	No
Receptor_134	1,908	1,856	52	0.045	3	3	20	No	676	623	53	0.046	3	3	9	No
Receptor_135	1,849	1,782	67	0.059	3	3	20	No	646	598	49	0.042	3	3	9	No
Receptor_136	1,795	1,712	83	0.073	3	3	20	No	620	575	46	0.040	3	3	9	No
Receptor_137	1,743	1,646	97	0.085	3	3	20	No	596	553	42	0.037	3	3	9	No
Receptor_138	1,739	1,606	133	0.116	3	3	20	No	599	560	38	0.034	3	3	9	No
Receptor_139	1,668	1,539	130	0.113	3	3	20	No	610	523	87	0.076	3	3	9	No
Receptor_140	1,603	1,513	90	0.078	3	3	20	No	617	511	106	0.093	3	3	9	No
Receptor_141	1,665	1,358	308	0.269	3	3	20	No	646	534	113	0.098	3	3	9	No
Receptor_142	1,668	1,384	284	0.248	3	3	20	No	641	531	110	0.096	3	3	9	No
Receptor_143	1,728	1,492	237	0.207	3	3	20	No	676	568	108	0.094	3	3	9	No
Receptor_144	1,819	1,677	142	0.124	3	3	20	No	711	611	100	0.088	3	3	9	No
Receptor_145	1,939	1,762	177	0.155	3	3	20	No	747	658	89	0.078	3	3	9	No
Receptor_146	1,909	1,746	163	0.142	3	3	20	No	728	646	82	0.072	3	3	9	No
Receptor_147	1,828	1,691	137	0.120	3	3	20	No	707	635	72	0.063	3	3	9	No
Receptor_148	1,653	1,555	98	0.086	3	3	20	No	689	631	58	0.050	3	3	9	No
Receptor_149	1,668	1,472	196	0.171	3	3	20	No	734	711	23	0.021	3	3	9	No
Receptor_150	1,908	1,707	202	0.176	3	3	20	No	759	753	6	0.005	3	3	9	No
Receptor_151	2,100	1,800	300	0.262	3	3	20	No	759	768	(10)	(0.008)	3	3	9	No
Receptor_152	2,347	2,096	252	0.220	3	3	20	No	736	757	(21)	(0.018)	3	3	9	No
Receptor_153	2,593	2,346	248	0.216	3	3	20	No	709	733	(25)	(0.022)	3	3	9	No
Receptor_154	2,617	2,343	274	0.240	3	3	20	No	752	780	(28)	(0.025)	3	3	9	No
Receptor_155	2,378	2,112	265	0.232	3	3	20	No	768	792	(23)	(0.020)	3	3	9	No
Receptor_156	2,269	1,930	339	0.296	3	3	20	No	782	798	(16)	(0.014)	3	3	9	No
Receptor_157	2,350	1,915	435	0.380	3	3	20	No	805	805	0	0.000	3	3	9	No
Receptor_158	2,396	2,063	333	0.291	3	3	20	No	788	806	(19)	(0.016)	3	3	9	No
Receptor_159	2,513	2,119	394	0.344	3	3	20	No	811	783	28	0.024	3	3	9	No
Receptor_160	2,624	2,189	435	0.380	3	3	20	No	869	829	40	0.035	3	3	9	No
Receptor_161	2,754	2,274	480	0.420	3	3	20	No	929	874	54	0.048	3	3	9	No
Receptor_162	2,907	2,392	516	0.450	3	3	20	No	982	914	67	0.059	3	3	9	No
Receptor_163	3,073	2,518	555	0.485	3	3	20	No	1,018	941	78	0.068	3	3	9	No
Receptor_164	3,256	2,655	601	0.525	3	4	20	No	1,041	957	84	0.074	3	3	9	No
Receptor_165	3,457	2,803	654	0.571	3	4	20	No	1,056	969	87	0.076	3	3	9	No
Receptor_166	3,682	2,966	716	0.625	3	4	20	No	1,077	991	86	0.076	3	3	9	No
Receptor_167	3,928	3,140	788	0.688	3	4	20	No	1,155	1,115	40	0.035	3	3	9	No
Receptor_168	4,217	3,396	820	0.716	3	4	20	No	1,301	1,264	37	0.032	3	3	9	No
Receptor_169	4,402	3,566	836	0.730	3	4	20	No	1,418	1,386	33	0.029	3	3	9	No
Receptor_170	4,704	4,165	538	0.470	3	3	20	No	1,304	1,286	18	0.015	3	3	9	No
Receptor_171	4,515	4,665	(149)	(0.130)	3	3	20	No	1,272	1,211	61	0.054	3	3	9	No
Receptor_172	4,331	3,915	416	0.363	3	3	20	No	1,168	1,106	62	0.054	3	3	9	No

	CO 1-Hr								CO 8-Hr							
Receptor ID	Project	NP	Project Increase (ug/m3)	Project Increase (ppm)	Ambient	Total	Threshold	Exceeds?	Project	NP	Project Increase (ug/m3)	Project Increase (ppm)	Ambient	Total	Threshold	Exceeds?
Receptor_173	3,579	3,306	273	0.238	3	3	20	No	1,418	1,430	(12)	(0.011)	3	3	9	No
Receptor_174	3,653	3,396	258	0.225	3	3	20	No	1,468	1,487	(19)	(0.017)	3	3	9	No
Receptor_175	3,931	3,602	329	0.287	3	3	20	No	1,340	1,222	118	0.103	3	3	9	No
Receptor_176	3,763	3,483	280	0.245	3	3	20	No	1,323	1,228	95	0.083	3	3	9	No
Receptor_177	3,765	3,326	439	0.383	3	3	20	No	1,228	1,163	65	0.057	3	3	9	No
Receptor_178	3,986	3,547	439	0.384	3	3	20	No	1,111	1,096	15	0.013	3	3	9	No
Receptor_179	3,968	3,556	412	0.360	3	3	20	No	1,002	1,059	(57)	(0.050)	3	3	9	No
Receptor_180	3,737	3,378	359	0.313	3	3	20	No	969	1,015	(47)	(0.041)	3	3	9	No
Receptor_181	3,357	3,070	287	0.251	3	3	20	No	926	960	(34)	(0.030)	3	3	9	No
Receptor_182	2,895	2,691	205	0.179	3	3	20	No	883	905	(22)	(0.019)	3	3	9	No
Receptor_183	2,416	2,297	120	0.104	3	3	20	No	846	859	(13)	(0.011)	3	3	9	No
Receptor_184	2,233	2,053	180	0.157	3	3	20	No	822	834	(12)	(0.010)	3	3	9	No
Receptor_185	2,218	2,289	(71)	(0.062)	3	3	20	No	814	837	(23)	(0.020)	3	3	9	No
Receptor_186	2,244	2,095	149	0.130	3	3	20	No	771	787	(16)	(0.014)	3	3	9	No
Receptor_187	2,234	2,095	138	0.121	3	3	20	No	725	738	(13)	(0.012)	3	3	9	No
Receptor_188	2,192	2,068	124	0.109	3	3	20	No	696	720	(23)	(0.020)	3	3	9	No
Receptor_189	2,125	2,018	108	0.094	3	3	20	No	676	711	(35)	(0.031)	3	3	9	No
Receptor_190	2,088	2,008	81	0.071	3	3	20	No	657	705	(47)	(0.041)	3	3	9	No
Receptor_191	1,959	1,850	109	0.095	3	3	20	No	635	663	(28)	(0.024)	3	3	9	No
Receptor_192	1,753	1,641	112	0.098	3	3	20	No	612	625	(14)	(0.012)	3	3	9	No
Receptor_193	1,637	1,507	129	0.113	3	3	20	No	590	596	(6)	(0.005)	3	3	9	No
Receptor_194	1,591	1,431	160	0.140	3	3	20	No	575	577	(3)	(0.002)	3	3	9	No
Receptor_195	1,749	1,659	90	0.078	3	3	20	No	566	568	(2)	(0.002)	3	3	9	No
Receptor_196	1,914	1,784	131	0.114	3	3	20	No	567	569	(2)	(0.002)	3	3	9	No
Receptor_197	2,001	1,841	160	0.140	3	3	20	No	573	575	(2)	(0.002)	3	3	9	No
Receptor_198	1,995	1,817	177	0.155	3	3	20	No	582	583	(1)	(0.001)	3	3	9	No
Receptor_199	1,902	1,718	184	0.160	3	3	20	No	589	589	1	0.001	3	3	9	No
Receptor_200	1,786	1,603	183	0.160	3	3	20	No	594	592	3	0.002	3	3	9	No
Receptor_201	1,609	1,432	177	0.155	3	3	20	No	597	592	5	0.005	3	3	9	No
Receptor_202	1,626	1,451	175	0.153	3	3	20	No	582	577	6	0.005	3	3	9	No
Receptor_203	1,683	1,513	170	0.149	3	3	20	No	560	553	6	0.005	3	3	9	No
Receptor_204	1,708	1,546	162	0.141	3	3	20	No	537	530	8	0.007	3	3	9	No
Receptor_205	1,697	1,547	150	0.131	3	3	20	No	516	507	10	0.009	3	3	9	No
Receptor_206	1,651	1,516	135	0.118	3	3	20	No	498	486	12	0.011	3	3	9	No
Receptor_207	1,574	1,457	117	0.102	3	3	20	No	481	467	14	0.012	3	3	9	No
Receptor_208	1,475	1,378	97	0.085	3	3	20	No	467	451	16	0.014	3	3	9	No
Receptor_209	1,333	1,266	67	0.059	3	3	20	No	461	445	16	0.014	3	3	9	No
Receptor_210	1,325	1,104	221	0.193	3	3	20	No	463	450	14	0.012	3	3	9	No
Receptor_211	1,325	1,048	277	0.242	3	3	20	No	467	460	8	0.007	3	3	9	No
Receptor_212	1,352	1,111	241	0.210	3	3	20	No	472	475	(3)	(0.002)	3	3	9	No
Receptor_213	1,278	1,091	187	0.163	3	3	20	No	476	493	(17)	(0.015)	3	3	9	No
Receptor_214	1,407	1,336	71	0.062	3	3	20	No	476	512	(36)	(0.032)	3	3	9	No
Receptor_215	1,474	1,437	37	0.032	3	3	20	No	472	531	(59)	(0.052)	3	3	9	No
Receptor_216	1,622	1,617	4	0.004	3	3	20	No	464	547	(83)	(0.072)	3	3	9	No
Receptor_217	1,664	1,639	25	0.022	3	3	20	No	488	567	(80)	(0.070)	3	3	9	No
Receptor_218	1,678	1,642	36	0.031	3	3	20	No	504	578	(74)	(0.065)	3	3	9	No
Receptor_219	1,776	1,753	23	0.020	3	3	20	No	510	599	(90)	(0.079)	3	3	9	No
Receptor_220	1,846	1,832	14	0.012	3	3	20	No	521	622	(101)	(0.088)	3	3	9	No
Receptor_221	1,900	1,880	21	0.018	3	3	20	No	538	638	(100)	(0.088)	3	3	9	No
Receptor_222	1,953	1,915	38	0.033	3	3	20	No	563	653	(90)	(0.079)	3	3	9	No
Receptor_223	1,998	1,945	53	0.046	3	3	20	No	589	668	(78)	(0.068)	3	3	9	No
Receptor_224	2,032	1,967	65	0.057	3	3	20	No	616	682	(66)	(0.057)	3	3	9	No
Receptor_225	2,057	1,982	75	0.066	3	3	20	No	640	694	(54)	(0.047)	3	3	9	No
Receptor_226	1,943	1,839	103	0.090	3	3	20	No	629	661	(32)	(0.028)	3	3	9	No
Receptor_227	2,229	2,171	58	0.051	3	3	20	No	652	736	(85)	(0.074)	3	3	9	No
Receptor_228	2,243	1,643	600	0.524	3	4	20	No	633	768	(135)	(0.118)	3	3	9	No
Receptor_229	2,370	2,365	5	0.004	3	3	20	No	593	800	(207)	(0.181)	3	3	9	No
Receptor_230	2,336	2,362	(26)	(0.023)	3	3	20	No	570	648	(78)	(0.068)	3	3	9	No
Receptor_231	2,300	2,352	(52)	(0.046)	3	3	20	No	556	644	(87)	(0.076)	3	3	9	No
Receptor_232	2,351	2,554	(202)	(0.177)	3	3	20	No	561	699	(138)	(0.120)	3	3	9	No
Receptor_233	2,360	2,705	(345)	(0.301)	3	3	20	No	573	673	(100)	(0.087)	3	3	9	No
Receptor_234	2,274	2,955	(681)	(0.595)	3	3	20	No	579	714	(134)	(0.117)	3	3	9	No
Receptor_235	2,347	2,961	(614)	(0.536)	3	3	20	No	597	739	(142)	(0.124)	3	3	9	No
Receptor_236	2,052	3,146	(1,093)	(0.955)	3	3	20	No	582	851	(269)	(0.235)	3	3	9	No
Receptor_237	1,986	2,917	(931)	(0.813)	3	3	20	No	559	781	(222)	(0.194)	3	3	9	No
Receptor_238	1,922	2,685	(764)	(0.667)	3	3	20	No	530	717	(187)	(0.163)	3	3	9	No
Receptor_239	1,866	2,514	(647)	(0.565)	3	3	20	No	503	667	(165)	(0.144)	3	3	9	No
Receptor_240	1,975	3,021	(1,045)	(0.913)	3	3	20	No	486	563	(78)	(0.068)	3	3	9	No
Receptor_241	1,906	2,823	(917)	(0.801)	3	3	20	No	472	512	(40)	(0.035)	3	3	9	No
Receptor_242	1,842	2,659	(818)	(0.714)	3	3	20	No	458	471	(14)	(0.012)	3	3	9	No
Receptor_243	1,782	2,520	(738)	(0.645)	3	3	20	No	443	437	6	0.005	3	3	9	No
Receptor_244	1,726	2,399	(673)	(0.588)	3	3	20	No	427	408	19	0.017	3	3	9	No
Receptor_245	1,651	2,246	(595)	(0.520)	3	3	20	No	406	374	32	0.028	3	3	9	No
Receptor_246	1,752	2,199	(447)	(0.390)	3	3	20	No	414	400	14	0.012	3	3	9	No
Receptor_247	1,843	2,317	(474)	(0.414)	3	3	20	No	402	393	9	0.008	3	3	9	No
Receptor_248	1,798	2,123	(325)	(0.284)	3	3	20	No	367	350	17	0.014	3	3	9	No
Receptor_249	1,684	1,747	(63)	(0.055)	3	3	20	No	353	383	(29)	(0.026)	3	3	9	No
Receptor_250	1,575	1,404	171	0.149	3	3	20	No	338	354	(16)	(0.014)	3	3	9	No
Receptor_251	1,627	1,728	(101)	(0.088)	3	3	20	No	361	303	57	0.050	3	3	9	No
Receptor_252	1,754	1,648	106	0.093	3	3	20	No	380	301	80	0.070	3	3	9	No
Receptor_253	1,822	1,659	164	0.143	3	3	20	No	399	313	85	0.074	3	3	9	No
Receptor_254	1,893	1,669	224	0.196	3	3	20	No	418	326	92	0.080	3	3	9	No
Receptor_255	1,977	1,675	301	0.263	3	3	20	No	440	340	100	0.087	3	3	9	No
Receptor_256	1,891	1,807	84	0.073	3	3	20	No	429	346	83	0.072	3	3	9	No
Receptor_257	1,729	1,876	(147)	(0.129)	3	3	20	No	399	348	51	0.045	3	3	9	No
Receptor_258	1,807	1,920	(113)	(0.098)	3	3	20	No	421	366	55	0.048	3	3	9	No

	CO 1-Hr								CO 8-Hr							
Receptor ID	**Project**	**NP**	**Project Increase (ug/m3)**	**Project Increase (ppm)**	**Ambient**	**Total**	**Threshold**	**Exceeds?**	**Project**	**NP**	**Project Increase (ug/m3)**	**Project Increase (ppm)**	**Ambient**	**Total**	**Threshold**	**Exceeds?**
Receptor_259	1,972	1,836	136	0.119	3	3	20	No	452	361	91	0.079	3	3	9	No
Receptor_260	2,056	1,665	391	0.342	3	3	20	No	460	352	108	0.094	3	3	9	No
Receptor_261	2,123	1,668	455	0.397	3	3	20	No	478	363	114	0.100	3	3	9	No
Receptor_262	2,199	1,670	529	0.462	3	3	20	No	497	376	121	0.106	3	3	9	No
Receptor_263	2,048	1,654	394	0.344	3	3	20	No	459	378	81	0.071	3	3	9	No
Receptor_264	1,996	1,784	212	0.185	3	3	20	No	408	371	37	0.033	3	3	9	No
Receptor_265	2,018	1,698	320	0.279	3	3	20	No	395	358	37	0.032	3	3	9	No
Receptor_266	1,946	1,723	224	0.195	3	3	20	No	380	339	41	0.035	3	3	9	No
Receptor_267	1,969	1,819	150	0.131	3	3	20	No	389	347	42	0.036	3	3	9	No
Receptor_268	1,981	1,898	83	0.072	3	3	20	No	398	405	(7)	(0.006)	3	3	9	No
Receptor_269	2,020	1,952	68	0.059	3	3	20	No	417	420	(3)	(0.003)	3	3	9	No
Receptor_270	2,067	1,987	80	0.070	3	3	20	No	435	432	3	0.002	3	3	9	No
Receptor_271	2,115	2,022	93	0.082	3	3	20	No	452	441	10	0.009	3	3	9	No
Receptor_272	2,162	2,055	107	0.094	3	3	20	No	464	444	19	0.017	3	3	9	No
Receptor_273	2,200	2,080	120	0.105	3	3	20	No	472	444	28	0.024	3	3	9	No
Receptor_274	2,226	2,095	131	0.114	3	3	20	No	480	445	35	0.030	3	3	9	No
Receptor_275	2,242	2,103	140	0.122	3	3	20	No	501	514	(13)	(0.012)	3	3	9	No
Receptor_276	2,248	2,102	146	0.128	3	3	20	No	542	533	10	0.009	3	3	9	No
Receptor_277	2,245	2,095	150	0.131	3	3	20	No	596	557	39	0.034	3	3	9	No
Receptor_278	2,388	2,079	309	0.270	3	3	20	No	636	581	54	0.047	3	3	9	No
Receptor_279	2,562	2,040	523	0.456	3	3	20	No	665	600	65	0.057	3	3	9	No
Receptor_280	2,735	2,059	676	0.591	3	4	20	No	699	615	84	0.073	3	3	9	No
Receptor_281	2,837	2,175	662	0.578	3	4	20	No	735	624	111	0.097	3	3	9	No
Receptor_282	2,894	2,228	666	0.582	3	4	20	No	760	624	135	0.118	3	3	9	No
Receptor_283	2,983	2,374	609	0.532	3	4	20	No	781	628	153	0.134	3	3	9	No
Receptor_284	2,949	2,822	127	0.111	3	3	20	No	800	653	147	0.129	3	3	9	No
Receptor_285	2,945	2,270	675	0.590	3	4	20	No	821	652	169	0.147	3	3	9	No
Receptor_286	3,137	2,432	705	0.616	3	4	20	No	949	780	168	0.147	3	3	9	No
Receptor_287	3,315	2,695	620	0.542	3	4	20	No	1,034	862	172	0.150	3	3	9	No
Receptor_288	3,532	2,784	748	0.653	3	4	20	No	1,124	940	184	0.161	3	3	9	No
Receptor_289	3,710	2,899	811	0.708	3	4	20	No	1,182	988	194	0.169	3	3	9	No
Receptor_290	3,682	2,879	802	0.701	3	4	20	No	1,082	887	196	0.171	3	3	9	No
Receptor_291	3,662	2,866	795	0.695	3	4	20	No	1,040	796	244	0.213	3	3	9	No
Receptor_292	3,525	2,973	552	0.482	3	3	20	No	960	741	219	0.192	3	3	9	No
Receptor_293	3,653	2,887	766	0.669	3	4	20	No	945	772	173	0.151	3	3	9	No
Receptor_294	3,936	2,860	1,076	0.940	3	4	20	No	933	792	140	0.122	3	3	9	No
Receptor_295	4,144	2,926	1,218	1.064	3	4	20	No	943	832	111	0.097	3	3	9	No
Receptor_296	4,189	2,989	1,200	1.048	3	4	20	No	994	796	198	0.173	3	3	9	No
Receptor_297	4,024	3,050	975	0.851	3	4	20	No	1,056	817	239	0.209	3	3	9	No
Receptor_298	4,271	3,178	1,093	0.955	3	4	20	No	1,089	821	268	0.234	3	3	9	No
Receptor_299	4,594	3,143	1,450	1.267	3	4	20	No	1,101	806	294	0.257	3	3	9	No
Receptor_300	4,561	2,951	1,610	1.406	3	4	20	No	1,125	986	139	0.121	3	3	9	No
Receptor_301	4,023	2,643	1,380	1.205	3	4	20	No	1,134	967	167	0.146	3	3	9	No
Receptor_302	3,576	2,689	888	0.775	3	4	20	No	1,200	941	258	0.226	3	3	9	No
Receptor_303	3,814	2,647	1,167	1.019	3	4	20	No	1,234	955	279	0.244	3	3	9	No
Receptor_304	3,995	2,565	1,431	1.249	3	4	20	No	1,276	941	335	0.293	3	3	9	No
Receptor_305	4,029	2,642	1,387	1.212	3	4	20	No	1,276	894	382	0.333	3	3	9	No
Receptor_306	3,427	2,695	732	0.640	3	4	20	No	1,344	995	349	0.305	3	3	9	No
Receptor_307	3,352	2,365	987	0.862	3	4	20	No	1,357	1,010	346	0.303	3	3	9	No
Receptor_308	3,220	2,410	809	0.707	3	4	20	No	1,308	1,009	300	0.262	3	3	9	No
Receptor_309	3,051	2,489	562	0.491	3	3	20	No	1,242	997	245	0.214	3	3	9	No
Receptor_310	2,912	2,538	374	0.327	3	3	20	No	1,166	972	194	0.170	3	3	9	No
Receptor_311	2,896	2,437	459	0.401	3	3	20	No	1,088	935	152	0.133	3	3	9	No
Receptor_312	2,880	2,568	312	0.272	3	3	20	No	1,009	890	119	0.104	3	3	9	No
Receptor_313	2,788	2,624	164	0.143	3	3	20	No	933	839	93	0.082	3	3	9	No
Receptor_314	2,617	2,598	19	0.017	3	3	20	No	860	787	72	0.063	3	3	9	No
Receptor_315	2,528	2,497	31	0.027	3	3	20	No	793	737	56	0.049	3	3	9	No
Receptor_316	2,439	2,380	59	0.052	3	3	20	No	735	691	44	0.039	3	3	9	No
Receptor_317	2,393	2,403	(10)	(0.009)	3	3	20	No	697	667	30	0.026	3	3	9	No
Receptor_318	2,334	2,357	(23)	(0.020)	3	3	20	No	668	642	26	0.023	3	3	9	No
Receptor_319	2,267	2,300	(33)	(0.029)	3	3	20	No	640	618	22	0.019	3	3	9	No
Receptor_320	2,196	2,234	(39)	(0.034)	3	3	20	No	614	601	12	0.011	3	3	9	No
Receptor_321	2,118	2,162	(45)	(0.039)	3	3	20	No	588	585	4	0.003	3	3	9	No
Receptor_322	1,994	2,050	(56)	(0.049)	3	3	20	No	559	524	36	0.031	3	3	9	No
Receptor_323	1,859	1,554	305	0.267	3	3	20	No	550	516	35	0.030	3	3	9	No
Receptor_324	1,890	1,594	296	0.259	3	3	20	No	540	507	34	0.029	3	3	9	No
Receptor_325	1,898	1,614	285	0.249	3	3	20	No	531	497	33	0.029	3	3	9	No
Receptor_326	1,884	1,613	272	0.237	3	3	20	No	521	488	33	0.029	3	3	9	No
Receptor_327	3,813	3,447	366	0.320	3	3	20	No	1,696	1,553	143	0.125	3	3	9	No

Maximum	4,704	4,665	1,610	1	3	4	20	No	1,696	1,553	382	0.333	3	3	9	No

	NO2 1-Hr (NAAQS)											NO2 1-Hr CAAQS)							
Receptor ID	Project (Year 1)	NP (Year 2)	NP (Year 3)	3 yr Avg	NP	Project Increase (ug/m3)	Project Increase (ppm)	SCAQMD Ambient	Total	Threshold	Exceeds?	Project	NP	Project Increase (ug/m3)	Project Increase (ppm)	SCAQMD Ambient	Total	Threshold	Exceeds?
Receptor_1	140	129	122	130	126	5	0.003	0.065	0.068	0.10	No	204	149	55	0.029	0.098	0.127	0.18	No
Receptor_2	143	125	122	130	125	5	0.003	0.065	0.068	0.10	No	192	145	46	0.025	0.098	0.123	0.18	No
Receptor_3	143	126	122	131	125	6	0.003	0.065	0.068	0.10	No	184	151	33	0.018	0.098	0.116	0.18	No
Receptor_4	146	125	123	131	124	7	0.004	0.065	0.069	0.10	No	181	151	29	0.016	0.098	0.114	0.18	No
Receptor_5	148	125	124	132	124	8	0.004	0.065	0.069	0.10	No	173	153	20	0.011	0.098	0.109	0.18	No
Receptor_6	142	125	127	131	126	6	0.003	0.065	0.068	0.10	No	164	157	7	0.004	0.098	0.102	0.18	No
Receptor_7	140	122	126	129	124	5	0.003	0.065	0.068	0.10	No	163	183	(21)	-0.011	0.098	0.098	0.18	No
Receptor_8	140	125	124	129	124	5	0.003	0.065	0.068	0.10	No	168	182	(14)	-0.007	0.098	0.098	0.18	No
Receptor_9	141	125	124	130	124	6	0.003	0.065	0.068	0.10	No	170	180	(10)	-0.005	0.098	0.098	0.18	No
Receptor_10	142	130	126	132	128	5	0.003	0.065	0.068	0.10	No	170	181	(11)	-0.006	0.098	0.098	0.18	No
Receptor_11	139	127	125	130	128	3	0.001	0.065	0.066	0.10	No	171	180	(9)	-0.005	0.098	0.098	0.18	No
Receptor_12	141	128	123	130	127	4	0.002	0.065	0.067	0.10	No	183	177	7	0.004	0.098	0.102	0.18	No
Receptor_13	140	128	123	131	126	4	0.002	0.065	0.067	0.10	No	191	170	21	0.011	0.098	0.109	0.18	No
Receptor_14	143	132	123	132	127	5	0.003	0.065	0.068	0.10	No	194	151	42	0.022	0.098	0.120	0.18	No
Receptor_15	145	132	122	133	127	6	0.003	0.065	0.068	0.10	No	200	150	50	0.026	0.098	0.124	0.18	No
Receptor_16	146	132	125	134	129	6	0.003	0.065	0.068	0.10	No	201	147	54	0.029	0.098	0.127	0.18	No
Receptor_17	145	135	127	136	130	6	0.003	0.065	0.068	0.10	No	193	142	51	0.027	0.098	0.125	0.18	No
Receptor_18	146	134	127	135	129	7	0.004	0.065	0.069	0.10	No	185	145	40	0.021	0.098	0.119	0.18	No
Receptor_19	147	133	125	135	128	7	0.004	0.065	0.069	0.10	No	197	143	53	0.028	0.098	0.126	0.18	No
Receptor_20	145	134	125	135	128	7	0.004	0.065	0.069	0.10	No	200	160	40	0.021	0.098	0.119	0.18	No
Receptor_21	146	136	129	137	130	7	0.004	0.065	0.069	0.10	No	210	169	41	0.022	0.098	0.120	0.18	No
Receptor_22	148	135	129	137	130	8	0.004	0.065	0.069	0.10	No	210	173	37	0.020	0.098	0.118	0.18	No
Receptor_23	145	134	129	136	129	7	0.004	0.065	0.069	0.10	No	201	176	25	0.013	0.098	0.111	0.18	No
Receptor_24	143	134	130	136	129	7	0.004	0.065	0.069	0.10	No	185	181	5	0.002	0.098	0.100	0.18	No
Receptor_25	143	132	127	134	127	7	0.004	0.065	0.069	0.10	No	168	142	26	0.014	0.098	0.112	0.18	No
Receptor_26	145	130	126	133	127	7	0.004	0.065	0.069	0.10	No	172	141	31	0.017	0.098	0.115	0.18	No
Receptor_27	141	129	128	133	127	6	0.003	0.065	0.068	0.10	No	177	138	40	0.021	0.098	0.119	0.18	No
Receptor_28	143	125	126	131	125	6	0.003	0.065	0.068	0.10	No	182	138	44	0.023	0.098	0.121	0.18	No
Receptor_29	143	128	128	133	127	6	0.003	0.065	0.068	0.10	No	182	138	45	0.024	0.098	0.122	0.18	No
Receptor_30	144	130	129	134	129	6	0.003	0.065	0.068	0.10	No	183	138	45	0.024	0.098	0.122	0.18	No
Receptor_31	145	132	130	136	130	6	0.003	0.065	0.068	0.10	No	184	139	45	0.024	0.098	0.122	0.18	No
Receptor_32	148	129	128	135	128	7	0.003	0.065	0.068	0.10	No	192	146	46	0.025	0.098	0.123	0.18	No
Receptor_33	150	130	129	136	129	7	0.004	0.065	0.069	0.10	No	194	148	47	0.025	0.098	0.123	0.18	No
Receptor_34	152	130	130	137	130	7	0.004	0.065	0.069	0.10	No	197	149	48	0.025	0.098	0.123	0.18	No
Receptor_35	154	131	131	139	131	8	0.004	0.065	0.069	0.10	No	203	156	47	0.025	0.098	0.123	0.18	No
Receptor_36	156	132	131	139	132	8	0.004	0.065	0.069	0.10	No	208	162	46	0.024	0.098	0.122	0.18	No
Receptor_37	160	133	130	141	132	9	0.005	0.065	0.070	0.10	No	211	168	43	0.023	0.098	0.121	0.18	No
Receptor_38	163	134	132	143	133	10	0.005	0.065	0.070	0.10	No	211	172	40	0.021	0.098	0.119	0.18	No
Receptor_39	163	132	133	143	133	10	0.005	0.065	0.070	0.10	No	210	174	37	0.019	0.098	0.117	0.18	No
Receptor_40	166	135	135	145	135	10	0.005	0.065	0.070	0.10	No	215	176	39	0.020	0.098	0.118	0.18	No
Receptor_41	167	137	136	146	136	10	0.005	0.065	0.070	0.10	No	216	178	38	0.020	0.098	0.118	0.18	No
Receptor_42	168	137	137	147	137	10	0.005	0.065	0.070	0.10	No	217	179	38	0.020	0.098	0.118	0.18	No
Receptor_43	168	137	137	147	137	10	0.005	0.065	0.070	0.10	No	214	172	41	0.022	0.098	0.120	0.18	No
Receptor_44	169	139	138	149	140	9	0.005	0.065	0.070	0.10	No	213	175	38	0.020	0.098	0.118	0.18	No
Receptor_45	170	139	140	150	139	11	0.006	0.065	0.071	0.10	No	215	177	38	0.020	0.098	0.118	0.18	No
Receptor_46	173	142	141	152	142	10	0.005	0.065	0.070	0.10	No	218	179	40	0.021	0.098	0.119	0.18	No
Receptor_47	175	143	144	154	144	10	0.005	0.065	0.070	0.10	No	224	185	40	0.021	0.098	0.119	0.18	No
Receptor_48	176	145	144	155	145	10	0.005	0.065	0.070	0.10	No	223	182	41	0.022	0.098	0.120	0.18	No
Receptor_49	179	146	145	157	147	10	0.005	0.065	0.070	0.10	No	227	190	37	0.020	0.098	0.118	0.18	No
Receptor_50	181	149	148	159	149	10	0.005	0.065	0.070	0.10	No	228	190	39	0.021	0.098	0.119	0.18	No
Receptor_51	179	147	147	158	146	12	0.006	0.065	0.071	0.10	No	230	187	43	0.023	0.098	0.121	0.18	No
Receptor_52	176	147	144	155	144	11	0.006	0.065	0.071	0.10	No	229	186	43	0.023	0.098	0.121	0.18	No
Receptor_53	169	145	139	151	141	10	0.005	0.065	0.070	0.10	No	224	183	41	0.022	0.098	0.120	0.18	No
Receptor_54	168	143	139	150	140	10	0.005	0.065	0.070	0.10	No	217	180	37	0.020	0.098	0.118	0.18	No
Receptor_55	164	142	137	148	139	9	0.005	0.065	0.070	0.10	No	214	178	36	0.019	0.098	0.117	0.18	No
Receptor_56	160	140	136	146	138	8	0.004	0.065	0.069	0.10	No	208	176	32	0.017	0.098	0.115	0.18	No
Receptor_57	163	142	138	148	140	8	0.004	0.065	0.069	0.10	No	210	178	33	0.017	0.098	0.115	0.18	No
Receptor_58	166	143	141	150	141	9	0.005	0.065	0.070	0.10	No	213	180	33	0.018	0.098	0.116	0.18	No
Receptor_59	172	146	142	153	142	11	0.006	0.065	0.071	0.10	No	222	184	38	0.020	0.098	0.118	0.18	No
Receptor_60	174	147	143	155	145	10	0.005	0.065	0.070	0.10	No	225	186	39	0.021	0.098	0.119	0.18	No
Receptor_61	177	149	146	157	147	10	0.005	0.065	0.070	0.10	No	228	189	39	0.021	0.098	0.119	0.18	No
Receptor_62	179	151	150	160	150	10	0.005	0.065	0.070	0.10	No	232	192	40	0.021	0.098	0.119	0.18	No
Receptor_63	184	154	152	163	153	10	0.005	0.065	0.070	0.10	No	235	195	40	0.021	0.098	0.119	0.18	No
Receptor_64	189	156	155	167	156	11	0.006	0.065	0.071	0.10	No	239	198	40	0.021	0.098	0.119	0.18	No
Receptor_65	192	159	158	169	158	11	0.006	0.065	0.071	0.10	No	239	200	39	0.021	0.098	0.119	0.18	No
Receptor_66	193	161	160	171	161	11	0.006	0.065	0.071	0.10	No	241	201	39	0.021	0.098	0.119	0.18	No
Receptor_67	195	162	161	173	163	10	0.005	0.065	0.070	0.10	No	248	207	41	0.022	0.098	0.120	0.18	No
Receptor_68	200	164	164	176	166	10	0.005	0.065	0.070	0.10	No	256	212	44	0.024	0.098	0.122	0.18	No
Receptor_69	207	167	167	180	169	11	0.006	0.065	0.071	0.10	No	261	216	45	0.024	0.098	0.122	0.18	No
Receptor_70	209	168	167	181	169	12	0.006	0.065	0.071	0.10	No	268	216	52	0.028	0.098	0.126	0.18	No
Receptor_71	207	166	166	180	167	12	0.006	0.065	0.071	0.10	No	273	213	60	0.032	0.098	0.130	0.18	No
Receptor_72	204	166	164	178	165	13	0.007	0.065	0.072	0.10	No	274	209	65	0.035	0.098	0.133	0.18	No
Receptor_73	200	168	161	176	164	13	0.007	0.065	0.072	0.10	No	270	208	62	0.033	0.098	0.131	0.18	No
Receptor_74	202	169	161	177	163	14	0.008	0.065	0.073	0.10	No	265	211	54	0.029	0.098	0.127	0.18	No
Receptor_75	207	167	162	179	163	16	0.008	0.065	0.073	0.10	No	265	218	47	0.025	0.098	0.123	0.18	No
Receptor_76	213	174	167	185	169	16	0.008	0.065	0.073	0.10	No	272	222	50	0.026	0.098	0.124	0.18	No
Receptor_77	215	174	168	186	169	17	0.009	0.065	0.074	0.10	No	273	226	47	0.025	0.098	0.123	0.18	No
Receptor_78	215	172	170	186	169	17	0.009	0.065	0.074	0.10	No	275	229	46	0.025	0.098	0.123	0.18	No
Receptor_79	224	178	177	193	175	18	0.010	0.065	0.075	0.10	No	282	234	48	0.026	0.098	0.124	0.18	No
Receptor_80	231	185	183	200	181	18	0.010	0.065	0.075	0.10	No	291	240	50	0.027	0.098	0.125	0.18	No
Receptor_81	238	192	189	206	188	18	0.010	0.065	0.075	0.10	No	300	247	53	0.028	0.098	0.126	0.18	No
Receptor_82	237	189	187	204	185	19	0.010	0.065	0.075	0.10	No	301	246	55	0.029	0.098	0.127	0.18	No
Receptor_83	228	182	189	200	183	17	0.009	0.065	0.074	0.10	No	304	243	61	0.032	0.098	0.130	0.18	No
Receptor_84	222	173	179	191	175	16	0.009	0.065	0.074	0.10	No	294	237	57	0.030	0.098	0.128	0.18	No
Receptor_85	218	168	172	186	169	17	0.009	0.065	0.074	0.10	No	285	231	54	0.029	0.098	0.127	0.18	No
Receptor_86	209	161	167	179	163	16	0.008	0.065	0.073	0.10	No	278	226	51	0.027	0.098	0.125	0.18	No
Receptor_87	200	158	167	175	162	13	0.007	0.065	0.072	0.10	No	285	226	59	0.031	0.098	0.129	0.18	No
Receptor_88	192	157	167	172	163	9	0.005	0.065	0.070	0.10	No	295	226	69	0.037	0.098	0.135	0.18	No
Receptor_89	194	158	164	172	162	10	0.005	0.065	0.070	0.10	No	306	226	80	0.043	0.098	0.141	0.18	No
Receptor_90	188	154	157	166	157	10	0.005	0.065	0.070	0.10	No	308	223	85	0.045	0.098	0.143	0.18	No
Receptor_91	185	150	154	163	153	10	0.005	0.065	0.070	0.10	No	304	218	86	0.046	0.098	0.144	0.18	No
Receptor_92	179	148	151	159	150	9	0.005	0.065	0.070	0.10	No	295	212	82	0.044	0.098	0.142	0.18	No
Receptor_93	186	149	151	162	152	10	0.005	0.065	0.070	0.10	No	288	209	79	0.042	0.098	0.140	0.18	No
Receptor_94	190	148	151	163	154	9	0.005	0.065	0.070	0.10	No	275	205	70	0.037	0.098	0.135	0.18	No
Receptor_95	192	150	153	165	155	10	0.005	0.065	0.070	0.10	No	254	204	50	0.027	0.098	0.125	0.18	No
Receptor_96	195	154	154	168	156	11	0.006	0.065	0.071	0.10	No	245	194	51	0.027	0.098	0.125	0.18	No
Receptor_97	197	153	156	169	157	12	0.006	0.065	0.071	0.10	No	249	192	58	0.031	0.098	0.129	0.18	No
Receptor_98	205	161	161	175	163	12	0.007	0.065	0.072	0.10	No	259	200	59	0.031	0.098	0.129	0.18	No
Receptor_99	211	164	164	179	168	11	0.006	0.065	0.071	0.10	No	274	214	60	0.032	0.098	0.130	0.18	No
Receptor_100	223	166	169	186	172	14	0.008	0.065	0.073	0.10	No	320	227	93	0.049	0.098	0.147	0.18	No
Receptor_101	224	174	173	190	177	14	0.007	0.065	0.072	0.10	No	286	219	67	0.036	0.098	0.134	0.18	No
Receptor_102	228	176	177	194	179	14	0.008	0.065	0.073	0.10	No	295	224	72	0.038	0.098	0.136	0.18	No

	NO2 1-Hr (NAAQS)											NO2 1-Hr CAAQS)								
Receptor ID	**Project (Year 1)**	**NP (Year 2)**	**NP (Year 3)**	**3 yr Avg**	**NP**	**Project Increase (ug/m3)**	**Project Increase (ppm)**	**SCAQMD Ambient**	**Total**	**Threshold**	**Exceeds?**	**Project**	**NP**	**Project Increase (ug/m3)**	**Project Increase (ppm)**	**SCAQMD Ambient**	**Total**	**Threshold**	**Exceeds?**
Receptor_103	224	177	184	195	183	12	0.006	0.065	0.071	0.10	No	300	251	49	0.026	0.098	0.124	0.18	No
Receptor_104	238	181	190	203	186	17	0.009	0.065	0.074	0.10	No	320	254	67	0.035	0.098	0.133	0.18	No
Receptor_105	239	190	188	206	187	19	0.010	0.065	0.075	0.10	No	302	258	44	0.024	0.098	0.122	0.18	No
Receptor_106	248	197	195	213	195	18	0.010	0.065	0.075	0.10	No	321	253	68	0.036	0.098	0.134	0.18	No
Receptor_107	263	204	201	223	203	19	0.010	0.065	0.075	0.10	No	350	271	79	0.042	0.098	0.140	0.18	No
Receptor_108	265	205	201	223	201	22	0.012	0.065	0.077	0.10	No	368	293	76	0.040	0.098	0.138	0.18	No
Receptor_109	258	197	197	217	198	20	0.010	0.065	0.075	0.10	No	354	295	59	0.031	0.098	0.129	0.18	No
Receptor_110	261	192	192	215	191	24	0.013	0.065	0.078	0.10	No	364	276	88	0.047	0.098	0.145	0.18	No
Receptor_111	250	182	185	206	183	22	0.012	0.065	0.077	0.10	No	341	262	79	0.042	0.098	0.140	0.18	No
Receptor_112	250	183	185	206	184	22	0.012	0.065	0.077	0.10	No	330	283	47	0.025	0.098	0.123	0.18	No
Receptor_113	254	182	180	205	183	22	0.012	0.065	0.077	0.10	No	321	270	51	0.027	0.098	0.125	0.18	No
Receptor_114	244	182	172	199	183	17	0.009	0.065	0.074	0.10	No	288	232	57	0.030	0.098	0.128	0.18	No
Receptor_115	237	177	171	195	182	13	0.007	0.065	0.072	0.10	No	306	210	96	0.051	0.098	0.149	0.18	No
Receptor_116	227	176	171	192	179	13	0.007	0.065	0.072	0.10	No	296	213	83	0.044	0.098	0.142	0.18	No
Receptor_117	244	185	183	204	188	16	0.009	0.065	0.074	0.10	No	299	225	74	0.039	0.098	0.137	0.18	No
Receptor_118	257	199	196	217	202	15	0.008	0.065	0.073	0.10	No	304	264	40	0.021	0.098	0.119	0.18	No
Receptor_119	284	215	207	235	211	24	0.013	0.065	0.078	0.10	No	338	294	44	0.023	0.098	0.121	0.18	No
Receptor_120	302	225	222	250	224	26	0.014	0.065	0.079	0.10	No	394	312	82	0.043	0.098	0.141	0.18	No
Receptor_121	308	221	226	252	224	27	0.015	0.065	0.080	0.10	No	416	301	115	0.061	0.098	0.159	0.18	No
Receptor_122	308	215	228	250	222	28	0.015	0.065	0.080	0.10	No	449	305	144	0.077	0.098	0.175	0.18	No
Receptor_123	293	208	219	240	214	26	0.014	0.065	0.079	0.10	No	436	271	165	0.088	0.098	0.186	0.18	Yes
Receptor_124	286	206	210	234	209	25	0.013	0.065	0.078	0.10	No	417	268	149	0.079	0.098	0.177	0.18	No
Receptor_125	322	225	220	256	222	34	0.018	0.065	0.083	0.10	No	467	263	204	0.109	0.098	0.207	0.18	Yes
Receptor_126	297	217	212	242	215	27	0.014	0.065	0.079	0.10	No	472	255	217	0.115	0.098	0.213	0.18	Yes
Receptor_127	300	203	200	234	202	33	0.017	0.065	0.082	0.10	No	369	247	122	0.065	0.098	0.163	0.18	No
Receptor_128	252	189	192	211	191	19	0.010	0.065	0.075	0.10	No	346	243	103	0.055	0.098	0.153	0.18	No
Receptor_129	238	184	189	204	187	17	0.009	0.065	0.074	0.10	No	344	223	121	0.065	0.098	0.163	0.18	No
Receptor_130	235	180	185	200	184	16	0.008	0.065	0.073	0.10	No	333	225	107	0.057	0.098	0.155	0.18	No
Receptor_131	232	178	182	197	180	17	0.009	0.065	0.074	0.10	No	306	226	80	0.042	0.098	0.140	0.18	No
Receptor_132	219	173	176	189	174	15	0.008	0.065	0.073	0.10	No	289	215	74	0.039	0.098	0.137	0.18	No
Receptor_133	207	167	172	182	169	13	0.007	0.065	0.072	0.10	No	274	205	69	0.037	0.098	0.135	0.18	No
Receptor_134	200	161	167	176	164	12	0.006	0.065	0.071	0.10	No	262	197	65	0.035	0.098	0.133	0.18	No
Receptor_135	193	157	163	171	160	11	0.006	0.065	0.071	0.10	No	251	189	62	0.033	0.098	0.131	0.18	No
Receptor_136	187	154	160	167	157	10	0.006	0.065	0.071	0.10	No	241	182	59	0.031	0.098	0.129	0.18	No
Receptor_137	181	151	158	163	154	10	0.005	0.065	0.070	0.10	No	233	176	56	0.030	0.098	0.128	0.18	No
Receptor_138	185	148	157	163	153	10	0.006	0.065	0.071	0.10	No	208	198	10	0.005	0.098	0.103	0.18	No
Receptor_139	179	149	155	161	152	9	0.005	0.065	0.070	0.10	No	243	198	45	0.024	0.098	0.122	0.18	No
Receptor_140	174	146	152	157	150	7	0.004	0.065	0.069	0.10	No	257	196	61	0.033	0.098	0.131	0.18	No
Receptor_141	176	149	153	159	152	7	0.004	0.065	0.069	0.10	No	273	193	80	0.043	0.098	0.141	0.18	No
Receptor_142	175	149	151	158	151	7	0.004	0.065	0.069	0.10	No	267	190	77	0.041	0.098	0.139	0.18	No
Receptor_143	178	148	149	159	150	8	0.004	0.065	0.069	0.10	No	254	184	69	0.037	0.098	0.135	0.18	No
Receptor_144	182	155	154	164	155	9	0.005	0.065	0.070	0.10	No	299	195	104	0.055	0.098	0.153	0.18	No
Receptor_145	178	155	154	162	156	6	0.003	0.065	0.068	0.10	No	305	184	121	0.064	0.098	0.162	0.18	No
Receptor_146	175	155	152	160	155	6	0.003	0.065	0.068	0.10	No	293	179	114	0.061	0.098	0.159	0.18	No
Receptor_147	171	155	149	158	153	5	0.003	0.065	0.068	0.10	No	276	179	97	0.052	0.098	0.150	0.18	No
Receptor_148	170	155	148	158	153	5	0.003	0.065	0.068	0.10	No	251	183	68	0.036	0.098	0.134	0.18	No
Receptor_149	169	154	150	158	153	5	0.003	0.065	0.068	0.10	No	256	177	79	0.042	0.098	0.140	0.18	No
Receptor_150	167	154	151	158	154	4	0.002	0.065	0.067	0.10	No	252	178	75	0.040	0.098	0.138	0.18	No
Receptor_151	170	156	153	160	156	4	0.002	0.065	0.067	0.10	No	237	201	36	0.019	0.098	0.117	0.18	No
Receptor_152	173	159	155	162	158	4	0.002	0.065	0.067	0.10	No	227	211	16	0.009	0.098	0.107	0.18	No
Receptor_153	178	160	157	165	160	4	0.002	0.065	0.067	0.10	No	232	194	38	0.020	0.098	0.118	0.18	No
Receptor_154	176	163	155	165	159	5	0.003	0.065	0.068	0.10	No	242	182	60	0.032	0.098	0.130	0.18	No
Receptor_155	172	165	153	163	159	5	0.003	0.065	0.068	0.10	No	239	179	61	0.032	0.098	0.130	0.18	No
Receptor_156	172	161	153	162	157	5	0.003	0.065	0.068	0.10	No	239	209	29	0.016	0.098	0.114	0.18	No
Receptor_157	185	158	152	165	156	9	0.005	0.065	0.070	0.10	No	251	223	29	0.015	0.098	0.113	0.18	No
Receptor_158	174	163	151	163	158	5	0.003	0.065	0.068	0.10	No	252	176	76	0.040	0.098	0.138	0.18	No
Receptor_159	179	161	157	166	160	6	0.003	0.065	0.068	0.10	No	262	174	88	0.047	0.098	0.145	0.18	No
Receptor_160	183	162	159	168	161	7	0.004	0.065	0.069	0.10	No	271	175	96	0.051	0.098	0.149	0.18	No
Receptor_161	191	166	160	172	164	9	0.005	0.065	0.070	0.10	No	282	179	103	0.055	0.098	0.153	0.18	No
Receptor_162	198	162	161	174	163	11	0.006	0.065	0.071	0.10	No	295	183	112	0.060	0.098	0.158	0.18	No
Receptor_163	206	164	165	178	166	12	0.006	0.065	0.071	0.10	No	309	188	122	0.065	0.098	0.163	0.18	No
Receptor_164	218	166	169	184	170	14	0.007	0.065	0.072	0.10	No	325	193	132	0.070	0.098	0.168	0.18	No
Receptor_165	232	172	173	192	175	18	0.009	0.065	0.074	0.10	No	341	200	141	0.075	0.098	0.173	0.18	No
Receptor_166	251	178	178	202	179	23	0.012	0.065	0.077	0.10	No	357	207	150	0.080	0.098	0.178	0.18	No
Receptor_167	261	186	183	210	187	23	0.012	0.065	0.077	0.10	No	373	215	158	0.084	0.098	0.182	0.18	Yes
Receptor_168	289	195	191	225	196	29	0.015	0.065	0.080	0.10	No	391	247	144	0.076	0.098	0.174	0.18	No
Receptor_169	299	200	196	232	201	31	0.016	0.065	0.081	0.10	No	424	254	170	0.090	0.098	0.188	0.18	Yes
Receptor_170	285	193	194	224	197	27	0.015	0.065	0.080	0.10	No	391	236	154	0.082	0.098	0.180	0.18	No
Receptor_171	273	188	187	216	191	24	0.013	0.065	0.078	0.10	No	340	224	117	0.062	0.098	0.160	0.18	No
Receptor_172	252	185	185	207	184	23	0.012	0.065	0.077	0.10	No	333	227	107	0.057	0.098	0.155	0.18	No
Receptor_173	227	188	183	199	184	15	0.008	0.065	0.073	0.10	No	297	244	53	0.028	0.098	0.126	0.18	No
Receptor_174	232	188	179	200	183	17	0.009	0.065	0.074	0.10	No	296	215	81	0.043	0.098	0.141	0.18	No
Receptor_175	230	185	181	199	181	18	0.009	0.065	0.074	0.10	No	287	205	83	0.044	0.098	0.142	0.18	No
Receptor_176	222	176	176	191	175	16	0.009	0.065	0.074	0.10	No	269	207	62	0.033	0.098	0.131	0.18	No
Receptor_177	210	169	171	183	172	11	0.006	0.065	0.071	0.10	No	257	214	42	0.022	0.098	0.120	0.18	No
Receptor_178	200	166	172	179	171	9	0.005	0.065	0.070	0.10	No	246	206	41	0.022	0.098	0.120	0.18	No
Receptor_179	195	166	172	178	170	7	0.004	0.065	0.069	0.10	No	248	201	47	0.025	0.098	0.123	0.18	No
Receptor_180	193	169	172	178	171	8	0.004	0.065	0.069	0.10	No	231	202	30	0.016	0.098	0.114	0.18	No
Receptor_181	193	171	173	179	173	6	0.003	0.065	0.068	0.10	No	230	213	17	0.009	0.098	0.107	0.18	No
Receptor_182	192	173	177	181	177	3	0.002	0.065	0.067	0.10	No	228	229	(2)	-0.001	0.098	0.098	0.18	No
Receptor_183	185	175	176	179	176	2	0.001	0.065	0.066	0.10	No	245	198	47	0.025	0.098	0.123	0.18	No
Receptor_184	194	175	177	182	176	6	0.003	0.065	0.068	0.10	No	247	239	8	0.004	0.098	0.102	0.18	No
Receptor_185	202	182	176	187	181	6	0.003	0.065	0.068	0.10	No	262	220	42	0.022	0.098	0.120	0.18	No
Receptor_186	207	182	181	190	184	6	0.003	0.065	0.068	0.10	No	251	231	20	0.011	0.098	0.109	0.18	No
Receptor_187	203	180	191	191	186	5	0.003	0.065	0.068	0.10	No	273	223	50	0.027	0.098	0.125	0.18	No
Receptor_188	189	180	190	187	188	(1)	-0.001	0.065	0.065	0.10	No	239	241	(2)	-0.001	0.098	0.098	0.18	No
Receptor_189	180	182	194	186	191	(6)	-0.003	0.065	0.065	0.10	No	263	222	41	0.022	0.098	0.120	0.18	No
Receptor_190	176	189	188	185	193	(8)	-0.004	0.065	0.065	0.10	No	263	231	32	0.017	0.098	0.115	0.18	No
Receptor_191	175	179	181	178	184	(6)	-0.003	0.065	0.065	0.10	No	252	220	33	0.017	0.098	0.115	0.18	No
Receptor_192	169	169	175	171	176	(5)	-0.003	0.065	0.065	0.10	No	243	209	34	0.018	0.098	0.116	0.18	No
Receptor_193	167	162	172	167	171	(4)	-0.002	0.065	0.065	0.10	No	233	200	33	0.018	0.098	0.116	0.18	No
Receptor_194	164	159	166	163	167	(3)	-0.002	0.065	0.065	0.10	No	223	192	31	0.017	0.098	0.115	0.18	No
Receptor_195	160	152	160	158	160	(3)	-0.001	0.065	0.065	0.10	No	212	184	29	0.015	0.098	0.113	0.18	No
Receptor_196	158	151	157	155	157	(2)	-0.001	0.065	0.065	0.10	No	205	178	27	0.014	0.098	0.112	0.18	No
Receptor_197	159	148	151	153	153	(0)	0.000	0.065	0.065	0.10	No	203	174	30	0.016	0.098	0.114	0.18	No
Receptor_198	159	145	150	151	151	0	0.000	0.065	0.065	0.10	No	211	185	26	0.014	0.098	0.112	0.18	No
Receptor_199	161	143	148	151	150	1	0.000	0.065	0.065	0.10	No	216	179	37	0.020	0.098	0.118	0.18	No
Receptor_200	161	142	145	149	148	1	0.001	0.065	0.066	0.10	No	216	174	41	0.022	0.098	0.120	0.18	No
Receptor_201	162	141	143	149	146	2	0.001	0.065	0.066	0.10	No	209	170	40	0.021	0.098	0.119	0.18	No
Receptor_202	162	141	142	148	145	3	0.002	0.065	0.067	0.10	No	205	171	34	0.018	0.098	0.116	0.18	No
Receptor_203	155	141	147	148	146	2	0.001	0.065	0.066	0.10	No	202	178	24	0.013	0.098	0.111	0.18	No
Receptor_204	153	142	148	148	146	1	0.001	0.065	0.066	0.10	No	198	183	15	0.008	0.098	0.106	0.18	No

	NO2 1-Hr (NAAQS)											NO2 1-Hr CAAQS)							
Receptor ID	Project (Year 1)	NP (Year 2)	NP (Year 3)	3 yr Avg	NP	Project Increase (ug/m3)	Project Increase (ppm)	SCAQMD Ambient	Total	Threshold	Exceeds?	Project	NP	Project Increase (ug/m3)	Project Increase (ppm)	SCAQMD Ambient	Total	Threshold	Exceeds?
Receptor_205	153	142	146	147	145	2	0.001	0.065	0.066	0.10	No	195	186	9	0.005	0.098	0.103	0.18	No
Receptor_206	153	143	147	148	146	2	0.001	0.065	0.066	0.10	No	192	186	6	0.003	0.098	0.101	0.18	No
Receptor_207	154	141	147	147	146	2	0.001	0.065	0.066	0.10	No	189	184	5	0.003	0.098	0.101	0.18	No
Receptor_208	153	141	147	147	146	1	0.001	0.065	0.066	0.10	No	186	178	8	0.004	0.098	0.102	0.18	No
Receptor_209	152	144	151	149	148	1	0.001	0.065	0.066	0.10	No	186	173	13	0.007	0.098	0.105	0.18	No
Receptor_210	153	148	154	151	151	1	0.000	0.065	0.065	0.10	No	185	172	13	0.007	0.098	0.105	0.18	No
Receptor_211	153	148	157	153	153	(0)	0.000	0.065	0.065	0.10	No	177	168	9	0.005	0.098	0.103	0.18	No
Receptor_212	151	155	161	156	158	(2)	-0.001	0.065	0.065	0.10	No	184	185	(1)	0.000	0.098	0.098	0.18	No
Receptor_213	153	157	166	159	160	(1)	-0.001	0.065	0.065	0.10	No	200	183	17	0.009	0.098	0.107	0.18	No
Receptor_214	157	166	173	165	166	(1)	-0.001	0.065	0.065	0.10	No	215	202	13	0.007	0.098	0.105	0.18	No
Receptor_215	158	170	177	168	171	(3)	-0.002	0.065	0.065	0.10	No	222	225	(3)	-0.001	0.098	0.098	0.18	No
Receptor_216	162	172	183	172	175	(3)	-0.001	0.065	0.065	0.10	No	214	246	(32)	-0.017	0.098	0.098	0.18	No
Receptor_217	164	178	186	176	180	(4)	-0.002	0.065	0.065	0.10	No	238	238	1	0.000	0.098	0.098	0.18	No
Receptor_218	166	182	188	179	181	(3)	-0.001	0.065	0.065	0.10	No	240	228	12	0.006	0.098	0.104	0.18	No
Receptor_219	169	191	196	185	189	(4)	-0.002	0.065	0.065	0.10	No	249	238	11	0.006	0.098	0.104	0.18	No
Receptor_220	174	198	201	191	195	(4)	-0.002	0.065	0.065	0.10	No	253	247	6	0.003	0.098	0.101	0.18	No
Receptor_221	178	203	205	195	199	(4)	-0.002	0.065	0.065	0.10	No	246	274	(28)	-0.015	0.098	0.098	0.18	No
Receptor_222	177	200	200	192	199	(7)	-0.004	0.065	0.065	0.10	No	234	285	(51)	-0.027	0.098	0.098	0.18	No
Receptor_223	174	201	198	191	199	(8)	-0.004	0.065	0.065	0.10	No	259	271	(13)	-0.007	0.098	0.098	0.18	No
Receptor_224	174	197	189	187	196	(9)	-0.005	0.065	0.065	0.10	No	264	246	18	0.009	0.098	0.107	0.18	No
Receptor_225	176	192	190	186	195	(9)	-0.005	0.065	0.065	0.10	No	244	238	7	0.004	0.098	0.102	0.18	No
Receptor_226	176	181	183	180	185	(5)	-0.002	0.065	0.065	0.10	No	244	221	22	0.012	0.098	0.110	0.18	No
Receptor_227	183	203	200	195	207	(12)	-0.006	0.065	0.065	0.10	No	261	254	8	0.004	0.098	0.102	0.18	No
Receptor_228	191	221	211	208	221	(13)	-0.007	0.065	0.065	0.10	No	293	284	9	0.005	0.098	0.103	0.18	No
Receptor_229	198	244	237	227	245	(18)	-0.010	0.065	0.065	0.10	No	322	340	(18)	-0.009	0.098	0.098	0.18	No
Receptor_230	206	248	251	235	250	(15)	-0.008	0.065	0.065	0.10	No	302	379	(77)	-0.041	0.098	0.098	0.18	No
Receptor_231	206	257	256	240	254	(15)	-0.008	0.065	0.065	0.10	No	293	393	(100)	-0.053	0.098	0.098	0.18	No
Receptor_232	221	278	282	260	276	(16)	-0.009	0.065	0.065	0.10	No	328	439	(111)	-0.059	0.098	0.098	0.18	No
Receptor_233	232	296	311	280	298	(19)	-0.010	0.065	0.065	0.10	No	368	488	(120)	-0.064	0.098	0.098	0.18	No
Receptor_234	248	347	344	313	338	(25)	-0.013	0.065	0.065	0.10	No	413	537	(124)	-0.066	0.098	0.098	0.18	No
Receptor_235	252	353	360	322	356	(34)	-0.018	0.065	0.065	0.10	No	390	593	(203)	-0.108	0.098	0.098	0.18	No
Receptor_236	269	422	413	368	412	(44)	-0.023	0.065	0.065	0.10	No	474	669	(195)	-0.104	0.098	0.098	0.18	No
Receptor_237	261	383	374	340	376	(36)	-0.019	0.065	0.065	0.10	No	425	627	(202)	-0.107	0.098	0.098	0.18	No
Receptor_238	248	354	336	313	342	(29)	-0.015	0.065	0.065	0.10	No	342	456	(114)	-0.061	0.098	0.098	0.18	No
Receptor_239	242	322	308	291	312	(22)	-0.011	0.065	0.065	0.10	No	330	559	(228)	-0.121	0.098	0.098	0.18	No
Receptor_240	257	353	324	311	339	(28)	-0.015	0.065	0.065	0.10	No	357	442	(85)	-0.045	0.098	0.098	0.18	No
Receptor_241	243	298	289	276	298	(22)	-0.012	0.065	0.065	0.10	No	364	479	(114)	-0.061	0.098	0.098	0.18	No
Receptor_242	230	278	261	256	275	(18)	-0.010	0.065	0.065	0.10	No	355	421	(67)	-0.035	0.098	0.098	0.18	No
Receptor_243	225	264	247	245	256	(11)	-0.006	0.065	0.065	0.10	No	333	377	(44)	-0.023	0.098	0.098	0.18	No
Receptor_244	214	248	233	232	242	(11)	-0.006	0.065	0.065	0.10	No	303	346	(42)	-0.022	0.098	0.098	0.18	No
Receptor_245	203	234	216	218	225	(7)	-0.004	0.065	0.065	0.10	No	269	315	(46)	-0.024	0.098	0.098	0.18	No
Receptor_246	205	235	207	216	216	(0)	0.000	0.065	0.065	0.10	No	357	275	81	0.043	0.098	0.141	0.18	No
Receptor_247	215	221	208	215	214	1	0.000	0.065	0.065	0.10	No	440	248	192	0.102	0.098	0.200	0.18	Yes
Receptor_248	206	201	205	204	201	3	0.001	0.065	0.066	0.10	No	413	261	153	0.081	0.098	0.179	0.18	No
Receptor_249	197	196	192	195	195	0	0.000	0.065	0.065	0.10	No	300	270	30	0.016	0.098	0.114	0.18	No
Receptor_250	201	193	189	194	191	3	0.002	0.065	0.067	0.10	No	275	274	1	0.001	0.098	0.099	0.18	No
Receptor_251	223	185	186	198	186	13	0.007	0.065	0.072	0.10	No	280	220	60	0.032	0.098	0.130	0.18	No
Receptor_252	221	184	185	197	186	10	0.006	0.065	0.071	0.10	No	288	224	64	0.034	0.098	0.132	0.18	No
Receptor_253	233	186	188	202	189	13	0.007	0.065	0.072	0.10	No	300	221	79	0.042	0.098	0.140	0.18	No
Receptor_254	238	189	190	205	193	13	0.007	0.065	0.072	0.10	No	312	221	92	0.049	0.098	0.147	0.18	No
Receptor_255	247	191	197	212	198	13	0.007	0.065	0.072	0.10	No	334	220	114	0.061	0.098	0.159	0.18	No
Receptor_256	248	197	202	216	201	15	0.008	0.065	0.073	0.10	No	328	241	87	0.046	0.098	0.144	0.18	No
Receptor_257	246	207	203	218	208	10	0.006	0.065	0.071	0.10	No	321	268	53	0.028	0.098	0.126	0.18	No
Receptor_258	255	213	207	225	213	12	0.007	0.065	0.072	0.10	No	343	275	68	0.036	0.098	0.134	0.18	No
Receptor_259	268	204	209	227	208	19	0.010	0.065	0.075	0.10	No	349	242	106	0.057	0.098	0.155	0.18	No
Receptor_260	249	193	202	214	202	12	0.006	0.065	0.071	0.10	No	364	223	141	0.075	0.098	0.173	0.18	No
Receptor_261	255	195	204	218	205	13	0.007	0.065	0.072	0.10	No	385	230	155	0.082	0.098	0.180	0.18	Yes
Receptor_262	269	197	207	224	208	17	0.009	0.065	0.074	0.10	No	406	239	167	0.088	0.098	0.186	0.18	Yes
Receptor_263	265	190	190	215	195	20	0.011	0.065	0.076	0.10	No	363	238	124	0.066	0.098	0.164	0.18	No
Receptor_264	230	173	181	194	184	11	0.006	0.065	0.071	0.10	No	307	231	77	0.041	0.098	0.139	0.18	No
Receptor_265	214	165	168	182	174	8	0.004	0.065	0.069	0.10	No	273	266	7	0.003	0.098	0.101	0.18	No
Receptor_266	198	159	157	171	167	5	0.003	0.065	0.068	0.10	No	274	239	35	0.018	0.098	0.116	0.18	No
Receptor_267	208	165	159	177	169	8	0.004	0.065	0.069	0.10	No	271	234	37	0.020	0.098	0.118	0.18	No
Receptor_268	211	168	166	182	175	6	0.003	0.065	0.068	0.10	No	259	228	31	0.017	0.098	0.115	0.18	No
Receptor_269	206	170	170	182	178	4	0.002	0.065	0.067	0.10	No	256	219	37	0.019	0.098	0.117	0.18	No
Receptor_270	205	168	172	182	177	4	0.002	0.065	0.067	0.10	No	259	228	31	0.017	0.098	0.115	0.18	No
Receptor_271	202	163	170	178	174	4	0.002	0.065	0.067	0.10	No	263	237	27	0.014	0.098	0.112	0.18	No
Receptor_272	202	162	169	177	172	5	0.003	0.065	0.068	0.10	No	249	208	41	0.022	0.098	0.120	0.18	No
Receptor_273	198	166	171	178	174	5	0.002	0.065	0.067	0.10	No	240	234	6	0.003	0.098	0.101	0.18	No
Receptor_274	199	165	173	179	174	5	0.003	0.065	0.068	0.10	No	288	216	72	0.038	0.098	0.136	0.18	No
Receptor_275	196	171	171	179	175	5	0.002	0.065	0.067	0.10	No	318	272	46	0.024	0.098	0.122	0.18	No
Receptor_276	203	174	170	182	177	5	0.003	0.065	0.068	0.10	No	281	279	2	0.001	0.098	0.099	0.18	No
Receptor_277	213	185	172	190	183	7	0.004	0.065	0.069	0.10	No	306	229	77	0.041	0.098	0.139	0.18	No
Receptor_278	217	187	176	193	184	9	0.005	0.065	0.070	0.10	No	325	209	116	0.062	0.098	0.160	0.18	No
Receptor_279	213	187	177	192	185	8	0.004	0.065	0.069	0.10	No	334	194	140	0.074	0.098	0.172	0.18	No
Receptor_280	214	190	177	194	183	11	0.006	0.065	0.071	0.10	No	307	187	120	0.064	0.098	0.162	0.18	No
Receptor_281	215	191	179	195	185	10	0.005	0.065	0.070	0.10	No	287	211	76	0.041	0.098	0.139	0.18	No
Receptor_282	216	186	181	194	183	11	0.006	0.065	0.071	0.10	No	290	212	78	0.042	0.098	0.140	0.18	No
Receptor_283	214	181	175	190	180	10	0.005	0.065	0.070	0.10	No	293	309	(16)	-0.008	0.098	0.098	0.18	No
Receptor_284	210	181	174	188	183	6	0.003	0.065	0.068	0.10	No	322	310	12	0.006	0.098	0.104	0.18	No
Receptor_285	209	182	173	188	184	4	0.002	0.065	0.067	0.10	No	325	298	28	0.015	0.098	0.113	0.18	No
Receptor_286	224	196	181	201	194	6	0.003	0.065	0.068	0.10	No	334	297	37	0.019	0.098	0.117	0.18	No
Receptor_287	243	205	185	211	201	10	0.005	0.065	0.070	0.10	No	323	286	36	0.019	0.098	0.117	0.18	No
Receptor_288	260	212	191	221	208	13	0.007	0.065	0.072	0.10	No	318	282	37	0.019	0.098	0.117	0.18	No
Receptor_289	262	212	191	222	207	15	0.008	0.065	0.073	0.10	No	309	272	37	0.020	0.098	0.118	0.18	No
Receptor_290	245	204	181	210	198	12	0.007	0.065	0.072	0.10	No	294	258	36	0.019	0.098	0.117	0.18	No
Receptor_291	233	196	172	200	189	11	0.006	0.065	0.071	0.10	No	281	246	35	0.019	0.098	0.117	0.18	No
Receptor_292	214	188	165	189	183	6	0.003	0.065	0.068	0.10	No	270	236	34	0.018	0.098	0.116	0.18	No
Receptor_293	216	184	162	188	178	9	0.005	0.065	0.070	0.10	No	258	225	34	0.018	0.098	0.116	0.18	No
Receptor_294	217	181	164	187	177	10	0.005	0.065	0.070	0.10	No	250	216	34	0.018	0.098	0.116	0.18	No
Receptor_295	216	179	163	186	178	8	0.004	0.065	0.069	0.10	No	263	220	43	0.023	0.098	0.121	0.18	No
Receptor_296	215	176	166	186	178	8	0.004	0.065	0.069	0.10	No	264	213	51	0.027	0.098	0.125	0.18	No
Receptor_297	212	176	164	184	176	8	0.004	0.065	0.069	0.10	No	264	206	58	0.031	0.098	0.129	0.18	No
Receptor_298	210	174	165	183	174	9	0.005	0.065	0.070	0.10	No	259	200	59	0.031	0.098	0.129	0.18	No
Receptor_299	210	172	164	182	171	11	0.006	0.065	0.071	0.10	No	256	233	22	0.012	0.098	0.110	0.18	No
Receptor_300	212	169	164	182	169	13	0.007	0.065	0.072	0.10	No	257	226	31	0.016	0.098	0.114	0.18	No
Receptor_301	210	170	165	181	168	13	0.007	0.065	0.072	0.10	No	257	218	38	0.020	0.098	0.118	0.18	No
Receptor_302	211	172	163	182	168	14	0.008	0.065	0.073	0.10	No	259	204	55	0.029	0.098	0.127	0.18	No
Receptor_303	212	171	163	182	169	13	0.007	0.065	0.072	0.10	No	259	205	54	0.029	0.098	0.127	0.18	No
Receptor_304	217	170	159	182	166	16	0.008	0.065	0.073	0.10	No	259	205	54	0.029	0.098	0.127	0.18	No
Receptor_305	216	166	158	180	164	16	0.009	0.065	0.074	0.10	No	268	187	80	0.043	0.098	0.141	0.18	No
Receptor_306	212	164	157	178	163	14	0.008	0.065	0.073	0.10	No	276	183	93	0.049	0.098	0.147	0.18	No

	NO2 1-Hr (NAAQS)											NO2 1-Hr CAAQS)								
Receptor ID	Project (Year 1)	NP (Year 2)	NP (Year 3)	3 yr Avg	NP	Project Increase (ug/m3)	Project Increase (ppm)	SCAQMD Ambient	Total	Threshold	Exceeds?	Project	NP	Project Increase (ug/m3)	Project Increase (ppm)	SCAQMD Ambient	Total	Threshold	Exceeds?
Receptor_307	211	165	154	176	161	15	0.008	0.065	0.073	0.10	No	290	184	106	0.056	0.098	0.154	0.18	No
Receptor_308	214	163	152	176	158	18	0.010	0.065	0.075	0.10	No	297	183	114	0.061	0.098	0.159	0.18	No
Receptor_309	204	165	150	173	157	16	0.009	0.065	0.074	0.10	No	302	181	120	0.064	0.098	0.162	0.18	No
Receptor_310	196	163	148	169	155	14	0.007	0.065	0.072	0.10	No	303	180	123	0.065	0.098	0.163	0.18	No
Receptor_311	194	161	146	167	153	14	0.007	0.065	0.072	0.10	No	302	179	123	0.065	0.098	0.163	0.18	No
Receptor_312	187	161	144	164	153	11	0.006	0.065	0.071	0.10	No	300	178	122	0.065	0.098	0.163	0.18	No
Receptor_313	185	158	141	161	150	11	0.006	0.065	0.071	0.10	No	295	177	119	0.063	0.098	0.161	0.18	No
Receptor_314	180	157	140	159	149	10	0.005	0.065	0.070	0.10	No	290	174	115	0.061	0.098	0.159	0.18	No
Receptor_315	173	153	139	155	147	8	0.004	0.065	0.069	0.10	No	282	170	112	0.060	0.098	0.158	0.18	No
Receptor_316	167	150	137	151	145	6	0.003	0.065	0.068	0.10	No	275	166	108	0.057	0.098	0.155	0.18	No
Receptor_317	164	147	136	149	143	6	0.003	0.065	0.068	0.10	No	266	163	103	0.055	0.098	0.153	0.18	No
Receptor_318	161	144	135	147	140	6	0.003	0.065	0.068	0.10	No	259	161	99	0.053	0.098	0.151	0.18	No
Receptor_319	158	141	133	144	138	6	0.003	0.065	0.068	0.10	No	253	158	95	0.050	0.098	0.148	0.18	No
Receptor_320	156	139	132	142	137	6	0.003	0.065	0.068	0.10	No	247	156	91	0.048	0.098	0.146	0.18	No
Receptor_321	153	138	131	141	135	6	0.003	0.065	0.068	0.10	No	242	154	88	0.047	0.098	0.145	0.18	No
Receptor_322	151	135	130	139	133	5	0.003	0.065	0.068	0.10	No	235	152	83	0.044	0.098	0.142	0.18	No
Receptor_323	149	130	128	136	131	5	0.002	0.065	0.067	0.10	No	228	152	76	0.041	0.098	0.139	0.18	No
Receptor_324	147	131	125	134	129	5	0.003	0.065	0.068	0.10	No	222	152	70	0.037	0.098	0.135	0.18	No
Receptor_325	145	132	124	134	127	6	0.003	0.065	0.068	0.10	No	216	151	64	0.034	0.098	0.132	0.18	No
Receptor_326	142	130	124	132	127	5	0.003	0.065	0.068	0.10	No	209	150	59	0.031	0.098	0.129	0.18	No
Receptor_327	223	204	209	212	205	7	0.004	0.065	0.069	0.10	No	394	248	146	0.078	0.098	0.176	0.18	No
Maximum	322	422	413	368	412	34	0.018	0.065	0.083	0.10	No	474	669	217	0.115	0.098	0.213	0.18	Yes

NO2 Annual

Receptor ID	Project	NP	Project Increase (ug/m3)	Project Increase (ppm)	Ambient	Total	Threshold	Exceeds?
Receptor_1	14	12	1	0.001	0.014	0.01	0.03	No
Receptor_2	14	12	1	0.001	0.014	0.01	0.03	No
Receptor_3	14	12	2	0.001	0.014	0.01	0.03	No
Receptor_4	14	12	2	0.001	0.014	0.01	0.03	No
Receptor_5	14	12	2	0.001	0.014	0.02	0.03	No
Receptor_6	13	11	2	0.001	0.014	0.02	0.03	No
Receptor_7	13	11	2	0.001	0.014	0.02	0.03	No
Receptor_8	13	11	2	0.001	0.014	0.02	0.03	No
Receptor_9	13	11	2	0.001	0.014	0.02	0.03	No
Receptor_10	13	11	2	0.001	0.014	0.02	0.03	No
Receptor_11	12	10	2	0.001	0.014	0.02	0.03	No
Receptor_12	12	10	2	0.001	0.014	0.02	0.03	No
Receptor_13	11	9	2	0.001	0.014	0.01	0.03	No
Receptor_14	11	9	2	0.001	0.014	0.01	0.03	No
Receptor_15	10	8	2	0.001	0.014	0.01	0.03	No
Receptor_16	9	8	1	0.001	0.014	0.01	0.03	No
Receptor_17	9	7	1	0.001	0.014	0.01	0.03	No
Receptor_18	8	7	1	0.001	0.014	0.01	0.03	No
Receptor_19	7	6	1	0.000	0.014	0.01	0.03	No
Receptor_20	7	6	1	0.000	0.014	0.01	0.03	No
Receptor_21	6	6	1	0.000	0.014	0.01	0.03	No
Receptor_22	6	5	0	0.000	0.014	0.01	0.03	No
Receptor_23	5	5	0	0.000	0.014	0.01	0.03	No
Receptor_24	5	5	0	0.000	0.014	0.01	0.03	No
Receptor_25	5	4	0	0.000	0.014	0.01	0.03	No
Receptor_26	5	4	0	0.000	0.014	0.01	0.03	No
Receptor_27	4	4	0	0.000	0.014	0.01	0.03	No
Receptor_28	4	4	0	0.000	0.014	0.01	0.03	No
Receptor_29	4	4	0	0.000	0.014	0.01	0.03	No
Receptor_30	4	4	0	0.000	0.014	0.01	0.03	No
Receptor_31	5	4	0	0.000	0.014	0.01	0.03	No
Receptor_32	4	4	0	0.000	0.014	0.01	0.03	No
Receptor_33	4	4	0	0.000	0.014	0.01	0.03	No
Receptor_34	5	4	0	0.000	0.014	0.01	0.03	No
Receptor_35	5	4	0	0.000	0.014	0.01	0.03	No
Receptor_36	5	4	0	0.000	0.014	0.01	0.03	No
Receptor_37	5	4	0	0.000	0.014	0.01	0.03	No
Receptor_38	5	4	0	0.000	0.014	0.01	0.03	No
Receptor_39	5	4	0	0.000	0.014	0.01	0.03	No
Receptor_40	5	5	0	0.000	0.014	0.01	0.03	No
Receptor_41	5	5	0	0.000	0.014	0.01	0.03	No
Receptor_42	5	5	0	0.000	0.014	0.01	0.03	No
Receptor_43	5	5	0	0.000	0.014	0.01	0.03	No
Receptor_44	5	5	0	0.000	0.014	0.01	0.03	No
Receptor_45	5	5	0	0.000	0.014	0.01	0.03	No
Receptor_46	6	5	0	0.000	0.014	0.01	0.03	No
Receptor_47	6	6	0	0.000	0.014	0.01	0.03	No
Receptor_48	6	6	0	0.000	0.014	0.01	0.03	No
Receptor_49	6	6	0	0.000	0.014	0.01	0.03	No
Receptor_50	6	6	0	0.000	0.014	0.01	0.03	No
Receptor_51	6	6	0	0.000	0.014	0.01	0.03	No
Receptor_52	6	6	0	0.000	0.014	0.01	0.03	No
Receptor_53	6	5	0	0.000	0.014	0.01	0.03	No
Receptor_54	6	5	0	0.000	0.014	0.01	0.03	No
Receptor_55	5	5	0	0.000	0.014	0.01	0.03	No
Receptor_56	5	5	0	0.000	0.014	0.01	0.03	No
Receptor_57	6	5	0	0.000	0.014	0.01	0.03	No
Receptor_58	6	5	0	0.000	0.014	0.01	0.03	No
Receptor_59	6	6	0	0.000	0.014	0.01	0.03	No
Receptor_60	6	6	0	0.000	0.014	0.01	0.03	No
Receptor_61	7	6	1	0.000	0.014	0.01	0.03	No
Receptor_62	7	7	1	0.000	0.014	0.01	0.03	No
Receptor_63	8	7	1	0.000	0.014	0.01	0.03	No
Receptor_64	9	8	1	0.000	0.014	0.01	0.03	No
Receptor_65	9	8	1	0.000	0.014	0.01	0.03	No
Receptor_66	10	9	1	0.000	0.014	0.01	0.03	No
Receptor_67	10	10	1	0.000	0.014	0.01	0.03	No
Receptor_68	11	10	1	0.000	0.014	0.01	0.03	No
Receptor_69	12	12	1	0.000	0.014	0.01	0.03	No
Receptor_70	13	12	1	0.001	0.014	0.01	0.03	No
Receptor_71	13	12	1	0.001	0.014	0.01	0.03	No
Receptor_72	13	12	1	0.001	0.014	0.01	0.03	No
Receptor_73	13	12	1	0.001	0.014	0.01	0.03	No
Receptor_74	13	11	1	0.001	0.014	0.01	0.03	No
Receptor_75	13	11	1	0.001	0.014	0.01	0.03	No
Receptor_76	15	13	2	0.001	0.014	0.01	0.03	No
Receptor_77	15	13	2	0.001	0.014	0.01	0.03	No
Receptor_78	15	13	2	0.001	0.014	0.01	0.03	No
Receptor_79	17	15	2	0.001	0.014	0.02	0.03	No
Receptor_80	20	17	2	0.001	0.014	0.02	0.03	No
Receptor_81	23	20	3	0.001	0.014	0.02	0.03	No
Receptor_82	22	19	3	0.001	0.014	0.02	0.03	No
Receptor_83	21	18	2	0.001	0.014	0.02	0.03	No
Receptor_84	18	16	2	0.001	0.014	0.02	0.03	No
Receptor_85	15	13	2	0.001	0.014	0.01	0.03	No

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Receptor ID	Project	NP	Project Increase (ug/m3)	Project Increase (ppm)	Ambient	Total	Threshold	Exceeds?
Receptor_86	13	12	2	0.001	0.014	0.01	0.03	No
Receptor_87	13	12	2	0.001	0.014	0.01	0.03	No
Receptor_88	13	12	2	0.001	0.014	0.01	0.03	No
Receptor_89	13	11	2	0.001	0.014	0.01	0.03	No
Receptor_90	12	11	1	0.001	0.014	0.01	0.03	No
Receptor_91	11	10	1	0.001	0.014	0.01	0.03	No
Receptor_92	10	9	1	0.001	0.014	0.01	0.03	No
Receptor_93	11	10	1	0.001	0.014	0.01	0.03	No
Receptor_94	11	10	1	0.001	0.014	0.01	0.03	No
Receptor_95	12	10	1	0.001	0.014	0.01	0.03	No
Receptor_96	12	11	1	0.001	0.014	0.01	0.03	No
Receptor_97	13	11	1	0.001	0.014	0.01	0.03	No
Receptor_98	14	12	2	0.001	0.014	0.01	0.03	No
Receptor_99	15	14	2	0.001	0.014	0.01	0.03	No
Receptor_100	17	15	2	0.001	0.014	0.02	0.03	No
Receptor_101	18	16	2	0.001	0.014	0.02	0.03	No
Receptor_102	19	17	2	0.001	0.014	0.02	0.03	No
Receptor_103	20	17	2	0.001	0.014	0.02	0.03	No
Receptor_104	20	18	2	0.001	0.014	0.02	0.03	No
Receptor_105	21	19	2	0.001	0.014	0.02	0.03	No
Receptor_106	23	20	3	0.001	0.014	0.02	0.03	No
Receptor_107	25	22	3	0.002	0.014	0.02	0.03	No
Receptor_108	25	22	3	0.002	0.014	0.02	0.03	No
Receptor_109	24	22	3	0.001	0.014	0.02	0.03	No
Receptor_110	24	21	3	0.001	0.014	0.02	0.03	No
Receptor_111	22	19	2	0.001	0.014	0.02	0.03	No
Receptor_112	22	20	2	0.001	0.014	0.02	0.03	No
Receptor_113	23	21	2	0.001	0.014	0.02	0.03	No
Receptor_114	24	21	2	0.001	0.014	0.02	0.03	No
Receptor_115	24	22	2	0.001	0.014	0.02	0.03	No
Receptor_116	25	22	2	0.001	0.014	0.02	0.03	No
Receptor_117	27	25	2	0.001	0.014	0.02	0.03	No
Receptor_118	30	28	2	0.001	0.014	0.02	0.03	No
Receptor_119	34	32	2	0.001	0.014	0.02	0.03	No
Receptor_120	39	37	2	0.001	0.014	0.02	0.03	No
Receptor_121	42	38	3	0.002	0.014	0.02	0.03	No
Receptor_122	44	39	5	0.003	0.014	0.02	0.03	No
Receptor_123	42	38	5	0.003	0.014	0.02	0.03	No
Receptor_124	41	36	5	0.003	0.014	0.02	0.03	No
Receptor_125	44	38	6	0.003	0.014	0.02	0.03	No
Receptor_126	41	36	5	0.003	0.014	0.02	0.03	No
Receptor_127	38	34	4	0.002	0.014	0.02	0.03	No
Receptor_128	35	32	4	0.002	0.014	0.02	0.03	No
Receptor_129	33	30	3	0.002	0.014	0.02	0.03	No
Receptor_130	33	30	3	0.002	0.014	0.02	0.03	No
Receptor_131	32	29	3	0.002	0.014	0.02	0.03	No
Receptor_132	30	27	3	0.001	0.014	0.02	0.03	No
Receptor_133	28	26	2	0.001	0.014	0.02	0.03	No
Receptor_134	27	25	2	0.001	0.014	0.02	0.03	No
Receptor_135	26	24	2	0.001	0.014	0.01	0.03	No
Receptor_136	24	23	2	0.001	0.014	0.01	0.03	No
Receptor_137	23	22	2	0.001	0.014	0.01	0.03	No
Receptor_138	24	23	1	0.001	0.014	0.01	0.03	No
Receptor_139	24	23	1	0.001	0.014	0.01	0.03	No
Receptor_140	24	23	1	0.001	0.014	0.01	0.03	No
Receptor_141	25	24	1	0.001	0.014	0.01	0.03	No
Receptor_142	24	23	1	0.001	0.014	0.01	0.03	No
Receptor_143	25	24	1	0.000	0.014	0.01	0.03	No
Receptor_144	25	24	0	0.000	0.014	0.01	0.03	No
Receptor_145	25	25	(0)	0.000	0.014	0.01	0.03	No
Receptor_146	24	24	(0)	0.000	0.014	0.01	0.03	No
Receptor_147	23	24	(0)	0.000	0.014	0.01	0.03	No
Receptor_148	23	24	(1)	0.000	0.014	0.01	0.03	No
Receptor_149	23	24	(1)	-0.001	0.014	0.01	0.03	No
Receptor_150	23	24	(1)	-0.001	0.014	0.01	0.03	No
Receptor_151	23	25	(2)	-0.001	0.014	0.01	0.03	No
Receptor_152	24	26	(2)	-0.001	0.014	0.01	0.03	No
Receptor_153	24	27	(3)	-0.001	0.014	0.01	0.03	No
Receptor_154	24	27	(2)	-0.001	0.014	0.01	0.03	No
Receptor_155	24	26	(2)	-0.001	0.014	0.01	0.03	No
Receptor_156	24	26	(2)	-0.001	0.014	0.01	0.03	No
Receptor_157	25	26	(1)	-0.001	0.014	0.01	0.03	No
Receptor_158	25	27	(2)	-0.001	0.014	0.01	0.03	No
Receptor_159	25	27	(2)	-0.001	0.014	0.01	0.03	No
Receptor_160	26	27	(2)	-0.001	0.014	0.01	0.03	No
Receptor_161	26	28	(1)	-0.001	0.014	0.01	0.03	No
Receptor_162	27	28	(1)	-0.001	0.014	0.01	0.03	No
Receptor_163	28	28	(1)	0.000	0.014	0.01	0.03	No
Receptor_164	28	29	(0)	0.000	0.014	0.01	0.03	No
Receptor_165	30	30	(0)	0.000	0.014	0.01	0.03	No
Receptor_166	31	31	0	0.000	0.014	0.01	0.03	No
Receptor_167	33	32	0	0.000	0.014	0.01	0.03	No
Receptor_168	35	34	1	0.000	0.014	0.01	0.03	No
Receptor_169	37	35	1	0.001	0.014	0.01	0.03	No
Receptor_170	36	35	1	0.000	0.014	0.01	0.03	No

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Receptor ID	Project	NP	Project Increase (ug/m3)	Project Increase (ppm)	Ambient	Total	Threshold	Exceeds?
Receptor_171	34	34	0	0.000	0.014	0.01	0.03	No
Receptor_172	33	33	(0)	0.000	0.014	0.01	0.03	No
Receptor_173	34	35	(1)	0.000	0.014	0.01	0.03	No
Receptor_174	34	35	(1)	-0.001	0.014	0.01	0.03	No
Receptor_175	33	35	(1)	-0.001	0.014	0.01	0.03	No
Receptor_176	32	34	(2)	-0.001	0.014	0.01	0.03	No
Receptor_177	31	34	(2)	-0.001	0.014	0.01	0.03	No
Receptor_178	31	33	(2)	-0.001	0.014	0.01	0.03	No
Receptor_179	30	32	(3)	-0.002	0.014	0.01	0.03	No
Receptor_180	29	32	(3)	-0.002	0.014	0.01	0.03	No
Receptor_181	28	32	(4)	-0.002	0.014	0.01	0.03	No
Receptor_182	27	31	(4)	-0.002	0.014	0.01	0.03	No
Receptor_183	27	31	(4)	-0.002	0.014	0.01	0.03	No
Receptor_184	26	31	(5)	-0.002	0.014	0.01	0.03	No
Receptor_185	26	31	(5)	-0.003	0.014	0.01	0.03	No
Receptor_186	25	31	(5)	-0.003	0.014	0.01	0.03	No
Receptor_187	25	31	(6)	-0.003	0.014	0.01	0.03	No
Receptor_188	24	31	(6)	-0.003	0.014	0.01	0.03	No
Receptor_189	24	31	(7)	-0.003	0.014	0.01	0.03	No
Receptor_190	23	30	(7)	-0.004	0.014	0.01	0.03	No
Receptor_191	23	29	(6)	-0.003	0.014	0.01	0.03	No
Receptor_192	22	27	(5)	-0.003	0.014	0.01	0.03	No
Receptor_193	22	26	(5)	-0.002	0.014	0.01	0.03	No
Receptor_194	22	26	(4)	-0.002	0.014	0.01	0.03	No
Receptor_195	21	25	(3)	-0.002	0.014	0.01	0.03	No
Receptor_196	21	24	(3)	-0.002	0.014	0.01	0.03	No
Receptor_197	21	23	(3)	-0.001	0.014	0.01	0.03	No
Receptor_198	20	23	(2)	-0.001	0.014	0.01	0.03	No
Receptor_199	20	22	(2)	-0.001	0.014	0.01	0.03	No
Receptor_200	20	22	(2)	-0.001	0.014	0.01	0.03	No
Receptor_201	20	21	(2)	-0.001	0.014	0.01	0.03	No
Receptor_202	20	21	(2)	-0.001	0.014	0.01	0.03	No
Receptor_203	19	21	(2)	-0.001	0.014	0.01	0.03	No
Receptor_204	19	20	(2)	-0.001	0.014	0.01	0.03	No
Receptor_205	18	20	(2)	-0.001	0.014	0.01	0.03	No
Receptor_206	18	19	(2)	-0.001	0.014	0.01	0.03	No
Receptor_207	17	19	(2)	-0.001	0.014	0.01	0.03	No
Receptor_208	17	19	(2)	-0.001	0.014	0.01	0.03	No
Receptor_209	17	19	(2)	-0.001	0.014	0.01	0.03	No
Receptor_210	17	19	(2)	-0.001	0.014	0.01	0.03	No
Receptor_211	17	19	(2)	-0.001	0.014	0.01	0.03	No
Receptor_212	17	20	(3)	-0.001	0.014	0.01	0.03	No
Receptor_213	17	20	(3)	-0.002	0.014	0.01	0.03	No
Receptor_214	17	21	(3)	-0.002	0.014	0.01	0.03	No
Receptor_215	18	21	(4)	-0.002	0.014	0.01	0.03	No
Receptor_216	18	22	(4)	-0.002	0.014	0.01	0.03	No
Receptor_217	18	23	(4)	-0.002	0.014	0.01	0.03	No
Receptor_218	19	23	(5)	-0.002	0.014	0.01	0.03	No
Receptor_219	19	24	(5)	-0.003	0.014	0.01	0.03	No
Receptor_220	20	26	(6)	-0.003	0.014	0.01	0.03	No
Receptor_221	21	27	(6)	-0.003	0.014	0.01	0.03	No
Receptor_222	21	28	(6)	-0.003	0.014	0.01	0.03	No
Receptor_223	22	28	(7)	-0.003	0.014	0.01	0.03	No
Receptor_224	22	29	(7)	-0.004	0.014	0.01	0.03	No
Receptor_225	23	30	(7)	-0.004	0.014	0.01	0.03	No
Receptor_226	23	29	(6)	-0.003	0.014	0.01	0.03	No
Receptor_227	24	32	(8)	-0.004	0.014	0.01	0.03	No
Receptor_228	25	34	(10)	-0.005	0.014	0.01	0.03	No
Receptor_229	26	38	(12)	-0.006	0.014	0.01	0.03	No
Receptor_230	25	37	(12)	-0.006	0.014	0.01	0.03	No
Receptor_231	25	36	(11)	-0.006	0.014	0.01	0.03	No
Receptor_232	26	40	(14)	-0.007	0.014	0.01	0.03	No
Receptor_233	28	45	(17)	-0.009	0.014	0.01	0.03	No
Receptor_234	29	51	(21)	-0.011	0.014	0.01	0.03	No
Receptor_235	30	53	(23)	-0.012	0.014	0.01	0.03	No
Receptor_236	33	62	(29)	-0.016	0.014	0.01	0.03	No
Receptor_237	31	55	(24)	-0.013	0.014	0.01	0.03	No
Receptor_238	29	46	(18)	-0.009	0.014	0.01	0.03	No
Receptor_239	27	40	(13)	-0.007	0.014	0.01	0.03	No
Receptor_240	27	37	(10)	-0.005	0.014	0.01	0.03	No
Receptor_241	24	31	(6)	-0.003	0.014	0.01	0.03	No
Receptor_242	22	26	(4)	-0.002	0.014	0.01	0.03	No
Receptor_243	20	23	(3)	-0.002	0.014	0.01	0.03	No
Receptor_244	18	21	(2)	-0.001	0.014	0.01	0.03	No
Receptor_245	16	18	(1)	-0.001	0.014	0.01	0.03	No
Receptor_246	15	16	(0)	0.000	0.014	0.01	0.03	No
Receptor_247	14	14	0	0.000	0.014	0.01	0.03	No
Receptor_248	12	12	0	0.000	0.014	0.01	0.03	No
Receptor_249	10	10	0	0.000	0.014	0.01	0.03	No
Receptor_250	9	9	0	0.000	0.014	0.01	0.03	No
Receptor_251	7	7	(0)	0.000	0.014	0.01	0.03	No
Receptor_252	6	7	(0)	0.000	0.014	0.01	0.03	No
Receptor_253	7	7	(0)	0.000	0.014	0.01	0.03	No
Receptor_254	7	7	(0)	0.000	0.014	0.01	0.03	No
Receptor_255	7	7	(0)	0.000	0.014	0.01	0.03	No

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Receptor ID	Project	NP	Project Increase (ug/m3)	Project Increase (ppm)	Ambient	Total	Threshold	Exceeds?
Receptor_256	8	8	(0)	0.000	0.014	0.01	0.03	No
Receptor_257	9	9	0	0.000	0.014	0.01	0.03	No
Receptor_258	10	10	0	0.000	0.014	0.01	0.03	No
Receptor_259	9	9	(0)	0.000	0.014	0.01	0.03	No
Receptor_260	7	8	(0)	0.000	0.014	0.01	0.03	No
Receptor_261	8	8	(0)	0.000	0.014	0.01	0.03	No
Receptor_262	8	8	(0)	0.000	0.014	0.01	0.03	No
Receptor_263	7	7	(1)	0.000	0.014	0.01	0.03	No
Receptor_264	6	7	(1)	0.000	0.014	0.01	0.03	No
Receptor_265	5	6	(1)	0.000	0.014	0.01	0.03	No
Receptor_266	5	6	(1)	0.000	0.014	0.01	0.03	No
Receptor_267	5	6	(1)	0.000	0.014	0.01	0.03	No
Receptor_268	5	6	(1)	0.000	0.014	0.01	0.03	No
Receptor_269	6	7	(1)	0.000	0.014	0.01	0.03	No
Receptor_270	6	7	(1)	0.000	0.014	0.01	0.03	No
Receptor_271	7	7	(1)	0.000	0.014	0.01	0.03	No
Receptor_272	7	8	(1)	-0.001	0.014	0.01	0.03	No
Receptor_273	8	9	(1)	-0.001	0.014	0.01	0.03	No
Receptor_274	9	10	(1)	-0.001	0.014	0.01	0.03	No
Receptor_275	10	11	(2)	-0.001	0.014	0.01	0.03	No
Receptor_276	11	13	(2)	-0.001	0.014	0.01	0.03	No
Receptor_277	13	14	(2)	-0.001	0.014	0.01	0.03	No
Receptor_278	14	16	(2)	-0.001	0.014	0.01	0.03	No
Receptor_279	16	17	(2)	-0.001	0.014	0.01	0.03	No
Receptor_280	18	19	(1)	-0.001	0.014	0.01	0.03	No
Receptor_281	19	20	(1)	-0.001	0.014	0.01	0.03	No
Receptor_282	20	21	(1)	-0.001	0.014	0.01	0.03	No
Receptor_283	21	22	(1)	-0.001	0.014	0.01	0.03	No
Receptor_284	22	23	(1)	-0.001	0.014	0.01	0.03	No
Receptor_285	23	24	(1)	-0.001	0.014	0.01	0.03	No
Receptor_286	26	27	(1)	-0.001	0.014	0.01	0.03	No
Receptor_287	29	29	(1)	0.000	0.014	0.01	0.03	No
Receptor_288	32	32	(0)	0.000	0.014	0.01	0.03	No
Receptor_289	32	32	(0)	0.000	0.014	0.01	0.03	No
Receptor_290	29	30	(1)	0.000	0.014	0.01	0.03	No
Receptor_291	27	27	(1)	0.000	0.014	0.01	0.03	No
Receptor_292	24	25	(1)	-0.001	0.014	0.01	0.03	No
Receptor_293	24	25	(1)	-0.001	0.014	0.01	0.03	No
Receptor_294	24	25	(1)	-0.001	0.014	0.01	0.03	No
Receptor_295	24	25	(1)	-0.001	0.014	0.01	0.03	No
Receptor_296	24	25	(1)	0.000	0.014	0.01	0.03	No
Receptor_297	24	25	(1)	0.000	0.014	0.01	0.03	No
Receptor_298	24	25	(0)	0.000	0.014	0.01	0.03	No
Receptor_299	24	24	(0)	0.000	0.014	0.01	0.03	No
Receptor_300	24	24	(0)	0.000	0.014	0.01	0.03	No
Receptor_301	24	24	(0)	0.000	0.014	0.01	0.03	No
Receptor_302	23	23	0	0.000	0.014	0.01	0.03	No
Receptor_303	23	23	0	0.000	0.014	0.01	0.03	No
Receptor_304	23	23	0	0.000	0.014	0.01	0.03	No
Receptor_305	23	22	0	0.000	0.014	0.01	0.03	No
Receptor_306	22	22	1	0.000	0.014	0.01	0.03	No
Receptor_307	22	21	1	0.000	0.014	0.01	0.03	No
Receptor_308	21	21	1	0.000	0.014	0.01	0.03	No
Receptor_309	21	20	1	0.000	0.014	0.01	0.03	No
Receptor_310	20	20	1	0.000	0.014	0.01	0.03	No
Receptor_311	20	19	1	0.000	0.014	0.01	0.03	No
Receptor_312	19	18	1	0.000	0.014	0.01	0.03	No
Receptor_313	19	18	1	0.000	0.014	0.01	0.03	No
Receptor_314	18	17	1	0.000	0.014	0.01	0.03	No
Receptor_315	18	17	1	0.000	0.014	0.01	0.03	No
Receptor_316	17	16	1	0.000	0.014	0.01	0.03	No
Receptor_317	17	16	1	0.001	0.014	0.01	0.03	No
Receptor_318	16	15	1	0.001	0.014	0.01	0.03	No
Receptor_319	16	15	1	0.001	0.014	0.01	0.03	No
Receptor_320	16	15	1	0.001	0.014	0.01	0.03	No
Receptor_321	15	14	1	0.001	0.014	0.01	0.03	No
Receptor_322	15	14	1	0.001	0.014	0.01	0.03	No
Receptor_323	15	14	1	0.001	0.014	0.01	0.03	No
Receptor_324	15	13	1	0.001	0.014	0.01	0.03	No
Receptor_325	14	13	1	0.001	0.014	0.01	0.03	No
Receptor_326	14	13	1	0.001	0.014	0.01	0.03	No
Receptor_327	42	42	(0)	0.000	0.014	0.01	0.03	No

Maximum	44	62	6	0.003	0.014	0.017	0.03	No

	SO2 1-Hr (NAAQS)								SO2 1-Hr (CAAQS)							
Receptor ID	Project	NP	Project Increase (ug/m3)	Project Increase (ppm)	Ambient	Total	Threshold	Exceeds?	Project	NP	Project Increase (ug/m3)	Project Increase (ppm)	Ambient	Total	Threshold	Exceeds?
Receptor_1	54	49	4.45	0.002	0.008	0.01	0.075	No	66	60	6.47	0.002	0.012	0.01	0.250	No
Receptor_2	52	48	3.96	0.002	0.008	0.01	0.075	No	64	60	3.29	0.001	0.012	0.01	0.250	No
Receptor_3	54	47	6.69	0.003	0.008	0.01	0.075	No	61	56	5.86	0.002	0.012	0.01	0.250	No
Receptor_4	51	48	3.23	0.001	0.008	0.01	0.075	No	62	59	2.90	0.001	0.012	0.01	0.250	No
Receptor_5	50	47	3.25	0.001	0.008	0.01	0.075	No	61	60	1.25	0.000	0.012	0.01	0.250	No
Receptor_6	51	47	4.43	0.002	0.008	0.01	0.075	No	59	65	(6.39)	-0.002	0.012	0.01	0.250	No
Receptor_7	51	46	4.24	0.002	0.008	0.01	0.075	No	56	69	(12.29)	-0.005	0.012	0.01	0.250	No
Receptor_8	50	46	4.01	0.002	0.008	0.01	0.075	No	57	69	(12.18)	-0.005	0.012	0.01	0.250	No
Receptor_9	53	46	6.94	0.003	0.008	0.01	0.075	No	59	70	(10.70)	-0.004	0.012	0.01	0.250	No
Receptor_10	54	50	4.04	0.002	0.008	0.01	0.075	No	68	69	(1.13)	0.000	0.012	0.01	0.250	No
Receptor_11	55	47	7.66	0.003	0.008	0.01	0.075	No	77	66	11.24	0.004	0.012	0.02	0.250	No
Receptor_12	57	50	6.86	0.003	0.008	0.01	0.075	No	86	62	23.96	0.009	0.012	0.02	0.250	No
Receptor_13	58	52	6.13	0.002	0.008	0.01	0.075	No	93	64	28.96	0.011	0.012	0.02	0.250	No
Receptor_14	59	47	11.53	0.004	0.008	0.01	0.075	No	94	64	30.37	0.012	0.012	0.02	0.250	No
Receptor_15	55	49	5.47	0.002	0.008	0.01	0.075	No	86	58	28.76	0.011	0.012	0.02	0.250	No
Receptor_16	55	48	7.48	0.003	0.008	0.01	0.075	No	78	55	22.79	0.009	0.012	0.02	0.250	No
Receptor_17	61	49	11.99	0.005	0.008	0.01	0.075	No	76	59	17.29	0.007	0.012	0.02	0.250	No
Receptor_18	59	48	11.26	0.004	0.008	0.01	0.075	No	70	61	8.86	0.003	0.012	0.02	0.250	No
Receptor_19	58	47	10.74	0.004	0.008	0.01	0.075	No	68	60	8.20	0.003	0.012	0.02	0.250	No
Receptor_20	61	48	13.16	0.005	0.008	0.01	0.075	No	65	53	11.84	0.005	0.012	0.02	0.250	No
Receptor_21	55	49	5.88	0.002	0.008	0.01	0.075	No	66	64	2.57	0.001	0.012	0.01	0.250	No
Receptor_22	53	52	1.03	0.000	0.008	0.01	0.075	No	69	61	8.08	0.003	0.012	0.02	0.250	No
Receptor_23	54	49	5.64	0.002	0.008	0.01	0.075	No	67	60	6.92	0.003	0.012	0.01	0.250	No
Receptor_24	53	49	4.31	0.002	0.008	0.01	0.075	No	61	59	2.15	0.001	0.012	0.01	0.250	No
Receptor_25	54	46	8.26	0.003	0.008	0.01	0.075	No	58	55	3.06	0.001	0.012	0.01	0.250	No
Receptor_26	48	46	2.32	0.001	0.008	0.01	0.075	No	61	63	(1.97)	-0.001	0.012	0.01	0.250	No
Receptor_27	49	46	3.02	0.001	0.008	0.01	0.075	No	64	64	(0.46)	0.000	0.012	0.01	0.250	No
Receptor_28	49	53	(3.24)	-0.001	0.008	0.01	0.075	No	64	63	0.76	0.000	0.012	0.01	0.250	No
Receptor_29	50	47	3.57	0.001	0.008	0.01	0.075	No	66	65	0.59	0.000	0.012	0.01	0.250	No
Receptor_30	51	47	4.01	0.002	0.008	0.01	0.075	No	67	67	0.42	0.000	0.012	0.01	0.250	No
Receptor_31	52	49	3.35	0.001	0.008	0.01	0.075	No	69	68	0.19	0.000	0.012	0.01	0.250	No
Receptor_32	56	60	(3.66)	-0.001	0.008	0.01	0.075	No	70	68	1.90	0.001	0.012	0.01	0.250	No
Receptor_33	58	61	(3.91)	-0.001	0.008	0.01	0.075	No	72	70	2.05	0.001	0.012	0.01	0.250	No
Receptor_34	59	63	(4.07)	-0.002	0.008	0.01	0.075	No	74	72	2.21	0.001	0.012	0.01	0.250	No
Receptor_35	62	63	(0.29)	0.000	0.008	0.01	0.075	No	74	72	2.52	0.001	0.012	0.01	0.250	No
Receptor_36	66	58	8.00	0.003	0.008	0.01	0.075	No	77	76	0.96	0.000	0.012	0.01	0.250	No
Receptor_37	71	59	11.81	0.005	0.008	0.01	0.075	No	84	81	3.09	0.001	0.012	0.01	0.250	No
Receptor_38	70	57	13.01	0.005	0.008	0.01	0.075	No	89	92	(3.46)	-0.001	0.012	0.01	0.250	No
Receptor_39	75	67	8.05	0.003	0.008	0.01	0.075	No	92	94	(2.34)	-0.001	0.012	0.01	0.250	No
Receptor_40	78	71	7.46	0.003	0.008	0.01	0.075	No	96	98	(2.29)	-0.001	0.012	0.01	0.250	No
Receptor_41	84	72	11.24	0.004	0.008	0.01	0.075	No	99	100	(1.81)	-0.001	0.012	0.01	0.250	No
Receptor_42	86	73	12.93	0.005	0.008	0.01	0.075	No	102	82	19.96	0.008	0.012	0.02	0.250	No
Receptor_43	87	75	11.66	0.004	0.008	0.01	0.075	No	106	85	21.51	0.008	0.012	0.02	0.250	No
Receptor_44	87	75	11.73	0.004	0.008	0.01	0.075	No	113	90	23.69	0.009	0.012	0.02	0.250	No
Receptor_45	90	69	21.05	0.008	0.008	0.02	0.075	No	118	92	25.97	0.010	0.012	0.02	0.250	No
Receptor_46	92	80	11.86	0.005	0.008	0.01	0.075	No	121	96	25.88	0.010	0.012	0.02	0.250	No
Receptor_47	99	85	13.50	0.005	0.008	0.01	0.075	No	123	97	25.89	0.010	0.012	0.02	0.250	No
Receptor_48	97	84	12.32	0.005	0.008	0.01	0.075	No	129	101	27.93	0.011	0.012	0.02	0.250	No
Receptor_49	101	87	14.23	0.005	0.008	0.01	0.075	No	132	103	28.61	0.011	0.012	0.02	0.250	No
Receptor_50	108	90	18.24	0.007	0.008	0.01	0.075	No	140	109	30.87	0.012	0.012	0.02	0.250	No
Receptor_51	103	78	25.27	0.010	0.008	0.02	0.075	No	143	110	33.05	0.013	0.012	0.02	0.250	No
Receptor_52	98	74	24.38	0.009	0.008	0.02	0.075	No	141	108	33.02	0.013	0.012	0.02	0.250	No
Receptor_53	91	71	19.87	0.008	0.008	0.02	0.075	No	132	102	30.82	0.012	0.012	0.02	0.250	No
Receptor_54	84	71	13.14	0.005	0.008	0.01	0.075	No	122	94	27.64	0.011	0.012	0.02	0.250	No
Receptor_55	80	68	12.13	0.005	0.008	0.01	0.075	No	117	91	25.98	0.010	0.012	0.02	0.250	No
Receptor_56	78	68	10.06	0.004	0.008	0.01	0.075	No	108	76	32.17	0.012	0.012	0.02	0.250	No
Receptor_57	82	70	11.95	0.005	0.008	0.01	0.075	No	110	79	31.29	0.012	0.012	0.02	0.250	No
Receptor_58	85	73	12.61	0.005	0.008	0.01	0.075	No	113	82	30.14	0.012	0.012	0.02	0.250	No
Receptor_59	88	76	12.79	0.005	0.008	0.01	0.075	No	128	99	29.35	0.011	0.012	0.02	0.250	No
Receptor_60	91	79	12.24	0.005	0.008	0.01	0.075	No	132	102	30.18	0.012	0.012	0.02	0.250	No
Receptor_61	97	83	13.81	0.005	0.008	0.01	0.075	No	136	105	30.99	0.012	0.012	0.02	0.250	No
Receptor_62	101	85	16.36	0.006	0.008	0.01	0.075	No	139	108	31.62	0.012	0.012	0.02	0.250	No
Receptor_63	107	92	15.06	0.006	0.008	0.01	0.075	No	143	112	30.37	0.012	0.012	0.02	0.250	No
Receptor_64	113	96	16.97	0.006	0.008	0.01	0.075	No	146	123	23.50	0.009	0.012	0.02	0.250	No
Receptor_65	118	99	18.97	0.007	0.008	0.02	0.075	No	155	132	22.49	0.009	0.012	0.02	0.250	No
Receptor_66	121	107	13.60	0.005	0.008	0.01	0.075	No	163	116	46.84	0.018	0.012	0.03	0.250	No
Receptor_67	122	103	19.85	0.008	0.008	0.02	0.075	No	176	117	59.29	0.023	0.012	0.03	0.250	No
Receptor_68	123	105	18.13	0.007	0.008	0.01	0.075	No	188	118	69.93	0.027	0.012	0.04	0.250	No
Receptor_69	131	113	18.77	0.007	0.008	0.02	0.075	No	201	125	75.45	0.029	0.012	0.04	0.250	No
Receptor_70	135	110	24.90	0.010	0.008	0.02	0.075	No	199	128	71.21	0.027	0.012	0.04	0.250	No
Receptor_71	126	106	20.21	0.008	0.008	0.02	0.075	No	184	125	58.36	0.022	0.012	0.03	0.250	No
Receptor_72	119	100	19.23	0.007	0.008	0.02	0.075	No	167	114	53.04	0.020	0.012	0.03	0.250	No
Receptor_73	119	101	18.33	0.007	0.008	0.02	0.075	No	172	122	50.54	0.019	0.012	0.03	0.250	No
Receptor_74	125	109	15.88	0.006	0.008	0.01	0.075	No	173	127	45.49	0.017	0.012	0.03	0.250	No
Receptor_75	125	114	11.39	0.004	0.008	0.01	0.075	No	174	142	31.82	0.012	0.012	0.02	0.250	No
Receptor_76	132	123	9.20	0.004	0.008	0.01	0.075	No	190	155	34.39	0.013	0.012	0.03	0.250	No
Receptor_77	123	118	5.32	0.002	0.008	0.01	0.075	No	185	151	34.74	0.013	0.012	0.03	0.250	No
Receptor_78	117	105	11.19	0.004	0.008	0.01	0.075	No	176	141	34.38	0.013	0.012	0.03	0.250	No
Receptor_79	129	115	13.62	0.005	0.008	0.01	0.075	No	180	144	36.19	0.014	0.012	0.03	0.250	No
Receptor_80	149	123	26.47	0.010	0.008	0.02	0.075	No	182	144	37.75	0.014	0.012	0.03	0.250	No
Receptor_81	160	136	24.66	0.009	0.008	0.02	0.075	No	189	184	4.94	0.002	0.012	0.01	0.250	No
Receptor_82	147	125	22.75	0.009	0.008	0.02	0.075	No	172	165	7.09	0.003	0.012	0.01	0.250	No
Receptor_83	145	118	26.62	0.010	0.008	0.02	0.075	No	160	117	42.77	0.016	0.012	0.03	0.250	No
Receptor_84	128	112	15.70	0.006	0.008	0.01	0.075	No	154	148	6.70	0.003	0.012	0.01	0.250	No
Receptor_85	128	105	22.50	0.009	0.008	0.02	0.075	No	149	143	5.82	0.002	0.012	0.01	0.250	No

	SO2 1-Hr (NAAQS)								SO2 1-Hr (CAAQS)							
Receptor ID	Project	NP	Project Increase (ug/m3)	Project Increase (ppm)	Ambient	Total	Threshold	Exceeds?	Project	NP	Project Increase (ug/m3)	Project Increase (ppm)	Ambient	Total	Threshold	Exceeds?
Receptor_86	115	100	14.68	0.006	0.008	0.01	0.075	No	146	116	30.31	0.012	0.012	0.02	0.250	No
Receptor_87	115	100	14.22	0.005	0.008	0.01	0.075	No	135	129	5.62	0.002	0.012	0.01	0.250	No
Receptor_88	104	92	11.50	0.004	0.008	0.01	0.075	No	126	120	6.64	0.003	0.012	0.01	0.250	No
Receptor_89	102	90	12.82	0.005	0.008	0.01	0.075	No	119	86	32.41	0.012	0.012	0.02	0.250	No
Receptor_90	96	85	11.52	0.004	0.008	0.01	0.075	No	111	81	30.05	0.011	0.012	0.02	0.250	No
Receptor_91	90	80	10.23	0.004	0.008	0.01	0.075	No	105	77	27.73	0.011	0.012	0.02	0.250	No
Receptor_92	85	76	9.16	0.004	0.008	0.01	0.075	No	98	73	25.55	0.010	0.012	0.02	0.250	No
Receptor_93	86	74	11.78	0.005	0.008	0.01	0.075	No	103	82	20.77	0.008	0.012	0.02	0.250	No
Receptor_94	88	68	20.02	0.008	0.008	0.02	0.075	No	111	94	17.34	0.007	0.012	0.02	0.250	No
Receptor_95	86	76	10.51	0.004	0.008	0.01	0.075	No	120	89	30.53	0.012	0.012	0.02	0.250	No
Receptor_96	86	78	7.34	0.003	0.008	0.01	0.075	No	122	91	31.09	0.012	0.012	0.02	0.250	No
Receptor_97	85	79	6.64	0.003	0.008	0.01	0.075	No	117	89	28.64	0.011	0.012	0.02	0.250	No
Receptor_98	91	83	8.09	0.003	0.008	0.01	0.075	No	124	93	30.22	0.012	0.012	0.02	0.250	No
Receptor_99	96	87	9.03	0.003	0.008	0.01	0.075	No	130	98	31.92	0.012	0.012	0.02	0.250	No
Receptor_100	101	91	9.69	0.004	0.008	0.01	0.075	No	138	104	33.75	0.013	0.012	0.02	0.250	No
Receptor_101	104	90	13.78	0.005	0.008	0.01	0.075	No	126	100	26.11	0.010	0.012	0.02	0.250	No
Receptor_102	102	84	18.07	0.007	0.008	0.01	0.075	No	122	115	6.87	0.003	0.012	0.01	0.250	No
Receptor_103	105	88	16.90	0.006	0.008	0.01	0.075	No	132	115	16.46	0.006	0.012	0.02	0.250	No
Receptor_104	101	95	6.59	0.003	0.008	0.01	0.075	No	117	108	8.63	0.003	0.012	0.02	0.250	No
Receptor_105	107	100	6.50	0.002	0.008	0.01	0.075	No	131	105	26.51	0.010	0.012	0.02	0.250	No
Receptor_106	113	106	6.40	0.002	0.008	0.01	0.075	No	137	115	21.52	0.008	0.012	0.02	0.250	No
Receptor_107	120	113	6.99	0.003	0.008	0.01	0.075	No	142	127	15.20	0.006	0.012	0.02	0.250	No
Receptor_108	125	112	12.92	0.005	0.008	0.01	0.075	No	164	119	45.15	0.017	0.012	0.03	0.250	No
Receptor_109	125	101	23.53	0.009	0.008	0.02	0.075	No	163	120	42.98	0.016	0.012	0.03	0.250	No
Receptor_110	123	95	27.91	0.011	0.008	0.02	0.075	No	144	114	29.83	0.011	0.012	0.02	0.250	No
Receptor_111	114	88	25.91	0.010	0.008	0.02	0.075	No	134	108	25.47	0.010	0.012	0.02	0.250	No
Receptor_112	114	83	31.44	0.012	0.008	0.02	0.075	No	147	123	23.83	0.009	0.012	0.02	0.250	No
Receptor_113	109	89	20.52	0.008	0.008	0.02	0.075	No	151	118	32.46	0.012	0.012	0.02	0.250	No
Receptor_114	106	99	6.70	0.003	0.008	0.01	0.075	No	135	110	25.18	0.010	0.012	0.02	0.250	No
Receptor_115	107	94	12.89	0.005	0.008	0.01	0.075	No	143	110	33.85	0.013	0.012	0.02	0.250	No
Receptor_116	108	94	13.67	0.005	0.008	0.01	0.075	No	144	110	34.00	0.013	0.012	0.02	0.250	No
Receptor_117	115	100	15.15	0.006	0.008	0.01	0.075	No	152	117	34.64	0.013	0.012	0.03	0.250	No
Receptor_118	129	108	20.48	0.008	0.008	0.02	0.075	No	158	124	34.57	0.013	0.012	0.03	0.250	No
Receptor_119	145	119	26.28	0.010	0.008	0.02	0.075	No	162	128	34.17	0.013	0.012	0.03	0.250	No
Receptor_120	156	128	27.70	0.011	0.008	0.02	0.075	No	185	155	30.54	0.012	0.012	0.02	0.250	No
Receptor_121	161	127	33.73	0.013	0.008	0.02	0.075	No	203	145	57.59	0.022	0.012	0.03	0.250	No
Receptor_122	162	124	38.10	0.015	0.008	0.02	0.075	No	208	150	57.85	0.022	0.012	0.03	0.250	No
Receptor_123	149	117	32.78	0.013	0.008	0.02	0.075	No	201	147	53.78	0.021	0.012	0.03	0.250	No
Receptor_124	136	113	22.61	0.009	0.008	0.02	0.075	No	195	138	57.21	0.022	0.012	0.03	0.250	No
Receptor_125	163	117	46.69	0.018	0.008	0.03	0.075	No	198	135	63.58	0.024	0.012	0.04	0.250	No
Receptor_126	159	111	48.17	0.018	0.008	0.03	0.075	No	203	127	75.82	0.029	0.012	0.04	0.250	No
Receptor_127	138	106	31.53	0.012	0.008	0.02	0.075	No	166	114	52.66	0.020	0.012	0.03	0.250	No
Receptor_128	110	93	16.80	0.006	0.008	0.01	0.075	No	162	111	50.80	0.019	0.012	0.03	0.250	No
Receptor_129	110	95	15.15	0.006	0.008	0.01	0.075	No	154	118	35.58	0.014	0.012	0.03	0.250	No
Receptor_130	103	90	13.41	0.005	0.008	0.01	0.075	No	150	115	35.78	0.014	0.012	0.03	0.250	No
Receptor_131	98	83	14.54	0.006	0.008	0.01	0.075	No	142	100	42.76	0.016	0.012	0.03	0.250	No
Receptor_132	90	78	12.97	0.005	0.008	0.01	0.075	No	132	94	38.49	0.015	0.012	0.03	0.250	No
Receptor_133	85	75	9.33	0.004	0.008	0.01	0.075	No	123	89	34.85	0.013	0.012	0.03	0.250	No
Receptor_134	79	70	9.00	0.003	0.008	0.01	0.075	No	116	84	31.71	0.012	0.012	0.02	0.250	No
Receptor_135	75	67	7.63	0.003	0.008	0.01	0.075	No	109	80	28.94	0.011	0.012	0.02	0.250	No
Receptor_136	71	64	6.67	0.003	0.008	0.01	0.075	No	103	76	26.48	0.010	0.012	0.02	0.250	No
Receptor_137	67	68	(1.06)	0.000	0.008	0.01	0.075	No	97	73	24.30	0.009	0.012	0.02	0.250	No
Receptor_138	69	63	6.08	0.002	0.008	0.01	0.075	No	87	68	19.24	0.007	0.012	0.02	0.250	No
Receptor_139	69	61	8.58	0.003	0.008	0.01	0.075	No	85	76	9.71	0.004	0.012	0.02	0.250	No
Receptor_140	74	59	14.60	0.006	0.008	0.01	0.075	No	92	62	30.08	0.011	0.012	0.02	0.250	No
Receptor_141	72	59	13.06	0.005	0.008	0.01	0.075	No	106	62	44.39	0.017	0.012	0.03	0.250	No
Receptor_142	69	57	12.14	0.005	0.008	0.01	0.075	No	105	60	45.26	0.017	0.012	0.03	0.250	No
Receptor_143	65	60	5.27	0.002	0.008	0.01	0.075	No	108	68	39.73	0.015	0.012	0.03	0.250	No
Receptor_144	71	63	8.44	0.003	0.008	0.01	0.075	No	109	83	26.61	0.010	0.012	0.02	0.250	No
Receptor_145	81	64	17.35	0.007	0.008	0.01	0.075	No	122	90	32.68	0.012	0.012	0.02	0.250	No
Receptor_146	78	61	16.37	0.006	0.008	0.01	0.075	No	117	87	30.28	0.012	0.012	0.02	0.250	No
Receptor_147	73	60	12.46	0.005	0.008	0.01	0.075	No	111	83	27.58	0.011	0.012	0.02	0.250	No
Receptor_148	77	63	13.74	0.005	0.008	0.01	0.075	No	104	80	23.96	0.009	0.012	0.02	0.250	No
Receptor_149	85	66	19.02	0.007	0.008	0.02	0.075	No	106	71	35.66	0.014	0.012	0.03	0.250	No
Receptor_150	84	61	23.22	0.009	0.008	0.02	0.075	No	109	74	35.21	0.013	0.012	0.03	0.250	No
Receptor_151	75	59	16.22	0.006	0.008	0.01	0.075	No	107	77	29.84	0.011	0.012	0.02	0.250	No
Receptor_152	66	57	9.16	0.004	0.008	0.01	0.075	No	95	75	20.33	0.008	0.012	0.02	0.250	No
Receptor_153	66	57	8.32	0.003	0.008	0.01	0.075	No	82	62	19.72	0.008	0.012	0.02	0.250	No
Receptor_154	69	59	10.14	0.004	0.008	0.01	0.075	No	88	67	20.60	0.008	0.012	0.02	0.250	No
Receptor_155	68	57	10.87	0.004	0.008	0.01	0.075	No	95	77	18.18	0.007	0.012	0.02	0.250	No
Receptor_156	71	56	15.15	0.006	0.008	0.01	0.075	No	105	81	24.57	0.009	0.012	0.02	0.250	No
Receptor_157	79	64	15.28	0.006	0.008	0.01	0.075	No	116	86	30.43	0.012	0.012	0.02	0.250	No
Receptor_158	72	65	7.50	0.003	0.008	0.01	0.075	No	98	80	17.40	0.007	0.012	0.02	0.250	No
Receptor_159	76	68	8.52	0.003	0.008	0.01	0.075	No	103	85	18.41	0.007	0.012	0.02	0.250	No
Receptor_160	81	58	22.91	0.009	0.008	0.02	0.075	No	109	89	19.92	0.008	0.012	0.02	0.250	No
Receptor_161	90	65	25.36	0.010	0.008	0.02	0.075	No	118	95	22.79	0.009	0.012	0.02	0.250	No
Receptor_162	99	67	32.10	0.012	0.008	0.02	0.075	No	126	102	24.66	0.009	0.012	0.02	0.250	No
Receptor_163	109	69	40.05	0.015	0.008	0.02	0.075	No	135	109	26.75	0.010	0.012	0.02	0.250	No
Receptor_164	121	74	46.64	0.018	0.008	0.03	0.075	No	146	116	29.19	0.011	0.012	0.02	0.250	No
Receptor_165	134	84	50.08	0.019	0.008	0.03	0.075	No	157	125	31.96	0.012	0.012	0.02	0.250	No
Receptor_166	149	98	51.59	0.020	0.008	0.03	0.075	No	170	135	35.19	0.013	0.012	0.03	0.250	No
Receptor_167	168	115	53.13	0.020	0.008	0.03	0.075	No	185	146	38.93	0.015	0.012	0.03	0.250	No
Receptor_168	189	132	56.34	0.022	0.008	0.03	0.075	No	202	158	43.43	0.017	0.012	0.03	0.250	No
Receptor_169	199	143	56.61	0.022	0.008	0.03	0.075	No	214	167	47.24	0.018	0.012	0.03	0.250	No
Receptor_170	174	125	48.93	0.019	0.008	0.03	0.075	No	192	166	26.03	0.010	0.012	0.02	0.250	No

	SO2 1-Hr (NAAQS)								SO2 1-Hr (CAAQS)							
Receptor ID	**Project**	**NP**	**Project Increase (ug/m3)**	**Project Increase (ppm)**	**Ambient**	**Total**	**Threshold**	**Exceeds?**	**Project**	**NP**	**Project Increase (ug/m3)**	**Project Increase (ppm)**	**Ambient**	**Total**	**Threshold**	**Exceeds?**
Receptor_171	146	120	26.20	0.010	0.008	0.02	0.075	No	209	144	65.22	0.025	0.012	0.04	0.250	No
Receptor_172	137	112	25.19	0.010	0.008	0.02	0.075	No	200	123	76.75	0.029	0.012	0.04	0.250	No
Receptor_173	125	105	20.22	0.008	0.008	0.02	0.075	No	161	119	41.53	0.016	0.012	0.03	0.250	No
Receptor_174	119	103	16.28	0.006	0.008	0.01	0.075	No	157	123	34.32	0.013	0.012	0.03	0.250	No
Receptor_175	113	103	10.16	0.004	0.008	0.01	0.075	No	152	123	28.60	0.011	0.012	0.02	0.250	No
Receptor_176	109	101	7.48	0.003	0.008	0.01	0.075	No	146	113	33.11	0.013	0.012	0.02	0.250	No
Receptor_177	104	95	9.46	0.004	0.008	0.01	0.075	No	139	115	24.31	0.009	0.012	0.02	0.250	No
Receptor_178	98	82	15.72	0.006	0.008	0.01	0.075	No	131	109	21.35	0.008	0.012	0.02	0.250	No
Receptor_179	91	81	10.37	0.004	0.008	0.01	0.075	No	122	102	20.20	0.008	0.012	0.02	0.250	No
Receptor_180	84	78	6.55	0.003	0.008	0.01	0.075	No	113	97	16.15	0.006	0.012	0.02	0.250	No
Receptor_181	78	73	5.30	0.002	0.008	0.01	0.075	No	104	89	15.11	0.006	0.012	0.02	0.250	No
Receptor_182	71	70	1.33	0.001	0.008	0.01	0.075	No	95	84	11.77	0.004	0.012	0.02	0.250	No
Receptor_183	66	72	(6.11)	-0.002	0.008	0.01	0.075	No	89	90	(1.42)	-0.001	0.012	0.01	0.250	No
Receptor_184	71	72	(0.90)	0.000	0.008	0.01	0.075	No	91	99	(7.28)	-0.003	0.012	0.01	0.250	No
Receptor_185	81	75	5.94	0.002	0.008	0.01	0.075	No	89	84	4.70	0.002	0.012	0.01	0.250	No
Receptor_186	81	77	4.77	0.002	0.008	0.01	0.075	No	102	88	14.16	0.005	0.012	0.02	0.250	No
Receptor_187	79	81	(1.60)	-0.001	0.008	0.01	0.075	No	88	87	1.06	0.000	0.012	0.01	0.250	No
Receptor_188	66	79	(12.63)	-0.005	0.008	0.01	0.075	No	73	98	(25.02)	-0.010	0.012	0.01	0.250	No
Receptor_189	61	79	(17.24)	-0.007	0.008	0.01	0.075	No	76	105	(29.03)	-0.011	0.012	0.01	0.250	No
Receptor_190	64	82	(17.98)	-0.007	0.008	0.01	0.075	No	76	106	(29.93)	-0.011	0.012	0.01	0.250	No
Receptor_191	58	75	(16.66)	-0.006	0.008	0.01	0.075	No	71	98	(26.51)	-0.010	0.012	0.01	0.250	No
Receptor_192	56	68	(11.69)	-0.004	0.008	0.01	0.075	No	68	98	(30.11)	-0.012	0.012	0.01	0.250	No
Receptor_193	55	63	(8.95)	-0.003	0.008	0.01	0.075	No	69	91	(22.69)	-0.009	0.012	0.01	0.250	No
Receptor_194	52	56	(4.31)	-0.002	0.008	0.01	0.075	No	65	85	(19.23)	-0.007	0.012	0.01	0.250	No
Receptor_195	53	55	(1.88)	-0.001	0.008	0.01	0.075	No	67	78	(11.16)	-0.004	0.012	0.01	0.250	No
Receptor_196	51	51	(0.17)	0.000	0.008	0.01	0.075	No	76	73	2.50	0.001	0.012	0.01	0.250	No
Receptor_197	55	55	(0.46)	0.000	0.008	0.01	0.075	No	82	69	13.14	0.005	0.012	0.02	0.250	No
Receptor_198	60	55	4.78	0.002	0.008	0.01	0.075	No	84	65	19.71	0.008	0.012	0.02	0.250	No
Receptor_199	62	52	10.08	0.004	0.008	0.01	0.075	No	83	61	21.88	0.008	0.012	0.02	0.250	No
Receptor_200	63	51	11.64	0.004	0.008	0.01	0.075	No	83	59	24.40	0.009	0.012	0.02	0.250	No
Receptor_201	62	50	11.83	0.005	0.008	0.01	0.075	No	80	55	25.17	0.010	0.012	0.02	0.250	No
Receptor_202	60	49	11.04	0.004	0.008	0.01	0.075	No	78	56	21.92	0.008	0.012	0.02	0.250	No
Receptor_203	58	49	9.34	0.004	0.008	0.01	0.075	No	76	58	17.80	0.007	0.012	0.02	0.250	No
Receptor_204	56	47	8.66	0.003	0.008	0.01	0.075	No	73	59	14.62	0.006	0.012	0.02	0.250	No
Receptor_205	53	45	8.33	0.003	0.008	0.01	0.075	No	71	59	12.77	0.005	0.012	0.02	0.250	No
Receptor_206	51	43	8.01	0.003	0.008	0.01	0.075	No	69	57	12.39	0.005	0.012	0.02	0.250	No
Receptor_207	49	42	7.55	0.003	0.008	0.01	0.075	No	67	54	13.34	0.005	0.012	0.02	0.250	No
Receptor_208	47	41	6.45	0.002	0.008	0.01	0.075	No	65	49	15.60	0.006	0.012	0.02	0.250	No
Receptor_209	46	42	3.87	0.001	0.008	0.01	0.075	No	64	46	17.81	0.007	0.012	0.02	0.250	No
Receptor_210	44	44	(0.37)	0.000	0.008	0.01	0.075	No	63	46	17.70	0.007	0.012	0.02	0.250	No
Receptor_211	40	42	(1.82)	-0.001	0.008	0.01	0.075	No	62	48	13.18	0.005	0.012	0.02	0.250	No
Receptor_212	41	52	(10.49)	-0.004	0.008	0.01	0.075	No	57	62	(5.48)	-0.002	0.012	0.01	0.250	No
Receptor_213	41	55	(13.69)	-0.005	0.008	0.01	0.075	No	62	59	3.14	0.001	0.012	0.01	0.250	No
Receptor_214	45	58	(12.96)	-0.005	0.008	0.01	0.075	No	68	60	7.31	0.003	0.012	0.01	0.250	No
Receptor_215	43	62	(18.90)	-0.007	0.008	0.01	0.075	No	71	64	6.49	0.002	0.012	0.01	0.250	No
Receptor_216	48	65	(17.42)	-0.007	0.008	0.01	0.075	No	69	69	(0.28)	0.000	0.012	0.01	0.250	No
Receptor_217	47	68	(20.58)	-0.008	0.008	0.01	0.075	No	78	70	7.85	0.003	0.012	0.01	0.250	No
Receptor_218	47	70	(22.89)	-0.009	0.008	0.01	0.075	No	79	71	7.64	0.003	0.012	0.01	0.250	No
Receptor_219	49	75	(25.18)	-0.010	0.008	0.01	0.075	No	83	75	7.69	0.003	0.012	0.01	0.250	No
Receptor_220	51	79	(27.06)	-0.010	0.008	0.01	0.075	No	85	87	(1.88)	-0.001	0.012	0.01	0.250	No
Receptor_221	54	81	(27.37)	-0.010	0.008	0.01	0.075	No	83	101	(18.11)	-0.007	0.012	0.01	0.250	No
Receptor_222	59	82	(22.55)	-0.009	0.008	0.01	0.075	No	77	112	(34.85)	-0.013	0.012	0.01	0.250	No
Receptor_223	59	81	(21.73)	-0.008	0.008	0.01	0.075	No	77	114	(37.49)	-0.014	0.012	0.01	0.250	No
Receptor_224	59	80	(20.27)	-0.008	0.008	0.01	0.075	No	78	111	(32.45)	-0.012	0.012	0.01	0.250	No
Receptor_225	60	83	(22.33)	-0.009	0.008	0.01	0.075	No	73	106	(33.09)	-0.013	0.012	0.01	0.250	No
Receptor_226	59	76	(17.26)	-0.007	0.008	0.01	0.075	No	71	99	(27.22)	-0.010	0.012	0.01	0.250	No
Receptor_227	65	90	(25.49)	-0.010	0.008	0.01	0.075	No	78	117	(39.24)	-0.015	0.012	0.01	0.250	No
Receptor_228	73	96	(23.25)	-0.009	0.008	0.01	0.075	No	90	134	(43.50)	-0.017	0.012	0.01	0.250	No
Receptor_229	80	109	(28.73)	-0.011	0.008	0.01	0.075	No	102	155	(52.98)	-0.020	0.012	0.01	0.250	No
Receptor_230	77	111	(33.89)	-0.013	0.008	0.01	0.075	No	97	161	(64.46)	-0.025	0.012	0.01	0.250	No
Receptor_231	75	111	(36.41)	-0.014	0.008	0.01	0.075	No	104	158	(53.54)	-0.020	0.012	0.01	0.250	No
Receptor_232	77	130	(53.62)	-0.020	0.008	0.01	0.075	No	118	172	(54.55)	-0.021	0.012	0.01	0.250	No
Receptor_233	83	148	(65.15)	-0.025	0.008	0.01	0.075	No	135	187	(52.78)	-0.020	0.012	0.01	0.250	No
Receptor_234	89	146	(57.21)	-0.022	0.008	0.01	0.075	No	154	200	(46.28)	-0.018	0.012	0.01	0.250	No
Receptor_235	92	168	(75.94)	-0.029	0.008	0.01	0.075	No	144	238	(94.12)	-0.036	0.012	0.01	0.250	No
Receptor_236	104	206	(102.39)	-0.039	0.008	0.01	0.075	No	180	239	(58.68)	-0.022	0.012	0.01	0.250	No
Receptor_237	103	178	(74.95)	-0.029	0.008	0.01	0.075	No	166	213	(47.23)	-0.018	0.012	0.01	0.250	No
Receptor_238	101	161	(60.12)	-0.023	0.008	0.01	0.075	No	132	195	(63.24)	-0.024	0.012	0.01	0.250	No
Receptor_239	100	149	(48.95)	-0.019	0.008	0.01	0.075	No	117	174	(56.53)	-0.022	0.012	0.01	0.250	No
Receptor_240	103	150	(47.38)	-0.018	0.008	0.01	0.075	No	137	240	(102.59)	-0.039	0.012	0.01	0.250	No
Receptor_241	94	138	(44.33)	-0.017	0.008	0.01	0.075	No	142	215	(72.57)	-0.028	0.012	0.01	0.250	No
Receptor_242	90	132	(41.18)	-0.016	0.008	0.01	0.075	No	140	191	(51.43)	-0.020	0.012	0.01	0.250	No
Receptor_243	81	121	(39.35)	-0.015	0.008	0.01	0.075	No	132	171	(39.66)	-0.015	0.012	0.01	0.250	No
Receptor_244	81	112	(31.34)	-0.012	0.008	0.01	0.075	No	120	155	(35.22)	-0.013	0.012	0.01	0.250	No
Receptor_245	75	101	(26.41)	-0.010	0.008	0.01	0.075	No	99	135	(36.15)	-0.014	0.012	0.01	0.250	No
Receptor_246	80	98	(18.06)	-0.007	0.008	0.01	0.075	No	118	108	9.90	0.004	0.012	0.02	0.250	No
Receptor_247	96	94	2.38	0.001	0.008	0.01	0.075	No	145	105	39.82	0.015	0.012	0.03	0.250	No
Receptor_248	89	86	3.30	0.001	0.008	0.01	0.075	No	149	104	44.29	0.017	0.012	0.03	0.250	No
Receptor_249	80	84	(3.58)	-0.001	0.008	0.01	0.075	No	115	102	12.70	0.005	0.012	0.02	0.250	No
Receptor_250	75	89	(13.77)	-0.005	0.008	0.01	0.075	No	100	99	1.48	0.001	0.012	0.01	0.250	No
Receptor_251	84	78	5.51	0.002	0.008	0.01	0.075	No	109	109	0.09	0.000	0.012	0.01	0.250	No
Receptor_252	99	69	29.92	0.011	0.008	0.02	0.075	No	110	105	5.03	0.002	0.012	0.01	0.250	No
Receptor_253	106	72	34.11	0.013	0.008	0.02	0.075	No	115	107	8.17	0.003	0.012	0.02	0.250	No
Receptor_254	114	75	38.58	0.015	0.008	0.02	0.075	No	123	110	13.91	0.005	0.012	0.02	0.250	No
Receptor_255	122	78	43.85	0.017	0.008	0.02	0.075	No	132	112	20.57	0.008	0.012	0.02	0.250	No

	SO2 1-Hr (NAAQS)								SO2 1-Hr (CAAQS)							
Receptor ID	Project	NP	Project Increase (ug/m3)	Project Increase (ppm)	Ambient	Total	Threshold	Exceeds?	Project	NP	Project Increase (ug/m3)	Project Increase (ppm)	Ambient	Total	Threshold	Exceeds?
Receptor_256	117	79	37.59	0.014	0.008	0.02	0.075	No	134	121	13.42	0.005	0.012	0.02	0.250	No
Receptor_257	101	93	8.40	0.003	0.008	0.01	0.075	No	128	125	3.64	0.001	0.012	0.01	0.250	No
Receptor_258	111	94	16.46	0.006	0.008	0.01	0.075	No	140	130	9.64	0.004	0.012	0.02	0.250	No
Receptor_259	126	84	42.02	0.016	0.008	0.02	0.075	No	142	125	17.20	0.007	0.012	0.02	0.250	No
Receptor_260	129	81	48.61	0.019	0.008	0.03	0.075	No	140	113	27.04	0.010	0.012	0.02	0.250	No
Receptor_261	134	83	51.36	0.020	0.008	0.03	0.075	No	145	114	31.51	0.012	0.012	0.02	0.250	No
Receptor_262	138	85	53.23	0.020	0.008	0.03	0.075	No	155	115	40.15	0.015	0.012	0.03	0.250	No
Receptor_263	123	80	43.17	0.016	0.008	0.02	0.075	No	148	95	53.03	0.020	0.012	0.03	0.250	No
Receptor_264	105	77	27.22	0.010	0.008	0.02	0.075	No	129	88	40.62	0.016	0.012	0.03	0.250	No
Receptor_265	92	72	19.53	0.007	0.008	0.02	0.075	No	113	94	19.17	0.007	0.012	0.02	0.250	No
Receptor_266	85	70	15.16	0.006	0.008	0.01	0.075	No	103	84	18.48	0.007	0.012	0.02	0.250	No
Receptor_267	86	69	16.95	0.006	0.008	0.01	0.075	No	104	84	19.87	0.008	0.012	0.02	0.250	No
Receptor_268	86	71	15.74	0.006	0.008	0.01	0.075	No	105	83	21.62	0.008	0.012	0.02	0.250	No
Receptor_269	86	69	17.16	0.007	0.008	0.01	0.075	No	107	83	23.72	0.009	0.012	0.02	0.250	No
Receptor_270	86	74	12.12	0.005	0.008	0.01	0.075	No	114	85	29.29	0.011	0.012	0.02	0.250	No
Receptor_271	89	79	10.37	0.004	0.008	0.01	0.075	No	109	87	21.99	0.008	0.012	0.02	0.250	No
Receptor_272	92	74	17.06	0.007	0.008	0.01	0.075	No	111	89	21.38	0.008	0.012	0.02	0.250	No
Receptor_273	90	70	19.66	0.008	0.008	0.02	0.075	No	112	91	20.98	0.008	0.012	0.02	0.250	No
Receptor_274	91	71	20.10	0.008	0.008	0.02	0.075	No	114	93	20.82	0.008	0.012	0.02	0.250	No
Receptor_275	97	85	12.46	0.005	0.008	0.01	0.075	No	115	94	20.92	0.008	0.012	0.02	0.250	No
Receptor_276	98	87	11.02	0.004	0.008	0.01	0.075	No	116	95	21.18	0.008	0.012	0.02	0.250	No
Receptor_277	99	78	20.85	0.008	0.008	0.02	0.075	No	117	95	21.77	0.008	0.012	0.02	0.250	No
Receptor_278	99	77	22.38	0.009	0.008	0.02	0.075	No	118	95	23.17	0.009	0.012	0.02	0.250	No
Receptor_279	99	78	20.87	0.008	0.008	0.02	0.075	No	126	95	31.37	0.012	0.012	0.02	0.250	No
Receptor_280	104	80	23.98	0.009	0.008	0.02	0.075	No	128	94	33.75	0.013	0.012	0.02	0.250	No
Receptor_281	108	82	26.53	0.010	0.008	0.02	0.075	No	122	94	27.33	0.010	0.012	0.02	0.250	No
Receptor_282	111	86	25.58	0.010	0.008	0.02	0.075	No	123	95	28.18	0.011	0.012	0.02	0.250	No
Receptor_283	107	84	22.92	0.009	0.008	0.02	0.075	No	128	96	32.41	0.012	0.012	0.02	0.250	No
Receptor_284	112	82	29.83	0.011	0.008	0.02	0.075	No	133	103	30.39	0.012	0.012	0.02	0.250	No
Receptor_285	115	84	30.47	0.012	0.008	0.02	0.075	No	136	103	32.80	0.013	0.012	0.02	0.250	No
Receptor_286	124	92	32.34	0.012	0.008	0.02	0.075	No	146	107	39.03	0.015	0.012	0.03	0.250	No
Receptor_287	132	104	28.23	0.011	0.008	0.02	0.075	No	158	111	46.49	0.018	0.012	0.03	0.250	No
Receptor_288	143	98	44.74	0.017	0.008	0.03	0.075	No	180	117	62.34	0.024	0.012	0.04	0.250	No
Receptor_289	144	96	48.53	0.019	0.008	0.03	0.075	No	181	120	61.18	0.023	0.012	0.04	0.250	No
Receptor_290	139	99	40.16	0.015	0.008	0.02	0.075	No	165	122	43.48	0.017	0.012	0.03	0.250	No
Receptor_291	138	95	42.93	0.016	0.008	0.02	0.075	No	162	111	51.49	0.020	0.012	0.03	0.250	No
Receptor_292	132	91	40.57	0.015	0.008	0.02	0.075	No	157	105	52.09	0.020	0.012	0.03	0.250	No
Receptor_293	126	94	31.34	0.012	0.008	0.02	0.075	No	162	122	40.42	0.015	0.012	0.03	0.250	No
Receptor_294	131	91	39.97	0.015	0.008	0.02	0.075	No	174	138	36.52	0.014	0.012	0.03	0.250	No
Receptor_295	135	95	40.44	0.015	0.008	0.02	0.075	No	189	140	49.03	0.019	0.012	0.03	0.250	No
Receptor_296	139	118	21.32	0.008	0.008	0.02	0.075	No	195	150	44.56	0.017	0.012	0.03	0.250	No
Receptor_297	140	103	37.44	0.014	0.008	0.02	0.075	No	210	159	50.86	0.019	0.012	0.03	0.250	No
Receptor_298	143	107	36.21	0.014	0.008	0.02	0.075	No	227	168	58.75	0.022	0.012	0.03	0.250	No
Receptor_299	143	113	29.81	0.011	0.008	0.02	0.075	No	248	181	67.27	0.026	0.012	0.04	0.250	No
Receptor_300	152	114	37.76	0.014	0.008	0.02	0.075	No	245	172	73.06	0.028	0.012	0.04	0.250	No
Receptor_301	163	117	46.18	0.018	0.008	0.03	0.075	No	215	139	75.88	0.029	0.012	0.04	0.250	No
Receptor_302	168	114	53.91	0.021	0.008	0.03	0.075	No	190	127	62.92	0.024	0.012	0.04	0.250	No
Receptor_303	166	105	60.96	0.023	0.008	0.03	0.075	No	199	124	74.21	0.028	0.012	0.04	0.250	No
Receptor_304	174	105	68.74	0.026	0.008	0.03	0.075	No	210	111	99.70	0.038	0.012	0.05	0.250	No
Receptor_305	187	102	84.46	0.032	0.008	0.04	0.075	No	239	107	132.57	0.051	0.012	0.06	0.250	No
Receptor_306	158	100	58.24	0.022	0.008	0.03	0.075	No	196	121	74.95	0.029	0.012	0.04	0.250	No
Receptor_307	142	96	45.81	0.018	0.008	0.03	0.075	No	179	127	52.34	0.020	0.012	0.03	0.250	No
Receptor_308	132	97	35.16	0.013	0.008	0.02	0.075	No	151	103	48.25	0.018	0.012	0.03	0.250	No
Receptor_309	123	92	30.39	0.012	0.008	0.02	0.075	No	151	103	47.08	0.018	0.012	0.03	0.250	No
Receptor_310	113	87	26.01	0.010	0.008	0.02	0.075	No	148	96	52.06	0.020	0.012	0.03	0.250	No
Receptor_311	107	85	22.34	0.009	0.008	0.02	0.075	No	143	98	45.32	0.017	0.012	0.03	0.250	No
Receptor_312	97	78	18.94	0.007	0.008	0.02	0.075	No	137	101	36.54	0.014	0.012	0.03	0.250	No
Receptor_313	92	76	16.36	0.006	0.008	0.01	0.075	No	130	101	29.17	0.011	0.012	0.02	0.250	No
Receptor_314	88	76	11.89	0.005	0.008	0.01	0.075	No	123	99	23.85	0.009	0.012	0.02	0.250	No
Receptor_315	82	74	7.78	0.003	0.008	0.01	0.075	No	116	96	20.86	0.008	0.012	0.02	0.250	No
Receptor_316	79	74	5.11	0.002	0.008	0.01	0.075	No	110	90	19.95	0.008	0.012	0.02	0.250	No
Receptor_317	76	74	2.09	0.001	0.008	0.01	0.075	No	104	85	18.91	0.007	0.012	0.02	0.250	No
Receptor_318	72	73	(0.63)	0.000	0.008	0.01	0.075	No	99	82	16.65	0.006	0.012	0.02	0.250	No
Receptor_319	69	72	(2.59)	-0.001	0.008	0.01	0.075	No	95	80	15.01	0.006	0.012	0.02	0.250	No
Receptor_320	66	69	(3.24)	-0.001	0.008	0.01	0.075	No	91	77	13.79	0.005	0.012	0.02	0.250	No
Receptor_321	63	66	(2.16)	-0.001	0.008	0.01	0.075	No	87	74	12.98	0.005	0.012	0.02	0.250	No
Receptor_322	61	60	0.90	0.000	0.008	0.01	0.075	No	83	70	12.75	0.005	0.012	0.02	0.250	No
Receptor_323	60	56	4.07	0.002	0.008	0.01	0.075	No	79	68	11.24	0.004	0.012	0.02	0.250	No
Receptor_324	58	53	5.38	0.002	0.008	0.01	0.075	No	75	66	8.87	0.003	0.012	0.02	0.250	No
Receptor_325	57	52	4.30	0.002	0.008	0.01	0.075	No	72	65	7.16	0.003	0.012	0.01	0.250	No
Receptor_326	55	51	3.94	0.002	0.008	0.01	0.075	No	69	62	7.05	0.003	0.012	0.01	0.250	No
Receptor_327	130	113	17.11	0.007	0.008	0.01	0.075	No	193	135	57.81	0.022	0.012	0.03	0.250	No
Maximum	199.1	205.9	84.5	0.032	0.008	0.04	0.075	No	248.4	239.8	132.6	0.051	0.012	0.063	0.250	No

	SO2 3-Hr								SO2 24-Hr							
Receptor ID	**Project**	**NP**	**Project Increase (ug/m3)**	**Project Increase (ppm)**	**Ambient**	**Total**	**Threshold**	**Exceeds?**	**Project**	**NP**	**Project Increase (ug/m3)**	**Project Increase (ppm)**	**Ambient**	**Total**	**Threshold**	**Exceeds?**
Receptor_1	36	30	5.96	0.002	0.015	0.02	0.50	No	11	10	0.70	0.000	0.006	0.01	0.04	No
Receptor_2	39	35	3.99	0.002	0.015	0.02	0.50	No	11	11	0.67	0.000	0.006	0.01	0.04	No
Receptor_3	41	38	2.29	0.001	0.015	0.02	0.50	No	12	11	0.56	0.000	0.006	0.01	0.04	No
Receptor_4	41	40	1.06	0.000	0.015	0.02	0.50	No	12	12	0.42	0.000	0.006	0.01	0.04	No
Receptor_5	41	41	0.16	0.000	0.015	0.02	0.50	No	12	12	0.27	0.000	0.006	0.01	0.04	No
Receptor_6	40	40	(0.46)	0.000	0.015	0.02	0.50	No	12	12	0.16	0.000	0.006	0.01	0.04	No
Receptor_7	38	39	(0.76)	0.000	0.015	0.02	0.50	No	12	12	0.11	0.000	0.006	0.01	0.04	No
Receptor_8	38	31	7.12	0.003	0.015	0.02	0.50	No	12	12	0.13	0.000	0.006	0.01	0.04	No
Receptor_9	38	31	6.89	0.003	0.015	0.02	0.50	No	12	12	0.21	0.000	0.006	0.01	0.04	No
Receptor_10	38	32	6.54	0.002	0.015	0.02	0.50	No	12	11	0.35	0.000	0.006	0.01	0.04	No
Receptor_11	39	33	5.86	0.002	0.015	0.02	0.50	No	12	11	0.53	0.000	0.006	0.01	0.04	No
Receptor_12	40	32	8.31	0.003	0.015	0.02	0.50	No	11	12	(0.28)	0.000	0.006	0.01	0.04	No
Receptor_13	43	33	10.00	0.004	0.015	0.02	0.50	No	12	12	(0.12)	0.000	0.006	0.01	0.04	No
Receptor_14	45	34	11.31	0.004	0.015	0.02	0.50	No	12	12	0.16	0.000	0.006	0.01	0.04	No
Receptor_15	48	39	9.52	0.004	0.015	0.02	0.50	No	12	12	0.52	0.000	0.006	0.01	0.04	No
Receptor_16	51	40	10.56	0.004	0.015	0.02	0.50	No	13	12	0.89	0.000	0.006	0.01	0.04	No
Receptor_17	51	39	11.05	0.004	0.015	0.02	0.50	No	13	12	1.22	0.000	0.006	0.01	0.04	No
Receptor_18	47	37	10.74	0.004	0.015	0.02	0.50	No	13	11	1.44	0.001	0.006	0.01	0.04	No
Receptor_19	42	32	9.64	0.004	0.015	0.02	0.50	No	12	11	1.51	0.001	0.006	0.01	0.04	No
Receptor_20	41	28	12.64	0.005	0.015	0.02	0.50	No	12	10	1.41	0.001	0.006	0.01	0.04	No
Receptor_21	40	28	11.99	0.005	0.015	0.02	0.50	No	11	10	1.16	0.000	0.006	0.01	0.04	No
Receptor_22	37	27	10.79	0.004	0.015	0.02	0.50	No	10	9	0.84	0.000	0.006	0.01	0.04	No
Receptor_23	36	33	3.28	0.001	0.015	0.02	0.50	No	8	8	0.52	0.000	0.006	0.01	0.04	No
Receptor_24	37	34	3.94	0.002	0.015	0.02	0.50	No	8	6	1.59	0.001	0.006	0.01	0.04	No
Receptor_25	39	34	4.65	0.002	0.015	0.02	0.50	No	7	6	1.17	0.000	0.006	0.01	0.04	No
Receptor_26	39	34	5.33	0.002	0.015	0.02	0.50	No	7	6	1.33	0.001	0.006	0.01	0.04	No
Receptor_27	39	34	5.89	0.002	0.015	0.02	0.50	No	7	6	1.22	0.000	0.006	0.01	0.04	No
Receptor_28	39	32	6.25	0.002	0.015	0.02	0.50	No	6	5	1.13	0.000	0.006	0.01	0.04	No
Receptor_29	40	33	6.33	0.002	0.015	0.02	0.50	No	7	6	1.19	0.000	0.006	0.01	0.04	No
Receptor_30	41	34	6.38	0.002	0.015	0.02	0.50	No	7	6	1.26	0.000	0.006	0.01	0.04	No
Receptor_31	42	35	6.40	0.002	0.015	0.02	0.50	No	7	6	1.34	0.001	0.006	0.01	0.04	No
Receptor_32	42	35	7.13	0.003	0.015	0.02	0.50	No	7	6	1.27	0.000	0.006	0.01	0.04	No
Receptor_33	43	35	7.32	0.003	0.015	0.02	0.50	No	7	6	1.32	0.001	0.006	0.01	0.04	No
Receptor_34	44	36	7.52	0.003	0.015	0.02	0.50	No	7	6	1.38	0.001	0.006	0.01	0.04	No
Receptor_35	47	39	7.53	0.003	0.015	0.02	0.50	No	7	6	1.38	0.001	0.006	0.01	0.04	No
Receptor_36	51	42	9.09	0.003	0.015	0.02	0.50	No	8	7	0.56	0.000	0.006	0.01	0.04	No
Receptor_37	54	44	10.79	0.004	0.015	0.02	0.50	No	8	8	0.59	0.000	0.006	0.01	0.04	No
Receptor_38	57	45	12.43	0.005	0.015	0.02	0.50	No	9	8	0.58	0.000	0.006	0.01	0.04	No
Receptor_39	58	45	13.75	0.005	0.015	0.02	0.50	No	9	8	0.54	0.000	0.006	0.01	0.04	No
Receptor_40	61	47	14.20	0.005	0.015	0.02	0.50	No	9	9	0.61	0.000	0.006	0.01	0.04	No
Receptor_41	63	48	14.99	0.006	0.015	0.02	0.50	No	10	9	0.62	0.000	0.006	0.01	0.04	No
Receptor_42	64	49	15.77	0.006	0.015	0.02	0.50	No	10	8	1.91	0.001	0.006	0.01	0.04	No
Receptor_43	62	46	15.84	0.006	0.015	0.02	0.50	No	10	8	1.96	0.001	0.006	0.01	0.04	No
Receptor_44	61	45	16.09	0.006	0.015	0.02	0.50	No	11	9	2.09	0.001	0.006	0.01	0.04	No
Receptor_45	60	54	6.14	0.002	0.015	0.02	0.50	No	11	9	2.21	0.001	0.006	0.01	0.04	No
Receptor_46	65	48	17.17	0.007	0.015	0.02	0.50	No	12	9	2.28	0.001	0.006	0.01	0.04	No
Receptor_47	70	52	17.99	0.007	0.015	0.02	0.50	No	12	10	2.33	0.001	0.006	0.01	0.04	No
Receptor_48	68	50	18.16	0.007	0.015	0.02	0.50	No	13	10	2.45	0.001	0.006	0.01	0.04	No
Receptor_49	72	53	18.84	0.007	0.015	0.02	0.50	No	13	10	2.52	0.001	0.006	0.01	0.04	No
Receptor_50	73	53	19.52	0.007	0.015	0.02	0.50	No	14	11	2.71	0.001	0.006	0.01	0.04	No
Receptor_51	71	63	7.58	0.003	0.015	0.02	0.50	No	14	11	2.76	0.001	0.006	0.01	0.04	No
Receptor_52	70	62	7.72	0.003	0.015	0.02	0.50	No	14	11	2.76	0.001	0.006	0.01	0.04	No
Receptor_53	67	59	7.35	0.003	0.015	0.02	0.50	No	13	10	2.64	0.001	0.006	0.01	0.04	No
Receptor_54	62	56	6.67	0.003	0.015	0.02	0.50	No	12	10	2.50	0.001	0.006	0.01	0.04	No
Receptor_55	60	53	6.26	0.002	0.015	0.02	0.50	No	12	10	2.39	0.001	0.006	0.01	0.04	No
Receptor_56	61	53	7.09	0.003	0.015	0.02	0.50	No	12	9	2.30	0.001	0.006	0.01	0.04	No
Receptor_57	63	56	7.18	0.003	0.015	0.02	0.50	No	12	10	2.40	0.001	0.006	0.01	0.04	No
Receptor_58	65	58	7.29	0.003	0.015	0.02	0.50	No	13	10	2.50	0.001	0.006	0.01	0.04	No
Receptor_59	65	58	7.13	0.003	0.015	0.02	0.50	No	13	11	2.70	0.001	0.006	0.01	0.04	No
Receptor_60	69	61	7.60	0.003	0.015	0.02	0.50	No	14	11	2.85	0.001	0.006	0.01	0.04	No
Receptor_61	73	65	7.73	0.003	0.015	0.02	0.50	No	15	12	3.01	0.001	0.006	0.01	0.04	No
Receptor_62	76	68	7.95	0.003	0.015	0.02	0.50	No	16	12	3.19	0.001	0.006	0.01	0.04	No
Receptor_63	80	72	8.25	0.003	0.015	0.02	0.50	No	16	13	3.39	0.001	0.006	0.01	0.04	No
Receptor_64	83	75	8.61	0.003	0.015	0.02	0.50	No	18	14	3.61	0.001	0.006	0.01	0.04	No
Receptor_65	84	75	8.93	0.003	0.015	0.02	0.50	No	18	14	3.68	0.001	0.006	0.01	0.04	No
Receptor_66	85	75	9.23	0.004	0.015	0.02	0.50	No	18	15	3.72	0.001	0.006	0.01	0.04	No
Receptor_67	90	63	27.02	0.010	0.015	0.03	0.50	No	18	15	3.67	0.001	0.006	0.01	0.04	No
Receptor_68	96	66	30.06	0.011	0.015	0.03	0.50	No	19	14	4.77	0.002	0.006	0.01	0.04	No
Receptor_69	103	71	32.35	0.012	0.015	0.03	0.50	No	21	15	5.33	0.002	0.006	0.01	0.04	No
Receptor_70	102	69	33.45	0.013	0.015	0.03	0.50	No	20	16	4.82	0.002	0.006	0.01	0.04	No
Receptor_71	100	69	30.40	0.012	0.015	0.03	0.50	No	20	15	4.58	0.002	0.006	0.01	0.04	No
Receptor_72	95	71	24.56	0.009	0.015	0.02	0.50	No	19	15	4.29	0.002	0.006	0.01	0.04	No
Receptor_73	92	70	22.22	0.008	0.015	0.02	0.50	No	18	15	3.86	0.001	0.006	0.01	0.04	No
Receptor_74	93	69	23.53	0.009	0.015	0.02	0.50	No	19	15	3.69	0.001	0.006	0.01	0.04	No
Receptor_75	94	73	21.89	0.008	0.015	0.02	0.50	No	19	15	3.73	0.001	0.006	0.01	0.04	No
Receptor_76	103	80	22.92	0.009	0.015	0.02	0.50	No	21	17	3.98	0.002	0.006	0.01	0.04	No
Receptor_77	101	80	21.61	0.008	0.015	0.02	0.50	No	21	17	4.04	0.002	0.006	0.01	0.04	No
Receptor_78	98	77	20.31	0.008	0.015	0.02	0.50	No	21	17	4.09	0.002	0.006	0.01	0.04	No
Receptor_79	102	81	20.71	0.008	0.015	0.02	0.50	No	23	19	4.36	0.002	0.006	0.01	0.04	No
Receptor_80	105	84	21.18	0.008	0.015	0.02	0.50	No	25	20	4.64	0.002	0.006	0.01	0.04	No
Receptor_81	108	86	21.84	0.008	0.015	0.02	0.50	No	26	22	4.90	0.002	0.006	0.01	0.04	No
Receptor_82	98	78	20.94	0.008	0.015	0.02	0.50	No	24	19	4.84	0.002	0.006	0.01	0.04	No
Receptor_83	94	70	23.86	0.009	0.015	0.02	0.50	No	22	17	4.91	0.002	0.006	0.01	0.04	No
Receptor_84	89	69	19.56	0.007	0.015	0.02	0.50	No	21	17	4.65	0.002	0.006	0.01	0.04	No
Receptor_85	88	69	18.72	0.007	0.015	0.02	0.50	No	20	16	4.37	0.002	0.006	0.01	0.04	No

	SO2 3-Hr								SO2 24-Hr							
Receptor ID	Project	NP	Project Increase (ug/m3)	Project Increase (ppm)	Ambient	Total	Threshold	Exceeds?	Project	NP	Project Increase (ug/m3)	Project Increase (ppm)	Ambient	Total	Threshold	Exceeds?
Receptor_86	86	68	18.27	0.007	0.015	0.02	0.50	No	19	15	4.11	0.002	0.006	0.01	0.04	No
Receptor_87	80	62	17.92	0.007	0.015	0.02	0.50	No	18	13	4.29	0.002	0.006	0.01	0.04	No
Receptor_88	74	56	17.90	0.007	0.015	0.02	0.50	No	17	12	4.47	0.002	0.006	0.01	0.04	No
Receptor_89	71	51	20.15	0.008	0.015	0.02	0.50	No	16	11	4.57	0.002	0.006	0.01	0.04	No
Receptor_90	67	47	20.23	0.008	0.015	0.02	0.50	No	14	10	4.32	0.002	0.006	0.01	0.04	No
Receptor_91	64	45	18.93	0.007	0.015	0.02	0.50	No	13	9	3.68	0.001	0.006	0.01	0.04	No
Receptor_92	60	43	17.63	0.007	0.015	0.02	0.50	No	12	9	3.13	0.001	0.006	0.01	0.04	No
Receptor_93	60	42	18.06	0.007	0.015	0.02	0.50	No	12	9	2.96	0.001	0.006	0.01	0.04	No
Receptor_94	59	42	16.99	0.006	0.015	0.02	0.50	No	11	10	1.90	0.001	0.006	0.01	0.04	No
Receptor_95	57	42	14.95	0.006	0.015	0.02	0.50	No	12	10	2.15	0.001	0.006	0.01	0.04	No
Receptor_96	56	43	12.82	0.005	0.015	0.02	0.50	No	12	10	2.37	0.001	0.006	0.01	0.04	No
Receptor_97	59	44	15.31	0.006	0.015	0.02	0.50	No	12	10	2.51	0.001	0.006	0.01	0.04	No
Receptor_98	64	46	17.91	0.007	0.015	0.02	0.50	No	13	10	3.46	0.001	0.006	0.01	0.04	No
Receptor_99	70	49	20.66	0.008	0.015	0.02	0.50	No	15	11	3.96	0.002	0.006	0.01	0.04	No
Receptor_100	76	52	23.28	0.009	0.015	0.02	0.50	No	16	12	4.27	0.002	0.006	0.01	0.04	No
Receptor_101	79	53	25.87	0.010	0.015	0.02	0.50	No	17	12	4.29	0.002	0.006	0.01	0.04	No
Receptor_102	80	54	25.34	0.010	0.015	0.02	0.50	No	16	12	3.76	0.001	0.006	0.01	0.04	No
Receptor_103	80	57	22.30	0.009	0.015	0.02	0.50	No	15	13	2.85	0.001	0.006	0.01	0.04	No
Receptor_104	79	61	18.19	0.007	0.015	0.02	0.50	No	15	12	2.85	0.001	0.006	0.01	0.04	No
Receptor_105	77	60	17.00	0.006	0.015	0.02	0.50	No	16	13	2.71	0.001	0.006	0.01	0.04	No
Receptor_106	82	65	17.15	0.007	0.015	0.02	0.50	No	17	14	2.73	0.001	0.006	0.01	0.04	No
Receptor_107	87	70	17.49	0.007	0.015	0.02	0.50	No	18	15	2.78	0.001	0.006	0.01	0.04	No
Receptor_108	84	60	23.56	0.009	0.015	0.02	0.50	No	18	15	3.02	0.001	0.006	0.01	0.04	No
Receptor_109	83	58	24.98	0.010	0.015	0.02	0.50	No	18	14	3.91	0.001	0.006	0.01	0.04	No
Receptor_110	82	57	25.06	0.010	0.015	0.02	0.50	No	18	14	4.15	0.002	0.006	0.01	0.04	No
Receptor_111	77	54	23.43	0.009	0.015	0.02	0.50	No	16	12	3.94	0.002	0.006	0.01	0.04	No
Receptor_112	79	53	26.48	0.010	0.015	0.03	0.50	No	17	13	3.63	0.001	0.006	0.01	0.04	No
Receptor_113	81	53	28.14	0.011	0.015	0.03	0.50	No	17	14	2.65	0.001	0.006	0.01	0.04	No
Receptor_114	81	52	28.92	0.011	0.015	0.03	0.50	No	17	14	2.58	0.001	0.006	0.01	0.04	No
Receptor_115	76	51	24.62	0.009	0.015	0.02	0.50	No	17	14	2.40	0.001	0.006	0.01	0.04	No
Receptor_116	74	51	22.47	0.009	0.015	0.02	0.50	No	16	12	4.00	0.002	0.006	0.01	0.04	No
Receptor_117	81	58	23.75	0.009	0.015	0.02	0.50	No	17	14	3.60	0.001	0.006	0.01	0.04	No
Receptor_118	90	65	25.78	0.010	0.015	0.02	0.50	No	19	15	3.03	0.001	0.006	0.01	0.04	No
Receptor_119	101	72	29.23	0.011	0.015	0.03	0.50	No	21	17	3.24	0.001	0.006	0.01	0.04	No
Receptor_120	114	79	35.08	0.013	0.015	0.03	0.50	No	24	19	4.27	0.002	0.006	0.01	0.04	No
Receptor_121	117	78	38.68	0.015	0.015	0.03	0.50	No	25	20	5.05	0.002	0.006	0.01	0.04	No
Receptor_122	113	76	36.82	0.014	0.015	0.03	0.50	No	25	19	6.02	0.002	0.006	0.01	0.04	No
Receptor_123	108	66	41.77	0.016	0.015	0.03	0.50	No	24	18	5.71	0.002	0.006	0.01	0.04	No
Receptor_124	107	64	42.35	0.016	0.015	0.03	0.50	No	23	18	5.28	0.002	0.006	0.01	0.04	No
Receptor_125	115	67	48.09	0.018	0.015	0.03	0.50	No	26	17	8.64	0.003	0.006	0.01	0.04	No
Receptor_126	107	63	43.85	0.017	0.015	0.03	0.50	No	25	17	8.18	0.003	0.006	0.01	0.04	No
Receptor_127	101	60	40.77	0.016	0.015	0.03	0.50	No	22	16	6.32	0.002	0.006	0.01	0.04	No
Receptor_128	91	55	35.70	0.014	0.015	0.03	0.50	No	19	15	4.25	0.002	0.006	0.01	0.04	No
Receptor_129	82	52	30.36	0.012	0.015	0.03	0.50	No	18	14	4.48	0.002	0.006	0.01	0.04	No
Receptor_130	82	51	31.27	0.012	0.015	0.03	0.50	No	18	14	3.95	0.002	0.006	0.01	0.04	No
Receptor_131	81	49	31.12	0.012	0.015	0.03	0.50	No	17	13	3.70	0.001	0.006	0.01	0.04	No
Receptor_132	74	46	28.36	0.011	0.015	0.03	0.50	No	16	12	3.43	0.001	0.006	0.01	0.04	No
Receptor_133	69	43	26.00	0.010	0.015	0.02	0.50	No	15	11	3.21	0.001	0.006	0.01	0.04	No
Receptor_134	64	40	23.81	0.009	0.015	0.02	0.50	No	14	11	2.93	0.001	0.006	0.01	0.04	No
Receptor_135	60	38	21.86	0.008	0.015	0.02	0.50	No	13	10	2.74	0.001	0.006	0.01	0.04	No
Receptor_136	56	36	20.19	0.008	0.015	0.02	0.50	No	12	10	2.57	0.001	0.006	0.01	0.04	No
Receptor_137	53	34	18.68	0.007	0.015	0.02	0.50	No	12	9	2.42	0.001	0.006	0.01	0.04	No
Receptor_138	54	34	19.83	0.008	0.015	0.02	0.50	No	12	9	2.65	0.001	0.006	0.01	0.04	No
Receptor_139	53	34	18.84	0.007	0.015	0.02	0.50	No	12	9	2.65	0.001	0.006	0.01	0.04	No
Receptor_140	50	33	16.76	0.006	0.015	0.02	0.50	No	11	9	2.58	0.001	0.006	0.01	0.04	No
Receptor_141	50	38	11.84	0.005	0.015	0.02	0.50	No	12	9	3.01	0.001	0.006	0.01	0.04	No
Receptor_142	50	39	11.40	0.004	0.015	0.02	0.50	No	12	9	3.16	0.001	0.006	0.01	0.04	No
Receptor_143	53	43	10.04	0.004	0.015	0.02	0.50	No	13	10	3.32	0.001	0.006	0.01	0.04	No
Receptor_144	53	40	13.03	0.005	0.015	0.02	0.50	No	14	11	3.28	0.001	0.006	0.01	0.04	No
Receptor_145	55	42	13.48	0.005	0.015	0.02	0.50	No	14	11	2.98	0.001	0.006	0.01	0.04	No
Receptor_146	53	40	12.59	0.005	0.015	0.02	0.50	No	14	11	2.75	0.001	0.006	0.01	0.04	No
Receptor_147	50	38	11.49	0.004	0.015	0.02	0.50	No	13	11	2.39	0.001	0.006	0.01	0.04	No
Receptor_148	47	36	10.16	0.004	0.015	0.02	0.50	No	13	11	1.91	0.001	0.006	0.01	0.04	No
Receptor_149	42	37	5.17	0.002	0.015	0.02	0.50	No	12	11	1.31	0.001	0.006	0.01	0.04	No
Receptor_150	44	38	6.24	0.002	0.015	0.02	0.50	No	12	11	0.68	0.000	0.006	0.01	0.04	No
Receptor_151	43	39	4.21	0.002	0.015	0.02	0.50	No	11	11	0.15	0.000	0.006	0.01	0.04	No
Receptor_152	40	35	5.54	0.002	0.015	0.02	0.50	No	11	10	0.69	0.000	0.006	0.01	0.04	No
Receptor_153	41	37	3.34	0.001	0.015	0.02	0.50	No	11	10	0.64	0.000	0.006	0.01	0.04	No
Receptor_154	43	39	3.60	0.001	0.015	0.02	0.50	No	11	11	0.53	0.000	0.006	0.01	0.04	No
Receptor_155	43	38	5.17	0.002	0.015	0.02	0.50	No	11	11	0.00	0.000	0.006	0.01	0.04	No
Receptor_156	44	41	2.27	0.001	0.015	0.02	0.50	No	11	11	(0.04)	0.000	0.006	0.01	0.04	No
Receptor_157	48	46	2.76	0.001	0.015	0.02	0.50	No	12	12	0.35	0.000	0.006	0.01	0.04	No
Receptor_158	45	42	3.08	0.001	0.015	0.02	0.50	No	12	11	0.45	0.000	0.006	0.01	0.04	No
Receptor_159	47	46	1.66	0.001	0.015	0.02	0.50	No	12	12	0.70	0.000	0.006	0.01	0.04	No
Receptor_160	50	50	0.20	0.000	0.015	0.02	0.50	No	13	12	0.96	0.000	0.006	0.01	0.04	No
Receptor_161	54	55	(1.29)	0.000	0.015	0.02	0.50	No	13	12	1.31	0.001	0.006	0.01	0.04	No
Receptor_162	58	60	(2.04)	-0.001	0.015	0.02	0.50	No	14	12	1.91	0.001	0.006	0.01	0.04	No
Receptor_163	62	63	(1.35)	-0.001	0.015	0.02	0.50	No	15	13	2.52	0.001	0.006	0.01	0.04	No
Receptor_164	67	66	1.28	0.000	0.015	0.02	0.50	No	16	13	2.79	0.001	0.006	0.01	0.04	No
Receptor_165	73	67	5.86	0.002	0.015	0.02	0.50	No	18	15	3.09	0.001	0.006	0.01	0.04	No
Receptor_166	80	67	12.27	0.005	0.015	0.02	0.50	No	19	16	3.44	0.001	0.006	0.01	0.04	No
Receptor_167	87	68	19.61	0.007	0.015	0.02	0.50	No	21	17	3.82	0.001	0.006	0.01	0.04	No
Receptor_168	97	63	33.85	0.013	0.015	0.03	0.50	No	24	19	4.29	0.002	0.006	0.01	0.04	No
Receptor_169	103	67	35.89	0.014	0.015	0.03	0.50	No	26	21	4.76	0.002	0.006	0.01	0.04	No
Receptor_170	103	72	30.86	0.012	0.015	0.03	0.50	No	25	21	4.13	0.002	0.006	0.01	0.04	No

	SO2 3-Hr								SO2 24-Hr							
Receptor ID	Project	NP	Project Increase (ug/m3)	Project Increase (ppm)	Ambient	Total	Threshold	Exceeds?	Project	NP	Project Increase (ug/m3)	Project Increase (ppm)	Ambient	Total	Threshold	Exceeds?
Receptor_171	99	71	27.74	0.011	0.015	0.03	0.50	No	23	20	3.38	0.001	0.006	0.01	0.04	No
Receptor_172	87	66	21.04	0.008	0.015	0.02	0.50	No	20	17	3.18	0.001	0.006	0.01	0.04	No
Receptor_173	77	65	11.93	0.005	0.015	0.02	0.50	No	18	20	(2.15)	-0.001	0.006	0.01	0.04	No
Receptor_174	77	64	12.91	0.005	0.015	0.02	0.50	No	18	19	(1.78)	-0.001	0.006	0.01	0.04	No
Receptor_175	75	59	16.23	0.006	0.015	0.02	0.50	No	17	15	2.03	0.001	0.006	0.01	0.04	No
Receptor_176	72	55	17.24	0.007	0.015	0.02	0.50	No	17	15	1.73	0.001	0.006	0.01	0.04	No
Receptor_177	67	56	10.96	0.004	0.015	0.02	0.50	No	16	14	1.60	0.001	0.006	0.01	0.04	No
Receptor_178	60	54	6.24	0.002	0.015	0.02	0.50	No	15	14	1.14	0.000	0.006	0.01	0.04	No
Receptor_179	55	47	8.01	0.003	0.015	0.02	0.50	No	14	13	0.83	0.000	0.006	0.01	0.04	No
Receptor_180	52	53	(1.32)	-0.001	0.015	0.02	0.50	No	14	13	1.03	0.000	0.006	0.01	0.04	No
Receptor_181	49	52	(2.98)	-0.001	0.015	0.02	0.50	No	14	13	0.83	0.000	0.006	0.01	0.04	No
Receptor_182	47	44	2.81	0.001	0.015	0.02	0.50	No	13	13	0.58	0.000	0.006	0.01	0.04	No
Receptor_183	45	42	2.36	0.001	0.015	0.02	0.50	No	13	13	0.32	0.000	0.006	0.01	0.04	No
Receptor_184	43	43	0.14	0.000	0.015	0.02	0.50	No	13	13	0.08	0.000	0.006	0.01	0.04	No
Receptor_185	41	39	1.65	0.001	0.015	0.02	0.50	No	13	13	(0.12)	0.000	0.006	0.01	0.04	No
Receptor_186	39	44	(4.26)	-0.002	0.015	0.02	0.50	No	13	13	(0.24)	0.000	0.006	0.01	0.04	No
Receptor_187	39	47	(7.97)	-0.003	0.015	0.02	0.50	No	12	13	(0.41)	0.000	0.006	0.01	0.04	No
Receptor_188	39	46	(7.63)	-0.003	0.015	0.02	0.50	No	12	13	(0.75)	0.000	0.006	0.01	0.04	No
Receptor_189	40	45	(5.21)	-0.002	0.015	0.02	0.50	No	12	13	(1.16)	0.000	0.006	0.01	0.04	No
Receptor_190	39	41	(1.84)	-0.001	0.015	0.02	0.50	No	12	13	(1.52)	-0.001	0.006	0.01	0.04	No
Receptor_191	37	38	(1.17)	0.000	0.015	0.02	0.50	No	11	12	(1.06)	0.000	0.006	0.01	0.04	No
Receptor_192	35	35	(0.17)	0.000	0.015	0.02	0.50	No	11	12	(0.66)	0.000	0.006	0.01	0.04	No
Receptor_193	33	39	(5.37)	-0.002	0.015	0.02	0.50	No	10	11	(0.36)	0.000	0.006	0.01	0.04	No
Receptor_194	33	34	(1.35)	-0.001	0.015	0.02	0.50	No	10	11	(1.04)	0.000	0.006	0.01	0.04	No
Receptor_195	33	32	1.68	0.001	0.015	0.02	0.50	No	10	10	(0.48)	0.000	0.006	0.01	0.04	No
Receptor_196	33	30	2.83	0.001	0.015	0.02	0.50	No	10	10	(0.11)	0.000	0.006	0.01	0.04	No
Receptor_197	35	29	5.85	0.002	0.015	0.02	0.50	No	10	9	0.19	0.000	0.006	0.01	0.04	No
Receptor_198	35	28	6.84	0.003	0.015	0.02	0.50	No	9	9	0.45	0.000	0.006	0.01	0.04	No
Receptor_199	34	27	7.15	0.003	0.015	0.02	0.50	No	9	9	0.67	0.000	0.006	0.01	0.04	No
Receptor_200	33	26	7.20	0.003	0.015	0.02	0.50	No	9	9	0.36	0.000	0.006	0.01	0.04	No
Receptor_201	33	25	7.93	0.003	0.015	0.02	0.50	No	10	9	0.52	0.000	0.006	0.01	0.04	No
Receptor_202	32	25	7.62	0.003	0.015	0.02	0.50	No	9	9	0.52	0.000	0.006	0.01	0.04	No
Receptor_203	31	24	6.91	0.003	0.015	0.02	0.50	No	9	9	0.50	0.000	0.006	0.01	0.04	No
Receptor_204	30	24	6.22	0.002	0.015	0.02	0.50	No	9	8	0.62	0.000	0.006	0.01	0.04	No
Receptor_205	29	23	5.40	0.002	0.015	0.02	0.50	No	9	8	0.48	0.000	0.006	0.01	0.04	No
Receptor_206	28	23	4.98	0.002	0.015	0.02	0.50	No	9	8	0.33	0.000	0.006	0.01	0.04	No
Receptor_207	28	22	5.47	0.002	0.015	0.02	0.50	No	8	8	0.17	0.000	0.006	0.01	0.04	No
Receptor_208	27	22	5.18	0.002	0.015	0.02	0.50	No	8	8	0.03	0.000	0.006	0.01	0.04	No
Receptor_209	28	23	5.05	0.002	0.015	0.02	0.50	No	8	8	(0.18)	0.000	0.006	0.01	0.04	No
Receptor_210	29	25	4.61	0.002	0.015	0.02	0.50	No	8	8	(0.52)	0.000	0.006	0.01	0.04	No
Receptor_211	29	25	4.71	0.002	0.015	0.02	0.50	No	8	9	(0.88)	0.000	0.006	0.01	0.04	No
Receptor_212	30	25	4.45	0.002	0.015	0.02	0.50	No	8	9	(1.28)	0.000	0.006	0.01	0.04	No
Receptor_213	31	27	3.19	0.001	0.015	0.02	0.50	No	8	9	(1.70)	-0.001	0.006	0.01	0.04	No
Receptor_214	31	29	1.84	0.001	0.015	0.02	0.50	No	8	10	(2.31)	-0.001	0.006	0.01	0.04	No
Receptor_215	32	32	0.56	0.000	0.015	0.02	0.50	No	8	10	(2.39)	-0.001	0.006	0.01	0.04	No
Receptor_216	33	35	(1.35)	-0.001	0.015	0.02	0.50	No	8	11	(3.14)	-0.001	0.006	0.01	0.04	No
Receptor_217	34	35	(0.58)	0.000	0.015	0.02	0.50	No	8	11	(2.68)	-0.001	0.006	0.01	0.04	No
Receptor_218	34	35	(0.48)	0.000	0.015	0.02	0.50	No	9	11	(2.30)	-0.001	0.006	0.01	0.04	No
Receptor_219	35	37	(1.27)	0.000	0.015	0.02	0.50	No	9	12	(2.63)	-0.001	0.006	0.01	0.04	No
Receptor_220	37	38	(1.88)	-0.001	0.015	0.02	0.50	No	9	12	(2.79)	-0.001	0.006	0.01	0.04	No
Receptor_221	37	39	(1.95)	-0.001	0.015	0.02	0.50	No	10	14	(4.48)	-0.002	0.006	0.01	0.04	No
Receptor_222	37	41	(3.56)	-0.001	0.015	0.02	0.50	No	10	15	(4.57)	-0.002	0.006	0.01	0.04	No
Receptor_223	38	41	(3.35)	-0.001	0.015	0.02	0.50	No	11	15	(4.48)	-0.002	0.006	0.01	0.04	No
Receptor_224	38	41	(2.58)	-0.001	0.015	0.02	0.50	No	11	15	(4.20)	-0.002	0.006	0.01	0.04	No
Receptor_225	39	41	(2.39)	-0.001	0.015	0.02	0.50	No	11	13	(1.65)	-0.001	0.006	0.01	0.04	No
Receptor_226	37	38	(1.41)	-0.001	0.015	0.02	0.50	No	11	12	(1.17)	0.000	0.006	0.01	0.04	No
Receptor_227	42	45	(3.55)	-0.001	0.015	0.02	0.50	No	12	17	(4.88)	-0.002	0.006	0.01	0.04	No
Receptor_228	45	55	(9.84)	-0.004	0.015	0.02	0.50	No	12	18	(6.32)	-0.002	0.006	0.01	0.04	No
Receptor_229	49	63	(13.32)	-0.005	0.015	0.02	0.50	No	13	21	(8.31)	-0.003	0.006	0.01	0.04	No
Receptor_230	45	56	(11.05)	-0.004	0.015	0.02	0.50	No	12	21	(8.83)	-0.003	0.006	0.01	0.04	No
Receptor_231	46	66	(20.53)	-0.008	0.015	0.02	0.50	No	12	21	(8.89)	-0.003	0.006	0.01	0.04	No
Receptor_232	51	76	(24.50)	-0.009	0.015	0.02	0.50	No	12	23	(10.84)	-0.004	0.006	0.01	0.04	No
Receptor_233	58	87	(29.54)	-0.011	0.015	0.02	0.50	No	13	26	(13.28)	-0.005	0.006	0.01	0.04	No
Receptor_234	65	103	(38.03)	-0.015	0.015	0.02	0.50	No	14	30	(16.31)	-0.006	0.006	0.01	0.04	No
Receptor_235	63	105	(42.25)	-0.016	0.015	0.02	0.50	No	15	32	(17.84)	-0.007	0.006	0.01	0.04	No
Receptor_236	76	139	(62.84)	-0.024	0.015	0.02	0.50	No	16	38	(22.02)	-0.008	0.006	0.01	0.04	No
Receptor_237	68	125	(56.25)	-0.021	0.015	0.02	0.50	No	15	31	(16.29)	-0.006	0.006	0.01	0.04	No
Receptor_238	60	100	(40.40)	-0.015	0.015	0.02	0.50	No	14	27	(12.47)	-0.005	0.006	0.01	0.04	No
Receptor_239	59	84	(24.89)	-0.010	0.015	0.02	0.50	No	13	27	(13.90)	-0.005	0.006	0.01	0.04	No
Receptor_240	67	82	(14.46)	-0.006	0.015	0.02	0.50	No	14	22	(7.85)	-0.003	0.006	0.01	0.04	No
Receptor_241	62	70	(7.95)	-0.003	0.015	0.02	0.50	No	13	21	(7.63)	-0.003	0.006	0.01	0.04	No
Receptor_242	55	60	(5.56)	-0.002	0.015	0.02	0.50	No	13	18	(5.22)	-0.002	0.006	0.01	0.04	No
Receptor_243	52	66	(13.95)	-0.005	0.015	0.02	0.50	No	12	16	(3.74)	-0.001	0.006	0.01	0.04	No
Receptor_244	47	60	(12.82)	-0.005	0.015	0.02	0.50	No	11	14	(2.90)	-0.001	0.006	0.01	0.04	No
Receptor_245	40	54	(13.66)	-0.005	0.015	0.02	0.50	No	10	12	(2.11)	-0.001	0.006	0.01	0.04	No
Receptor_246	45	48	(3.05)	-0.001	0.015	0.02	0.50	No	10	11	(1.46)	-0.001	0.006	0.01	0.04	No
Receptor_247	53	39	13.83	0.005	0.015	0.02	0.50	No	10	11	(0.98)	0.000	0.006	0.01	0.04	No
Receptor_248	53	42	10.43	0.004	0.015	0.02	0.50	No	9	13	(3.82)	-0.001	0.006	0.01	0.04	No
Receptor_249	51	46	5.09	0.002	0.015	0.02	0.50	No	9	11	(2.06)	-0.001	0.006	0.01	0.04	No
Receptor_250	55	42	13.00	0.005	0.015	0.02	0.50	No	10	10	(0.70)	0.000	0.006	0.01	0.04	No
Receptor_251	57	37	19.89	0.008	0.015	0.02	0.50	No	9	9	0.24	0.000	0.006	0.01	0.04	No
Receptor_252	56	38	18.20	0.007	0.015	0.02	0.50	No	9	8	0.70	0.000	0.006	0.01	0.04	No
Receptor_253	59	39	19.42	0.007	0.015	0.02	0.50	No	9	8	0.80	0.000	0.006	0.01	0.04	No
Receptor_254	62	41	20.48	0.008	0.015	0.02	0.50	No	10	9	0.92	0.000	0.006	0.01	0.04	No
Receptor_255	65	44	21.02	0.008	0.015	0.02	0.50	No	10	9	1.08	0.000	0.006	0.01	0.04	No

	SO2 3-Hr								SO2 24-Hr							
Receptor ID	Project	NP	Project Increase (ug/m3)	Project Increase (ppm)	Ambient	Total	Threshold	Exceeds?	Project	NP	Project Increase (ug/m3)	Project Increase (ppm)	Ambient	Total	Threshold	Exceeds?
Receptor_256	69	43	25.50	0.010	0.015	0.02	0.50	No	11	10	0.82	0.000	0.006	0.01	0.04	No
Receptor_257	69	44	25.13	0.010	0.015	0.02	0.50	No	12	12	0.09	0.000	0.006	0.01	0.04	No
Receptor_258	74	45	29.14	0.011	0.015	0.03	0.50	No	13	12	0.28	0.000	0.006	0.01	0.04	No
Receptor_259	74	46	27.26	0.010	0.015	0.03	0.50	No	12	11	1.03	0.000	0.006	0.01	0.04	No
Receptor_260	67	46	21.16	0.008	0.015	0.02	0.50	No	10	9	1.65	0.001	0.006	0.01	0.04	No
Receptor_261	70	48	21.79	0.008	0.015	0.02	0.50	No	11	9	1.81	0.001	0.006	0.01	0.04	No
Receptor_262	72	50	22.52	0.009	0.015	0.02	0.50	No	11	9	2.00	0.001	0.006	0.01	0.04	No
Receptor_263	61	44	17.80	0.007	0.015	0.02	0.50	No	11	9	1.78	0.001	0.006	0.01	0.04	No
Receptor_264	56	41	15.19	0.006	0.015	0.02	0.50	No	9	8	1.33	0.001	0.006	0.01	0.04	No
Receptor_265	51	38	12.67	0.005	0.015	0.02	0.50	No	8	9	(0.26)	0.000	0.006	0.01	0.04	No
Receptor_266	48	36	12.00	0.005	0.015	0.02	0.50	No	7	8	(0.48)	0.000	0.006	0.01	0.04	No
Receptor_267	51	37	13.76	0.005	0.015	0.02	0.50	No	8	8	0.15	0.000	0.006	0.01	0.04	No
Receptor_268	52	37	14.56	0.006	0.015	0.02	0.50	No	8	8	0.30	0.000	0.006	0.01	0.04	No
Receptor_269	54	39	14.15	0.005	0.015	0.02	0.50	No	8	8	0.45	0.000	0.006	0.01	0.04	No
Receptor_270	55	39	16.03	0.006	0.015	0.02	0.50	No	9	8	0.69	0.000	0.006	0.01	0.04	No
Receptor_271	56	40	16.62	0.006	0.015	0.02	0.50	No	10	9	1.28	0.000	0.006	0.01	0.04	No
Receptor_272	56	40	15.82	0.006	0.015	0.02	0.50	No	11	10	1.53	0.001	0.006	0.01	0.04	No
Receptor_273	55	40	14.80	0.006	0.015	0.02	0.50	No	12	10	1.58	0.001	0.006	0.01	0.04	No
Receptor_274	56	42	13.81	0.005	0.015	0.02	0.50	No	12	11	1.62	0.001	0.006	0.01	0.04	No
Receptor_275	58	43	14.57	0.006	0.015	0.02	0.50	No	12	11	1.70	0.001	0.006	0.01	0.04	No
Receptor_276	60	44	15.77	0.006	0.015	0.02	0.50	No	13	11	1.74	0.001	0.006	0.01	0.04	No
Receptor_277	63	45	17.58	0.007	0.015	0.02	0.50	No	13	11	1.58	0.001	0.006	0.01	0.04	No
Receptor_278	65	46	19.87	0.008	0.015	0.02	0.50	No	14	13	0.98	0.000	0.006	0.01	0.04	No
Receptor_279	68	46	22.32	0.009	0.015	0.02	0.50	No	15	14	1.19	0.000	0.006	0.01	0.04	No
Receptor_280	71	47	24.63	0.009	0.015	0.02	0.50	No	16	14	1.50	0.001	0.006	0.01	0.04	No
Receptor_281	74	47	26.60	0.010	0.015	0.03	0.50	No	17	15	1.93	0.001	0.006	0.01	0.04	No
Receptor_282	76	53	23.42	0.009	0.015	0.02	0.50	No	18	16	2.23	0.001	0.006	0.01	0.04	No
Receptor_283	78	56	21.64	0.008	0.015	0.02	0.50	No	19	17	2.36	0.001	0.006	0.01	0.04	No
Receptor_284	80	58	22.00	0.008	0.015	0.02	0.50	No	20	17	2.38	0.001	0.006	0.01	0.04	No
Receptor_285	81	57	24.25	0.009	0.015	0.02	0.50	No	20	18	2.36	0.001	0.006	0.01	0.04	No
Receptor_286	91	59	31.99	0.012	0.015	0.03	0.50	No	23	21	2.56	0.001	0.006	0.01	0.04	No
Receptor_287	99	61	38.07	0.015	0.015	0.03	0.50	No	26	23	3.02	0.001	0.006	0.01	0.04	No
Receptor_288	109	64	44.39	0.017	0.015	0.03	0.50	No	28	25	3.76	0.001	0.006	0.01	0.04	No
Receptor_289	110	67	43.52	0.017	0.015	0.03	0.50	No	28	25	3.91	0.001	0.006	0.01	0.04	No
Receptor_290	104	68	36.22	0.014	0.015	0.03	0.50	No	26	23	3.48	0.001	0.006	0.01	0.04	No
Receptor_291	97	65	31.94	0.012	0.015	0.03	0.50	No	24	21	3.34	0.001	0.006	0.01	0.04	No
Receptor_292	86	63	22.48	0.009	0.015	0.02	0.50	No	22	19	3.05	0.001	0.006	0.01	0.04	No
Receptor_293	92	66	26.22	0.010	0.015	0.03	0.50	No	22	19	3.28	0.001	0.006	0.01	0.04	No
Receptor_294	100	71	29.20	0.011	0.015	0.03	0.50	No	21	18	3.69	0.001	0.006	0.01	0.04	No
Receptor_295	105	76	29.03	0.011	0.015	0.03	0.50	No	22	15	6.62	0.003	0.006	0.01	0.04	No
Receptor_296	105	78	27.06	0.010	0.015	0.03	0.50	No	22	16	6.28	0.002	0.006	0.01	0.04	No
Receptor_297	112	78	34.45	0.013	0.015	0.03	0.50	No	24	18	6.78	0.003	0.006	0.01	0.04	No
Receptor_298	121	75	46.59	0.018	0.015	0.03	0.50	No	26	19	7.10	0.003	0.006	0.01	0.04	No
Receptor_299	130	78	51.51	0.020	0.015	0.03	0.50	No	27	19	7.61	0.003	0.006	0.01	0.04	No
Receptor_300	130	79	50.13	0.019	0.015	0.03	0.50	No	27	19	8.26	0.003	0.006	0.01	0.04	No
Receptor_301	120	77	43.35	0.017	0.015	0.03	0.50	No	27	19	8.60	0.003	0.006	0.01	0.04	No
Receptor_302	115	74	40.93	0.016	0.015	0.03	0.50	No	29	21	7.81	0.003	0.006	0.01	0.04	No
Receptor_303	112	69	42.38	0.016	0.015	0.03	0.50	No	30	21	8.69	0.003	0.006	0.01	0.04	No
Receptor_304	108	70	38.30	0.015	0.015	0.03	0.50	No	32	21	10.20	0.004	0.006	0.01	0.04	No
Receptor_305	115	68	46.21	0.018	0.015	0.03	0.50	No	32	20	11.14	0.004	0.006	0.01	0.04	No
Receptor_306	106	63	42.16	0.016	0.015	0.03	0.50	No	30	19	10.37	0.004	0.006	0.01	0.04	No
Receptor_307	106	66	40.16	0.015	0.015	0.03	0.50	No	27	19	8.36	0.003	0.006	0.01	0.04	No
Receptor_308	101	68	33.17	0.013	0.015	0.03	0.50	No	25	18	6.92	0.003	0.006	0.01	0.04	No
Receptor_309	95	61	33.33	0.013	0.015	0.03	0.50	No	23	17	6.64	0.003	0.006	0.01	0.04	No
Receptor_310	90	62	28.90	0.011	0.015	0.03	0.50	No	22	17	5.22	0.002	0.006	0.01	0.04	No
Receptor_311	86	62	24.49	0.009	0.015	0.02	0.50	No	20	17	3.86	0.001	0.006	0.01	0.04	No
Receptor_312	82	61	21.05	0.008	0.015	0.02	0.50	No	19	16	2.76	0.001	0.006	0.01	0.04	No
Receptor_313	77	59	18.45	0.007	0.015	0.02	0.50	No	18	16	1.90	0.001	0.006	0.01	0.04	No
Receptor_314	72	55	16.47	0.006	0.015	0.02	0.50	No	17	16	1.26	0.000	0.006	0.01	0.04	No
Receptor_315	67	52	14.91	0.006	0.015	0.02	0.50	No	16	15	0.77	0.000	0.006	0.01	0.04	No
Receptor_316	61	48	13.67	0.005	0.015	0.02	0.50	No	15	14	1.47	0.001	0.006	0.01	0.04	No
Receptor_317	57	44	12.66	0.005	0.015	0.02	0.50	No	15	14	1.25	0.000	0.006	0.01	0.04	No
Receptor_318	54	42	11.79	0.005	0.015	0.02	0.50	No	14	13	1.11	0.000	0.006	0.01	0.04	No
Receptor_319	51	40	10.73	0.004	0.015	0.02	0.50	No	14	13	1.00	0.000	0.006	0.01	0.04	No
Receptor_320	49	39	9.86	0.004	0.015	0.02	0.50	No	13	12	0.92	0.000	0.006	0.01	0.04	No
Receptor_321	47	37	9.24	0.004	0.015	0.02	0.50	No	13	12	0.86	0.000	0.006	0.01	0.04	No
Receptor_322	44	35	8.55	0.003	0.015	0.02	0.50	No	13	12	0.80	0.000	0.006	0.01	0.04	No
Receptor_323	42	34	8.28	0.003	0.015	0.02	0.50	No	12	11	0.77	0.000	0.006	0.01	0.04	No
Receptor_324	40	33	7.62	0.003	0.015	0.02	0.50	No	12	11	0.74	0.000	0.006	0.01	0.04	No
Receptor_325	39	32	7.06	0.003	0.015	0.02	0.50	No	12	11	0.72	0.000	0.006	0.01	0.04	No
Receptor_326	37	31	6.06	0.002	0.015	0.02	0.50	No	11	11	0.71	0.000	0.006	0.01	0.04	No
Receptor_327	95	79	15.44	0.006	0.015	0.02	0.50	No	29	23	6.30	0.002	0.006	0.01	0.04	No
Maximum	130	139	51.51	0.020	0.015	0.035	0.50	No	32	38	11.14	0.004	0.006	0.010	0.04	No

SO2 Annual

Receptor ID	Project	NP	Project Increase (ug/m3)	Project Increase (ppm)	Ambient	Total	Threshold	Exceeds?
Receptor_1	2	2	0.35	0.000	0.003	0.00	0.03	No
Receptor_2	2	2	0.36	0.000	0.003	0.00	0.03	No
Receptor_3	2	2	0.36	0.000	0.003	0.00	0.03	No
Receptor_4	2	2	0.37	0.000	0.003	0.00	0.03	No
Receptor_5	2	2	0.37	0.000	0.003	0.00	0.03	No
Receptor_6	2	2	0.38	0.000	0.003	0.00	0.03	No
Receptor_7	2	2	0.38	0.000	0.003	0.00	0.03	No
Receptor_8	2	2	0.37	0.000	0.003	0.00	0.03	No
Receptor_9	2	2	0.37	0.000	0.003	0.00	0.03	No
Receptor_10	2	2	0.36	0.000	0.003	0.00	0.03	No
Receptor_11	2	1	0.35	0.000	0.003	0.00	0.03	No
Receptor_12	2	1	0.33	0.000	0.003	0.00	0.03	No
Receptor_13	2	1	0.31	0.000	0.003	0.00	0.03	No
Receptor_14	2	1	0.30	0.000	0.003	0.00	0.03	No
Receptor_15	1	1	0.27	0.000	0.003	0.00	0.03	No
Receptor_16	1	1	0.25	0.000	0.003	0.00	0.03	No
Receptor_17	1	1	0.23	0.000	0.003	0.00	0.03	No
Receptor_18	1	1	0.21	0.000	0.003	0.00	0.03	No
Receptor_19	1	1	0.19	0.000	0.003	0.00	0.03	No
Receptor_20	1	1	0.17	0.000	0.003	0.00	0.03	No
Receptor_21	1	1	0.15	0.000	0.003	0.00	0.03	No
Receptor_22	1	1	0.14	0.000	0.003	0.00	0.03	No
Receptor_23	1	1	0.12	0.000	0.003	0.00	0.03	No
Receptor_24	1	1	0.11	0.000	0.003	0.00	0.03	No
Receptor_25	1	1	0.10	0.000	0.003	0.00	0.03	No
Receptor_26	1	1	0.10	0.000	0.003	0.00	0.03	No
Receptor_27	1	1	0.09	0.000	0.003	0.00	0.03	No
Receptor_28	1	1	0.08	0.000	0.003	0.00	0.03	No
Receptor_29	1	1	0.09	0.000	0.003	0.00	0.03	No
Receptor_30	1	1	0.09	0.000	0.003	0.00	0.03	No
Receptor_31	1	1	0.10	0.000	0.003	0.00	0.03	No
Receptor_32	1	1	0.09	0.000	0.003	0.00	0.03	No
Receptor_33	1	1	0.10	0.000	0.003	0.00	0.03	No
Receptor_34	1	1	0.10	0.000	0.003	0.00	0.03	No
Receptor_35	1	1	0.10	0.000	0.003	0.00	0.03	No
Receptor_36	1	1	0.11	0.000	0.003	0.00	0.03	No
Receptor_37	1	1	0.11	0.000	0.003	0.00	0.03	No
Receptor_38	1	1	0.11	0.000	0.003	0.00	0.03	No
Receptor_39	1	1	0.11	0.000	0.003	0.00	0.03	No
Receptor_40	1	1	0.12	0.000	0.003	0.00	0.03	No
Receptor_41	1	1	0.13	0.000	0.003	0.00	0.03	No
Receptor_42	1	1	0.14	0.000	0.003	0.00	0.03	No
Receptor_43	1	1	0.13	0.000	0.003	0.00	0.03	No
Receptor_44	1	1	0.13	0.000	0.003	0.00	0.03	No
Receptor_45	1	1	0.14	0.000	0.003	0.00	0.03	No
Receptor_46	1	1	0.15	0.000	0.003	0.00	0.03	No
Receptor_47	1	1	0.16	0.000	0.003	0.00	0.03	No
Receptor_48	1	1	0.16	0.000	0.003	0.00	0.03	No
Receptor_49	1	1	0.17	0.000	0.003	0.00	0.03	No
Receptor_50	1	1	0.18	0.000	0.003	0.00	0.03	No
Receptor_51	1	1	0.18	0.000	0.003	0.00	0.03	No
Receptor_52	1	1	0.17	0.000	0.003	0.00	0.03	No
Receptor_53	1	1	0.16	0.000	0.003	0.00	0.03	No
Receptor_54	1	1	0.15	0.000	0.003	0.00	0.03	No
Receptor_55	1	1	0.14	0.000	0.003	0.00	0.03	No
Receptor_56	1	1	0.14	0.000	0.003	0.00	0.03	No
Receptor_57	1	1	0.15	0.000	0.003	0.00	0.03	No
Receptor_58	1	1	0.16	0.000	0.003	0.00	0.03	No
Receptor_59	1	1	0.17	0.000	0.003	0.00	0.03	No
Receptor_60	1	1	0.19	0.000	0.003	0.00	0.03	No
Receptor_61	1	1	0.21	0.000	0.003	0.00	0.03	No
Receptor_62	1	1	0.23	0.000	0.003	0.00	0.03	No
Receptor_63	2	1	0.26	0.000	0.003	0.00	0.03	No
Receptor_64	2	1	0.30	0.000	0.003	0.00	0.03	No
Receptor_65	2	1	0.34	0.000	0.003	0.00	0.03	No
Receptor_66	2	2	0.38	0.000	0.003	0.00	0.03	No
Receptor_67	2	2	0.43	0.000	0.003	0.00	0.03	No
Receptor_68	2	2	0.49	0.000	0.003	0.00	0.03	No
Receptor_69	3	2	0.57	0.000	0.003	0.00	0.03	No
Receptor_70	3	2	0.61	0.000	0.003	0.00	0.03	No
Receptor_71	3	2	0.65	0.000	0.003	0.00	0.03	No
Receptor_72	3	2	0.67	0.000	0.003	0.00	0.03	No
Receptor_73	3	2	0.68	0.000	0.003	0.00	0.03	No
Receptor_74	3	2	0.68	0.000	0.003	0.00	0.03	No
Receptor_75	3	2	0.67	0.000	0.003	0.00	0.03	No
Receptor_76	4	3	0.81	0.000	0.003	0.00	0.03	No
Receptor_77	4	3	0.79	0.000	0.003	0.00	0.03	No
Receptor_78	4	3	0.78	0.000	0.003	0.00	0.03	No
Receptor_79	4	3	0.92	0.000	0.003	0.00	0.03	No
Receptor_80	5	4	1.12	0.000	0.003	0.00	0.03	No
Receptor_81	6	5	1.36	0.001	0.003	0.00	0.03	No
Receptor_82	6	4	1.25	0.000	0.003	0.00	0.03	No
Receptor_83	5	4	1.16	0.000	0.003	0.00	0.03	No
Receptor_84	4	3	0.96	0.000	0.003	0.00	0.03	No
Receptor_85	4	3	0.80	0.000	0.003	0.00	0.03	No

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Receptor ID	Project	NP	Project Increase (ug/m3)	Project Increase (ppm)	Ambient	Total	Threshold	Exceeds?
Receptor_86	3	3	0.68	0.000	0.003	0.00	0.03	No
Receptor_87	3	3	0.66	0.000	0.003	0.00	0.03	No
Receptor_88	3	3	0.64	0.000	0.003	0.00	0.03	No
Receptor_89	3	2	0.62	0.000	0.003	0.00	0.03	No
Receptor_90	3	2	0.55	0.000	0.003	0.00	0.03	No
Receptor_91	3	2	0.49	0.000	0.003	0.00	0.03	No
Receptor_92	2	2	0.44	0.000	0.003	0.00	0.03	No
Receptor_93	2	2	0.47	0.000	0.003	0.00	0.03	No
Receptor_94	3	2	0.49	0.000	0.003	0.00	0.03	No
Receptor_95	3	2	0.51	0.000	0.003	0.00	0.03	No
Receptor_96	3	2	0.53	0.000	0.003	0.00	0.03	No
Receptor_97	3	2	0.56	0.000	0.003	0.00	0.03	No
Receptor_98	3	3	0.64	0.000	0.003	0.00	0.03	No
Receptor_99	4	3	0.74	0.000	0.003	0.00	0.03	No
Receptor_100	4	3	0.86	0.000	0.003	0.00	0.03	No
Receptor_101	5	4	0.89	0.000	0.003	0.00	0.03	No
Receptor_102	5	4	0.92	0.000	0.003	0.00	0.03	No
Receptor_103	5	4	0.93	0.000	0.003	0.00	0.03	No
Receptor_104	5	4	0.95	0.000	0.003	0.00	0.03	No
Receptor_105	5	4	0.96	0.000	0.003	0.00	0.03	No
Receptor_106	6	5	1.05	0.000	0.003	0.00	0.03	No
Receptor_107	6	5	1.16	0.000	0.003	0.00	0.03	No
Receptor_108	6	5	1.15	0.000	0.003	0.00	0.03	No
Receptor_109	6	5	1.08	0.000	0.003	0.00	0.03	No
Receptor_110	6	5	1.02	0.000	0.003	0.00	0.03	No
Receptor_111	5	4	0.93	0.000	0.003	0.00	0.03	No
Receptor_112	5	4	0.92	0.000	0.003	0.00	0.03	No
Receptor_113	5	5	0.92	0.000	0.003	0.00	0.03	No
Receptor_114	5	5	0.90	0.000	0.003	0.00	0.03	No
Receptor_115	6	5	0.88	0.000	0.003	0.00	0.03	No
Receptor_116	6	5	0.85	0.000	0.003	0.00	0.03	No
Receptor_117	6	5	0.94	0.000	0.003	0.00	0.03	No
Receptor_118	7	6	1.05	0.000	0.003	0.00	0.03	No
Receptor_119	8	7	1.18	0.000	0.003	0.00	0.03	No
Receptor_120	9	8	1.38	0.001	0.003	0.00	0.03	No
Receptor_121	10	8	1.56	0.001	0.003	0.00	0.03	No
Receptor_122	10	9	1.77	0.001	0.003	0.00	0.03	No
Receptor_123	10	8	1.69	0.001	0.003	0.00	0.03	No
Receptor_124	9	8	1.59	0.001	0.003	0.00	0.03	No
Receptor_125	10	8	1.70	0.001	0.003	0.00	0.03	No
Receptor_126	9	8	1.52	0.001	0.003	0.00	0.03	No
Receptor_127	9	7	1.38	0.001	0.003	0.00	0.03	No
Receptor_128	8	7	1.22	0.000	0.003	0.00	0.03	No
Receptor_129	7	6	1.13	0.000	0.003	0.00	0.03	No
Receptor_130	7	6	1.07	0.000	0.003	0.00	0.03	No
Receptor_131	7	6	1.00	0.000	0.003	0.00	0.03	No
Receptor_132	6	5	0.89	0.000	0.003	0.00	0.03	No
Receptor_133	6	5	0.79	0.000	0.003	0.00	0.03	No
Receptor_134	5	5	0.71	0.000	0.003	0.00	0.03	No
Receptor_135	5	4	0.64	0.000	0.003	0.00	0.03	No
Receptor_136	5	4	0.58	0.000	0.003	0.00	0.03	No
Receptor_137	4	4	0.53	0.000	0.003	0.00	0.03	No
Receptor_138	4	4	0.50	0.000	0.003	0.00	0.03	No
Receptor_139	4	4	0.46	0.000	0.003	0.00	0.03	No
Receptor_140	4	4	0.40	0.000	0.003	0.00	0.03	No
Receptor_141	4	4	0.37	0.000	0.003	0.00	0.03	No
Receptor_142	4	4	0.32	0.000	0.003	0.00	0.03	No
Receptor_143	4	4	0.26	0.000	0.003	0.00	0.03	No
Receptor_144	4	4	0.18	0.000	0.003	0.00	0.03	No
Receptor_145	4	4	0.10	0.000	0.003	0.00	0.03	No
Receptor_146	4	4	0.06	0.000	0.003	0.00	0.03	No
Receptor_147	4	4	0.00	0.000	0.003	0.00	0.03	No
Receptor_148	4	4	(0.07)	0.000	0.003	0.00	0.03	No
Receptor_149	4	4	(0.16)	0.000	0.003	0.00	0.03	No
Receptor_150	4	4	(0.26)	0.000	0.003	0.00	0.03	No
Receptor_151	4	4	(0.39)	0.000	0.003	0.00	0.03	No
Receptor_152	4	5	(0.53)	0.000	0.003	0.00	0.03	No
Receptor_153	4	5	(0.70)	0.000	0.003	0.00	0.03	No
Receptor_154	4	5	(0.61)	0.000	0.003	0.00	0.03	No
Receptor_155	4	5	(0.51)	0.000	0.003	0.00	0.03	No
Receptor_156	4	5	(0.42)	0.000	0.003	0.00	0.03	No
Receptor_157	4	5	(0.30)	0.000	0.003	0.00	0.03	No
Receptor_158	4	5	(0.46)	0.000	0.003	0.00	0.03	No
Receptor_159	5	5	(0.39)	0.000	0.003	0.00	0.03	No
Receptor_160	5	5	(0.32)	0.000	0.003	0.00	0.03	No
Receptor_161	5	5	(0.24)	0.000	0.003	0.00	0.03	No
Receptor_162	5	5	(0.15)	0.000	0.003	0.00	0.03	No
Receptor_163	5	6	(0.06)	0.000	0.003	0.00	0.03	No
Receptor_164	6	6	0.03	0.000	0.003	0.00	0.03	No
Receptor_165	6	6	0.13	0.000	0.003	0.00	0.03	No
Receptor_166	7	6	0.24	0.000	0.003	0.00	0.03	No
Receptor_167	7	7	0.35	0.000	0.003	0.00	0.03	No
Receptor_168	8	7	0.48	0.000	0.003	0.00	0.03	No
Receptor_169	8	8	0.57	0.000	0.003	0.00	0.03	No
Receptor_170	8	8	0.43	0.000	0.003	0.00	0.03	No

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Receptor ID	Project	NP	Project Increase (ug/m3)	Project Increase (ppm)	Ambient	Total	Threshold	Exceeds?
Receptor_171	8	7	0.23	0.000	0.003	0.00	0.03	No
Receptor_172	7	7	0.03	0.000	0.003	0.00	0.03	No
Receptor_173	8	8	(0.17)	0.000	0.003	0.00	0.03	No
Receptor_174	7	8	(0.25)	0.000	0.003	0.00	0.03	No
Receptor_175	7	7	(0.36)	0.000	0.003	0.00	0.03	No
Receptor_176	7	7	(0.49)	0.000	0.003	0.00	0.03	No
Receptor_177	6	7	(0.62)	0.000	0.003	0.00	0.03	No
Receptor_178	6	7	(0.75)	0.000	0.003	0.00	0.03	No
Receptor_179	6	7	(0.88)	0.000	0.003	0.00	0.03	No
Receptor_180	5	6	(1.01)	0.000	0.003	0.00	0.03	No
Receptor_181	5	6	(1.14)	0.000	0.003	0.00	0.03	No
Receptor_182	5	6	(1.27)	0.000	0.003	0.00	0.03	No
Receptor_183	5	6	(1.39)	-0.001	0.003	0.00	0.03	No
Receptor_184	5	6	(1.51)	-0.001	0.003	0.00	0.03	No
Receptor_185	5	6	(1.62)	-0.001	0.003	0.00	0.03	No
Receptor_186	4	6	(1.72)	-0.001	0.003	0.00	0.03	No
Receptor_187	4	6	(1.80)	-0.001	0.003	0.00	0.03	No
Receptor_188	4	6	(1.84)	-0.001	0.003	0.00	0.03	No
Receptor_189	4	6	(1.86)	-0.001	0.003	0.00	0.03	No
Receptor_190	4	6	(1.84)	-0.001	0.003	0.00	0.03	No
Receptor_191	4	5	(1.56)	-0.001	0.003	0.00	0.03	No
Receptor_192	4	5	(1.32)	-0.001	0.003	0.00	0.03	No
Receptor_193	3	5	(1.12)	0.000	0.003	0.00	0.03	No
Receptor_194	3	4	(0.96)	0.000	0.003	0.00	0.03	No
Receptor_195	3	4	(0.79)	0.000	0.003	0.00	0.03	No
Receptor_196	3	4	(0.67)	0.000	0.003	0.00	0.03	No
Receptor_197	3	4	(0.56)	0.000	0.003	0.00	0.03	No
Receptor_198	3	4	(0.47)	0.000	0.003	0.00	0.03	No
Receptor_199	3	3	(0.38)	0.000	0.003	0.00	0.03	No
Receptor_200	3	3	(0.33)	0.000	0.003	0.00	0.03	No
Receptor_201	3	3	(0.27)	0.000	0.003	0.00	0.03	No
Receptor_202	3	3	(0.27)	0.000	0.003	0.00	0.03	No
Receptor_203	3	3	(0.28)	0.000	0.003	0.00	0.03	No
Receptor_204	3	3	(0.29)	0.000	0.003	0.00	0.03	No
Receptor_205	3	3	(0.30)	0.000	0.003	0.00	0.03	No
Receptor_206	3	3	(0.30)	0.000	0.003	0.00	0.03	No
Receptor_207	2	3	(0.31)	0.000	0.003	0.00	0.03	No
Receptor_208	2	3	(0.31)	0.000	0.003	0.00	0.03	No
Receptor_209	2	3	(0.34)	0.000	0.003	0.00	0.03	No
Receptor_210	2	3	(0.40)	0.000	0.003	0.00	0.03	No
Receptor_211	2	3	(0.47)	0.000	0.003	0.00	0.03	No
Receptor_212	2	3	(0.53)	0.000	0.003	0.00	0.03	No
Receptor_213	2	3	(0.60)	0.000	0.003	0.00	0.03	No
Receptor_214	2	3	(0.67)	0.000	0.003	0.00	0.03	No
Receptor_215	3	3	(0.72)	0.000	0.003	0.00	0.03	No
Receptor_216	3	3	(0.77)	0.000	0.003	0.00	0.03	No
Receptor_217	3	4	(0.90)	0.000	0.003	0.00	0.03	No
Receptor_218	3	4	(0.98)	0.000	0.003	0.00	0.03	No
Receptor_219	3	4	(1.11)	0.000	0.003	0.00	0.03	No
Receptor_220	3	4	(1.26)	0.000	0.003	0.00	0.03	No
Receptor_221	3	5	(1.39)	-0.001	0.003	0.00	0.03	No
Receptor_222	3	5	(1.51)	-0.001	0.003	0.00	0.03	No
Receptor_223	3	5	(1.61)	-0.001	0.003	0.00	0.03	No
Receptor_224	4	5	(1.69)	-0.001	0.003	0.00	0.03	No
Receptor_225	4	5	(1.77)	-0.001	0.003	0.00	0.03	No
Receptor_226	4	5	(1.54)	-0.001	0.003	0.00	0.03	No
Receptor_227	4	6	(2.14)	-0.001	0.003	0.00	0.03	No
Receptor_228	4	7	(2.59)	-0.001	0.003	0.00	0.03	No
Receptor_229	4	7	(3.18)	-0.001	0.003	0.00	0.03	No
Receptor_230	4	7	(3.02)	-0.001	0.003	0.00	0.03	No
Receptor_231	4	7	(2.85)	-0.001	0.003	0.00	0.03	No
Receptor_232	4	8	(3.43)	-0.001	0.003	0.00	0.03	No
Receptor_233	5	9	(4.15)	-0.002	0.003	0.00	0.03	No
Receptor_234	5	10	(5.08)	-0.002	0.003	0.00	0.03	No
Receptor_235	5	11	(5.89)	-0.002	0.003	0.00	0.03	No
Receptor_236	6	13	(7.22)	-0.003	0.003	0.00	0.03	No
Receptor_237	5	10	(5.07)	-0.002	0.003	0.00	0.03	No
Receptor_238	5	8	(3.28)	-0.001	0.003	0.00	0.03	No
Receptor_239	4	7	(2.22)	-0.001	0.003	0.00	0.03	No
Receptor_240	4	6	(1.59)	-0.001	0.003	0.00	0.03	No
Receptor_241	4	5	(0.98)	0.000	0.003	0.00	0.03	No
Receptor_242	3	4	(0.63)	0.000	0.003	0.00	0.03	No
Receptor_243	3	3	(0.43)	0.000	0.003	0.00	0.03	No
Receptor_244	3	3	(0.30)	0.000	0.003	0.00	0.03	No
Receptor_245	2	2	(0.19)	0.000	0.003	0.00	0.03	No
Receptor_246	2	2	(0.08)	0.000	0.003	0.00	0.03	No
Receptor_247	2	2	(0.01)	0.000	0.003	0.00	0.03	No
Receptor_248	2	2	0.02	0.000	0.003	0.00	0.03	No
Receptor_249	1	1	0.04	0.000	0.003	0.00	0.03	No
Receptor_250	1	1	0.05	0.000	0.003	0.00	0.03	No
Receptor_251	1	1	0.05	0.000	0.003	0.00	0.03	No
Receptor_252	1	1	0.05	0.000	0.003	0.00	0.03	No
Receptor_253	1	1	0.05	0.000	0.003	0.00	0.03	No
Receptor_254	1	1	0.06	0.000	0.003	0.00	0.03	No
Receptor_255	1	1	0.08	0.000	0.003	0.00	0.03	No

SO2 Annual

Receptor ID	Project	NP	Project Increase (ug/m3)	Project Increase (ppm)	Ambient	Total	Threshold	Exceeds?
Receptor_256	1	1	0.09	0.000	0.003	0.00	0.03	No
Receptor_257	2	1	0.10	0.000	0.003	0.00	0.03	No
Receptor_258	2	2	0.12	0.000	0.003	0.00	0.03	No
Receptor_259	1	1	0.10	0.000	0.003	0.00	0.03	No
Receptor_260	1	1	0.08	0.000	0.003	0.00	0.03	No
Receptor_261	1	1	0.09	0.000	0.003	0.00	0.03	No
Receptor_262	1	1	0.10	0.000	0.003	0.00	0.03	No
Receptor_263	1	1	0.06	0.000	0.003	0.00	0.03	No
Receptor_264	1	1	0.04	0.000	0.003	0.00	0.03	No
Receptor_265	1	1	0.02	0.000	0.003	0.00	0.03	No
Receptor_266	1	1	0.01	0.000	0.003	0.00	0.03	No
Receptor_267	1	1	0.00	0.000	0.003	0.00	0.03	No
Receptor_268	1	1	(0.00)	0.000	0.003	0.00	0.03	No
Receptor_269	1	1	(0.00)	0.000	0.003	0.00	0.03	No
Receptor_270	1	1	(0.00)	0.000	0.003	0.00	0.03	No
Receptor_271	1	1	0.00	0.000	0.003	0.00	0.03	No
Receptor_272	1	1	0.00	0.000	0.003	0.00	0.03	No
Receptor_273	1	1	0.00	0.000	0.003	0.00	0.03	No
Receptor_274	2	2	(0.00)	0.000	0.003	0.00	0.03	No
Receptor_275	2	2	0.01	0.000	0.003	0.00	0.03	No
Receptor_276	2	2	0.03	0.000	0.003	0.00	0.03	No
Receptor_277	2	2	0.07	0.000	0.003	0.00	0.03	No
Receptor_278	2	2	0.11	0.000	0.003	0.00	0.03	No
Receptor_279	3	3	0.14	0.000	0.003	0.00	0.03	No
Receptor_280	3	3	0.17	0.000	0.003	0.00	0.03	No
Receptor_281	3	3	0.21	0.000	0.003	0.00	0.03	No
Receptor_282	4	3	0.25	0.000	0.003	0.00	0.03	No
Receptor_283	4	3	0.30	0.000	0.003	0.00	0.03	No
Receptor_284	4	4	0.37	0.000	0.003	0.00	0.03	No
Receptor_285	4	4	0.44	0.000	0.003	0.00	0.03	No
Receptor_286	5	4	0.71	0.000	0.003	0.00	0.03	No
Receptor_287	6	5	1.06	0.000	0.003	0.00	0.03	No
Receptor_288	7	5	1.57	0.001	0.003	0.00	0.03	No
Receptor_289	7	5	1.64	0.001	0.003	0.00	0.03	No
Receptor_290	6	5	1.32	0.001	0.003	0.00	0.03	No
Receptor_291	6	4	1.08	0.000	0.003	0.00	0.03	No
Receptor_292	5	4	0.82	0.000	0.003	0.00	0.03	No
Receptor_293	5	4	0.90	0.000	0.003	0.00	0.03	No
Receptor_294	5	4	0.98	0.000	0.003	0.00	0.03	No
Receptor_295	5	4	1.06	0.000	0.003	0.00	0.03	No
Receptor_296	5	4	1.15	0.000	0.003	0.00	0.03	No
Receptor_297	5	4	1.24	0.000	0.003	0.00	0.03	No
Receptor_298	5	4	1.35	0.001	0.003	0.00	0.03	No
Receptor_299	6	4	1.46	0.001	0.003	0.00	0.03	No
Receptor_300	6	4	1.57	0.001	0.003	0.00	0.03	No
Receptor_301	6	4	1.69	0.001	0.003	0.00	0.03	No
Receptor_302	6	4	1.90	0.001	0.003	0.00	0.03	No
Receptor_303	6	4	2.02	0.001	0.003	0.00	0.03	No
Receptor_304	6	4	2.14	0.001	0.003	0.00	0.03	No
Receptor_305	6	4	2.25	0.001	0.003	0.00	0.03	No
Receptor_306	6	4	2.30	0.001	0.003	0.00	0.03	No
Receptor_307	6	4	2.23	0.001	0.003	0.00	0.03	No
Receptor_308	6	4	1.96	0.001	0.003	0.00	0.03	No
Receptor_309	6	4	1.67	0.001	0.003	0.00	0.03	No
Receptor_310	5	4	1.43	0.001	0.003	0.00	0.03	No
Receptor_311	5	4	1.24	0.000	0.003	0.00	0.03	No
Receptor_312	5	3	1.08	0.000	0.003	0.00	0.03	No
Receptor_313	4	3	0.96	0.000	0.003	0.00	0.03	No
Receptor_314	4	3	0.85	0.000	0.003	0.00	0.03	No
Receptor_315	4	3	0.76	0.000	0.003	0.00	0.03	No
Receptor_316	4	3	0.69	0.000	0.003	0.00	0.03	No
Receptor_317	3	3	0.63	0.000	0.003	0.00	0.03	No
Receptor_318	3	3	0.59	0.000	0.003	0.00	0.03	No
Receptor_319	3	3	0.55	0.000	0.003	0.00	0.03	No
Receptor_320	3	2	0.52	0.000	0.003	0.00	0.03	No
Receptor_321	3	2	0.49	0.000	0.003	0.00	0.03	No
Receptor_322	3	2	0.46	0.000	0.003	0.00	0.03	No
Receptor_323	3	2	0.43	0.000	0.003	0.00	0.03	No
Receptor_324	2	2	0.41	0.000	0.003	0.00	0.03	No
Receptor_325	2	2	0.39	0.000	0.003	0.00	0.03	No
Receptor_326	2	2	0.37	0.000	0.003	0.00	0.03	No
Receptor_327	11	10	0.23	0.000	0.003	0.00	0.03	No

Maximum	11	13	2.30	0.001	0.003	0.004	0.03	No

	PM10 24-Hr					PM10 Annual				
Receptor ID	**Project**	**NP**	**Project Increase (ug/m3)**	**Threshold**	**Exceeds?**	**Project**	**NP**	**Project Increase (ug/m3)**	**Threshold**	**Exceeds?**
Receptor_1	2.3	2.7	(0.34)	10.40	No	0.54	0.46	0.075	1.00	No
Receptor_2	2.2	2.5	(0.30)	10.40	No	0.53	0.45	0.077	1.00	No
Receptor_3	2.3	2.2	0.04	10.40	No	0.52	0.44	0.077	1.00	No
Receptor_4	2.3	2.3	0.08	10.40	No	0.50	0.43	0.077	1.00	No
Receptor_5	2.4	2.3	0.10	10.40	No	0.49	0.41	0.075	1.00	No
Receptor_6	2.4	2.3	0.11	10.40	No	0.47	0.40	0.073	1.00	No
Receptor_7	2.5	2.4	0.10	10.40	No	0.45	0.39	0.069	1.00	No
Receptor_8	2.4	2.3	0.10	10.40	No	0.44	0.37	0.065	1.00	No
Receptor_9	2.4	2.6	(0.20)	10.40	No	0.42	0.35	0.060	1.00	No
Receptor_10	2.4	2.7	(0.24)	10.40	No	0.40	0.34	0.056	1.00	No
Receptor_11	2.5	2.7	(0.25)	10.40	No	0.37	0.32	0.051	1.00	No
Receptor_12	2.5	2.7	(0.23)	10.40	No	0.35	0.31	0.047	1.00	No
Receptor_13	2.5	2.7	(0.18)	10.40	No	0.33	0.29	0.044	1.00	No
Receptor_14	2.5	2.6	(0.11)	10.40	No	0.31	0.27	0.042	1.00	No
Receptor_15	2.5	2.6	(0.02)	10.40	No	0.30	0.26	0.038	1.00	No
Receptor_16	2.5	2.5	0.07	10.40	No	0.28	0.25	0.034	1.00	No
Receptor_17	2.5	2.3	0.14	10.40	No	0.26	0.23	0.030	1.00	No
Receptor_18	2.4	2.2	0.18	10.40	No	0.25	0.22	0.027	1.00	No
Receptor_19	2.2	2.0	0.18	10.40	No	0.23	0.21	0.024	1.00	No
Receptor_20	2.0	1.9	0.14	10.40	No	0.22	0.20	0.021	1.00	No
Receptor_21	1.8	1.7	0.08	10.40	No	0.21	0.19	0.018	1.00	No
Receptor_22	1.7	1.5	0.20	10.40	No	0.19	0.18	0.015	1.00	No
Receptor_23	1.7	1.4	0.27	10.40	No	0.18	0.17	0.013	1.00	No
Receptor_24	1.6	1.4	0.26	10.40	No	0.17	0.16	0.011	1.00	No
Receptor_25	1.6	1.3	0.25	10.40	No	0.16	0.15	0.010	1.00	No
Receptor_26	1.5	1.3	0.24	10.40	No	0.15	0.14	0.010	1.00	No
Receptor_27	1.5	1.2	0.22	10.40	No	0.15	0.14	0.009	1.00	No
Receptor_28	1.4	1.2	0.18	10.40	No	0.14	0.13	0.009	1.00	No
Receptor_29	1.4	1.2	0.20	10.40	No	0.14	0.13	0.009	1.00	No
Receptor_30	1.5	1.2	0.22	10.40	No	0.15	0.14	0.009	1.00	No
Receptor_31	1.5	1.3	0.24	10.40	No	0.15	0.14	0.010	1.00	No
Receptor_32	1.4	1.3	0.18	10.40	No	0.15	0.14	0.010	1.00	No
Receptor_33	1.5	1.3	0.19	10.40	No	0.15	0.14	0.011	1.00	No
Receptor_34	1.5	1.3	0.20	10.40	No	0.16	0.15	0.011	1.00	No
Receptor_35	1.6	1.7	(0.14)	10.40	No	0.16	0.15	0.012	1.00	No
Receptor_36	1.7	1.8	(0.14)	10.40	No	0.16	0.15	0.013	1.00	No
Receptor_37	1.7	1.9	(0.15)	10.40	No	0.16	0.15	0.014	1.00	No
Receptor_38	1.8	2.0	(0.18)	10.40	No	0.17	0.15	0.016	1.00	No
Receptor_39	1.8	2.0	(0.21)	10.40	No	0.17	0.15	0.017	1.00	No
Receptor_40	1.9	2.1	(0.20)	10.40	No	0.18	0.16	0.018	1.00	No
Receptor_41	2.0	2.2	(0.22)	10.40	No	0.18	0.17	0.020	1.00	No
Receptor_42	2.0	2.2	(0.23)	10.40	No	0.19	0.17	0.021	1.00	No
Receptor_43	2.0	2.2	(0.26)	10.40	No	0.19	0.16	0.021	1.00	No
Receptor_44	1.9	2.2	(0.29)	10.40	No	0.19	0.17	0.022	1.00	No
Receptor_45	1.9	2.1	(0.19)	10.40	No	0.19	0.17	0.022	1.00	No
Receptor_46	2.1	2.3	(0.29)	10.40	No	0.20	0.18	0.024	1.00	No
Receptor_47	2.2	2.4	(0.26)	10.40	No	0.22	0.19	0.026	1.00	No
Receptor_48	2.2	2.4	(0.29)	10.40	No	0.22	0.19	0.026	1.00	No
Receptor_49	2.2	2.5	(0.27)	10.40	No	0.23	0.20	0.027	1.00	No
Receptor_50	2.3	2.6	(0.29)	10.40	No	0.24	0.21	0.029	1.00	No
Receptor_51	2.3	2.4	(0.14)	10.40	No	0.23	0.20	0.028	1.00	No
Receptor_52	2.4	2.4	(0.02)	10.40	No	0.22	0.19	0.026	1.00	No
Receptor_53	2.4	2.4	0.08	10.40	No	0.21	0.18	0.024	1.00	No
Receptor_54	2.4	2.3	0.14	10.40	No	0.19	0.17	0.021	1.00	No
Receptor_55	2.4	2.2	0.14	10.40	No	0.19	0.17	0.019	1.00	No
Receptor_56	2.3	2.1	0.18	10.40	No	0.18	0.17	0.017	1.00	No
Receptor_57	2.4	2.2	0.19	10.40	No	0.19	0.17	0.018	1.00	No
Receptor_58	2.4	2.2	0.20	10.40	No	0.20	0.18	0.019	1.00	No
Receptor_59	2.5	2.4	0.18	10.40	No	0.21	0.19	0.023	1.00	No
Receptor_60	2.6	2.4	0.21	10.40	No	0.23	0.20	0.024	1.00	No
Receptor_61	2.7	2.4	0.25	10.40	No	0.24	0.22	0.026	1.00	No
Receptor_62	2.8	2.5	0.28	10.40	No	0.26	0.23	0.029	1.00	No
Receptor_63	2.8	2.5	0.31	10.40	No	0.28	0.25	0.031	1.00	No
Receptor_64	2.9	2.7	0.25	10.40	No	0.31	0.27	0.035	1.00	No
Receptor_65	3.0	2.8	0.26	10.40	No	0.33	0.29	0.037	1.00	No
Receptor_66	3.1	2.8	0.28	10.40	No	0.35	0.31	0.040	1.00	No
Receptor_67	3.1	2.8	0.29	10.40	No	0.38	0.34	0.044	1.00	No
Receptor_68	3.2	2.9	0.30	10.40	No	0.41	0.36	0.049	1.00	No
Receptor_69	3.4	3.1	0.30	10.40	No	0.46	0.40	0.058	1.00	No
Receptor_70	3.2	2.9	0.30	10.40	No	0.47	0.41	0.061	1.00	No
Receptor_71	3.1	2.8	0.30	10.40	No	0.49	0.42	0.065	1.00	No
Receptor_72	3.1	2.9	0.19	10.40	No	0.50	0.43	0.069	1.00	No
Receptor_73	3.0	2.6	0.43	10.40	No	0.50	0.43	0.073	1.00	No
Receptor_74	2.9	2.3	0.60	10.40	No	0.51	0.43	0.075	1.00	No
Receptor_75	3.0	3.0	(0.07)	10.40	No	0.51	0.44	0.075	1.00	No
Receptor_76	3.2	3.5	(0.25)	10.40	No	0.59	0.50	0.089	1.00	No
Receptor_77	3.4	3.7	(0.34)	10.40	No	0.59	0.50	0.087	1.00	No
Receptor_78	3.5	3.9	(0.39)	10.40	No	0.59	0.50	0.086	1.00	No
Receptor_79	3.9	4.4	(0.49)	10.40	No	0.67	0.57	0.101	1.00	No
Receptor_80	4.3	4.9	(0.57)	10.40	No	0.78	0.66	0.122	1.00	No
Receptor_81	4.7	5.3	(0.63)	10.40	No	0.92	0.77	0.149	1.00	No
Receptor_82	4.4	4.8	(0.40)	10.40	No	0.88	0.74	0.138	1.00	No
Receptor_83	4.1	4.1	(0.09)	10.40	No	0.85	0.72	0.127	1.00	No
Receptor_84	3.9	4.1	(0.18)	10.40	No	0.72	0.62	0.105	1.00	No
Receptor_85	3.7	4.0	(0.24)	10.40	No	0.62	0.53	0.088	1.00	No

	PM10 24-Hr					PM10 Annual				
Receptor ID	Project	NP	Project Increase (ug/m3)	Threshold	Exceeds?	Project	NP	Project Increase (ug/m3)	Threshold	Exceeds?
Receptor_86	3.5	3.7	(0.25)	10.40	No	0.54	0.47	0.075	1.00	No
Receptor_87	3.4	3.4	(0.04)	10.40	No	0.54	0.47	0.072	1.00	No
Receptor_88	3.2	3.0	0.19	10.40	No	0.54	0.48	0.068	1.00	No
Receptor_89	2.9	2.8	0.09	10.40	No	0.54	0.48	0.064	1.00	No
Receptor_90	2.6	2.7	(0.06)	10.40	No	0.50	0.44	0.056	1.00	No
Receptor_91	2.4	2.6	(0.16)	10.40	No	0.46	0.41	0.049	1.00	No
Receptor_92	2.3	2.5	(0.19)	10.40	No	0.43	0.39	0.044	1.00	No
Receptor_93	2.3	2.6	(0.32)	10.40	No	0.45	0.41	0.047	1.00	No
Receptor_94	2.3	2.6	(0.32)	10.40	No	0.48	0.43	0.051	1.00	No
Receptor_95	2.4	1.9	0.43	10.40	No	0.51	0.45	0.056	1.00	No
Receptor_96	2.5	2.4	0.06	10.40	No	0.53	0.47	0.062	1.00	No
Receptor_97	2.6	2.3	0.26	10.40	No	0.56	0.50	0.067	1.00	No
Receptor_98	2.7	2.4	0.26	10.40	No	0.62	0.54	0.077	1.00	No
Receptor_99	2.9	2.3	0.59	10.40	No	0.69	0.60	0.090	1.00	No
Receptor_100	3.2	2.5	0.71	10.40	No	0.77	0.67	0.104	1.00	No
Receptor_101	3.1	2.6	0.56	10.40	No	0.82	0.70	0.111	1.00	No
Receptor_102	3.3	2.9	0.42	10.40	No	0.86	0.74	0.115	1.00	No
Receptor_103	3.3	2.9	0.40	10.40	No	0.90	0.78	0.117	1.00	No
Receptor_104	3.4	2.7	0.72	10.40	No	0.94	0.82	0.118	1.00	No
Receptor_105	3.6	3.3	0.30	10.40	No	0.98	0.86	0.119	1.00	No
Receptor_106	3.9	3.5	0.40	10.40	No	1.07	0.94	0.130	1.00	No
Receptor_107	4.2	3.7	0.50	10.40	No	1.16	1.02	0.142	1.00	No
Receptor_108	4.2	3.7	0.57	10.40	No	1.18	1.04	0.143	1.00	No
Receptor_109	4.1	3.5	0.59	10.40	No	1.14	1.00	0.138	1.00	No
Receptor_110	3.9	3.3	0.62	10.40	No	1.10	0.97	0.133	1.00	No
Receptor_111	3.7	3.1	0.56	10.40	No	1.00	0.88	0.119	1.00	No
Receptor_112	3.6	3.0	0.60	10.40	No	1.02	0.90	0.122	1.00	No
Receptor_113	3.5	3.3	0.19	10.40	No	1.04	0.92	0.124	1.00	No
Receptor_114	3.4	3.3	0.08	10.40	No	1.05	0.93	0.123	1.00	No
Receptor_115	3.3	3.3	0.02	10.40	No	1.07	0.95	0.113	1.00	No
Receptor_116	3.3	2.7	0.60	10.40	No	1.07	0.97	0.109	1.00	No
Receptor_117	3.6	2.9	0.67	10.40	No	1.21	1.09	0.123	1.00	No
Receptor_118	3.9	3.2	0.73	10.40	No	1.37	1.23	0.140	1.00	No
Receptor_119	4.2	3.5	0.66	10.40	No	1.56	1.40	0.165	1.00	No
Receptor_120	4.7	3.9	0.75	10.40	No	1.80	1.60	0.204	1.00	No
Receptor_121	4.8	4.0	0.80	10.40	No	1.92	1.68	0.237	1.00	No
Receptor_122	4.8	4.1	0.71	10.40	No	2.03	1.77	0.265	1.00	No
Receptor_123	4.7	4.0	0.71	10.40	No	1.96	1.72	0.247	1.00	No
Receptor_124	4.5	4.0	0.55	10.40	No	1.90	1.67	0.225	1.00	No
Receptor_125	4.7	4.3	0.46	10.40	No	2.09	1.86	0.226	1.00	No
Receptor_126	4.6	4.1	0.50	10.40	No	2.01	1.82	0.194	1.00	No
Receptor_127	4.1	4.0	0.05	10.40	No	1.80	1.62	0.184	1.00	No
Receptor_128	3.9	3.7	0.21	10.40	No	1.62	1.45	0.167	1.00	No
Receptor_129	3.8	3.4	0.41	10.40	No	1.51	1.35	0.160	1.00	No
Receptor_130	3.6	3.4	0.27	10.40	No	1.48	1.33	0.150	1.00	No
Receptor_131	3.5	3.3	0.17	10.40	No	1.44	1.30	0.137	1.00	No
Receptor_132	3.3	3.1	0.17	10.40	No	1.33	1.21	0.123	1.00	No
Receptor_133	3.1	2.9	0.17	10.40	No	1.24	1.13	0.110	1.00	No
Receptor_134	3.0	2.8	0.16	10.40	No	1.16	1.06	0.099	1.00	No
Receptor_135	2.8	2.7	0.15	10.40	No	1.09	1.00	0.089	1.00	No
Receptor_136	2.7	2.6	0.13	10.40	No	1.03	0.95	0.080	1.00	No
Receptor_137	2.6	2.5	0.10	10.40	No	0.97	0.90	0.072	1.00	No
Receptor_138	2.6	2.5	0.12	10.40	No	1.00	0.94	0.063	1.00	No
Receptor_139	2.6	2.5	0.14	10.40	No	1.03	0.98	0.050	1.00	No
Receptor_140	2.6	2.5	0.09	10.40	No	1.01	0.97	0.038	1.00	No
Receptor_141	2.7	2.6	0.06	10.40	No	1.04	1.01	0.033	1.00	No
Receptor_142	2.7	2.6	0.03	10.40	No	1.02	0.99	0.024	1.00	No
Receptor_143	2.8	2.7	0.05	10.40	No	1.05	1.04	0.010	1.00	No
Receptor_144	2.9	2.8	0.11	10.40	No	1.07	1.07	(0.007)	1.00	No
Receptor_145	2.9	2.7	0.23	10.40	No	1.08	1.11	(0.024)	1.00	No
Receptor_146	2.9	2.8	0.05	10.40	No	1.04	1.07	(0.032)	1.00	No
Receptor_147	3.0	3.1	(0.14)	10.40	No	1.00	1.04	(0.042)	1.00	No
Receptor_148	3.0	3.2	(0.25)	10.40	No	0.96	1.01	(0.053)	1.00	No
Receptor_149	3.2	3.7	(0.48)	10.40	No	0.97	1.04	(0.068)	1.00	No
Receptor_150	3.3	4.0	(0.69)	10.40	No	0.98	1.06	(0.084)	1.00	No
Receptor_151	3.3	4.1	(0.83)	10.40	No	0.99	1.09	(0.099)	1.00	No
Receptor_152	3.2	4.1	(0.86)	10.40	No	1.00	1.11	(0.117)	1.00	No
Receptor_153	3.1	4.0	(0.83)	10.40	No	1.00	1.14	(0.136)	1.00	No
Receptor_154	3.3	4.2	(0.93)	10.40	No	1.07	1.19	(0.125)	1.00	No
Receptor_155	3.4	4.3	(0.94)	10.40	No	1.07	1.18	(0.114)	1.00	No
Receptor_156	3.4	4.3	(0.91)	10.40	No	1.06	1.17	(0.105)	1.00	No
Receptor_157	3.4	4.0	(0.61)	10.40	No	1.12	1.21	(0.090)	1.00	No
Receptor_158	3.2	3.9	(0.73)	10.40	No	1.14	1.25	(0.110)	1.00	No
Receptor_159	3.3	4.0	(0.71)	10.40	No	1.20	1.31	(0.113)	1.00	No
Receptor_160	3.4	4.1	(0.68)	10.40	No	1.25	1.37	(0.115)	1.00	No
Receptor_161	3.5	4.1	(0.57)	10.40	No	1.31	1.42	(0.109)	1.00	No
Receptor_162	3.7	4.1	(0.43)	10.40	No	1.39	1.49	(0.097)	1.00	No
Receptor_163	3.9	4.2	(0.27)	10.40	No	1.48	1.55	(0.076)	1.00	No
Receptor_164	4.1	4.0	0.11	10.40	No	1.58	1.65	(0.070)	1.00	No
Receptor_165	4.5	4.4	0.13	10.40	No	1.69	1.76	(0.064)	1.00	No
Receptor_166	4.9	4.7	0.20	10.40	No	1.84	1.90	(0.057)	1.00	No
Receptor_167	5.4	5.1	0.30	10.40	No	2.04	2.09	(0.047)	1.00	No
Receptor_168	6.0	5.6	0.41	10.40	No	2.34	2.37	(0.033)	1.00	No
Receptor_169	6.4	5.9	0.49	10.40	No	2.58	2.60	(0.023)	1.00	No
Receptor_170	6.3	6.0	0.25	10.40	No	2.53	2.52	0.011	1.00	No

	PM10 24-Hr					PM10 Annual				
Receptor ID	**Project**	**NP**	**Project Increase (ug/m3)**	**Threshold**	**Exceeds?**	**Project**	**NP**	**Project Increase (ug/m3)**	**Threshold**	**Exceeds?**
Receptor_171	6.2	6.1	0.08	10.40	No	2.39	2.49	(0.098)	1.00	No
Receptor_172	5.8	5.5	0.26	10.40	No	2.40	2.54	(0.141)	1.00	No
Receptor_173	5.7	6.8	(1.12)	10.40	No	2.62	2.81	(0.195)	1.00	No
Receptor_174	5.7	6.0	(0.37)	10.40	No	2.52	2.71	(0.187)	1.00	No
Receptor_175	5.5	5.8	(0.23)	10.40	No	2.34	2.53	(0.184)	1.00	No
Receptor_176	5.2	5.5	(0.29)	10.40	No	2.14	2.32	(0.184)	1.00	No
Receptor_177	4.8	5.5	(0.68)	10.40	No	1.93	2.12	(0.195)	1.00	No
Receptor_178	4.5	5.1	(0.61)	10.40	No	1.74	1.94	(0.198)	1.00	No
Receptor_179	4.4	5.3	(0.94)	10.40	No	1.56	1.76	(0.202)	1.00	No
Receptor_180	4.2	5.2	(1.03)	10.40	No	1.41	1.61	(0.206)	1.00	No
Receptor_181	4.1	4.2	(0.18)	10.40	No	1.28	1.45	(0.166)	1.00	No
Receptor_182	3.9	4.2	(0.28)	10.40	No	1.20	1.37	(0.170)	1.00	No
Receptor_183	3.8	4.3	(0.53)	10.40	No	1.14	1.32	(0.178)	1.00	No
Receptor_184	3.9	4.3	(0.40)	10.40	No	1.10	1.29	(0.192)	1.00	No
Receptor_185	3.9	4.9	(1.04)	10.40	No	1.10	1.34	(0.244)	1.00	No
Receptor_186	4.7	4.7	(0.01)	10.40	No	1.10	1.29	(0.193)	1.00	No
Receptor_187	3.9	3.9	0.05	10.40	No	1.07	1.25	(0.180)	1.00	No
Receptor_188	3.7	3.6	0.14	10.40	No	1.02	1.22	(0.194)	1.00	No
Receptor_189	3.3	4.0	(0.65)	10.40	No	0.96	1.18	(0.213)	1.00	No
Receptor_190	3.0	3.6	(0.59)	10.40	No	0.90	1.11	(0.215)	1.00	No
Receptor_191	3.0	3.4	(0.40)	10.40	No	0.84	1.03	(0.182)	1.00	No
Receptor_192	2.9	3.0	(0.09)	10.40	No	0.81	0.96	(0.154)	1.00	No
Receptor_193	2.8	2.6	0.17	10.40	No	0.78	0.91	(0.132)	1.00	No
Receptor_194	2.7	2.9	(0.28)	10.40	No	0.77	0.89	(0.121)	1.00	No
Receptor_195	2.5	2.7	(0.14)	10.40	No	0.76	0.87	(0.105)	1.00	No
Receptor_196	2.4	2.5	(0.04)	10.40	No	0.75	0.84	(0.091)	1.00	No
Receptor_197	2.3	2.3	0.04	10.40	No	0.74	0.82	(0.079)	1.00	No
Receptor_198	2.3	2.5	(0.19)	10.40	No	0.73	0.80	(0.068)	1.00	No
Receptor_199	2.3	2.5	(0.23)	10.40	No	0.72	0.77	(0.058)	1.00	No
Receptor_200	2.3	2.6	(0.26)	10.40	No	0.71	0.76	(0.051)	1.00	No
Receptor_201	2.3	2.6	(0.28)	10.40	No	0.70	0.75	(0.043)	1.00	No
Receptor_202	2.2	2.5	(0.26)	10.40	No	0.68	0.73	(0.042)	1.00	No
Receptor_203	2.2	2.4	(0.20)	10.40	No	0.66	0.70	(0.043)	1.00	No
Receptor_204	2.1	2.2	(0.15)	10.40	No	0.63	0.67	(0.042)	1.00	No
Receptor_205	2.0	2.1	(0.09)	10.40	No	0.60	0.65	(0.042)	1.00	No
Receptor_206	2.0	1.9	0.10	10.40	No	0.58	0.62	(0.041)	1.00	No
Receptor_207	1.9	1.9	0.06	10.40	No	0.56	0.60	(0.039)	1.00	No
Receptor_208	1.9	1.9	0.03	10.40	No	0.54	0.58	(0.038)	1.00	No
Receptor_209	1.9	1.9	(0.02)	10.40	No	0.53	0.57	(0.039)	1.00	No
Receptor_210	1.9	2.0	(0.10)	10.40	No	0.53	0.57	(0.044)	1.00	No
Receptor_211	1.9	2.0	(0.08)	10.40	No	0.53	0.58	(0.050)	1.00	No
Receptor_212	1.9	2.0	(0.16)	10.40	No	0.53	0.59	(0.055)	1.00	No
Receptor_213	1.9	2.1	(0.22)	10.40	No	0.53	0.59	(0.060)	1.00	No
Receptor_214	1.8	2.3	(0.50)	10.40	No	0.53	0.60	(0.066)	1.00	No
Receptor_215	1.8	2.5	(0.63)	10.40	No	0.54	0.61	(0.073)	1.00	No
Receptor_216	1.9	2.4	(0.57)	10.40	No	0.53	0.61	(0.080)	1.00	No
Receptor_217	2.0	2.7	(0.70)	10.40	No	0.57	0.66	(0.091)	1.00	No
Receptor_218	2.1	2.8	(0.74)	10.40	No	0.60	0.69	(0.098)	1.00	No
Receptor_219	2.1	2.9	(0.80)	10.40	No	0.62	0.73	(0.111)	1.00	No
Receptor_220	2.2	3.1	(0.87)	10.40	No	0.65	0.77	(0.126)	1.00	No
Receptor_221	2.3	3.3	(0.94)	10.40	No	0.68	0.81	(0.137)	1.00	No
Receptor_222	2.4	3.4	(0.96)	10.40	No	0.72	0.86	(0.147)	1.00	No
Receptor_223	2.6	3.5	(0.91)	10.40	No	0.76	0.91	(0.157)	1.00	No
Receptor_224	2.7	3.4	(0.73)	10.40	No	0.80	0.96	(0.166)	1.00	No
Receptor_225	2.9	3.3	(0.41)	10.40	No	0.84	1.05	(0.206)	1.00	No
Receptor_226	2.9	3.2	(0.37)	10.40	No	0.82	1.00	(0.181)	1.00	No
Receptor_227	2.9	4.1	(1.19)	10.40	No	0.90	1.10	(0.200)	1.00	No
Receptor_228	2.9	4.4	(1.47)	10.40	No	0.94	1.18	(0.240)	1.00	No
Receptor_229	2.9	3.2	(0.31)	10.40	No	0.94	1.26	(0.312)	1.00	No
Receptor_230	2.8	4.6	(1.80)	10.40	No	0.87	1.18	(0.310)	1.00	No
Receptor_231	2.7	4.4	(1.68)	10.40	No	0.82	1.12	(0.301)	1.00	No
Receptor_232	2.8	4.4	(1.60)	10.40	No	0.82	1.21	(0.384)	1.00	No
Receptor_233	3.1	4.5	(1.40)	10.40	No	0.84	1.35	(0.512)	1.00	No
Receptor_234	3.2	5.2	(2.01)	10.40	No	0.87	1.50	(0.623)	1.00	No
Receptor_235	3.4	5.6	(2.20)	10.40	No	0.92	1.64	(0.715)	1.00	No
Receptor_236	3.5	4.9	(1.47)	10.40	No	0.96	1.86	(0.907)	1.00	No
Receptor_237	3.2	5.2	(2.01)	10.40	No	0.88	1.50	(0.626)	1.00	No
Receptor_238	3.0	4.5	(1.47)	10.40	No	0.79	1.18	(0.390)	1.00	No
Receptor_239	2.9	4.1	(1.20)	10.40	No	0.72	1.01	(0.293)	1.00	No
Receptor_240	3.0	4.2	(1.23)	10.40	No	0.72	0.98	(0.266)	1.00	No
Receptor_241	2.9	3.7	(0.87)	10.40	No	0.65	0.82	(0.171)	1.00	No
Receptor_242	2.7	3.4	(0.62)	10.40	No	0.58	0.70	(0.113)	1.00	No
Receptor_243	2.6	3.1	(0.45)	10.40	No	0.53	0.61	(0.078)	1.00	No
Receptor_244	2.5	2.8	(0.32)	10.40	No	0.48	0.54	(0.056)	1.00	No
Receptor_245	2.3	2.5	(0.19)	10.40	No	0.42	0.46	(0.036)	1.00	No
Receptor_246	2.3	2.4	(0.11)	10.40	No	0.39	0.41	(0.012)	1.00	No
Receptor_247	2.2	2.2	(0.03)	10.40	No	0.36	0.36	0.000	1.00	No
Receptor_248	2.0	1.9	0.09	10.40	No	0.32	0.31	0.003	1.00	No
Receptor_249	1.9	1.7	0.19	10.40	No	0.28	0.30	(0.020)	1.00	No
Receptor_250	1.8	2.3	(0.47)	10.40	No	0.26	0.27	(0.015)	1.00	No
Receptor_251	1.8	2.1	(0.34)	10.40	No	0.23	0.25	(0.011)	1.00	No
Receptor_252	1.6	1.9	(0.25)	10.40	No	0.21	0.22	(0.009)	1.00	No
Receptor_253	1.7	1.9	(0.25)	10.40	No	0.22	0.23	(0.009)	1.00	No
Receptor_254	1.7	2.0	(0.30)	10.40	No	0.23	0.24	(0.008)	1.00	No
Receptor_255	1.8	2.1	(0.28)	10.40	No	0.24	0.25	(0.008)	1.00	No

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Receptor ID	Project	NP	Project Increase (ug/m3)	Threshold	Exceeds?	Project	NP	Project Increase (ug/m3)	Threshold	Exceeds?
Receptor_256	2.0	2.3	(0.29)	10.40	No	0.27	0.28	(0.008)	1.00	No
Receptor_257	2.2	2.6	(0.41)	10.40	No	0.30	0.31	(0.010)	1.00	No
Receptor_258	2.2	2.6	(0.40)	10.40	No	0.32	0.33	(0.008)	1.00	No
Receptor_259	2.0	2.3	(0.28)	10.40	No	0.29	0.29	(0.007)	1.00	No
Receptor_260	1.9	2.1	(0.22)	10.40	No	0.25	0.26	(0.007)	1.00	No
Receptor_261	2.0	2.1	(0.10)	10.40	No	0.26	0.27	(0.007)	1.00	No
Receptor_262	2.1	2.1	(0.01)	10.40	No	0.28	0.28	(0.006)	1.00	No
Receptor_263	2.2	1.9	0.27	10.40	No	0.24	0.25	(0.007)	1.00	No
Receptor_264	2.1	1.8	0.28	10.40	No	0.21	0.22	(0.007)	1.00	No
Receptor_265	1.9	1.7	0.23	10.40	No	0.18	0.19	(0.008)	1.00	No
Receptor_266	1.7	1.6	0.08	10.40	No	0.17	0.18	(0.008)	1.00	No
Receptor_267	1.7	1.6	0.05	10.40	No	0.18	0.19	(0.011)	1.00	No
Receptor_268	1.8	1.7	0.11	10.40	No	0.19	0.20	(0.014)	1.00	No
Receptor_269	1.8	1.8	0.08	10.40	No	0.20	0.22	(0.015)	1.00	No
Receptor_270	1.9	2.0	(0.17)	10.40	No	0.21	0.23	(0.013)	1.00	No
Receptor_271	1.9	2.1	(0.27)	10.40	No	0.23	0.24	(0.012)	1.00	No
Receptor_272	1.9	2.0	(0.09)	10.40	No	0.25	0.26	(0.014)	1.00	No
Receptor_273	2.1	1.9	0.17	10.40	No	0.27	0.29	(0.024)	1.00	No
Receptor_274	2.2	2.0	0.14	10.40	No	0.30	0.33	(0.035)	1.00	No
Receptor_275	2.3	2.2	0.09	10.40	No	0.32	0.37	(0.044)	1.00	No
Receptor_276	2.4	2.3	0.10	10.40	No	0.35	0.40	(0.047)	1.00	No
Receptor_277	2.7	2.5	0.21	10.40	No	0.39	0.43	(0.047)	1.00	No
Receptor_278	2.9	2.5	0.33	10.40	No	0.43	0.48	(0.048)	1.00	No
Receptor_279	2.9	2.6	0.38	10.40	No	0.48	0.53	(0.052)	1.00	No
Receptor_280	3.0	2.6	0.39	10.40	No	0.54	0.59	(0.056)	1.00	No
Receptor_281	3.1	2.7	0.36	10.40	No	0.59	0.65	(0.061)	1.00	No
Receptor_282	3.2	2.9	0.31	10.40	No	0.63	0.70	(0.066)	1.00	No
Receptor_283	3.2	3.0	0.22	10.40	No	0.67	0.74	(0.069)	1.00	No
Receptor_284	3.2	3.1	0.08	10.40	No	0.70	0.77	(0.067)	1.00	No
Receptor_285	3.3	3.4	(0.15)	10.40	No	0.73	0.78	(0.047)	1.00	No
Receptor_286	3.7	4.0	(0.29)	10.40	No	0.91	0.96	(0.052)	1.00	No
Receptor_287	3.9	4.2	(0.23)	10.40	No	1.01	1.02	(0.015)	1.00	No
Receptor_288	4.3	4.4	(0.10)	10.40	No	1.16	1.13	0.032	1.00	No
Receptor_289	4.4	4.4	(0.06)	10.40	No	1.19	1.16	0.032	1.00	No
Receptor_290	4.0	4.2	(0.14)	10.40	No	1.05	1.04	0.017	1.00	No
Receptor_291	3.9	3.7	0.24	10.40	No	0.95	0.94	0.009	1.00	No
Receptor_292	3.7	3.4	0.36	10.40	No	0.83	0.84	(0.006)	1.00	No
Receptor_293	3.9	3.3	0.58	10.40	No	0.86	0.86	(0.002)	1.00	No
Receptor_294	4.0	3.7	0.30	10.40	No	0.89	0.88	0.005	1.00	No
Receptor_295	4.6	4.1	0.53	10.40	No	0.91	0.90	0.011	1.00	No
Receptor_296	5.2	4.5	0.68	10.40	No	0.95	0.93	0.022	1.00	No
Receptor_297	5.4	4.8	0.63	10.40	No	0.99	0.95	0.035	1.00	No
Receptor_298	5.3	4.8	0.53	10.40	No	1.02	0.97	0.054	1.00	No
Receptor_299	5.2	4.5	0.71	10.40	No	1.04	0.97	0.076	1.00	No
Receptor_300	5.0	4.0	1.05	10.40	No	1.05	0.96	0.090	1.00	No
Receptor_301	4.9	5.0	(0.09)	10.40	No	1.06	0.96	0.102	1.00	No
Receptor_302	5.1	4.7	0.40	10.40	No	1.10	0.98	0.122	1.00	No
Receptor_303	5.2	4.7	0.51	10.40	No	1.12	0.99	0.137	1.00	No
Receptor_304	5.2	4.5	0.71	10.40	No	1.15	1.00	0.154	1.00	No
Receptor_305	5.2	4.5	0.74	10.40	No	1.18	1.00	0.174	1.00	No
Receptor_306	5.2	4.2	1.03	10.40	No	1.19	1.00	0.190	1.00	No
Receptor_307	4.8	3.8	1.03	10.40	No	1.19	0.99	0.195	1.00	No
Receptor_308	4.6	3.8	0.80	10.40	No	1.15	0.97	0.180	1.00	No
Receptor_309	4.3	3.8	0.48	10.40	No	1.11	0.95	0.166	1.00	No
Receptor_310	4.0	3.9	0.17	10.40	No	1.07	0.92	0.154	1.00	No
Receptor_311	3.8	3.9	(0.14)	10.40	No	1.03	0.89	0.146	1.00	No
Receptor_312	3.6	3.4	0.17	10.40	No	1.00	0.85	0.141	1.00	No
Receptor_313	3.6	3.4	0.19	10.40	No	0.96	0.82	0.138	1.00	No
Receptor_314	3.5	3.3	0.17	10.40	No	0.92	0.79	0.135	1.00	No
Receptor_315	3.4	3.3	0.13	10.40	No	0.89	0.75	0.132	1.00	No
Receptor_316	3.3	3.2	0.08	10.40	No	0.85	0.72	0.127	1.00	No
Receptor_317	3.1	3.1	0.05	10.40	No	0.81	0.69	0.122	1.00	No
Receptor_318	3.0	3.0	0.03	10.40	No	0.78	0.67	0.116	1.00	No
Receptor_319	2.9	3.3	(0.37)	10.40	No	0.75	0.65	0.110	1.00	No
Receptor_320	2.9	3.3	(0.37)	10.40	No	0.73	0.62	0.104	1.00	No
Receptor_321	2.8	3.2	(0.37)	10.40	No	0.70	0.60	0.099	1.00	No
Receptor_322	2.8	3.2	(0.38)	10.40	No	0.67	0.58	0.094	1.00	No
Receptor_323	2.7	3.1	(0.38)	10.40	No	0.64	0.55	0.090	1.00	No
Receptor_324	2.6	3.0	(0.38)	10.40	No	0.61	0.53	0.086	1.00	No
Receptor_325	2.5	2.9	(0.37)	10.40	No	0.59	0.51	0.082	1.00	No
Receptor_326	2.5	2.8	(0.35)	10.40	No	0.56	0.48	0.078	1.00	No
Receptor_327	10.7	8.5	2.27	10.40	No	3.70	4.02	(0.317)	1.00	No
Maximum	10.73	8.47	2.27	10.40	No	3.701	4.018	0.265	1.00	No

	PM2.5 24-Hr					PM2.5 Annual				
Receptor ID	**Project**	**NP**	**Project Increase (ug/m3)**	**Threshold**	**Exceeds?**	**Project**	**NP**	**Project Increase (ug/m3)**	**Threshold**	**Exceeds?**
Receptor_1	2.3	2.7	(0.34)	10.40	No	0.53	0.46	0.07	1.00	No
Receptor_2	2.2	2.5	(0.30)	10.40	No	0.53	0.45	0.08	1.00	No
Receptor_3	2.3	2.2	0.04	10.40	No	0.52	0.44	0.08	1.00	No
Receptor_4	2.3	2.3	0.08	10.40	No	0.50	0.43	0.08	1.00	No
Receptor_5	2.4	2.3	0.10	10.40	No	0.49	0.41	0.07	1.00	No
Receptor_6	2.4	2.3	0.10	10.40	No	0.47	0.40	0.07	1.00	No
Receptor_7	2.4	2.3	0.10	10.40	No	0.45	0.38	0.07	1.00	No
Receptor_8	2.4	2.3	0.10	10.40	No	0.43	0.37	0.06	1.00	No
Receptor_9	2.4	2.6	(0.20)	10.40	No	0.41	0.35	0.06	1.00	No
Receptor_10	2.4	2.7	(0.24)	10.40	No	0.39	0.34	0.06	1.00	No
Receptor_11	2.5	2.7	(0.25)	10.40	No	0.37	0.32	0.05	1.00	No
Receptor_12	2.5	2.7	(0.23)	10.40	No	0.35	0.31	0.05	1.00	No
Receptor_13	2.5	2.7	(0.18)	10.40	No	0.33	0.29	0.04	1.00	No
Receptor_14	2.5	2.6	(0.11)	10.40	No	0.31	0.27	0.04	1.00	No
Receptor_15	2.5	2.6	(0.02)	10.40	No	0.30	0.26	0.04	1.00	No
Receptor_16	2.5	2.4	0.07	10.40	No	0.28	0.25	0.03	1.00	No
Receptor_17	2.5	2.3	0.14	10.40	No	0.26	0.23	0.03	1.00	No
Receptor_18	2.4	2.2	0.18	10.40	No	0.25	0.22	0.03	1.00	No
Receptor_19	2.2	2.0	0.18	10.40	No	0.23	0.21	0.02	1.00	No
Receptor_20	2.0	1.9	0.14	10.40	No	0.22	0.20	0.02	1.00	No
Receptor_21	1.8	1.7	0.08	10.40	No	0.21	0.19	0.02	1.00	No
Receptor_22	1.7	1.5	0.20	10.40	No	0.19	0.18	0.01	1.00	No
Receptor_23	1.7	1.4	0.27	10.40	No	0.18	0.17	0.01	1.00	No
Receptor_24	1.6	1.4	0.26	10.40	No	0.17	0.16	0.01	1.00	No
Receptor_25	1.6	1.3	0.25	10.40	No	0.16	0.15	0.01	1.00	No
Receptor_26	1.5	1.3	0.24	10.40	No	0.15	0.14	0.01	1.00	No
Receptor_27	1.4	1.2	0.22	10.40	No	0.14	0.14	0.01	1.00	No
Receptor_28	1.4	1.2	0.18	10.40	No	0.14	0.13	0.01	1.00	No
Receptor_29	1.4	1.2	0.20	10.40	No	0.14	0.13	0.01	1.00	No
Receptor_30	1.5	1.2	0.22	10.40	No	0.15	0.14	0.01	1.00	No
Receptor_31	1.5	1.3	0.24	10.40	No	0.15	0.14	0.01	1.00	No
Receptor_32	1.4	1.3	0.18	10.40	No	0.15	0.14	0.01	1.00	No
Receptor_33	1.5	1.3	0.19	10.40	No	0.15	0.14	0.01	1.00	No
Receptor_34	1.5	1.3	0.20	10.40	No	0.16	0.15	0.01	1.00	No
Receptor_35	1.6	1.7	(0.14)	10.40	No	0.16	0.15	0.01	1.00	No
Receptor_36	1.6	1.8	(0.14)	10.40	No	0.16	0.15	0.01	1.00	No
Receptor_37	1.7	1.9	(0.15)	10.40	No	0.16	0.15	0.01	1.00	No
Receptor_38	1.8	2.0	(0.18)	10.40	No	0.17	0.15	0.02	1.00	No
Receptor_39	1.8	2.0	(0.21)	10.40	No	0.17	0.15	0.02	1.00	No
Receptor_40	1.9	2.1	(0.20)	10.40	No	0.18	0.16	0.02	1.00	No
Receptor_41	2.0	2.2	(0.22)	10.40	No	0.18	0.16	0.02	1.00	No
Receptor_42	2.0	2.2	(0.23)	10.40	No	0.19	0.17	0.02	1.00	No
Receptor_43	1.9	2.2	(0.26)	10.40	No	0.19	0.16	0.02	1.00	No
Receptor_44	1.9	2.2	(0.29)	10.40	No	0.19	0.17	0.02	1.00	No
Receptor_45	1.9	2.1	(0.19)	10.40	No	0.19	0.17	0.02	1.00	No
Receptor_46	2.0	2.3	(0.29)	10.40	No	0.20	0.18	0.02	1.00	No
Receptor_47	2.2	2.4	(0.26)	10.40	No	0.22	0.19	0.03	1.00	No
Receptor_48	2.1	2.4	(0.29)	10.40	No	0.22	0.19	0.03	1.00	No
Receptor_49	2.2	2.5	(0.27)	10.40	No	0.23	0.20	0.03	1.00	No
Receptor_50	2.3	2.6	(0.29)	10.40	No	0.23	0.21	0.03	1.00	No
Receptor_51	2.3	2.4	(0.14)	10.40	No	0.23	0.20	0.03	1.00	No
Receptor_52	2.4	2.4	(0.02)	10.40	No	0.22	0.19	0.03	1.00	No
Receptor_53	2.4	2.4	0.08	10.40	No	0.21	0.18	0.02	1.00	No
Receptor_54	2.4	2.3	0.14	10.40	No	0.19	0.17	0.02	1.00	No
Receptor_55	2.4	2.2	0.14	10.40	No	0.19	0.17	0.02	1.00	No
Receptor_56	2.3	2.1	0.18	10.40	No	0.18	0.16	0.02	1.00	No
Receptor_57	2.3	2.2	0.19	10.40	No	0.19	0.17	0.02	1.00	No
Receptor_58	2.4	2.2	0.20	10.40	No	0.20	0.18	0.02	1.00	No
Receptor_59	2.5	2.3	0.18	10.40	No	0.21	0.19	0.02	1.00	No
Receptor_60	2.6	2.4	0.21	10.40	No	0.22	0.20	0.02	1.00	No
Receptor_61	2.7	2.4	0.25	10.40	No	0.24	0.22	0.03	1.00	No
Receptor_62	2.8	2.5	0.28	10.40	No	0.26	0.23	0.03	1.00	No
Receptor_63	2.8	2.5	0.31	10.40	No	0.28	0.25	0.03	1.00	No
Receptor_64	2.9	2.7	0.25	10.40	No	0.31	0.27	0.03	1.00	No
Receptor_65	3.0	2.8	0.26	10.40	No	0.33	0.29	0.04	1.00	No
Receptor_66	3.1	2.8	0.28	10.40	No	0.35	0.31	0.04	1.00	No
Receptor_67	3.1	2.8	0.29	10.40	No	0.38	0.34	0.04	1.00	No
Receptor_68	3.2	2.9	0.30	10.40	No	0.41	0.36	0.05	1.00	No
Receptor_69	3.4	3.1	0.30	10.40	No	0.46	0.40	0.06	1.00	No
Receptor_70	3.2	2.9	0.30	10.40	No	0.47	0.41	0.06	1.00	No
Receptor_71	3.0	2.7	0.30	10.40	No	0.49	0.42	0.06	1.00	No
Receptor_72	3.1	2.9	0.19	10.40	No	0.50	0.43	0.07	1.00	No
Receptor_73	3.0	2.6	0.43	10.40	No	0.50	0.43	0.07	1.00	No
Receptor_74	2.9	2.3	0.60	10.40	No	0.51	0.43	0.07	1.00	No
Receptor_75	3.0	3.0	(0.07)	10.40	No	0.51	0.43	0.07	1.00	No
Receptor_76	3.2	3.5	(0.25)	10.40	No	0.59	0.50	0.09	1.00	No
Receptor_77	3.4	3.7	(0.34)	10.40	No	0.58	0.50	0.09	1.00	No
Receptor_78	3.5	3.9	(0.39)	10.40	No	0.58	0.50	0.09	1.00	No
Receptor_79	3.9	4.4	(0.49)	10.40	No	0.67	0.57	0.10	1.00	No
Receptor_80	4.3	4.9	(0.57)	10.40	No	0.78	0.66	0.12	1.00	No
Receptor_81	4.7	5.3	(0.63)	10.40	No	0.92	0.77	0.15	1.00	No
Receptor_82	4.4	4.8	(0.40)	10.40	No	0.88	0.74	0.14	1.00	No
Receptor_83	4.0	4.1	(0.09)	10.40	No	0.85	0.72	0.13	1.00	No
Receptor_84	3.9	4.1	(0.18)	10.40	No	0.72	0.62	0.10	1.00	No
Receptor_85	3.7	4.0	(0.24)	10.40	No	0.62	0.53	0.09	1.00	No

	PM2.5 24-Hr					PM2.5 Annual				
Receptor ID	Project	NP	Project Increase (ug/m3)	Threshold	Exceeds?	Project	NP	Project Increase (ug/m3)	Threshold	Exceeds?
Receptor_86	3.5	3.7	(0.25)	10.40	No	0.54	0.47	0.07	1.00	No
Receptor_87	3.4	3.4	(0.04)	10.40	No	0.54	0.47	0.07	1.00	No
Receptor_88	3.1	2.9	0.19	10.40	No	0.54	0.47	0.07	1.00	No
Receptor_89	2.9	2.8	0.08	10.40	No	0.54	0.48	0.06	1.00	No
Receptor_90	2.6	2.7	(0.06)	10.40	No	0.50	0.44	0.06	1.00	No
Receptor_91	2.4	2.6	(0.16)	10.40	No	0.46	0.41	0.05	1.00	No
Receptor_92	2.3	2.5	(0.19)	10.40	No	0.43	0.38	0.04	1.00	No
Receptor_93	2.3	2.6	(0.32)	10.40	No	0.45	0.40	0.05	1.00	No
Receptor_94	2.3	2.6	(0.32)	10.40	No	0.48	0.43	0.05	1.00	No
Receptor_95	2.4	1.9	0.43	10.40	No	0.50	0.45	0.06	1.00	No
Receptor_96	2.5	2.4	0.06	10.40	No	0.53	0.47	0.06	1.00	No
Receptor_97	2.6	2.3	0.26	10.40	No	0.56	0.49	0.07	1.00	No
Receptor_98	2.7	2.4	0.26	10.40	No	0.62	0.54	0.08	1.00	No
Receptor_99	2.9	2.3	0.59	10.40	No	0.69	0.60	0.09	1.00	No
Receptor_100	3.2	2.5	0.71	10.40	No	0.77	0.67	0.10	1.00	No
Receptor_101	3.1	2.6	0.56	10.40	No	0.81	0.70	0.11	1.00	No
Receptor_102	3.3	2.9	0.41	10.40	No	0.86	0.74	0.11	1.00	No
Receptor_103	3.3	2.9	0.40	10.40	No	0.90	0.78	0.12	1.00	No
Receptor_104	3.4	2.7	0.72	10.40	No	0.94	0.82	0.12	1.00	No
Receptor_105	3.6	3.3	0.30	10.40	No	0.98	0.86	0.12	1.00	No
Receptor_106	3.8	3.4	0.40	10.40	No	1.06	0.93	0.13	1.00	No
Receptor_107	4.1	3.6	0.50	10.40	No	1.16	1.02	0.14	1.00	No
Receptor_108	4.2	3.7	0.57	10.40	No	1.18	1.04	0.14	1.00	No
Receptor_109	4.1	3.5	0.59	10.40	No	1.14	1.00	0.14	1.00	No
Receptor_110	3.9	3.3	0.62	10.40	No	1.10	0.96	0.13	1.00	No
Receptor_111	3.7	3.1	0.56	10.40	No	1.00	0.88	0.12	1.00	No
Receptor_112	3.6	3.0	0.60	10.40	No	1.02	0.90	0.12	1.00	No
Receptor_113	3.5	3.3	0.19	10.40	No	1.04	0.91	0.12	1.00	No
Receptor_114	3.4	3.3	0.08	10.40	No	1.05	0.93	0.12	1.00	No
Receptor_115	3.3	2.8	0.51	10.40	No	1.06	0.95	0.11	1.00	No
Receptor_116	3.3	2.7	0.60	10.40	No	1.07	0.96	0.11	1.00	No
Receptor_117	3.6	2.9	0.67	10.40	No	1.20	1.08	0.12	1.00	No
Receptor_118	3.9	3.2	0.73	10.40	No	1.37	1.23	0.14	1.00	No
Receptor_119	4.2	3.5	0.66	10.40	No	1.56	1.40	0.16	1.00	No
Receptor_120	4.6	3.9	0.75	10.40	No	1.80	1.59	0.20	1.00	No
Receptor_121	4.8	4.0	0.80	10.40	No	1.92	1.68	0.24	1.00	No
Receptor_122	4.8	4.0	0.71	10.40	No	2.03	1.76	0.26	1.00	No
Receptor_123	4.7	4.0	0.71	10.40	No	1.96	1.71	0.25	1.00	No
Receptor_124	4.5	4.0	0.55	10.40	No	1.89	1.67	0.22	1.00	No
Receptor_125	4.7	4.2	0.47	10.40	No	2.08	1.86	0.23	1.00	No
Receptor_126	4.6	4.1	0.51	10.40	No	2.00	1.81	0.19	1.00	No
Receptor_127	4.1	4.0	0.05	10.40	No	1.80	1.61	0.18	1.00	No
Receptor_128	3.9	3.6	0.21	10.40	No	1.62	1.45	0.17	1.00	No
Receptor_129	3.8	3.4	0.41	10.40	No	1.50	1.34	0.16	1.00	No
Receptor_130	3.6	3.4	0.27	10.40	No	1.47	1.32	0.15	1.00	No
Receptor_131	3.5	3.3	0.17	10.40	No	1.44	1.30	0.14	1.00	No
Receptor_132	3.3	3.1	0.17	10.40	No	1.33	1.21	0.12	1.00	No
Receptor_133	3.1	2.9	0.17	10.40	No	1.24	1.13	0.11	1.00	No
Receptor_134	2.9	2.8	0.16	10.40	No	1.16	1.06	0.10	1.00	No
Receptor_135	2.8	2.7	0.15	10.40	No	1.09	1.00	0.09	1.00	No
Receptor_136	2.7	2.6	0.13	10.40	No	1.02	0.95	0.08	1.00	No
Receptor_137	2.6	2.5	0.10	10.40	No	0.97	0.90	0.07	1.00	No
Receptor_138	2.6	2.5	0.12	10.40	No	1.00	0.94	0.06	1.00	No
Receptor_139	2.6	2.5	0.14	10.40	No	1.02	0.97	0.05	1.00	No
Receptor_140	2.6	2.5	0.09	10.40	No	1.01	0.97	0.04	1.00	No
Receptor_141	2.7	2.6	0.06	10.40	No	1.04	1.00	0.03	1.00	No
Receptor_142	2.7	2.6	0.03	10.40	No	1.01	0.99	0.02	1.00	No
Receptor_143	2.8	2.7	0.05	10.40	No	1.04	1.03	0.01	1.00	No
Receptor_144	2.9	2.7	0.11	10.40	No	1.06	1.07	(0.01)	1.00	No
Receptor_145	2.9	2.7	0.23	10.40	No	1.08	1.10	(0.03)	1.00	No
Receptor_146	2.9	2.8	0.05	10.40	No	1.04	1.07	(0.03)	1.00	No
Receptor_147	2.9	3.1	(0.14)	10.40	No	0.99	1.03	(0.04)	1.00	No
Receptor_148	3.0	3.2	(0.25)	10.40	No	0.96	1.01	(0.05)	1.00	No
Receptor_149	3.2	3.6	(0.48)	10.40	No	0.97	1.04	(0.07)	1.00	No
Receptor_150	3.3	4.0	(0.69)	10.40	No	0.98	1.06	(0.08)	1.00	No
Receptor_151	3.3	4.1	(0.83)	10.40	No	0.98	1.08	(0.10)	1.00	No
Receptor_152	3.2	4.1	(0.87)	10.40	No	0.99	1.11	(0.12)	1.00	No
Receptor_153	3.1	4.0	(0.83)	10.40	No	1.00	1.13	(0.14)	1.00	No
Receptor_154	3.3	4.2	(0.93)	10.40	No	1.06	1.19	(0.13)	1.00	No
Receptor_155	3.3	4.3	(0.94)	10.40	No	1.06	1.18	(0.11)	1.00	No
Receptor_156	3.4	4.3	(0.91)	10.40	No	1.06	1.16	(0.11)	1.00	No
Receptor_157	3.3	3.9	(0.61)	10.40	No	1.12	1.21	(0.09)	1.00	No
Receptor_158	3.2	3.9	(0.73)	10.40	No	1.13	1.24	(0.11)	1.00	No
Receptor_159	3.3	4.0	(0.71)	10.40	No	1.19	1.30	(0.11)	1.00	No
Receptor_160	3.4	4.0	(0.68)	10.40	No	1.25	1.36	(0.12)	1.00	No
Receptor_161	3.5	4.1	(0.57)	10.40	No	1.31	1.42	(0.11)	1.00	No
Receptor_162	3.7	4.1	(0.43)	10.40	No	1.38	1.48	(0.10)	1.00	No
Receptor_163	3.9	4.1	(0.27)	10.40	No	1.47	1.55	(0.08)	1.00	No
Receptor_164	4.1	4.0	0.11	10.40	No	1.57	1.64	(0.07)	1.00	No
Receptor_165	4.5	4.4	0.13	10.40	No	1.68	1.75	(0.06)	1.00	No
Receptor_166	4.9	4.7	0.20	10.40	No	1.83	1.89	(0.06)	1.00	No
Receptor_167	5.3	5.1	0.30	10.40	No	2.03	2.08	(0.05)	1.00	No
Receptor_168	5.9	5.5	0.41	10.40	No	2.32	2.36	(0.03)	1.00	No
Receptor_169	6.4	5.9	0.49	10.40	No	2.56	2.59	(0.02)	1.00	No
Receptor_170	6.3	6.0	0.25	10.40	No	2.52	2.51	0.01	1.00	No

	PM2.5 24-Hr					PM2.5 Annual				
Receptor ID	Project	NP	Project Increase (ug/m3)	Threshold	Exceeds?	Project	NP	Project Increase (ug/m3)	Threshold	Exceeds?
Receptor_171	6.2	6.1	0.08	10.40	No	2.38	2.48	(0.10)	1.00	No
Receptor_172	5.8	5.5	0.26	10.40	No	2.39	2.53	(0.14)	1.00	No
Receptor_173	5.7	6.8	(1.12)	10.40	No	2.60	2.80	(0.20)	1.00	No
Receptor_174	5.6	6.0	(0.37)	10.40	No	2.51	2.69	(0.19)	1.00	No
Receptor_175	5.5	5.7	(0.23)	10.40	No	2.33	2.51	(0.18)	1.00	No
Receptor_176	5.2	5.5	(0.30)	10.40	No	2.13	2.31	(0.18)	1.00	No
Receptor_177	4.8	5.5	(0.68)	10.40	No	1.92	2.11	(0.20)	1.00	No
Receptor_178	4.5	5.1	(0.61)	10.40	No	1.73	1.93	(0.20)	1.00	No
Receptor_179	4.3	5.3	(0.95)	10.40	No	1.55	1.76	(0.20)	1.00	No
Receptor_180	4.2	5.2	(1.04)	10.40	No	1.40	1.61	(0.21)	1.00	No
Receptor_181	4.0	4.2	(0.19)	10.40	No	1.28	1.44	(0.17)	1.00	No
Receptor_182	3.9	4.2	(0.30)	10.40	No	1.20	1.37	(0.17)	1.00	No
Receptor_183	3.7	4.3	(0.54)	10.40	No	1.14	1.32	(0.18)	1.00	No
Receptor_184	3.8	4.3	(0.41)	10.40	No	1.10	1.29	(0.19)	1.00	No
Receptor_185	3.9	4.1	(0.20)	10.40	No	1.09	1.34	(0.24)	1.00	No
Receptor_186	4.7	4.7	(0.01)	10.40	No	1.09	1.29	(0.19)	1.00	No
Receptor_187	3.9	3.9	0.04	10.40	No	1.07	1.25	(0.18)	1.00	No
Receptor_188	3.7	3.6	0.14	10.40	No	1.02	1.22	(0.19)	1.00	No
Receptor_189	3.3	4.0	(0.66)	10.40	No	0.96	1.18	(0.21)	1.00	No
Receptor_190	3.0	3.6	(0.59)	10.40	No	0.89	1.11	(0.22)	1.00	No
Receptor_191	3.0	3.4	(0.40)	10.40	No	0.84	1.02	(0.18)	1.00	No
Receptor_192	2.9	3.0	(0.09)	10.40	No	0.81	0.96	(0.15)	1.00	No
Receptor_193	2.8	2.6	0.17	10.40	No	0.78	0.91	(0.13)	1.00	No
Receptor_194	2.7	2.9	(0.28)	10.40	No	0.77	0.89	(0.12)	1.00	No
Receptor_195	2.5	2.7	(0.14)	10.40	No	0.76	0.86	(0.10)	1.00	No
Receptor_196	2.4	2.5	(0.04)	10.40	No	0.75	0.84	(0.09)	1.00	No
Receptor_197	2.3	2.3	0.04	10.40	No	0.74	0.82	(0.08)	1.00	No
Receptor_198	2.3	2.5	(0.19)	10.40	No	0.72	0.79	(0.07)	1.00	No
Receptor_199	2.3	2.5	(0.23)	10.40	No	0.71	0.77	(0.06)	1.00	No
Receptor_200	2.3	2.5	(0.26)	10.40	No	0.71	0.76	(0.05)	1.00	No
Receptor_201	2.3	2.6	(0.29)	10.40	No	0.70	0.74	(0.04)	1.00	No
Receptor_202	2.2	2.5	(0.26)	10.40	No	0.68	0.72	(0.04)	1.00	No
Receptor_203	2.2	2.4	(0.20)	10.40	No	0.65	0.70	(0.04)	1.00	No
Receptor_204	2.1	2.2	(0.15)	10.40	No	0.63	0.67	(0.04)	1.00	No
Receptor_205	2.0	2.1	(0.09)	10.40	No	0.60	0.64	(0.04)	1.00	No
Receptor_206	2.0	1.9	0.10	10.40	No	0.58	0.62	(0.04)	1.00	No
Receptor_207	1.9	1.9	0.06	10.40	No	0.56	0.60	(0.04)	1.00	No
Receptor_208	1.9	1.8	0.03	10.40	No	0.54	0.58	(0.04)	1.00	No
Receptor_209	1.9	1.9	(0.02)	10.40	No	0.53	0.57	(0.04)	1.00	No
Receptor_210	1.9	2.0	(0.10)	10.40	No	0.53	0.57	(0.04)	1.00	No
Receptor_211	1.9	2.0	(0.08)	10.40	No	0.53	0.58	(0.05)	1.00	No
Receptor_212	1.9	2.0	(0.16)	10.40	No	0.53	0.58	(0.06)	1.00	No
Receptor_213	1.9	2.1	(0.22)	10.40	No	0.53	0.59	(0.06)	1.00	No
Receptor_214	1.8	2.3	(0.50)	10.40	No	0.53	0.60	(0.07)	1.00	No
Receptor_215	1.8	2.5	(0.63)	10.40	No	0.53	0.61	(0.07)	1.00	No
Receptor_216	1.9	2.4	(0.57)	10.40	No	0.53	0.61	(0.08)	1.00	No
Receptor_217	2.0	2.7	(0.70)	10.40	No	0.57	0.66	(0.09)	1.00	No
Receptor_218	2.1	2.8	(0.75)	10.40	No	0.59	0.69	(0.10)	1.00	No
Receptor_219	2.1	2.9	(0.81)	10.40	No	0.62	0.73	(0.11)	1.00	No
Receptor_220	2.2	3.1	(0.88)	10.40	No	0.64	0.77	(0.13)	1.00	No
Receptor_221	2.3	3.3	(0.94)	10.40	No	0.68	0.81	(0.14)	1.00	No
Receptor_222	2.4	3.4	(0.97)	10.40	No	0.71	0.86	(0.15)	1.00	No
Receptor_223	2.6	3.5	(0.91)	10.40	No	0.75	0.91	(0.16)	1.00	No
Receptor_224	2.7	3.4	(0.73)	10.40	No	0.79	0.96	(0.17)	1.00	No
Receptor_225	2.9	3.3	(0.41)	10.40	No	0.84	1.05	(0.21)	1.00	No
Receptor_226	2.9	3.2	(0.37)	10.40	No	0.82	1.00	(0.18)	1.00	No
Receptor_227	2.9	4.1	(1.19)	10.40	No	0.90	1.10	(0.20)	1.00	No
Receptor_228	2.9	4.4	(1.48)	10.40	No	0.94	1.18	(0.24)	1.00	No
Receptor_229	2.9	3.2	(0.31)	10.40	No	0.94	1.25	(0.31)	1.00	No
Receptor_230	2.8	4.6	(1.80)	10.40	No	0.87	1.18	(0.31)	1.00	No
Receptor_231	2.7	4.3	(1.68)	10.40	No	0.82	1.12	(0.30)	1.00	No
Receptor_232	2.8	4.4	(1.60)	10.40	No	0.82	1.21	(0.38)	1.00	No
Receptor_233	3.0	4.5	(1.41)	10.40	No	0.83	1.35	(0.51)	1.00	No
Receptor_234	3.2	5.2	(2.01)	10.40	No	0.87	1.49	(0.62)	1.00	No
Receptor_235	3.4	5.6	(2.21)	10.40	No	0.92	1.63	(0.72)	1.00	No
Receptor_236	3.5	4.9	(1.47)	10.40	No	0.95	1.86	(0.91)	1.00	No
Receptor_237	3.2	5.2	(2.02)	10.40	No	0.88	1.50	(0.63)	1.00	No
Receptor_238	3.0	4.5	(1.47)	10.40	No	0.79	1.18	(0.39)	1.00	No
Receptor_239	2.9	4.1	(1.20)	10.40	No	0.71	1.01	(0.29)	1.00	No
Receptor_240	3.0	4.2	(1.23)	10.40	No	0.72	0.98	(0.27)	1.00	No
Receptor_241	2.8	3.7	(0.87)	10.40	No	0.65	0.82	(0.17)	1.00	No
Receptor_242	2.7	3.4	(0.62)	10.40	No	0.58	0.70	(0.11)	1.00	No
Receptor_243	2.6	3.1	(0.45)	10.40	No	0.53	0.61	(0.08)	1.00	No
Receptor_244	2.5	2.8	(0.32)	10.40	No	0.48	0.54	(0.06)	1.00	No
Receptor_245	2.3	2.5	(0.19)	10.40	No	0.42	0.46	(0.04)	1.00	No
Receptor_246	2.3	2.4	(0.11)	10.40	No	0.39	0.40	(0.01)	1.00	No
Receptor_247	2.1	2.2	(0.03)	10.40	No	0.36	0.36	-	1.00	No
Receptor_248	2.0	1.9	0.09	10.40	No	0.32	0.31	0.00	1.00	No
Receptor_249	1.9	1.7	0.19	10.40	No	0.28	0.30	(0.02)	1.00	No
Receptor_250	1.8	2.3	(0.47)	10.40	No	0.26	0.27	(0.02)	1.00	No
Receptor_251	1.8	2.1	(0.34)	10.40	No	0.23	0.25	(0.01)	1.00	No
Receptor_252	1.6	1.9	(0.25)	10.40	No	0.21	0.22	(0.01)	1.00	No
Receptor_253	1.7	1.9	(0.25)	10.40	No	0.22	0.23	(0.01)	1.00	No
Receptor_254	1.7	2.0	(0.30)	10.40	No	0.23	0.24	(0.01)	1.00	No
Receptor_255	1.8	2.1	(0.28)	10.40	No	0.24	0.25	(0.01)	1.00	No

	PM2.5 24-Hr					PM2.5 Annual				
Receptor ID	**Project**	**NP**	**Project Increase (ug/m3)**	**Threshold**	**Exceeds?**	**Project**	**NP**	**Project Increase (ug/m3)**	**Threshold**	**Exceeds?**
Receptor_256	2.0	2.3	(0.29)	10.40	No	0.27	0.28	(0.01)	1.00	No
Receptor_257	2.2	2.6	(0.41)	10.40	No	0.30	0.31	(0.01)	1.00	No
Receptor_258	2.2	2.6	(0.40)	10.40	No	0.32	0.33	(0.01)	1.00	No
Receptor_259	2.0	2.3	(0.28)	10.40	No	0.29	0.29	(0.01)	1.00	No
Receptor_260	1.9	2.1	(0.22)	10.40	No	0.25	0.26	(0.01)	1.00	No
Receptor_261	2.0	2.1	(0.10)	10.40	No	0.26	0.27	(0.01)	1.00	No
Receptor_262	2.1	2.1	(0.01)	10.40	No	0.27	0.28	(0.01)	1.00	No
Receptor_263	2.2	1.9	0.27	10.40	No	0.24	0.24	(0.01)	1.00	No
Receptor_264	2.1	1.8	0.28	10.40	No	0.21	0.21	(0.01)	1.00	No
Receptor_265	1.9	1.7	0.23	10.40	No	0.18	0.19	(0.01)	1.00	No
Receptor_266	1.7	1.6	0.08	10.40	No	0.17	0.18	(0.01)	1.00	No
Receptor_267	1.7	1.6	0.05	10.40	No	0.18	0.19	(0.01)	1.00	No
Receptor_268	1.8	1.7	0.11	10.40	No	0.19	0.20	(0.01)	1.00	No
Receptor_269	1.8	1.8	0.08	10.40	No	0.20	0.22	(0.02)	1.00	No
Receptor_270	1.9	2.0	(0.17)	10.40	No	0.21	0.23	(0.01)	1.00	No
Receptor_271	1.9	2.1	(0.27)	10.40	No	0.23	0.24	(0.01)	1.00	No
Receptor_272	1.9	2.0	(0.09)	10.40	No	0.24	0.26	(0.01)	1.00	No
Receptor_273	2.1	1.9	0.17	10.40	No	0.27	0.29	(0.02)	1.00	No
Receptor_274	2.2	2.0	0.14	10.40	No	0.30	0.33	(0.04)	1.00	No
Receptor_275	2.3	2.2	0.09	10.40	No	0.32	0.36	(0.04)	1.00	No
Receptor_276	2.4	2.3	0.10	10.40	No	0.35	0.39	(0.05)	1.00	No
Receptor_277	2.7	2.5	0.21	10.40	No	0.38	0.43	(0.05)	1.00	No
Receptor_278	2.9	2.5	0.33	10.40	No	0.43	0.48	(0.05)	1.00	No
Receptor_279	2.9	2.6	0.38	10.40	No	0.48	0.53	(0.05)	1.00	No
Receptor_280	3.0	2.6	0.39	10.40	No	0.54	0.59	(0.06)	1.00	No
Receptor_281	3.1	2.7	0.36	10.40	No	0.59	0.65	(0.06)	1.00	No
Receptor_282	3.2	2.9	0.31	10.40	No	0.63	0.70	(0.07)	1.00	No
Receptor_283	3.2	3.0	0.22	10.40	No	0.67	0.74	(0.07)	1.00	No
Receptor_284	3.2	3.1	0.08	10.40	No	0.70	0.77	(0.07)	1.00	No
Receptor_285	3.3	3.4	(0.15)	10.40	No	0.73	0.78	(0.05)	1.00	No
Receptor_286	3.7	4.0	(0.29)	10.40	No	0.91	0.96	(0.05)	1.00	No
Receptor_287	3.9	4.2	(0.23)	10.40	No	1.01	1.02	(0.01)	1.00	No
Receptor_288	4.3	4.4	(0.10)	10.40	No	1.15	1.12	0.03	1.00	No
Receptor_289	4.4	4.4	(0.06)	10.40	No	1.19	1.16	0.03	1.00	No
Receptor_290	4.0	4.2	(0.14)	10.40	No	1.05	1.03	0.02	1.00	No
Receptor_291	3.9	3.6	0.24	10.40	No	0.94	0.93	0.01	1.00	No
Receptor_292	3.7	3.4	0.36	10.40	No	0.83	0.84	(0.01)	1.00	No
Receptor_293	3.9	3.3	0.58	10.40	No	0.86	0.86	(0.00)	1.00	No
Receptor_294	3.9	3.6	0.30	10.40	No	0.89	0.88	0.00	1.00	No
Receptor_295	4.6	4.1	0.53	10.40	No	0.91	0.90	0.01	1.00	No
Receptor_296	5.2	4.5	0.68	10.40	No	0.94	0.92	0.02	1.00	No
Receptor_297	5.4	4.8	0.63	10.40	No	0.98	0.95	0.04	1.00	No
Receptor_298	5.3	4.8	0.53	10.40	No	1.02	0.97	0.05	1.00	No
Receptor_299	5.2	4.4	0.71	10.40	No	1.04	0.96	0.08	1.00	No
Receptor_300	5.0	4.0	1.05	10.40	No	1.05	0.96	0.09	1.00	No
Receptor_301	4.8	4.9	(0.09)	10.40	No	1.06	0.96	0.10	1.00	No
Receptor_302	5.1	4.7	0.40	10.40	No	1.10	0.97	0.12	1.00	No
Receptor_303	5.2	4.6	0.51	10.40	No	1.12	0.98	0.14	1.00	No
Receptor_304	5.2	4.5	0.71	10.40	No	1.15	0.99	0.15	1.00	No
Receptor_305	5.2	4.4	0.74	10.40	No	1.17	1.00	0.17	1.00	No
Receptor_306	5.2	4.1	1.03	10.40	No	1.18	1.00	0.19	1.00	No
Receptor_307	4.8	3.8	1.03	10.40	No	1.19	0.99	0.19	1.00	No
Receptor_308	4.6	3.8	0.79	10.40	No	1.15	0.97	0.18	1.00	No
Receptor_309	4.3	3.8	0.48	10.40	No	1.11	0.94	0.16	1.00	No
Receptor_310	4.0	3.9	0.16	10.40	No	1.07	0.91	0.15	1.00	No
Receptor_311	3.7	3.9	(0.14)	10.40	No	1.03	0.88	0.15	1.00	No
Receptor_312	3.6	3.4	0.17	10.40	No	0.99	0.85	0.14	1.00	No
Receptor_313	3.5	3.4	0.19	10.40	No	0.95	0.82	0.14	1.00	No
Receptor_314	3.5	3.3	0.17	10.40	No	0.92	0.78	0.13	1.00	No
Receptor_315	3.4	3.2	0.13	10.40	No	0.88	0.75	0.13	1.00	No
Receptor_316	3.3	3.2	0.08	10.40	No	0.84	0.72	0.12	1.00	No
Receptor_317	3.1	3.1	0.05	10.40	No	0.81	0.69	0.12	1.00	No
Receptor_318	3.0	3.0	0.02	10.40	No	0.78	0.67	0.11	1.00	No
Receptor_319	2.9	3.3	(0.37)	10.40	No	0.75	0.64	0.11	1.00	No
Receptor_320	2.9	3.2	(0.37)	10.40	No	0.72	0.62	0.10	1.00	No
Receptor_321	2.8	3.2	(0.37)	10.40	No	0.70	0.60	0.10	1.00	No
Receptor_322	2.8	3.1	(0.38)	10.40	No	0.67	0.57	0.09	1.00	No
Receptor_323	2.7	3.1	(0.38)	10.40	No	0.64	0.55	0.09	1.00	No
Receptor_324	2.6	3.0	(0.38)	10.40	No	0.61	0.53	0.08	1.00	No
Receptor_325	2.5	2.9	(0.37)	10.40	No	0.59	0.50	0.08	1.00	No
Receptor_326	2.4	2.8	(0.35)	10.40	No	0.56	0.48	0.08	1.00	No
Receptor_327	10.7	8.4	2.26	10.40	No	3.68	4.00	(0.32)	1.00	No

Maximum	10.69	8.43	2.26	10.40	No	3.68	4.00	0.26	1.00	No

Attachment B.3

Construction – Cumulative Emissions Analysis

LAX/LAWA Runway 7L/25R and Associated Improvements Project
Draft EIR Air Quality Analysis
Cumulative Emissions

Cumulative Construction Projects Peak Daily Emissions Estimates

Project No.	Concurrent Construction Project	Estimated Total Normalized Construction Cost for Analysis Purposes (millions)	Construction Trip Intensity[9]	Start Date	End Date	Volatile Organic Compounds (VOCs) Estimated Maximum Daily Emissions (pounds per peak day)						Peak Day (lbs/day)
						Year 2014				Year 2015		
						Q1	Q2	Q3	Q4	Q1	Q2	
N/A[1]	Runway Safety Area (RSA) Improvements-South Airfield					213	213	213	213	213	213	213
1	West Aircraft Maintenance Area Project	$175.00	100%	01/14	12/18	46	51	125	112	19	**17**	125
2	Runway Safety Area (RSA) Improvements-North Airfield[8]	$139.10	100%	06/14	06/19			99	99	99	**99**	99
3	LAX Bradley West Project - Remaining Work[2]	$603.70	100%	11/13	12/17	79	66	212	66	65	**141**	212
4	T-3 Connector (Part of BWP, but listed separate due to schedule)	$175.00	100%	07/19	01/22							-
5	North Terminals Major Renovation (T-1)[8]	$380.00	100%	08/13	08/17	271	271	271	271	271	**271**	271
6	South Terminals Major Renovation (T-5 through T-8)[8]	$665.00	100%	11/11	02/18	475	475	475	475	475	**475**	475
7	Midfield Satellite Concourse: Phase 1 - North Concourse Project[8]	$666.50	100%	10/16	07/20				476	476	**476**	476
8	Central Utility Plant Replacement Project - Remaining Work[3]	$120.60	80%	01/14	06/15	26	26	26	26	26	**26**	26
9	Miscellaneous Projects/Improvements	$939.05	25%	01/14	07/20	168	168	168	168	168	**168**	168
10	LAX Northside Area Development[4]	N/A[1]	N/A[1]	01/15	12/22							-
11	LAX Master Plan Alt. D/SPAS Alt. 3[5,6]	$16,391.00	N/A[1]	06/15	06/25						**369**	369
12	Metro Crenshaw / LAX Transit Corridor and Station[7]	N/A[1]	N/A[1]	12/15	12/17							-
	Total from Other Construction Projects					1,065	1,058	1,377	1,694	1,600	2,043	2,043
	Total Cumulative Construction Projects					1,278	1,271	1,590	1,907	1,813	2,256	2,256

Notes:

[1] N/A = Not Available

[2] Los Angeles International Airport, Bradley West Project, Draft Environmental Impact Report (DEIR), May 2009. Estimated emissions for Year 2015 Q2 through Year 2017 Q4 (11 quarters) are based on the average of the maximum daily emissions during the last 11 quarters as shown in the Appendix E, Attachment 1 of the DEIR.

[3] Los Angeles International Airport, Central Utility Plan Replacement Project, DEIR, July 2009. Estimated emissions for Year 2014 Q1 through Year 2015 Q2 (6 quarters) are based on the average of the maximum daily emissions during the last 6 quarters as shown in the Appendix C of the DEIR.

[4] To be provided.

[5] As of this date, LAWA had considered nine development alternatives for the LAX Specific Plan Amendment Study (SPAS), and a combination of Alternatives 1 and 9 was approved; however, the implementation of that alternative cannot occur without future review and approval by FAA. As such, it assumed for the purposes of this analysis that the LAX Master Plan Alternative D, as currently approved, and was included in the SPAS analysis as Alternative 3, is implemented.

[6] The SPAS EIR indicates that construction of SPAS-related development, if approved, would occur between 2015 and 2025; however, there currently is no detailed construction schedule or construction phasing program. The SPAS EIR provides a general estimate of average daily construction emissions for the overall 11-year development duration.

[7] Los Angeles County Metropolitan Transportation Authority, Crenshaw/LAX Transit Corridor, Final Environmental Impact Statement/Final Environmental Impact Report (FEIS/R), August 2011. Detailed construction information was not available at the time of this analysis. The emissions were based on broad, conservative, and reasonable construction activities. Estimated emissions based on maximum daily construction emissions presented in the Crenshaw/LAX Transit Corridor Project FEIS/R.

[8] The emissions are estimated based on the ratio of the project costs as compared to the proposed Project, the ratio of construction trip intensity, and the ratio of the emissions using the maximum daily emissions from the proposed Project as a reference baseline.

[9] Represents a discount factor to provide a representation of the proportion of the overall project cost that would contribute to the generation of construction employee and delivery trip activity. The resultant trip generation volume and peaking characteristics are assumed t be proportional to the trip generation characteristics of the LAX Bradley West Project. For example, a low discount factor would represent a condition in which a high percentage of the project budget is allocated to technology, materials or equipment rather than labor-related activities that generate employment and delivery trips.

Source: Los Angeles World Airports; Ricondo & Associates, Inc.; CDM Smith, July 2013.
Prepared by: Ricondo & Associates, December 2013.

LAX/LAWA Runway 7L/25R and Associated Improvements Project
Draft EIR Air Quality Analysis
Cumulative Emissions

Cumulative Construction Projects Peak Daily Emissions Estimates

Project No.	Concurrent Construction Project	Estimated Total Normalized Construction Cost for Analysis Purposes (millions)	Construction Trip Intensity[9]	Start Date	End Date	Nitrogen Oxides (NO_X) Estimated Maximum Daily Emissions (pounds per peak day)						Peak Day (lbs/day)
						Year 2014				Year 2015		
						Q1	Q2	Q3	Q4	Q1	Q2	
N/A[1]	Runway Safety Area (RSA) Improvements-South Airfield					486	486	486	486	486	486	486
1	West Aircraft Maintenance Area Project	$175.00	100%	01/14	12/18	406	406	697	639	113	138	697
2	Runway Safety Area (RSA) Improvements-North Airfield[8]	$139.10	100%	06/14	06/19			554	**554**	554	554	554
3	LAX Bradley West Project - Remaining Work[2]	$603.70	100%	11/13	12/17	477	388	390	390	376	580	580
4	T-3 Connector (Part of BWP, but listed separate due to schedule)	$175.00	100%	07/19	01/22							-
5	North Terminals Major Renovation (T-1)[8]	$380.00	100%	08/13	08/17	1,513	1,513	1,513	1,513	1,513	1,513	1,513
6	South Terminals Major Renovation (T-5 through T-8)[8]	$665.00	100%	11/11	02/18	2,649	2,649	2,649	2,649	2,649	2,649	2,649
7	Midfield Satellite Concourse: Phase 1 - North Concourse Project[8]	$666.50	100%	10/16	07/20				**2,655**	2,655	2,655	2,655
8	Central Utility Plant Replacement Project - Remaining Work[3]	$120.60	80%	01/14	06/15	112	112	112	112	112	112	112
9	Miscellaneous Projects/Improvements	$939.05	25%	01/14	07/20	935	935	935	935	935	935	935
10	LAX Northside Area Development[4]	N/A[1]	N/A[1]	01/15	12/22							-
11	LAX Master Plan Alt. D/SPAS Alt. 3[5,6]	$16,391.00	N/A[1]	06/15	06/25						4,765	4,765
12	Metro Crenshaw / LAX Transit Corridor and Station[7]	N/A[1]	N/A[1]	12/15	12/17							-
	Total from Other Construction Projects					6,092	6,004	6,851	9,447	8,907	13,901	13,901
	Total Cumulative Construction Projects					6,578	6,490	7,337	9,933	9,393	14,387	14,387

Notes:

[1] N/A = Not Available

[2] Los Angeles International Airport, Bradley West Project, Draft Environmental Impact Report (DEIR), May 2009. Estimated emissions for Year 2015 Q2 through Year 2017 Q4 (11 quarters) are based on the average of the maximum daily emissions during the last 11 quarters as shown in the Appendix E, Attachment 1 of the DEIR.

[3] Los Angeles International Airport, Central Utility Plan Replacement Project, DEIR, July 2009. Estimated emissions for Year 2014 Q1 through Year 2015 Q2 (6 quarters) are based on the average of the maximum daily emissions during the last 6 quarters as shown in the Appendix C of the DEIR.

[4] To be provided.

[5] As of this date, LAWA had considered nine development alternatives for the LAX Specific Plan Amendment Study (SPAS), and a combination of Alternatives 1 and 9 was approved; however, the implementation of that alternative cannot occur without future review and approval by FAA. As such, it assumed for the purposes of this analysis that the LAX Master Plan Alternative D, as currently approved, and was included in the SPAS analysis as Alternative 3, is implemented.

[6] The SPAS EIR indicates that construction of SPAS-related development, if approved, would occur between 2015 and 2025; however, there currently is no detailed construction schedule or construction phasing program. The SPAS EIR provides a general estimate of average daily construction emissions for the overall 11-year development duration.

[7] Los Angeles County Metropolitan Transportation Authority, Crenshaw/LAX Transit Corridor, Final Environmental Impact Statement/Final Environmental Impact Report (FEIS/R), August 2011. Detailed construction information was not available at the time of this analysis. The emissions were based on broad, conservative, and reasonable construction activities. Estimated emissions based on maximum daily construction emissions presented in the Crenshaw/LAX Transit Corridor Project FEIS/R.

[8] The emissions are estimated based on the ratio of the project costs as compared to the proposed Project, the ratio of construction trip intensity, and the ratio of the emissions using the maximum daily emissions from the proposed Project as a reference baseline.

[9] Represents a discount factor to provide a representation of the proportion of the overall project cost that would contribute to the generation of construction employee and delivery trip activity. The resultant trip generation volume and peaking characteristics are assumed t be proportional to the trip generation characteristics of the LAX Bradley West Project. For example, a low discount factor would represent a condition in which a high percentage of the project budget is allocated to technology, materials or equipment rather than labor-related activities that generate employment and delivery trips.

Source: Los Angeles World Airports; Ricondo & Associates, Inc.; CDM Smith, July 2013.
Prepared by: Ricondo & Associates, December 2013.

LAX/LAWA Runway 7L/25R and Associated Improvements Project
Draft EIR Air Quality Analysis
Cumulative Emissions

Cumulative Construction Projects Peak Daily Emissions Estimates

Project No.	Concurrent Construction Project	Estimated Total Normalized Construction Cost for Analysis Purposes (millions)	Construction Trip Intensity[9]	Start Date	End Date	Carbon Monoxide (CO) Estimated Maximum Daily Emissions (pounds per peak day)						Peak Day (lbs/day)
						Year 2014				Year 2015		
						Q1	Q2	Q3	Q4	Q1	Q2	
N/A[1]	Runway Safety Area (RSA) Improvements-South Airfield					2,079	2,079	2,079	2,079	2,079	2,079	2,079
1	West Aircraft Maintenance Area Project	$175.00	100%	01/14	12/18	307	328	723	654	724	226	724
2	Runway Safety Area (RSA) Improvements-North Airfield[8]	$139.10	100%	06/14	06/19			575	575	575	575	575
3	LAX Bradley West Project - Remaining Work[2]	$603.70	100%	11/13	12/17	481	432	433	433	428	523	523
4	T-3 Connector (Part of BWP, but listed separate due to schedule)	$175.00	100%	07/19	01/22							-
5	North Terminals Major Renovation (T-1)[8]	$380.00	100%	08/13	08/17	1,572	1,572	1,572	1,572	1,572	1,572	1,572
6	South Terminals Major Renovation (T-5 through T-8)[8]	$665.00	100%	11/11	02/18	2,751	2,751	2,751	2,751	2,751	2,751	2,751
7	Midfield Satellite Concourse: Phase 1 - North Concourse Project[8]	$666.50	100%	10/16	07/20				2,757	2,757	2,757	2,757
8	Central Utility Plant Replacement Project - Remaining Work[3]	$120.60	80%	01/14	06/15	132	132	132	132	132	132	132
9	Miscellaneous Projects/Improvements	$939.05	25%	01/14	07/20	971	971	971	971	971	971	971
10	LAX Northside Area Development[4]	N/A[1]	N/A[1]	01/15	12/22							-
11	LAX Master Plan Alt. D/SPAS Alt. 3[5,6]	$16,391.00	N/A[1]	06/15	06/25						1,869	1,869
12	Metro Crenshaw / LAX Transit Corridor and Station[7]	N/A[1]	N/A[1]	12/15	12/17							-
	Total from Other Construction Projects					6,215	6,187	7,158	9,847	9,912	11,378	11,378
	Total Cumulative Construction Projects					8,294	8,266	9,237	11,926	11,991	13,457	13,457

Notes:

[1] N/A = Not Available

[2] Los Angeles International Airport, Bradley West Project, Draft Environmental Impact Report (DEIR), May 2009. Estimated emissions for Year 2015 Q2 through Year 2017 Q4 (11 quarters) are based on the average of the maximum daily emissions during the last 11 quarters as shown in the Appendix E, Attachment 1 of the DEIR.

[3] Los Angeles International Airport, Central Utility Plan Replacement Project, DEIR, July 2009. Estimated emissions for Year 2014 Q1 through Year 2015 Q2 (6 quarters) are based on the average of the maximum daily emissions during the last 6 quarters as shown in the Appendix C of the DEIR.

[4] To be provided.

[5] As of this date, LAWA had considered nine development alternatives for the LAX Specific Plan Amendment Study (SPAS), and a combination of Alternatives 1 and 9 was approved; however, the implementation of that alternative cannot occur without future review and approval by FAA. As such, it assumed for the purposes of this analysis that the LAX Master Plan Alternative D, as currently approved, and was included in the SPAS analysis as Alternative 3, is implemented.

[6] The SPAS EIR indicates that construction of SPAS-related development, if approved, would occur between 2015 and 2025; however, there currently is no detailed construction schedule or construction phasing program. The SPAS EIR provides a general estimate of average daily construction emissions for the overall 11-year development duration.

[7] Los Angeles County Metropolitan Transportation Authority, Crenshaw/LAX Transit Corridor, Final Environmental Impact Statement/Final Environmental Impact Report (FEIS/R), August 2011. Detailed construction information was not available at the time of this analysis. The emissions were based on broad, conservative, and reasonable construction activities. Estimated emissions based on maximum daily construction emissions presented in the Crenshaw/LAX Transit Corridor Project FEIS/R.

[8] The emissions are estimated based on the ratio of the project costs as compared to the proposed Project, the ratio of construction trip intensity, and the ratio of the emissions using the maximum daily emissions from the proposed Project as a reference baseline.

[9] Represents a discount factor to provide a representation of the proportion of the overall project cost that would contribute to the generation of construction employee and delivery trip activity. The resultant trip generation volume and peaking characteristics are assumed t be proportional to the trip generation characteristics of the LAX Bradley West Project. For example, a low discount factor would represent a condition in which a high percentage of the project budget is allocated to technology, materials or equipment rather than labor-related activities that generate employment and delivery trips.

Source: Los Angeles World Airports; Ricondo & Associates, Inc.; CDM Smith, July 2013.
Prepared by: Ricondo & Associates, December 2013.

LAX/LAWA Runway 7L/25R and Associated Improvements Project
Draft EIR Air Quality Analysis
Cumulative Emissions

Cumulative Construction Projects Peak Daily Emissions Estimates

Project No.	Concurrent Construction Project	Estimated Total Normalized Construction Cost for Analysis Purposes (millions)	Construction Trip Intensity[9]	Start Date	End Date	Sulfur Oxides (SO_X) Estimated Maximum Daily Emissions (pounds per peak day)						Peak Day (lbs/day)
						Year 2014				Year 2015		
						Q1	Q2	Q3	Q4	Q1	Q2	
N/A[1]	Runway Safety Area (RSA) Improvements-South Airfield					93	93	93	93	93	93	93
1	West Aircraft Maintenance Area Project	$175.00	100%	01/14	12/18	1	1	2	1	< 1	< 1	2
2	Runway Safety Area (RSA) Improvements-North Airfield[8]	$139.10	100%	06/14	06/19			2	**2**	2	2	2
3	LAX Bradley West Project - Remaining Work[2]	$603.70	100%	11/13	12/17	1	1	1	1	1	1	1
4	T-3 Connector (Part of BWP, but listed separate due to schedule)	$175.00	100%	07/19	01/22							-
5	North Terminals Major Renovation (T-1)[8]	$380.00	100%	08/13	08/17	4	4	4	4	4	4	4
6	South Terminals Major Renovation (T-5 through T-8)[8]	$665.00	100%	11/11	02/18	8	8	8	8	8	8	8
7	Midfield Satellite Concourse: Phase 1 - North Concourse Project[8]	$666.50	100%	10/16	07/20				**8**	8	8	8
8	Central Utility Plant Replacement Project - Remaining Work[3]	$120.60	80%	01/14	06/15	< 1	< 1	< 1	< 1	< 1	< 1	<1
9	Miscellaneous Projects/Improvements	$939.05	25%	01/14	07/20	3	3	3	3	3	3	3
10	LAX Northside Area Development[4]	N/A[1]	N/A[1]	01/15	12/22							-
11	LAX Master Plan Alt. D/SPAS Alt. 3[5,6]	$16,391.00	N/A[1]	06/15	06/25						5	5
12	Metro Crenshaw / LAX Transit Corridor and Station[7]	N/A[1]	N/A[1]	12/15	12/17							-
	Total from Other Construction Projects					17	17	19	26	25	30	30
	Total Cumulative Construction Projects					110	110	112	119	118	123	123

Notes:

[1] N/A = Not Available

[2] Los Angeles International Airport, Bradley West Project, Draft Environmental Impact Report (DEIR), May 2009. Estimated emissions for Year 2015 Q2 through Year 2017 Q4 (11 quarters) are based on the average of the maximum daily emissions during the last 11 quarters as shown in the Appendix E, Attachment 1 of the DEIR.

[3] Los Angeles International Airport, Central Utility Plan Replacement Project, DEIR, July 2009. Estimated emissions for Year 2014 Q1 through Year 2015 Q2 (6 quarters) are based on the average of the maximum daily emissions during the last 6 quarters as shown in the Appendix C of the DEIR.

[4] To be provided.

[5] As of this date, LAWA had considered nine development alternatives for the LAX Specific Plan Amendment Study (SPAS), and a combination of Alternatives 1 and 9 was approved; however, the implementation of that alternative cannot occur without future review and approval by FAA. As such, it assumed for the purposes of this analysis that the LAX Master Plan Alternative D, as currently approved, and was included in the SPAS analysis as Alternative 3, is implemented.

[6] The SPAS EIR indicates that construction of SPAS-related development, if approved, would occur between 2015 and 2025; however, there currently is no detailed construction schedule or construction phasing program. The SPAS EIR provides a general estimate of average daily construction emissions for the overall 11-year development duration.

[7] Los Angeles County Metropolitan Transportation Authority, Crenshaw/LAX Transit Corridor, Final Environmental Impact Statement/Final Environmental Impact Report (FEIS/R), August 2011. Detailed construction information was not available at the time of this analysis. The emissions were based on broad, conservative, and reasonable construction activities. Estimated emissions based on maximum daily construction emissions presented in the Crenshaw/LAX Transit Corridor Project FEIS/R.

[8] The emissions are estimated based on the ratio of the project costs as compared to the proposed Project, the ratio of construction trip intensity, and the ratio of the emissions using the maximum daily emissions from the proposed Project as a reference baseline.

[9] Represents a discount factor to provide a representation of the proportion of the overall project cost that would contribute to the generation of construction employee and delivery trip activity. The resultant trip generation volume and peaking characteristics are assumed t be proportional to the trip generation characteristics of the LAX Bradley West Project. For example, a low discount factor would represent a condition in which a high percentage of the project budget is allocated to technology, materials or equipment rather than labor-related activities that generate employment and delivery trips.

Source: Los Angeles World Airports; Ricondo & Associates, Inc.; CDM Smith, July 2013.
Prepared by: Ricondo & Associates, December 2013.

LAX/LAWA Runway 7L/25R and Associated Improvements Project
Draft EIR Air Quality Analysis
Cumulative Emissions

Cumulative Construction Projects Peak Daily Emissions Estimates

Project No.	Concurrent Construction Project	Estimated Total Normalized Construction Cost for Analysis Purposes (millions)	Construction Trip Intensity[9]	Start Date	End Date	Respirable Particulate Matter (PM10) Estimated Maximum Daily Emissions (pounds per peak day)						Peak Day (lbs/day)
						Year 2014				Year 2015		
						Q1	Q2	Q3	Q4	Q1	Q2	
N/A[1]	Runway Safety Area (RSA) Improvements-South Airfield					60	60	60	60	60	60	60
1	West Aircraft Maintenance Area Project	$175.00	100%	01/14	12/18	18	18	30	22	12	9	30
2	Runway Safety Area (RSA) Improvements-North Airfield[8]	$139.10	100%	06/14	06/19			24	24	24	24	24
3	LAX Bradley West Project - Remaining Work[2]	$603.70	100%	11/13	12/17	197	89	89	89	88	137	197
4	T-3 Connector (Part of BWP, but listed separate due to schedule)	$175.00	100%	07/19	01/22							-
5	North Terminals Major Renovation (T-1)[8]	$380.00	100%	08/13	08/17	65	65	65	65	65	65	65
6	South Terminals Major Renovation (T-5 through T-8)[8]	$665.00	100%	11/11	02/18	114	114	114	114	114	114	114
7	Midfield Satellite Concourse: Phase 1 - North Concourse Project[8]	$666.50	100%	10/16	07/20				114	114	114	114
8	Central Utility Plant Replacement Project - Remaining Work[3]	$120.60	80%	01/14	06/15	19	19	19	19	19	19	19
9	Miscellaneous Projects/Improvements	$939.05	25%	01/14	07/20	40	40	40	40	40	40	40
10	LAX Northside Area Development[4]	N/A[1]	N/A[1]	01/15	12/22							-
11	LAX Master Plan Alt. D/SPAS Alt. 3[5,6]	$16,391.00	N/A[1]	06/15	06/25						1,956	1,956
12	Metro Crenshaw / LAX Transit Corridor and Station[7]	N/A[1]	N/A[1]	12/15	12/17							-
	Total from Other Construction Projects					454	345	381	487	477	2,479	2,479
	Total Cumulative Construction Projects					514	405	441	547	537	2,539	2,539

Notes:

[1] N/A = Not Available

[2] Los Angeles International Airport, Bradley West Project, Draft Environmental Impact Report (DEIR), May 2009. Estimated emissions for Year 2015 Q2 through Year 2017 Q4 (11 quarters) are based on the average of the maximum daily emissions during the last 11 quarters as shown in the Appendix E, Attachment 1 of the DEIR.

[3] Los Angeles International Airport, Central Utility Plan Replacement Project, DEIR, July 2009. Estimated emissions for Year 2014 Q1 through Year 2015 Q2 (6 quarters) are based on the average of the maximum daily emissions during the last 6 quarters as shown in the Appendix C of the DEIR.

[4] To be provided.

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[8] The emissions are estimated based on the ratio of the project costs as compared to the proposed Project, the ratio of construction trip intensity, and the ratio of the emissions using the maximum daily emissions from the proposed Project as a reference baseline.

[9] Represents a discount factor to provide a representation of the proportion of the overall project cost that would contribute to the generation of construction employee and delivery trip activity. The resultant trip generation volume and peaking characteristics are assumed to be proportional to the trip generation characteristics of the LAX Bradley West Project. For example, a low discount factor would represent a condition in which a high percentage of the project budget is allocated to technology, materials or equipment rather than labor-related activities that generate employment and delivery trips.

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LAX/LAWA Runway 7L/25R and Associated Improvements Project
Draft EIR Air Quality Analysis
Cumulative Emissions

Cumulative Construction Projects Peak Daily Emissions Estimates

Project No.	Concurrent Construction Project	Estimated Total Normalized Construction Cost for Analysis Purposes (millions)	Construction Trip Intensity[9]	Start Date	End Date	Fine Particulate Matter (PM2.5) Estimated Maximum Daily Emissions (pounds per peak day) Year 2014				Year 2015		Peak Day (lbs/day)
						Q1	Q2	Q3	Q4	Q1	Q2	
N/A[1]	Runway Safety Area (RSA) Improvements-South Airfield					19	19	19	19	19	19	19
1	West Aircraft Maintenance Area Project	$175.00	100%	01/14	12/18	8	8	14	10	5	5	14
2	Runway Safety Area (RSA) Improvements-North Airfield[8]	$139.10	100%	06/14	06/19			11	11	11	11	11
3	LAX Bradley West Project - Remaining Work[2]	$603.70	100%	11/13	12/17	52	27	27	27	26	43	52
4	T-3 Connector (Part of BWP, but listed separate due to schedule)	$175.00	100%	07/19	01/22							-
5	North Terminals Major Renovation (T-1)[8]	$380.00	100%	08/13	08/17	30	30	30	30	30	30	30
6	South Terminals Major Renovation (T-5 through T-8)[8]	$665.00	100%	11/11	02/18	53	53	53	53	53	53	53
7	Midfield Satellite Concourse: Phase 1 - North Concourse Project[8]	$666.50	100%	10/16	07/20				53	53	53	53
8	Central Utility Plant Replacement Project - Remaining Work[3]	$120.60	80%	01/14	06/15	7	7	7	7	7	7	7
9	Miscellaneous Projects/Improvements	$939.05	25%	01/14	07/20	19	19	19	19	19	19	19
10	LAX Northside Area Development[4]	N/A[1]	N/A[1]	01/15	12/22							-
11	LAX Master Plan Alt. D/SPAS Alt. 3[5,6]	$16,391.00	N/A[1]	06/15	06/25						309	309
12	Metro Crenshaw / LAX Transit Corridor and Station[7]	N/A[1]	N/A[1]	12/15	12/17							-
	Total from Other Construction Projects					170	145	162	211	206	531	531
	Total Cumulative Construction Projects					189	164	181	230	225	550	550

Notes:

[1] N/A = Not Available

[2] Los Angeles International Airport, Bradley West Project, Draft Environmental Impact Report (DEIR), May 2009. Estimated emissions for Year 2015 Q2 through Year 2017 Q4 (11 quarters) are based on the average of the maximum daily emissions during the last 11 quarters as shown in the Appendix E, Attachment 1 of the DEIR.

[3] Los Angeles International Airport, Central Utility Plan Replacement Project, DEIR, July 2009. Estimated emissions for Year 2014 Q1 through Year 2015 Q2 (6 quarters) are based on the average of the maximum daily emissions during the last 6 quarters as shown in the Appendix C of the DEIR.

[4] To be provided.

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[7] Los Angeles County Metropolitan Transportation Authority, Crenshaw/LAX Transit Corridor, Final Environmental Impact Statement/Final Environmental Impact Report (FEIS/R), August 2011. Detailed construction information was not available at the time of this analysis. The emissions were based on broad, conservative, and reasonable construction activities. Estimated emissions based on maximum daily construction emissions presented in the Crenshaw/LAX Transit Corridor Project FEIS/R.

[8] The emissions are estimated based on the ratio of the project costs as compared to the proposed Project, the ratio of construction trip intensity, and the ratio of the emissions using the maximum daily emissions from the proposed Project as a reference baseline.

[9] Represents a discount factor to provide a representation of the proportion of the overall project cost that would contribute to the generation of construction employee and delivery trip activity. The resultant trip generation volume and peaking characteristics are assumed t be proportional to the trip generation characteristics of the LAX Bradley West Project. For example, a low discount factor would represent a condition in which a high percentage of the project budget is allocated to technology, materials or equipment rather than labor-related activities that generate employment and delivery trips.

Source: Los Angeles World Airports; Ricondo & Associates, Inc.; CDM Smith, July 2013.
Prepared by: Ricondo & Associates, December 2013.

Attachment B.4

Operations – Criteria Pollutant and Greenhouse Gas Emissions Calculations

- Aircraft Fleet Mix, Engine Assignments and Annual Operations
    - 2011 Baseline
    - 2015 With and Without Project
- Criteria Pollutants – EDMS Inventory Outputs
    - 2011 Baseline
    - 2011 Baseline With Project
    - Construction Aircraft Operations
    - 2015 With Project
    - 2015 Without Project
- GHG – EDMS Inventory Outputs
    - 2011 Baseline
    - 2011 Baseline With Project
    - Construction Aircraft Operations
    - 2015 With Project
    - 2015 Without Project
- GHGs – Aircraft Emissions

Attachment B.4

Operations – Criteria Pollutant and Greenhouse Gas Emissions Calculations

- Aircraft Fleet Mix, Engine Assignments and Annual Operations
    - 2011 Baseline
    - 2015 With and Without Project

Runway 7L/25R RSA Project and Associated Improvements

2011 Fleet Mix, Engine Assignments and Annual Operations

Aircraft ID	Engine Name	Departures	Arrivals	Totals
1900D	PT6A-67D	2,348	2,348	4,696
707QN	CFM56-2B	4	4	8
727200	JT8D-15 Reduced emissions	62	62	124
727EM1	JT8D-9 series Reduced emissions	19	19	38
727EM2	JT8D-15 Reduced emissions	4	4	8
737300	CFM56-3-B1	12,999	12,999	25,998
737400	CFM56-3C-1	3,047	3,047	6,094
737500	CFM56-3-B1	2,435	2,435	4,870
737700	CFM56-7B22	32,534	32,534	65,068
737800	CFM56-7B26	26,804	26,804	53,608
737N17	JT8D-17 Reduced emissions	8	8	16
74710Q	JT9D-7A (MOD V)	94	94	188
747200	JT9D-7R4G2	271	271	542
747400	PW4056	9,286	9,286	18,572
757300	PW2040	3,333	3,333	6,666
757PW	PW2037	28,819	28,819	57,638
767300	PW4060 Reduced emissions	8,236	8,236	16,472
767400	CF6-80C2B8F 1862M39	42	42	84
767CF6	CF6-80A	4,451	4,451	8,902
777200	PW4077	5,927	5,927	11,854
777300	PW4056	6,487	6,487	12,974
A300-622R	CF6-80C2A5F 1862M39	1,004	1,004	2,008
A300B4-203	CF6-50C2 Low emissions fuel nozzle	638	638	1,276
A310-304	PW4152	46	46	92
A319-131	V2522-A5	16,068	16,068	32,136
A320-211	CFM56-5B4/P	25,824	25,824	51,648
A321-232	CFM56-5B3/P	4,605	4,605	9,210
A330-301	PW4168A Talon II	2,478	2,478	4,956
A330-343	PW4168A Talon II	119	119	238
A340-211	CFM56-5B1/2P DAC-II	1,312	1,312	2,624
A340-642	Trent 556-61 Phase5 Tiled	1,833	1,833	3,666
A380-841	TRENT97X	732	732	1,464
BEC58P	TIO-540-J2B2	96	96	192
CIT3	TFE731-3	60	60	120
CL600	ALF 502L-2	1,449	1,449	2,898
CL601	CF34-3A LEC II	15,535	15,535	31,070
CNA172	O-320	11	11	22
CNA182	IO-360-B	8	8	16
CNA206	TIO-540-J2B2	7	7	14
CNA208	PT6A-114A	105	105	210
CNA441	TPE331-8	264	264	528
CNA500	JT15D-1 series	331	331	662
CNA55B	JT15D-4 series	977	977	1,954
CNA680	PW306B Annular	222	222	444
CNA750	AE3007C1 Type 1	731	731	1,462
CRJ9-ER	CF34-8C5 LEC	15,355	15,355	30,710
CRJ9-LR	CF34-8C5 LEC	5,830	5,830	11,660
DC1030	CF6-50C2 Low emissions fuel nozzle	1,358	1,358	2,716
DC3	R-1820	2	2	4
DC870	CFM56-2B	296	296	592
DC910	JT8D-7 series Reduced emissions	6	6	12
DC93LW	JT8D-15 Reduced emissions	7	7	14
DC95HW	JT8D-17 Reduced emissions	2	2	4
DHC6	PT6A-20	80	80	160
DHC8	PW120A	3,705	3,705	7,410
DO228	PT6A-28	19	19	38
ECLIPSE500	JT15D-1 series	205	205	410
EMB120	PW118B	18,493	18,493	36,986
EMB145	AE3007A1E Type 3	16,419	16,419	32,838
F10062	CF34-8E5 LEC	482	482	964
GASEPF	O-200	5	5	10
GASEPV	IO-360-B	71	71	142
GII	PW306A Annular	73	73	146
GIIB	SPEY Mk511 Transply IIH	155	155	310
GIV	TAY Mk611-8	1,375	1,375	2,750
GV	BR700-710A1-10	959	959	1,918
IA1125	TFE731-2/2A	112	112	224
LEAR25	CJ610-6	38	38	76
LEAR35	TFE731-2-2B	1,332	1,332	2,664
MD11PW	CF6-80C2D1F 1862M39	1,911	1,911	3,822
MD81	JT8D-217A Environmental Kit (E_Kit)	6	6	12
MD82	JT8D-217C Environmental Kit (E_Kit)	2,437	2,437	4,874
MD83	JT8D-219 Environmental Kit (E_Kit)	3,524	3,524	7,048
MD9028	V2528-D5	30	30	60
MU3001	JT15D-4 series	263	263	526
PA28	O-320	10	10	20
PA31	TIO-540-J2B2	15	15	30
SD330	PT6A-45R	260	260	520
Grand Total		296,500	296,500	593,000

Runway 7L/25R RSA Project and Associated Improvements

2015 Fleet Mix, Engine Assignments and Annual Operations

Aircraft ID	Engine Name	Departures	Arrivals	Totals
1900D	PT6A-67D	2,527	2,527	5,054
707QN	CFM56-2B	4	4	8
727200	JT8D-15 Reduced emissions	66	66	132
727EM1	JT8D-9 series Reduced emissions	20	20	40
727EM2	JT8D-15 Reduced emissions	4	4	8
737300	CFM56-3-B1	13,983	13,983	27,966
737400	CFM56-3C-1	3,278	3,278	6,556
737500	CFM56-3-B1	2,620	2,620	5,240
737700	CFM56-7B22	34,997	34,997	69,994
737800	CFM56-7B26	28,834	28,834	57,668
737N17	JT8D-17 Reduced emissions	9	9	18
74710Q	JT9D-7A (MOD V)	101	101	202
747200	JT9D-7R4G2	290	290	580
747400	PW4056	9,989	9,989	19,978
757300	PW2040	3,585	3,585	7,170
757PW	PW2037	31,002	31,002	62,004
767300	PW4060 Reduced emissions	8,860	8,860	17,720
767400	CF6-80C2B8F 1862M39	45	45	90
767CF6	CF6-80A	4,788	4,788	9,576
777200	PW4077	6,376	6,376	12,752
777300	PW4056	6,978	6,978	13,956
A300-622R	CF6-80C2A5F 1862M39	1,081	1,081	2,162
A300B4-203	CF6-50C2 Low emissions fuel nozzle	684	684	1,368
A310-304	PW4152	49	49	98
A319-131	V2522-A5	17,285	17,285	34,570
A320-211	CFM56-5B4/P	27,780	27,780	55,560
A321-232	CFM56-5B3/P	4,954	4,954	9,908
A330-301	PW4168A Talon II	2,666	2,666	5,332
A330-343	PW4168A Talon II	128	128	256
A340-211	CFM56-5B1/2P DAC-II	1,412	1,412	2,824
A340-642	Trent 556-61 Phase5 Tiled	1,972	1,972	3,944
A380-841	TRENT97X	787	787	1,574
BEC58P	TIO-540-J2B2	103	103	206
CIT3	TFE731-3	64	64	128
CL600	ALF 502L-2	1,559	1,559	3,118
CL601	CF34-3A LEC II	16,713	16,713	33,426
CNA172	O-320	12	12	24
CNA182	IO-360-B	8	8	16
CNA206	TIO-540-J2B2	8	8	16
CNA208	PT6A-114A	113	113	226
CNA441	TPE331-8	283	283	566
CNA500	JT15D-1 series	355	355	710
CNA55B	JT15D-4 series	1,051	1,051	2,102
CNA680	PW306B Annular	238	238	476
CNA750	AE3007C1 Type 1	786	786	1,572
CRJ9-ER	CF34-8C5 LEC	16,518	16,518	33,036
CRJ9-LR	CF34-8C5 LEC	6,273	6,273	12,546
DC1030	CF6-50C2 Low emissions fuel nozzle	1,462	1,462	2,924
DC1040	JT9D-59A	1	1	2
DC3	R-1820	2	2	4
DC870	CFM56-2B	317	317	634
DC910	JT8D-7 series Reduced emissions	6	6	12
DC93LW	JT8D-15 Reduced emissions	8	8	16
DC95HW	JT8D-17 Reduced emissions	2	2	4
DHC6	PT6A-20	86	86	172
DHC8	PW120A	3,986	3,986	7,972
DHC830	PW123	1	1	2
DO228	PT6A-28	21	21	42
ECLIPSE500	JT15D-1 series	220	220	440
EMB120	PW118B	19,893	19,893	39,786
EMB145	AE3007A1E Type 3	17,662	17,662	35,324
F10062	CF34-8E5 LEC	516	516	1,032
GASEPF	O-200	6	6	12
GASEPV	IO-360-B	76	76	152
GII	PW306A Annular	78	78	156
GIIB	SPEY Mk511 Transply IIH	166	166	332
GIV	TAY Mk611-8	1,480	1,480	2,960
GV	BR700-710A1-10	1,032	1,032	2,064
IA1125	TFE731-2/2A	120	120	240
LEAR25	CJ610-6	41	41	82
LEAR35	TFE731-2-2B	1,434	1,434	2,868
MD11PW	CF6-80C2D1F 1862M39	2,056	2,056	4,112
MD81	JT8D-217A Environmental Kit (E_Kit)	6	6	12
MD82	JT8D-217C Environmental Kit (E_Kit)	2,622	2,622	5,244
MD83	JT8D-219 Environmental Kit (E_Kit)	3,792	3,792	7,584
MD9028	V2528-D5	32	32	64
MU3001	JT15D-4 series	282	282	564
PA28	O-320	11	11	22
PA30	IO-320-D1AD	1	1	2
PA31	TIO-540-J2B2	16	16	32
SD330	PT6A-45R	279	279	558
Grand Total		318,951	318,951	637,902

Attachment B.4

Operations – Criteria Pollutant and Greenhouse Gas Emissions Calculations

- Criteria Pollutants – EDMS Inventory Outputs
    - 2011 Baseline
    - 2011 Baseline With Project
    - Construction Aircraft Operations
    - 2015 With Project
    - 2015 Without Project

Emissions Inventory Summary

(Short Tons per Year)

Baseline - Los Angeles Intl 2011

Category	CO	VOC	NOx	SOx	PM-10	PM-2.5
Aircraft	2,874.106	364.808	3,018.449	314.608	36.085	36.085
GSE	N/A	N/A	N/A	N/A	N/A	N/A
APUs	134.396	10.736	120.657	16.490	17.673	17.673
Parking Facilities	N/A	N/A	N/A	N/A	N/A	N/A
Roadways	N/A	N/A	N/A	N/A	N/A	N/A
Stationary Sources	N/A	N/A	N/A	N/A	N/A	N/A
Training Fires	N/A	N/A	N/A	N/A	N/A	N/A
Grand Total	3,008.502	375.545	3,139.106	331.098	53.758	53.758

Emissions Inventory Summary

(Short Tons per Year)

Baseline - Los Angeles Intl 2011

Category	CO	VOC	NOx	SOx	PM-10	PM-2.5
Aircraft	2,875.259	364.913	3,018.655	314.674	36.091	36.091
GSE	N/A	N/A	N/A	N/A	N/A	N/A
APUs	134.396	10.736	120.657	16.490	17.673	17.673
Parking Facilities	N/A	N/A	N/A	N/A	N/A	N/A
Roadways	N/A	N/A	N/A	N/A	N/A	N/A
Stationary Sources	N/A	N/A	N/A	N/A	N/A	N/A
Training Fires	N/A	N/A	N/A	N/A	N/A	N/A
Grand Total	3,009.655	375.649	3,139.312	331.164	53.764	53.764

Emissions Inventory Summary

(Short Tons per Year)

2015 Runway Closure - Los Angeles Intl 2015

Category	CO	VOC	NOx	SOx	PM-10	PM-2.5
Aircraft	3,248.405	481.813	3,500.976	354.982	38.877	38.877
GSE	N/A	N/A	N/A	N/A	N/A	N/A
APUs	144.573	11.549	129.794	17.739	19.011	19.011
Parking Facilities	N/A	N/A	N/A	N/A	N/A	N/A
Roadways	N/A	N/A	N/A	N/A	N/A	N/A
Stationary Sources	N/A	N/A	N/A	N/A	N/A	N/A
Training Fires	N/A	N/A	N/A	N/A	N/A	N/A
Grand Total	3,392.978	493.363	3,630.770	372.721	57.888	57.888

Emissions Inventory Summary

(Short Tons per Year)

2015 With Project - Los Angeles Intl 2015

Category	CO	VOC	NOx	SOx	PM-10	PM-2.5
Aircraft	2,966.316	450.214	3,447.280	338.422	37.467	37.467
GSE	N/A	N/A	N/A	N/A	N/A	N/A
APUs	144.573	11.549	129.794	17.739	19.011	19.011
Parking Facilities	N/A	N/A	N/A	N/A	N/A	N/A
Roadways	N/A	N/A	N/A	N/A	N/A	N/A
Stationary Sources	N/A	N/A	N/A	N/A	N/A	N/A
Training Fires	N/A	N/A	N/A	N/A	N/A	N/A
Grand Total	3,110.888	461.763	3,577.074	356.160	56.478	56.478

Emissions Inventory Summary

(Short Tons per Year)

2015 Without Project - Los Angeles Intl 2015

Category	CO	VOC	NOx	SOx	PM-10	PM-2.5
Aircraft	2,965.125	450.080	3,447.053	338.352	37.461	37.461
GSE	N/A	N/A	N/A	N/A	N/A	N/A
APUs	144.573	11.549	129.794	17.739	19.011	19.011
Parking Facilities	N/A	N/A	N/A	N/A	N/A	N/A
Roadways	N/A	N/A	N/A	N/A	N/A	N/A
Stationary Sources	N/A	N/A	N/A	N/A	N/A	N/A
Training Fires	N/A	N/A	N/A	N/A	N/A	N/A
Grand Total	3,109.698	461.630	3,576.848	356.090	56.472	56.472

Attachment B.4

Operations – Criteria Pollutant and Greenhouse Gas Emissions Calculations

- GHG – EDMS Inventory Outputs
    - 2011 Baseline
    - 2011 Baseline With Project
    - Construction Aircraft Operations
    - 2015 With Project
    - 2015 Without Project

Emissions Inventory Summary

(Metric Tons per Year)

Baseline - Los Angeles Intl 2011

Category	CO2	Fuel Consumption
Aircraft	696,952.271	220,904.048
GSE	N/A	N/A
APUs	N/A	N/A
Parking Facilities	N/A	N/A
Roadways	N/A	N/A
Stationary Sources	N/A	N/A
Training Fires	N/A	N/A
Grand Total	696,952.271	220,904.048

Emissions Inventory Summary

(Metric Tons per Year)

Baseline - Los Angeles Intl 2011

Category	CO2	Fuel Consumption
Aircraft	697,096.310	220,949.702
GSE	N/A	N/A
APUs	N/A	N/A
Parking Facilities	N/A	N/A
Roadways	N/A	N/A
Stationary Sources	N/A	N/A
Training Fires	N/A	N/A
Grand Total	697,096.310	220,949.702

Emissions Inventory Summary

(Metric Tons per Year)

2015 Runway Closure - Los Angeles Intl 2015

Category	CO2	Fuel Consumption
Aircraft	786,392.094	249,252.645
GSE	N/A	N/A
APUs	N/A	N/A
Parking Facilities	N/A	N/A
Roadways	N/A	N/A
Stationary Sources	N/A	N/A
Training Fires	N/A	N/A
Grand Total	786,392.094	249,252.645

Emissions Inventory Summary

(Metric Tons per Year)

2015 With Project - Los Angeles Intl 2015

Category	CO2	Fuel Consumption
Aircraft	749,705.701	237,624.628
GSE	N/A	N/A
APUs	N/A	N/A
Parking Facilities	N/A	N/A
Roadways	N/A	N/A
Stationary Sources	N/A	N/A
Training Fires	N/A	N/A
Grand Total	749,705.701	237,624.628

Emissions Inventory Summary

(Metric Tons per Year)

2015 Without Project - Los Angeles Intl 2015

Category	CO2	Fuel Consumption
Aircraft	749,550.906	237,575.564
GSE	N/A	N/A
APUs	N/A	N/A
Parking Facilities	N/A	N/A
Roadways	N/A	N/A
Stationary Sources	N/A	N/A
Training Fires	N/A	N/A
Grand Total	749,550.906	237,575.564

Attachment B.4

Operations – Criteria Pollutant and Greenhouse Gas Emissions Calculations

- GHGs – Aircraft Emissions

Source		Emission/Conversion Factors		Global Warming Potentials		
ACRP	CO2	21.095	lbs/gal	CO2	1	
EIA	CH4	0.27	g/gal	CH4	21	
EIA	NO2	0.31	g/gal	NO2	310	
ACRP	Conversion	0.0004536	metric tons/lb			
	Conversion	1000000	g/metric ton			
ACRP	jet fuel	6.84	lbs/gal			255

					2014				2015		
2015			Annual			Annualized				Annualized	
		No Action	Closure	Shortened	No Action	Closure	Shortened	SUM	No Action	Closure	SUM
Source	Units				210	63	92		318	47	
EDMS Output	Fuel Use (lbs)	523,764,464	549,508,019	506,133,373	301,343,938	94,846,590	127,573,343	523,763,871	456,320,820	70,758,567	527,079,387
Calculated conversion	Fuel Use (gallons)	76,573,752	80,337,430	73,996,107.16	44,056,131.28	13,866,460.47	18,651,073.59	76,573,665.34	66,713,570.23	10,344,819.71	77,058,389.94
EDMS Output	CO2 (metric tons)	749,551	786,392	724,319	431,248	135,733	182,568	749,550	653,033	101,261	754,294
Calculated based on fuel use	CH4 (metric tons)	20.67	21.69	19.98	11.90	3.74	5.04	20.67	18.01	2.79	20.81
Calculated based on fuel use	NO2 (metric tons)	23.74	24.90	22.94	13.66	4.30	5.78	23.74	20.68	3.21	23.89
	Total	757,343.41						757,342.63			762,136.71
								100.00%			100.63%
								(0.79)			4,793.30
					0.0114%						
											4,792.51

NOTES:

EIA = US Energy Information Administration, "Voluntary Reporting of Greenhouse Gases Program Fuel Emission Coefficients," January 31, 2011, available: http://www.eia.gov/oiaf/1605/coefficients.html#tbl7.

ACRP = Airport Cooperative Research Program, Transportation Research Board, "Guidebook on Preparing Airport Greenhouse Gas Emissions Inventories," 2009.

California and International convention is to use the GWPs from the IPCC Second Assessment Report to maintain the global GHG “currency.”

APPENDIX C

Human Health Risk Assessment

1 INTRODUCTION

This human health risk assessment (HHRA) appendix was developed to assist with the public disclosure requirements established under the California Environmental Quality Act (CEQA). It provides information on the methodology used and estimates cancer, chronic non-cancer, and acute health risks associated with exposure to toxic air contaminants that would be emitted from on-airport construction activities associated with the Los Angeles International Airport (LAX) Runway 7L/25R Runway Safety Area (RSA) and Associated Improvements Project (proposed Project).

1.1 Purpose

The objective of the HHRA is to assess incremental changes to health impacts for people exposed to toxic air contaminants (TAC) resulting from construction associated with the proposed Project. The results of the HHRA identify whether the proposed Project would increase health risks for people living, working, recreating, or attending school near LAX.

The proposed Project will not alter the fleet composition nor operational levels of aircraft serving LAX. During the construction period however, Runway 7L/25R will be closed for approximately 110 days. During this time, aircraft operations must be accommodated on other runways at LAX. The resulting increase in taxi time may temporarily increase TAC concentrations. As such, the emissions evaluated in the HHRA only include those from construction sources (e.g., construction equipment and aircraft operations during the runway closure). These emissions form the basis for estimating impacts from TAC; baseline concentrations for the proposed Project are based on the 2015 Without Project scenario.

Possible human health risks associated with the proposed Project were estimated using modeled TAC concentrations in air and standard methods developed by the California Environmental Protection Agency (CalEPA) and U.S. Environmental Protection Agency (USEPA). Health impacts were evaluated for cancer risks and chronic and acute non-cancer health hazards. An impact was considered significant if cancer or non-cancer health hazards exceeded regulatory thresholds.

1.2 General Approach

This HHRA focuses on analysis of incremental human health risks and hazards associated with airborne releases of TAC during construction of the proposed Project. Cancer risks as well as chronic and acute non-cancer health hazard assessments all depend on estimating TAC concentrations in air in two steps: (1) estimation of emissions of TAC associated with construction and subsequent modeling of dispersion of those TAC to downwind receptor locations; and (2) estimation of health risks associated with inhalation of TAC. Estimated emission rates were used, along with meteorological and geographic information, as inputs to an air dispersion model. The dispersion model predicted possible concentrations of TAC released during airport construction within the study area around the airport. Modeled concentrations were used to estimate human health risks and hazards, which serve as the basis of the significance determinations for the proposed Project.

Potential impacts to human health were estimated using modeled TAC concentrations in air and methods developed by the CalEPA and the USEPA, as described below. Results of the analysis were then interpreted by comparing incremental cancer risks and chronic non-cancer health hazards to regulatory thresholds. For purposes of assessing the significance of any health impacts, these comparisons were made for maximally exposed individuals (MEI) at locations where maximum concentrations of TAC were predicted by air dispersion modeling. An impact was considered significant if cancer risks and/or chronic non-cancer health hazards for MEI exceeded regulatory thresholds. In addition, the range of possible risks and hazards was addressed by evaluating risks for all modeled locations within the defined study area.

Methods for conducting this HHRA are presented in Section 2; TAC emission calculation approach and results and a discussion of the dispersion analysis are presented in Section 3; associated health risks are presented in Section 4; and uncertainties are discussed in Section 5.

2 METHODOLOGY

The HHRA was conducted based on incremental TAC emissions associated with the proposed Project relative to the 2015 Without Project scenario. The HHRA was conducted in four steps as defined in South Coast Air Quality Management District[1] (SCAQMD), California Environmental Protection Agency[2] (CalEPA) and U.S. Environmental Protection Agency[3] (EPA) guidance, consisting of:

- Identification of TACs that may be released in sufficient quantities to present a public health risk (Hazard Identification);
- Analysis of ways in which people might be exposed to TACs (Exposure Assessment);
- Evaluation of the toxicity of TACs that may present public health risks (Toxicity Assessment); and

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[1] South Coast Air Quality Management District, *Supplemental Guidelines for preparing Risk Assessment for the Air Toxics Hot Spots Information and Assessment Act (AB2588)*, July 2005.

[2] California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, *Air Toxics Hot Spots Program Risk Assessment Guidelines, Part I: Technical Support Document for the Determination of Acute Reference Exposure Levels for Airborne Toxicants*, March 1999; *Air Toxic Hot Spots Program Risk Assessment Guidelines, Part IV: Technical Support Document for Exposure Assessment and Stochastic Analysis*, September 2000; *Air Toxics Hot Spots Program Risk Assessment Guidelines, Part III: The Determination of Chronic Reference Exposure Levels for Airborne Toxicants*, February 23, 2000; *Air Toxics Hot Spots Program Risk Assessment Guidelines, Part II: Technical Support Document for Describing Available Cancer Potency Factors*, updated August 2003; *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, August 2003.

[3] U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, *Risk Assessment Guidance for Superfund, Vol I, Human Health Evaluation Manual (Part A), Interim Final, EPA/540/1-89/002*, December, 1989.

- Characterization of the magnitude and location of potential health risks for the exposed community (Risk Characterization).

Specifically, this HHRA addresses the following issues:

- Quantitative assessment of potential cancer risks and chronic non-cancer health hazards due to the release of TACs associated with the proposed Project construction activities; and
- Quantitative evaluation of possible acute non-cancer health hazards due to the release of TACs associated with the proposed Project construction activities.

Protective[4] methods that are likely to overestimate rather than underestimate possible health risks were used to estimate cancer risks and chronic non-cancer health hazards. For example, incremental risks and hazards associated with the proposed Project were calculated for individuals assumed to live, work, recreate, or attend school at locations where TAC concentrations are predicted to be highest. Further, these individuals were assumed to be exposed to TAC for almost all days of the year and for many years to maximize estimates of possible exposure. These “maximally exposed individuals” or MEI are hypothetical individuals used to help ensure that the HHRA is protective.

Risk estimates for MEI are, therefore, upper-bound predictions that could be experienced by people working or living near LAX who breathe TAC released during construction activities associated with the proposed Project. If hypothetical individuals that receive the highest exposures are protected, actual members of the population near LAX will also be protected.

The HHRA for the proposed Project also evaluates the potential for short-term (1-hour) exposures to cause immediate, or acute, non-cancer health impacts. These estimates are also intentionally conservative; they use, for example, the highest 1-hour concentrations for assessing acute impacts regardless of whether individuals might have access to locations where maximum concentrations occur. This approach helps ensure that actual exposure concentrations in off-airport areas are not underestimated.

2.1 Selection of TACs of Concern

In general, TAC of concern used in the HHRA are based on TAC identified under California Assembly Bill AB2588 and for which the California Environmental Protection Agency, Office of Environmental Health Hazard Assessment (OEHHA) has developed cancer slope factors, chronic reference levels, and/or acute reference levels.

The list of TAC of concern used in this HHRA was developed using regulatory lists, emissions estimates, human toxicity information, results of the LAX Master Plan HHRA, and a review of health risk assessments for construction activities included in the LAX South Airfield

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[4] The terms “protective” and “conservative” are often used interchangeably to indicate that risk assessment methods were designed to err on the side of over-estimating risk. "Protective is used in this HHRA to avoid confusion over what “conservative” means in different situations. For example, a “conservative” estimate of the time that someone might live in a given residence could imply to some readers that a minimum time was identified.

Improvement Project (SAIP) Final EIR,[5] LAX Crossfield Taxiway Project (CFTP) Final EIR,[6] LAX Bradley West Project Final EIR,[7] LAX Central Utility Plant Replacement Project (CUP-RP) Final EIR,[8] and LAX Master Plan Final EIR.[9] This list of TAC was further refined to include only TAC with chronic Reference Exposure Levels (RELs), acute RELs, and cancer potency values identified by the California OEHHA. The resulting list of TAC of concern evaluated in this HHRA is provided in **Table 2-1**.

2.2 Exposure Assessment

2.2.1 Exposure Populations

For analysis of the proposed Project, the HHRA selected the following receptors for quantitative evaluation, consistent with CalEPA and USEPA methodology and HHRAs performed on other LAWA projects: on-airport/off-site workers, on-airport/on-site workers, off-airport workers, off-airport adult residents, off-airport child residents, and off-airport school children. Each receptor represents a unique population and set of exposure conditions. As a whole, they cover a range of exposure scenarios for people who may be affected by LAX emissions to the greatest extent. Receptors for which exposure scenarios are prepared were selected to provide protective risks and hazards estimates for MEI and to demonstrate the range of risks and hazards in the vicinity of the airport. As previously noted, by providing estimates for the most exposed individuals for determination of significance, the general population is protected.

2.2.2 Exposure Pathways

Different receptors (e.g., off-site workers, school children) could be exposed to TAC in several ways, deemed exposure pathways. An exposure scenario is developed for each receptor that considers various pathways by which they might be exposed to TAC.

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[5] City of Los Angeles, Los Angeles World Airports, Final Environmental Impact Report for Los Angeles International Airport (LAX) South Airfield Improvement Project, August 2005.

[6] City of Los Angeles, Los Angeles World Airports, Final Environmental Impact Report for Los Angeles International Airport (LAX) Crossfield Taxiway Project, January 2009.

[7] City of Los Angeles, Los Angeles World Airports, Final Environmental Impact Report for Los Angeles International Airport (LAX) Bradley West Project, September 2009.

[8] City of Los Angeles, Los Angeles World Airports, Draft Environmental Impact Report for Los Angeles International Airport (LAX) Central Utility Plant Replacement Project, October 2009.

[9] City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004.

Table 2-1

Toxic Air Contaminants (TAC) of Concern for the proposed Project

Toxic Air Contaminant	Type
Acetaldehyde	VOC
Acrolein	VOC
Benzene	VOC
1,3-Butadiene	VOC
Ethylbenzene	VOC
Formaldehyde	VOC
n-Hexane	VOC
Methyl alcohol	VOC
Methyl ethyl ketone	VOC
Propylene	VOC
Styrene	VOC
Toluene	VOC
Xylene (total)	VOC
Naphthalene	PAH
Arsenic	PM-Metal
Cadmium	PM-Metal
Chromium VI	PM-Metal
Copper	PM-Metal
Lead	PM-Metal
Manganese	PM-Metal
Mercury	PM-Metal
Nickel	PM-Metal
Selenium	PM-Metal
Vanadium	PM-Metal
Diesel PM	Diesel Exhaust
Chlorine	PM-Inorganics
Silicon	PM-Inorganics
Sulfates	PM-Inorganics

Notes:
PAH = Polycyclic aromatic hydrocarbons
PM = Particulate matter
VOC = Volatile organic compounds
Sources: URS Corporation, 2013.

An exposure pathway consists of four parts:

- A TAC source (e.g., diesel/gasoline engines);
- A release mechanism (e.g., diesel/gasoline engine exhaust);
- A means of transport from point of release to point of exposure (e.g., local winds); and
- A route of exposure (e.g., inhalation).

If any of these elements of an exposure pathway is absent, no exposure can take place, and, the pathway is considered incomplete. Incomplete pathways were not evaluated in this HHRA. In addition, some exposure pathways may be complete, but may result in little or negligible exposure. Thus, numerous possibly complete exposure pathways exist for receptors at or near LAX, but most are anticipated to make minimal to negligible contribution to total risks and hazards. For this HHRA, the inhalation pathway is the most important complete exposure pathway, contributing the majority of risk associated with the proposed Project, and was therefore quantitatively evaluated for all receptors.

Other exposure pathways -- including deposition of TAC onto soils and subsequent exposure via incidental ingestion of this soil, uptake from soil into homegrown vegetables, and other indirect pathways -- were addressed quantitatively in the programmatic HHRA developed for the LAX Master Plan EIR[10] (see LAX Master Plan Final EIR Technical Report 14a and Technical Report S-9a). No pathway other than inhalation was found to be an important contributor to exposure and thus to risk/hazard. Based on this previous analysis, pathways other than inhalation were not assessed in this HHRA.

2.2.3 Exposure Concentrations

Analyses of cancer risk and non-cancer health hazards, both chronic and acute, were included in the exposure assessment for the receptors identified in Section 2.2.1. Chronic and acute exposure to TAC from Project-specific construction activities were estimated by:

- Estimation of construction source emissions for annual (for chronic exposure) and for peak daily (for acute exposure); and
- Dispersion modeling of construction emissions over an area that consists of the airport property and urban areas to the north, east, and south.

Modeled concentrations of TAC at locations where highest concentrations are anticipated were used to estimate incremental human health risks and hazards. These estimates serve as the basis for significance determinations for the proposed Project. To estimate cancer risks and the potential for adverse non-cancer health hazards, TAC intakes via inhalation for each receptor were estimated.

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[10] City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004.

In 2009, the EPA released the Risk Assessment Guidance for Superfund (RAGS), Part F[11] (hereafter referred to as RAGS Part F). This guidance recommends that inhalation dosimetry methodology be used to calculate inhalation exposures. In this approach, the concentration of the chemical in air is the exposure metric (e.g., milligrams per cubic meter, mg/m^3), and risks are estimated using a unit risk that predicts cancer risk for each mg/m^3. Inhalation rate and body weight are no longer used in the calculations. RAGS Part F methodology is currently used exclusively by USEPA for calculating risks and hazards for the inhalation pathway and has become universally applied within the United States.

RAGS Part F recommends that the concentration of the chemical in air be used as the exposure metric resulting in the following formula for an exposure concentration:[12]

EC = (CA x ET x EF x ED) / AT

Where: EC = exposure concentration ($\mu g/m^3$)

CA = chemical concentration in air ($\mu g/m^3$)

ET = exposure time (hours/day)

EF = exposure frequency (days/year)

ED = exposure duration (years)

AT = average time; e.g., the period over which exposure is averaged, ED in years x 365 days/year x 24 hours/day (hours)

Averaging time for estimation of cancer risk is 70 years or 25,550 days. Cancer risk is evaluated as the lifetime average daily dose (LADD) according to CalEPA and USEPA guidance. Averaging time for estimation of non-cancer health hazards is the duration of exposure, expressed in days. Non-cancer health hazards are evaluated as average daily dose (ADD) over the period of exposure, again, following CalEPA and USEPA guidance.

Cancer risks and the non-cancer health hazards are then calculated using the following formulas:[13]

Risk = IUR x EC

HQ = EC / (RfC x 1000 µg/mg)

Where: IUR = inhalation unit risk (µg/m3)-1

EC = exposure concentration (µg/m3)

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[11] U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Risk Assessment Guidance for Superfund, Vol. I, Human Health Evaluation Manual (Part F, Supplemental Guidance for Inhalation Risk Assessment), Final, EPA-540-R-070-002, OSWER 9285.7-82, January 2009.

[12] U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Risk Assessment Guidance for Superfund Vol. I, Human Health Evaluation Manual (Part F) Final, EPA/540/R-070/002, January 2009.

[13] U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Risk Assessment Guidance for Superfund Vol. I, Human Health Evaluation Manual (Part F) Final, EPA/540/R-070/002, January 2009.

HQ = hazard quotient

RfC = reference concentration (mg/m3)

Assessment of potential chronic human health impacts due to release of TAC associated with the proposed Project assumes that exposure concentrations of TAC are constant over a 70-year period for residential receptors. For this analysis, chemical concentrations, C, from construction are assumed to continue for two years. For the remaining 68 years of a 70 year lifetime, construction emissions were assumed to be zero. Risk estimates using these predicted TAC concentrations were based locations where construction impacts were likely to be maximal. Such risk estimates overestimate risks for most people living, working, or attending school near LAX. This conservatism (protection) is built into the risk assessment developed for the proposed Project to help counter any future changes in the proposed Project construction that cannot now be anticipated quantitatively.

Exposure parameters used to calculate LADD and ADD for all receptors for the inhalation pathway are summarized in **Table 2-2**. Exposure parameters are based on CalEPA Supplemental Guidance for Human Health Multimedia Risk Assessments of Hazardous Waste Sites and Permitted Facilities,[14] USEPA Exposure Factors Handbook,[15] and CalEPA Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments.[16] Although USEPA has recently released another version of the Exposure Factors Handbook[17] that updates some of the recommended exposure parameters, the exposure parameters in Table 2-2 were selected to maintain consistency with the health risk analyses conducted for the LAX Master Plan Final EIR,[18] the SAIP EIR,[19] the CFTP EIR,[20] the Bradley West Project EIR,[21] and the SPAS EIR.[22]

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[14] California Environmental Protection Agency, Supplemental Guidance for Human Health Multimedia Risk Assessments of Hazardous Waste Sites and Permitted Facilities, 1993.

[15] U.S. Environmental Protection Agency, Exposure Factors Handbook, USEPA/600/P-95/002Fa, 1997.

[16] California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, August 2003.

[17] U.S. Environmental Protection Agency, Exposure Factors Handbook, EPA/600/R-090/052F, September 2011.

[18] City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004.

[19] City of Los Angeles, Los Angeles World Airports, Final Environmental Impact Report for Los Angeles International Airport (LAX) South Airfield Improvement Project, August 2005.

[20] City of Los Angeles, Los Angeles World Airports, Final Environmental Impact Report for Los Angeles International Airport (LAX) Crossfield Taxiway Project, January 2009.

[21] City of Los Angeles, Los Angeles World Airports, Final Environmental Impact Report for Los Angeles International Airport (LAX) Bradley West Project, September 2009.

[22] City of Los Angeles, Los Angeles World Airports, Final Environmental Impact Report for Los Angeles International Airport (LAX) Specific Plan Amendment Study, January 2013.

Table 4.4-1

Parameters Used to Estimate Exposures to TACs of Concern

	Off-Airport Receptors				
	Off-Site Resident			Off-Site School Child	Adult Worker
Exposure Pathway Inhalation of Particulates and Gases	**Adult (70 years)**	**Adult (30 years)**	**Child**		
Daily Breathing Rate (m^3/day)	20[b]	20[b]	15[b]	6[b]	10[b]
Exposure Frequency (days/yr)	350[a,c]	350[a,c]	350[a,c]	200[d]	245[a]
Exposure Duration (years)	70[a,e]	30[a,e]	6[b]	6[d]	40[a]
Body Weight (kg)	70[a,f]	70[a,f]	15[b]	40	70[a,f]
Averaging Time - Non-cancer (days)	25,550[a,f]	10,929	2,190[f]	2,190[f]	14,600[f]
Averaging Time - Cancer (days)	25,550[a,f]	25,550	25,550[a,f]	25,550[a,f]	25,550[a,f]

Notes:

[a] California Environmental Protection Agency (Cal/EPA), *Air Toxic Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, August 2003.

[b] U.S. Environmental Protection Agency, *Exposure Factors Handbook, USEPA/600/P-95/002Fa*, 1997.

[c] U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, *Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors*, August, 1991.

[d] Site-specific.

[e] 70 year exposure duration will be used as basis for determining significance.

[f] U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, *Risk Assessment Guidance for Superfund, Volume I - Human Health Evaluation Manual, Part A, USEPA/540/1-89/002*, 1989.

Source: URS Corporation, 2013.

The equation for the RAGS Part F methodology requires exposure time, an exposure parameter that was not previously defined for the LAX Master Plan EIS/EIR and other tiered LAX EIRs (SAIP EIR, CFTP EIR, Bradley West Project EIR, and CUP-RP EIR) because it was not required for the Risk Assessment Guidance for Superfund (RAGS), Part A methodology (hereafter referred to as RAGS Part A). For exposure time, assumptions adopted for the SPAS EIR were used. Residents were assumed to be exposed 24 hours a day. A school child was assumed to be exposed eight hours per day to account for six hours of school instruction and two hours of after-school activities. An adult worker was assumed to be exposed 10 hours per day.

The CalEPA Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments recommends a range of exposure parameters be evaluated. Additional analyses are presented in the uncertainties analysis to verify how sensitivity of risk estimates to changes in exposure duration and exposure time might affect conclusions concerning impacts of the proposed Project.

2.3 Toxicity Assessment

Risks from exposure to TAC are calculated by combining estimates of potential exposure with chemical-specific toxicity criteria developed by CalEPA, USEPA, or both. The toxicity assessment initially examined quantitative toxicity criteria for TAC selected from regulatory lists.

A toxicity assessment for TAC of concern was conducted for the LAX Master Plan Final EIR, as described in Technical Report 14a of that EIR. Conclusions of that assessment have not changed materially. Both the CalEPA OEHHA and USEPA continually update toxicity values as new studies are completed, and all toxicity information provided in Technical Report 14a was reviewed and updated as appropriate by researching recent information available from USEPA, CalEPA OEHHA, World Health Organization (WHO), and Agency for Toxic Substance and Disease Registry (ATSDR).

Acute RELs developed by the State of California were used in the characterization of potential acute non-cancer health hazards associated with the proposed Project. Other sources of acute toxicity criteria (e.g., Agency for Toxic Substances and Disease Registry (ATSDR)) were also evaluated as a source of acute criteria as part of this re-assessment of toxicity information.

Cancer unit risk factors, cancer slope factors, and chronic RELs developed by the State of California were used to characterize cancer risks and chronic non-cancer health hazards associated with longer term inhalation of emissions from construction activities. Both types of toxicity criteria are based on studies of chronic exposure in animals or, in some cases, to people. Inhalation unit risk (for RAGS Part F calculations) and cancer slope factors are presented in **Table 2-3**. Chronic RELs and reference concentrations (RfCs) are presented in **Table 2-4**.

Acute RELs developed by the State of California were used in characterization of potential hazards associated with short-term exposure (usually from exposures on the order of 1-hour). RELs are based on the most sensitive, relevant, adverse health effect reported in the medical and toxicological literature. Since margins of safety[23] are incorporated to address data gaps and uncertainties, exceeding an REL does not automatically indicate an adverse health impact. Acute RELs are applicable to all receptors, children and adults, and hazards are the ratio of estimated or measured concentrations and the REL. Acute RELs for the TAC of concern included in this analysis are provided in **Table 2-5**.

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[23] Margin of safety is a ratio of the no-observed-effect level to the estimated exposure dose. Margins of safety are incorporated in the development of toxicity values to account for differences in dose-response among individuals. For example, the same dose of alcohol may have a greater effect on a woman than a man, not only because a woman is smaller in body size but also because men and women metabolize alcohol at different rates.

Table 2-3

Toxicity Criteria for Systemic Toxicants

TAC of Concern	USEPA Inhalation Cancer Inhalation RfC[1,2] (µg/m^3)[3,10]	Cal/EPA Chronic Inhalation REL[4] (µg/m^3)	Target Organ	Cancer Classification[4]
VOC				
Acetaldehyde	0.01	0.0000027	Nasal, Larynx	B2
Acrolein	N/A[5]	N/A	N/A	C
Benzene	0.1	0.000029	Blood	A
1,3-Butadiene	0.6	0.00017	Reproductive System, Blood, Lung, GI	A
Ethylbenzene	0.0087	0.0000025	Kidney	D
Formaldehyde	0.021	0.000006	Respiratory System	B1
PAH				
Naphthalene	0.12	0.000034	Respiratory System	C
Diesel Exhaust				
Diesel Particulates	1.1	0.0003	Lung	D
PM-Metal				
Arsenic	12	0.0033	Skin	A
Cadmium	15	0.0042	Lung, trachea, bronchus cancer deaths	B1
Chromium VI	510	0.15	Lung	A
Lead	0.042	0.000012	N/A	B2
Nickel	0.91	0.00026	N/A	A
Vanadium pentoxide[6]	29[7]	0.0083[7]	N/A	N/A

Notes:

[1] California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Toxicity Criteria Online Database, Available: http://www.oehha.ca.gov/tcdb/index.asp, 2013.

[2] mg/kg/day - milligram per kilogram per day

[3] µg/m^3 = microgram per cubic meter

[4] USEPA, EPA Weight of Evidence (EPA 1986, EPA 1996):

A	Human carcinogen
B1	Probable human carcinogen – indicates limited evidence in humans
B2	Probable human carcinogen – indicates sufficient evidence in animals and inadequate or no evidence in humans.
C	Possible human carcinogen
D	Not classifiable as human carcinogen

[5] N/A = Not available

Table 2-3

Toxicity Criteria for Systemic Toxicants

[6] Inhalation unit risk value for vanadium pentoxide was used for vanadium in the risk calculations.

[7] USEPA Regional Screening Level (RSL) table, May 2013.

Source: Ricondo & Associates, Inc., 2013.

Table 2-4

Cancer Slope and Unit Risk Factors

TAC of Concern	Cal/EPA[1] Inhalation Cancer Slope Factor [(mg/kg/day)$^{-1}$][2]	Cal/EPA[1] Inhalation Unit Risk Factor [(μg/m^{3})$^{-1}$][3]	Tumor Site/Inhalation	USEPA	Cal/EPA
VOC					
Acetaldehyde	9	140	Respiratory System	1,000	300
Acrolein	0.02	0.35	Respiratory System, Eye	1,000	200
Benzene	30	60	Hematopoietic System, Development, Nervous System, Immune System	300	10
1,3]Butadiene	2	20	Reproductive System	1,000	30
Ethylbenzene	1,000	2,000	Developmental, Liver, Kidney, Endocrine System	300	30
Formaldehyde	9.8[6]	9	Respiratory System, Eye	N/A[8]	10
n]Hexane	700	7,000	Nervous System	300	30
Methyl alcohol	40,006	4,000	Developmental	N/A	30
Methyl ethyl ketone	5,000	N/A	Developmental(skeletal variations)	300	N/A
Propylene	3,000[6]	3,000	Respiratory System	N/A	100
Styrene	1,000	900	CNS[9]	30	3
Toluene	5,000	300	CNS, Respiratory System, Development	10	100
Xylenes	100	700	CNS, Respiratory System	300	30
PAH					

Table 2-4

Cancer Slope and Unit Risk Factors

Naphthalene	3	9	Respiratory System	3,000	1,000
Diesel Exhaust					
Diesel Particulates	5	5	Respiratory System	30	30
PM Metal					
Arsenic	0.0156	0.015	Development, Cardiovascular System, Nervous System	N/A	30
Cadmium	0.01	0.02	Kidney; respiratory system	N/A	30
Chromium (VI)	0.16	0.2	Respiratory System	300	100
Copper	N/A	N/A	N/A	N/A	N/A
Lead	N/A	N/A	N/A	N/A	N/A
Manganese	0.05	0.09	Nervous System	1,000	300
Mercury	0.3	0.03	Nervous System	30	300
Nickel	0.09[6,7]	0.014	Respiratory System, Immune System	N/A	30
Selenium	20[6]	20	Alimentary system; cardiovascular system; nervous system	N/A	3
Vanadium	0.1[6]	N/A	N/A	N/A	N/A
PM Inorganics					
Chlorine	0.15[6]	0.2	Respiratory System	N/A	30
Silicon	3	3	Respiratory system	N/A	10
Sulfates	N/A	N/A	N/A	N/A	N/A

Notes:

[1] Values obtained from the USEPA Integrated Risk Information System (IRIS), 2013.

[2] RfC = Reference Concentration

[3] μg/m^3 = microgram per cubic meter

[4] REL = Reference Exposure Level (obtained from OEHHA Online Toxicity Criteria database, 2013. RELs are concentrations in air that would not result in toxic effects even if exposure continued for a lifetime.)

[5] VOC = volatile organic compounds

[6] Values obtained from the USEPA Regional Screening Level (RSL) table, May 2013.

[7] RfC for nickel soluble salts was used for nickel.

[8] N/A = Not available or not applicable.

[9] CNS = Central Nervous System

Source: Ricondo & Associates, Inc., 2013.

Table 2-5

Acute RELs for TAC of Concern

TAC	Acute REL[1] (µg/m³)
Acrolein	2.5
Benzene	1,300
Formaldehyde	55
Methyl alcohol	28,000
Methyl ethyl ketone	13,000
Styrene	21,000
Toluene	37,000
Xylenes Total	22,000
Arsenic	0.2
Chlorine	210
Copper	100
Manganese	0.17[2]
Mercury	0.6
Nickel	0.2
Vanadium pentoxide[3]	30
Sulfates	120

Notes:

1 Values obtained from OEHHA Online Toxicity Criteria database, accessed June 2013.

2 8-hour value.

3 Acute value for vanadium pentoxide was used for vanadium in the risk calculations.

Source: Ricondo & Associates, Inc., 2013.

2.4 Risk Characterization

2.4.1 Methodology for Evaluating Cancer Risks and Non-Cancer Health Hazards

Concentrations of TAC of concern in air, locations of potentially exposed populations, including locations for MEI exposure scenarios (worker, resident, student), and toxicity criteria were used to calculate incremental human health risks associated with the proposed Project. Risks for people recreating near the airport would be lower than those for workers, residents, and students, and no risks were calculated for this population. Where risks are not significant for other receptor groups, risks for recreators near LAX can also be considered insignificant.

Cancer risks were estimated by multiplying exposure estimates for carcinogenic chemicals by corresponding cancer slope factors. Results were risk estimates expressed as the odds of developing cancer. Commonly, risks (or odds) of developing cancer of one to ten in one million (1×10^{-6} to 10×10^{-6}) or less are considered *de minimis*.[24] Higher risks may be deemed significant in some instances. Cancer risks were based on an exposure duration of 70 years.

Chronic non-cancer health hazard estimates were calculated by dividing exposure estimates by reference doses. Reference doses are estimates of highest exposure levels that would not cause adverse health effects even if exposures continue over a lifetime. The ratio of exposure concentration to reference concentration is termed the hazard quotient (HQ). A HQ greater than one indicates an exposure concentration greater than that considered safe. A ratio that is less than one indicates that Project-related (incremental) exposure was less than the highest exposure level that would not cause an adverse health effect and, hence, no impact to human health would be expected. Risks or odds of adverse effects cannot be estimated using reference doses. However, because reference concentrations are developed in a conservative fashion, HQs only slightly higher than one are generally accepted as being associated with low risks (or even no risk) of adverse effects, and that potential for adverse effects increases as the HQ gets larger.

Impacts of exposure to multiple chemicals were accounted for by adding cancer risk estimates for exposure to all carcinogenic chemicals, and by adding estimated HQs for non-carcinogenic chemicals that affect the same target organ or tissue in the body. The addition of HQs for TAC that produce effects in similar organs and tissues results in a Hazard Index (HI) that reflects possible total hazards. Several TAC have effects on the respiratory system including acetaldehyde, acrolein, formaldehyde, xylenes, and diesel particulates. Non-cancer health hazards for the proposed Project were calculated for the respiratory system which accounted for essentially all potential non-cancer health hazards.

To determine whether releases of TAC during airport construction for the proposed Project would be significant, incremental human health risks for the proposed Project were compared to appropriate thresholds of significance identified in SCAQMD or CalEPA guidance or policy. These comparisons will focus on specific risk thresholds such as a ten in one million cancer risk or a hazard index of 1. Differences in incremental human health impacts among alternatives provide a quantitative assessment of the relative impacts among alternatives.

2.4.2 Maximally Exposed Individuals (MEI)

For the proposed Project, grid points were analyzed along the airport fence-line and within the study area, as shown in **Figure 2-1**. These locations are anticipated to represent MEI, based on previous dispersion modeling for LAX. Concentrations of each TAC at these nodes were used in calculating cancer risk, and chronic and acute non-cancer health hazard estimates. These calculations were used to identify locations with maximum cancer risks and maximum non-cancer health hazards and serve as the basis for significance determinations.

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[24] Clay, Don R., U.S. Environmental Protection Agency, Memorandum to OSWER, Subject: Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions, April 22, 1991.

MEI estimates were partially land use specific. On-airport locations were used to identify on-worker locations. For off-airport locations, all land uses and associated receptors (commercial, residential, etc.) were evaluated for all fence-line grid points under the assumption that such land use could be present now or in the future. Risk and hazard calculations were based on receptors appropriate for land use designations. For example, at each grid node, exposure parameters appropriate for adult commercial workers, for both adult and child residential receptors and for school children were used to estimate exposures, cancer risks, and non-cancer health hazards at that grid point location.

Fence-line concentrations of TAC represent the highest or near-highest concentrations that could be considered "off-airport." Concentrations in areas where people actually work, live, or attend school are predicted to be lower. Thus, impacts for residents, workers, and school children are likely to provide protective estimates for risks and hazards that may occur as a result of implementing the proposed Project.

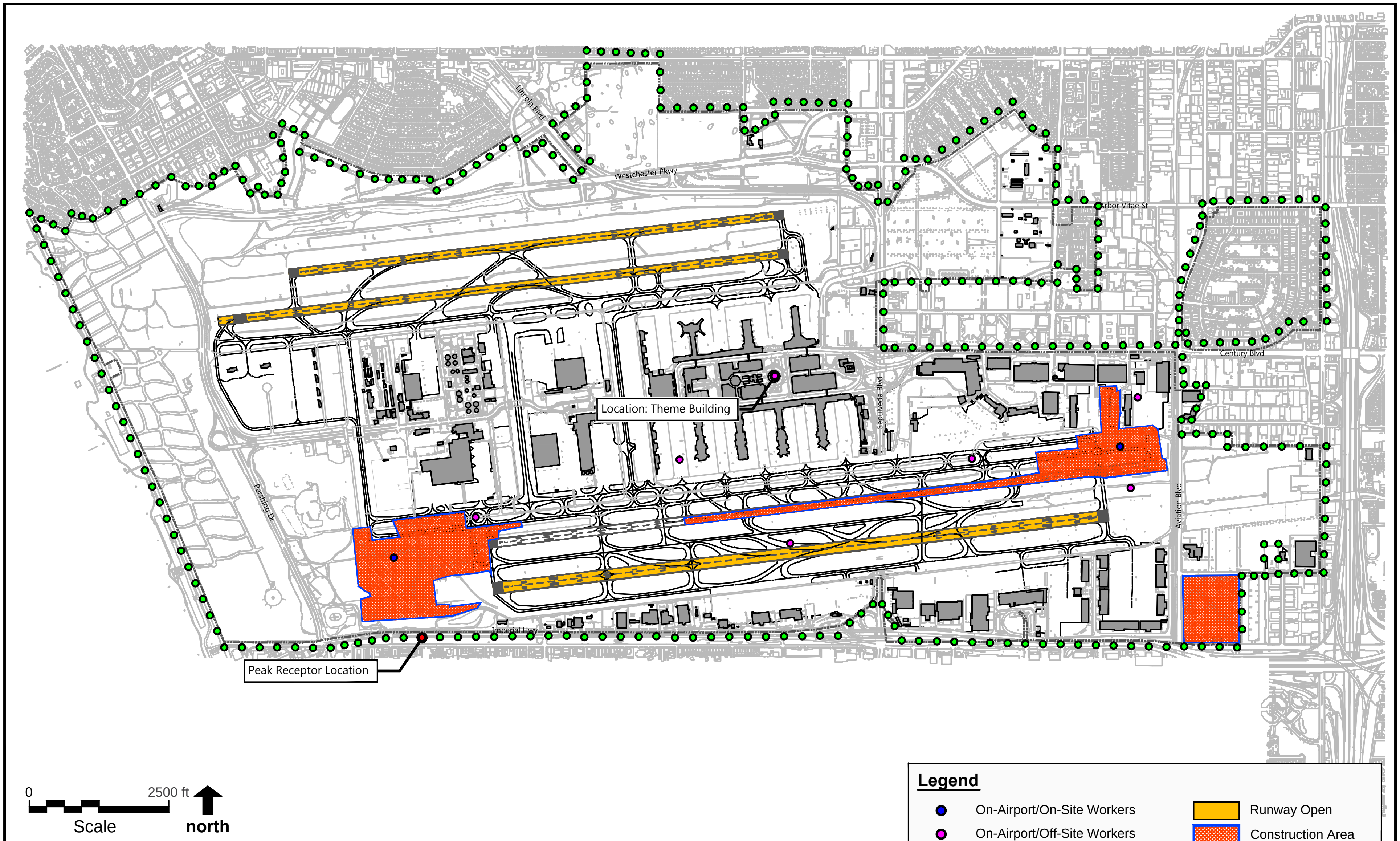
2.4.3 Methodology for Evaluating Acute Impacts

Acute non-cancer risk estimates were calculated by dividing estimated maximum 1-hour TAC concentrations in air by acute Reference Exposure Levels (RELs). An acute REL is a concentration in air below which adverse effects are unlikely for people, including sensitive subgroups, exposed for a short time on an intermittent basis. In most cases, RELs are estimated on the basis of an 1-hour exposure duration. RELs do not distinguish between adults and children, but are established at levels that are considered protective of sensitive populations. Since margins of safety are incorporated to address data gaps and uncertainties, exceeding the REL does not automatically indicate an adverse health impact.

Toxicity criteria (i.e., RELs) for acute non-cancer health hazards do not distinguish between adults and children, but are established at levels that are considered protective of sensitive populations. An acute REL is a concentration in air below which adverse effects are unlikely, including in sensitive subgroups. In most cases, RELs were estimated on the basis of an 1-hour exposure duration. CalEPA's OEHHA has developed acute RELs for several of the TAC of concern identified in emissions from the airport.

Short-term concentrations for TAC associated with Project construction were estimated using the same air dispersion model (AERMOD) used to estimate annual average concentrations, but with the model option for 1-hour maximum concentrations selected. These concentrations represent the highest predicted concentrations of TAC. Acute non-cancer health hazards were then estimated at each grid point by dividing estimated maximum 1-hour TAC concentrations in air by acute RELs. A hazard index equal to or greater than 1, the threshold of significance for acute non-cancer health impacts, indicates some potential for adverse acute non-cancer health impacts. A hazard index less than 1 suggests that adverse acute non-cancer health impacts are not expected.

Confidential Draft Deliberative Material



Source: Ricondo & Associates, Inc., December 2013
Prepared by: Ricondo & Associates, Inc., December, 2013

Runway 7L/25R and Associated Improvement Project
Draft EIR

Peak Impact Receptor Locations

Figure
2-1

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3 TAC EMISSIONS AND DISPERSION

3.1 TAC Emission

For construction equipment used during the construction phase of the proposed Project, emissions of diesel particulate matter (DPM) are expected to contribute the majority to total incremental cancer risks. Based on previous evaluations of construction impacts at LAX, other TACs have minimal contributions. DPM is classified as a carcinogenic TAC by the California Office of Environmental Health Hazard Assessment (OEHHA). However, the evaluation of cancer risks and chronic health hazards evaluated the release of DPM as well as other associated TACs from construction equipment.

Construction DPM emissions were assumed to be equal to the engine exhaust component of particulates less than 10 microns in diameter (PM_{10}) emissions. Emissions of organic TACs were developed from VOC emission inventories. PM_{10} is the focus for PM emissions because this size fraction can deposit in the deep lung and is therefore responsible for most inhalation exposure. Organic speciation profile No. 818 for diesel-fueled motor vehicles and off-road equipment for VOC emissions, developed by the California Air Resources Board (CARB), was used to calculate organic TAC emissions. The CARB PM speciation profile No. 6159 for diesel-fueled offroad equipment was used to estimate particulate TAC emissions.

In addition to construction equipment, aircraft emissions during the construction phase of the proposed Project would also contribute to TAC emissions. Organic speciation profile No. 5861 for aircraft (jet fuel) exhaust VOC emissions, developed by CARB, was used to calculate organic TAC emissions. Metals emissions were estimated using the elemental analysis of Jet A fuel conducted by the U.S. Navy.[25]

3.2 Exposure Concentrations (Dispersion)

Air dispersion modeling was used to estimate TAC concentrations for the proposed Project. TAC concentrations were estimated in two steps: first, dispersion modeling was used to estimate total ROG and PM_{10} concentrations, and then individual organic or particulate TAC concentrations were calculated using emissions profiles to speciate total ROG and PM_{10} estimates. For example, if total ROG at a given location was 0.1 microgram per cubic meter ($\mu g/m^3$) and a given volatile TAC was expected to make up 1 percent of this total, the concentration of that TAC at that location would be 0.001 $\mu g/m^3$.

Project-related concentrations for TAC from construction sources were estimated using the air dispersion model (AERMOD, Version 12345) with model options for 1-hour maximum, annual, and period average concentrations selected.

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[25] Shumway, 2000. Trace Element and Polycyclic Aromatic Hydrocarbon Analysis of Jet Engine Fuels: Jet A, JP-5, JP-8, December.

3.2.1 Source Areas

Construction DPM sources were modeled as engine exhaust emissions elevated 5 meters. Aircraft emissions were assumed to be located at the respective on-airport locations for individual sources, including the taxiways and runways, and approach and departure paths. Release heights are respective to each phase of the landing-takeoff (LTO) cycle.

3.2.2 Receptors

Receptors were modeled along the airport fenceline at approximately 100 m intervals. In addition, several on-airport grid points that were not within the proposed Project site were also modeled (on-airport/off-site workers). Finally, two receptors were modeled in the center of both construction sites (each end of Runway 7L/25R) to represent the occupationally exposed worker receptors. The modeled receptors are also shown on Figure 2-1.

3.2.3 Meteorology

Five years (2005 through 2009) of AERMOD-ready hourly meteorological data from SCAQMD’s LAX Hastings monitoring station was provided by SCAQMD. All five years were run, and the highest hourly average results at each grid point were used to quantify acute hazards; the highest annual concentration was used to develop the 70-year exposure concentration that was used for calculations of chronic non-cancer hazards and cancer risk.

4 HUMAN HEALTH RISK ASSESSMENT

This HHRA assesses incremental changes to health impacts for people exposed to TAC resulting from construction associated with the proposed Project. Cancer risk and chronic non-cancer health hazard estimates for impacts of the proposed Project are based on estimated project construction emissions and air dispersion modeling as discussed above and are discussed in the following sections. Acute health hazard estimates were also addressed using emission estimates and dispersion modeling. Risk calculations, presented in **Attachment C.1**, indicate that estimates of cancer risks and chronic health hazards would be below the regulatory thresholds of significance. However, acute hazard indices associated with emissions during construction to the proposed Project would be above the acute hazard index regulatory thresholds of significance. Since assessment of health risks included locations where concentrations of TAC were predicted to be highest, this finding applies to all areas on and around LAX.

The following subsections discuss the incremental cancer risk and chronic non-cancer health hazard estimates for impacts of the proposed Project by receptor.

4.1 Cancer Risks and Non-Cancer Hazards Associated with the Proposed Project

Cancer risk estimates from exposure to construction sources are presented below for adult workers, residents, and school children. Acute and chronic non-cancer health hazards are discussed.

Although construction emissions are only projected to last during the 2-year construction period, for convenience in cancer risk calculations, construction emissions during the construction period were amortized over the entire 70-year exposure period. This approach allowed use of a single exposure concentration in the calculations.

4.1.1 Comparison of On-Site Air Concentrations with OSHA Limits for On-Site Workers

Impacts to on-site workers were evaluated by comparing estimated maximum 1-hour air concentrations of TAC to the California Occupational Safety and Health Administration (CalOSHA) 8-hour Time-Weighted Average Permissible Exposure Levels (PEL-TWAs).[26] Estimated on-site air concentrations and PEL-TWAs for TAC of concern for the proposed Project are presented in **Table 4-1**. Estimated maximum 1-hour air concentrations at the on-site location under the proposed Project for controlled construction were converted to 8-hour averages by multiplying by a factor of 0.7.[27] The resulting 8-hour averages are a few to several orders of magnitude below PELs for all TAC. This result suggests that air concentrations from airport emissions with implementation of the proposed Project would not exceed those considered "acceptable" by CalOSHA standards.

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[26] California Occupational Safety and Health Administration, Permissible Exposure Limits for Chemical Contaminants, Table AC 1, Available: http://www.dire.ca.gov/title8/5155.html.

[27] California Air Resources Board. 2003. HARP User Guide: Appendix H Recommendations for Estimating Concentrations of Longer Averaging Periods from the Maximum One-Hour Concentration for Screening Purposes. December. Available: http://www.arb.ca.gov/toxics/harp/harpug.htm

Table 4-1

Comparison of CalOSHA Permissible Exposure Limits to Maximum Estimated 8-Hour On-Site Air Concentrations

Toxic Air Contaminant [a]	Controlled Project Concentrations (mg/m^3) [b]	CalOSHA PEL TWA (mg/m^3) [c]
Acetaldehyde	0.001042	45
Acrolein	0.000000	0.25
Benzene	0.000283	0.32
1,3-Butadiene	0.000027	2.2
Ethylbenzene	0.000043	435
Formaldehyde	0.002084	0.37
Hexane, n-	0.000022	180
Methanol	0.000004	260
Methyl ethyl ketone	0.000209	590
Naphthalene	0.000012	50
Propylene	0.000368	N/A
Styrene	0.000008	215
Toluene	0.000209	37
Xylene (total)	0.000147	435
Diesel PM	0.001517	N/A
Arsenic	0.000001	0.01
Cadmium	0.000006	0.005
Chlorine	0.000052	1.5
Chromium (VI)	0.000000	0.005
Copper	0.000004	1
Lead	0.000006	0.05
Manganese	0.000006	0.2
Mercury	0.000005	0.025
Nickel	0.000003	0.5
Selenium	0.000002	0.2
Silicon	0.000377	6
Sulfates	0.002644	N/A
Vanadium	0.000004	0.05

Notes:

[a] All TACs for which PEL-TWAs are available are listed. PEL-TWAs are not available for diesel exhaust, propylene, and sulfates.

[b] Maximum 1-hour concentrations at on-airport location converted to 8-hour averages by multiplying by a factor of 0.7.

[c] California Occupational Safety and Health Administration. Permissible Exposure Limits for Chemical Contaminants, Table AC-1, 2008, http://www.dir.ca.gov/title8/5155table_ac1.html.

Source: Ricondo & Associates, Inc., 2013.

4.1.2 Cancer Risks and Chronic Non-Cancer Health Hazards for Maximally Exposed Individuals (MEI) – Residents and School Children

For cancer risks and chronic non-cancer hazards for the proposed Project, 326 grid points were analyzed along the airport fence-line and seven on-airport/off-site grid nodes. The concentrations at the 326 fence-line locations represent maximum concentrations of TAC predicted by the air dispersion modeling, can be used to evaluate exposure to a MEI, and thus provide a ceiling for risks and hazards for off-airport residential, commercial, and student receptors. In essence, these calculations assumed that people live, work, and go to school at the LAX fence-line.

Although this assumption is incorrect, it is conservative.

Air concentrations for TAC from construction sources were developed using emissions estimates and dispersion modeling as described above. Using these emission estimates, exposure parameters for potential receptors and current toxicity values, cancer risks, and chronic non-cancer health hazards were calculated for adult residents, resident children ages 0 to 6 years, and for elementary-aged school children at fence-line locations where air concentrations for TAC were predicted. Offsite worker risks and hazards were estimated at the fence-line receptors and on-airport worker locations. Peak cancer risks and chronic non-cancer health hazards for MEI at the fence-line and on-airport locations are summarized in **Table 4-2**.

Table 4-2

Maximum Incremental Cancer and Chronic Non-Cancer Hazards Risk for MEIs During Construction

Receptor Type	Incremental Cancer Risk[a] (per million people)	Significance Threshold (per million people)	Significant?
Child Resident	0.003	10	No
School Child	0.001	10	No
Adult Resident	0.04	10	No
Offsite Workers	0.19	10	No
	Incremental Chronic Non-Cancer Hazards Risk	**Significance Threshold**	**Significant?**
Child Resident	0.002	1	No
School Child	0.0003	1	No
Adult Resident	0.002	1	No
Offsite Workers	0.006	1	No

Notes:

[a] Values provided are the maximum number of cancer cases per million people exposed.

Source: Ricondo and Associates, 2013.

4.1.2.1 Residents (Adults and Young Children)

Residents were evaluated at all 326 off-airport grid nodes. Estimated peak incremental cancer risks for adult residents and child residents for the proposed Project range from 0.003 in one million to 0.04 in one million. Estimated incremental cancer risks are higher for adults than for children, because exposure duration for adults is longer. These estimates show that project-related cancer risks for adults and for young children are predicted to be below the threshold of significance of 10 in one million for proposed Project construction. These estimates are likely to be greater than actual exposure because they assume exposure occurs at the LAX fence-line for a lifetime. Concentrations at the fence-line are maxima. Actual exposures will occur at locations removed from the fence-line where less of an impact is predicted.

Project-related chronic non-cancer hazard indices for construction impacts associated with the Project for adult residents and child residents living at the peak TAC concentration location were estimated to be 0.002, as shown in Table 4-2. Non-cancer hazard indices for adult residents and child residents are the same because the RAGS Part F methodology does not normalize hazard indices to body weight. These estimates indicate that project-related chronic non-cancer hazards would be less than the hazard index threshold of 1.

4.1.2.2 School Children

School children were evaluated at all 326 fenceline grid nodes. Incremental cancer risk for children attending schools at the peak location within the study area is estimated to be 0.001 in one million. Risks below 1 in one million are typically considered negligible by regulatory agencies in California.

4.1.2.3 Adult Workers

Adult workers were evaluated at all 326 off-airport grid nodes and at seven on-airport grid nodes. Cancer risks for adult workers under the controlled scenario at the peak location are estimated to be 0.19 in one million. Overall, project-related cancer risks for the proposed Project for adult workers are predicted to be below the threshold of significance.

4.1.3 Acute Non-Cancer Health Hazards

As with cancer risks and chronic non-cancer health hazards, acute health hazards were analyzed at 335 grid points within the study area. Short-term concentrations of TAC for the proposed Project sources were estimated using AERMOD with the model option for 1-hour maximum concentrations selected. Acute health hazards were estimated at each grid point by comparison of the modeled TAC concentration at each grid point with the acute REL. All TAC identified in Project construction emissions and for which CalEPA has developed acute RELs were evaluated for potential acute health hazards. All acute health hazard estimates are specific for airport emissions and are independent of county-wide estimates developed by USEPA.

Land use distinctions and different exposure scenarios are irrelevant for assessment of acute health hazards. For example, someone visiting a commercial establishment would potentially be subject to the same acute health hazards as someone working at the establishment. Fence-line concentrations of TAC are likely to represent the highest concentrations and therefore the greatest impacts for residents, school children, or off-airport workers. The seven on-airport grid point were assumed to be commercial receptors (workers).

Acrolein and formaldehyde are the only TAC of concern in construction emissions from the Project that might be present at concentrations approaching the thresholds for acute health hazards. Acute health hazards for other TAC are orders of magnitude below their respective acute RELs and thus would not contribute substantially to health hazards. Acrolein and formaldehyde are responsible for approximately 48 percent and 11 percent, respectively, of all predicted acute non-cancer health hazards. The primary source of acrolein is aircraft emissions; the primary source of formaldehyde is from diesel powered construction equipment. Maximum acute health hazards associated with exposure to these two chemicals from Project construction are summarized in **Table 4-3**. Calculations are provided in **Attachment C.2**.

As shown in Table 4-3, Project-related maximum acute hazard quotients for acrolein during construction are estimated to be 3.3 for residents living at the peak hazard location, 1.9 for school children, 0.6 for recreational users, and 2.0 for off-site adult workers. A hazard index equal to or greater than 1 would indicate the potential for acute adverse health effects. Acute exposures to acrolein typically result in mild irritation of eyes and mucous membranes. Acute exposures to formaldehyde may result in irritation to the eye and respiratory system and potentially adverse effects to the immune system.

Table 4-3

Maximum Incremental Acute Non-Cancer Hazard Indices During Construction

Pollutant	Acrolein	Formaldehyde
Residential		
Maximum HI[1]	**3.27**[2]	0.75
Minimum HI	-0.17	-0.04
Average HI	0.58	0.13
School		
Maximum HI	**1.87**	0.43
Minimum HI	-0.24	-0.06
Average HI	0.61	0.14
Offsite Worker		
Maximum HI	**2.02**	0.47
Minimum HI	-0.90	-0.21
Average HI	0.26	0.06
Recreational		
Maximum HI	0.55	0.13
Minimum HI	-0.52	-0.12
Average HI	0.06	0.01
Overall Off-Airport		
Maximum HI	**3.27**	0.75
On-Site Occupational		
Maximum HI	0.79	0.23

Notes:

[1] HI = Hazard Index

[2] **Bold** HIs are greater than the significance threshold of 1.

Source: Ricondo & Associates, Inc., 2013.

4.2 Cumulative Risks and Non-Cancer Health Hazards Associated with the Proposed Project

Unlike air quality, for which standards have been established that determine acceptable levels of pollutant concentrations, no standards exist that establish acceptable levels of human health risks or that identify a threshold of significance for cumulative health risk impacts. Therefore, the discussion below addresses cumulative health risk impacts, and Project-related contributions to those impacts; however, no determination is made regarding the significance of cumulative impacts. Since these results are not used for significance determination, a general discussion of the cumulative impacts for the proposed project is provided. Based on information available from the South Coast Air Quality Management District (SCAQMD) and U.S. Environmental Protection Agency (USEPA), relative to regional cancer risk estimates and toxic air contaminant (TAC) predictions, the geographic areas considered in the cumulative health risk impacts analysis include the South Coast Air Basin for cancer risk and the LAX area for non-cancer health hazards, as further described below.

4.2.1 Cumulative Cancer Risks

The SCAQMD conducted an urban air toxics monitoring and evaluation study for the South Coast Air Basin from April 2004 through March 2006 called Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES-III).[28] MATES-III is a follow up to MATES-II[29] and SCAQMD is currently working on another update, MATES-IV, to update the monitoring and evaluation study; however, the results of MATES-IV are not yet available to the public.[30] According to MATES-III, cancer risks in the South Coast Air Basin range from 870 in one million to 1,400 in one million, with an average of 1,200 in one million. These cancer risk estimates are high and indicate that current impacts associated with ongoing releases of TAC (e.g., from vehicle exhaust) and from sources of TAC from past and present projects in the region are substantial. The MATES-III study is an appropriate estimate of present cumulative impacts of TAC emissions in the South Coast Air Basin. It does not, however, have sufficient resolution to determine the fractional contribution of current LAX operations to TAC in the airshed. Only possible incremental contributions to cumulative impacts can be assessed.

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[28] South Coast Air Quality Management District, Final Report, Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES-III), September 2008, Available: http://www.aqmd.gov/prdas/matesIII/matesIII.html, accessed December 2, 2013.

[29] South Coast Air Quality Management District, Final Report, Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES-II), March 2000, Available: http://www.aqmd.gov/matesiidf/es.pdf, accessed December 2, 2013.

[30] Information on the new MATES-IV study is available at http://www.aqmd.gov/prdas/MatesIV/MatesIV.html, accessed December 2, 2013.

Meaningful quantification of future cumulative health risk exposure in the entire South Coast Air Basin is not possible. Moreover, the threshold of significance used to determine cancer risk impacts associated with the proposed Project is based on the cancer risks associated with individual projects; this threshold is not appropriately applied to conclusions regarding cumulative cancer risk in the South Coast Air Basin.

However, based on the relatively high cancer risk level associated with TAC in air in the South Coast Air Basin (i.e., an additional 1,200 cancer cases per million according to MATES-III), the proposed Project (with a maximum estimated incremental cancer risk of 0.19 cancer cases per million) would not add substantially (less than 0.02 percent) to the already high cumulative cancer risk in the South Coast Air Basin. This small increase estimated for the proposed Project would not be measurable against urban background conditions in the South Coast Air Basin.

The above comparisons do not account for possible positive changes in air quality in the South Coast Air Basin in the future. SCAQMD and other agencies are consistently working to reduce air pollution. In particular, reductions in emissions of diesel particulates are being considered and implemented. Since diesel particulate matter is the major contributor to estimated cancer risks, substantial reductions in diesel emissions would result in substantial reductions in cumulative cancer risks. These, and other such regulations intended to reduce TAC emissions within the South Coast Air Basin, would reduce cumulative impacts overall. While continued, if not increased, regulation by the SCAQMD of point sources as well as more stringent emission controls on mobile sources would reduce TAC emissions, whether such measures would alter incremental contributions of TAC releases to cumulative impacts under the proposed Project cannot be ascertained.

4.2.2 Cumulative Chronic Non-Cancer Health Hazards

Acrolein is the TAC of concern that is responsible for the majority of all predicted chronic non-cancer health hazards associated with LAX operations. In 2011, USEPA published an independent study of possible annual average air concentrations within the South Coast Air Basin associated with a variety of TAC, including acrolein.[31] These estimates provide a means for assessing the cumulative chronic non-cancer health hazard impacts of airport operations in much the same manner as cumulative cancer risks were assessed using the MATES-III results.

Within Los Angeles County, USEPA prediction for annual average concentrations yield acrolein hazard indices ranging from 0.3 to 15, with an average of 4; DPM hazard indices ranging from 0.0007 to 1.2, with an average of 0.3. Incremental hazard indices for the proposed Project (Table 4-2) were estimated to range from 0.0003 to 0.002, orders of magnitude below the threshold of significance of one. Given the relatively small hazard indices associated with proposed Project emissions, the Project is not expected to add significantly to cumulative chronic non-cancer health hazards.

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[31] U.S. Environmental Protection Agency, 2005 National-Scale Air Toxics Assessment, 2011, Available: www.epa.gov/ttn/atw/nata2005/tables.html.

Because of the substantial uncertainties associated with the USEPA estimates,[32] the cumulative analysis for chronic non-cancer health hazard impacts is semi-quantitative and based on a range of possible contributions. This cumulative analysis does not address the issue of potential interactions among acrolein and criteria pollutants. Such interactions cannot, at this time, be addressed in a quantitative fashion. A qualitative discussion of the issue is presented in the LAX Master Plan Final EIR[33] Technical Report S-9a, Section 7.

As discussed in the LAX Master Plan Final EIR[34] (Section 4.24.1.2), limited data are available for describing acrolein emissions. Therefore, estimates of chronic non-cancer health hazards are very uncertain. Chronic non-cancer health hazards associated with the proposed project should only be used to provide a relative comparison to basin-wide conditions. These hazards should not be viewed as absolute estimates of potential health impacts. Moreover, USEPA's estimates are based on data from 2005 and are therefore several years old. Emissions from some important sources may have been reduced as a result of continuing efforts by SCAQMD and other agencies to improve air quality in the South Coast Air Basin. Finally, the estimates do not consider degradation of TAC in the atmosphere. Degradation may be very important for relatively reactive chemicals such as acrolein.

4.2.3 Cumulative Acute Non-Cancer Health Hazards

Acrolein, formaldehyde, and manganese are the primary TAC of concern in the proposed Project emissions that might be present at concentrations approaching the threshold for acute health hazards. Predicted concentrations of TAC released from construction activities for the proposed Project estimate that acute non-cancer health hazards would be above the significance threshold of one. The assessment of cumulative acute non-cancer health hazards follows the methods used to evaluate cumulative acute non-cancer health hazards presented in the LAX Master Plan Final EIR[35] (Section 4.24.1.7 and Technical Report S-9a, Section 6.3), incorporating updated National-Scale Air Toxics Assessment (NATA) tables from 2005. USEPA-modeled emission estimates by census tract were used to estimate annual average ambient air concentrations. These census tract emission estimates are subject to high uncertainty, and USEPA warns against using them to predict local concentrations. Thus, for the analysis of cumulative acute non-cancer health hazards, estimates for each census tract within Los Angeles County were identified, and the range of concentrations was used as an estimate of the possible range of annual average concentrations in the general vicinity of the airport. This range of concentrations was used to estimate a range of acute non-cancer hazard indices using

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[32] U.S. Environmental Protection Agency, 2005 National-Scale Air Toxics Assessment, 2011, Available: www.epa.gov/ttn/atw/nata2005/tables.html.

[33] City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004.

[34] City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004.

[35] City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004.

the same methods as described in the LAX Master Plan Final EIR[36] (Section 4.24.1.7 and Technical Report S-9a, Section 6.1). The methodology entails converting the USEPA annual average estimates to maximum 1-hour average concentrations by dividing annual average estimates by 0.0848. Then the maximum 1-hour average concentrations were divided by the acute REL to calculate acute hazard indices. The range of hazard indices was then used as a basis for comparison with estimated maximum acute non-cancer health hazards for the proposed Project. The relative magnitude of acute non-cancer health hazards calculated on the basis of the USEPA estimates and maximum hazards estimated for the proposed Project were taken as a general measure of relative cumulative impacts. Emphasis must be placed on the relative nature of these estimates. Uncertainties in the analysis preclude estimation of absolute impacts.

When USEPA annual average estimates are converted to possible maximum 1-hour average concentrations, acrolein acute hazard indices are estimated to range from 0.03 to 1.5, with an average of 0.4; formaldehyde acute hazard indices are estimated to range from 0.1 to 2.2, with an average of 1 for locations within the HHRA study area. Predicted overall maximum incremental acute non-cancer health hazards for the proposed Project associated with acrolein ranged from 1.9 to 3.3; those associated with formaldehyde ranged from 0.4 to 0.8. Results suggest that the proposed Project would add to total 1-hour maximum acrolein concentrations at some locations in the HHRA study area and, therefore, to cumulative acute non-cancer health hazards associated with exposure to acrolein.

4.2.4 Conclusions

Although no defined thresholds for cumulative health risk impacts are available, it is the policy of the SCAQMD to use the same significance thresholds for cumulative impacts as for the Project-specific impacts analyzed in the EIR. If cumulative health risks are evaluated following this SCAQMD policy, the project's contribution to the cumulative cancer risk would not be cumulatively considerable since the incremental cancer risk impacts of the proposed Project are all below the individual cancer risk significance thresholds of 10 in one million.

In contrast to cancer risk, the SCAQMD policy does have different significance thresholds for project-specific and cumulative impacts for hazard indices for TAC emissions. A project-specific significance threshold is one (1.0) while the cumulative threshold is 3.0. Based on this SCAQMD policy, chronic non-cancer hazard indices associated with airport emissions under the proposed Project would be cumulatively considerable.

5 UNCERTAINTIES

Uncertainties are present in all facets of human health risk assessment. Potential important uncertainties associated with the HHRA for the LAX Master Plan are discussed in detail in Technical Report 14a and Technical Report S-9a of the LAX Master Plan Final EIR. These

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[36] City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004.

same uncertainty considerations apply to the analyses presented in this proposed Project EIR. These uncertainties are briefly summarized below.

5.1 Uncertainties Associated with Emission Estimates and Dispersion Modeling

Risk estimates were based on chemical concentration estimates obtained through emissions and dispersion modeling. Emissions estimates are sensitive to the values used to represent the numerous emission source variables (e.g., future aircraft operation assumptions) and to the air toxic emission factor values used for each source. Consequently, estimated emissions values are subject to uncertainties. Different assumptions and values of variables would result in different emissions estimates. The HHRA used well-accepted methods and best available emission factor data to develop estimates of emissions, and estimates and assumptions are reasonable and appropriate. Actual emissions are unlikely to be meaningfully greater than those used in the analyses.

In accordance with the Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments,[37] a simplification was made in the emissions modeling to model DPM and not the speciated emissions from diesel-fueled engines for the emission concentrations used in the evaluation of cancer risk or chronic non-cancer health impacts. According to the guidance, the inhalation cancer potency factor and chronic REL for DPM already account for inhalation impacts from speciated emissions from diesel-fueled engines. Therefore, this omission in the modeling is not expected to impact the results of the analysis.

Another simplification was made in the estimate of construction emissions. Construction emission sources were limited to diesel engine exhaust, gasoline engine exhaust, and construction dust. Previous studies indicated that these sources account for a substantial majority of all TAC emissions and thus for risks and hazards associated with construction activities come from these sources. Further, methods used assumed that all PM from engine exhaust came from diesel engines and all of the engine exhaust TOG came from gasoline engines. Given the high toxicity of diesel PM and the greater emissions of toxic organic chemicals in gasoline engine exhaust, these assumptions compensate for ignoring expected minor contributions from paving and striping emissions.

In addition, recent studies suggest that predicted concentrations of acrolein in air associated with LAX construction and operations may be over-estimated. Acrolein is unlikely to be transported over long distances because of its high reactivity and estimated short half-life in air. A study at Chicago O'Hare International Airport used empirical measurements of acrolein in ambient air to determine that acrolein was not a significant TAC associated with airport operations. The Illinois EPA measured airborne levels of various air contaminants in the vicinity of the O'Hare International Airport as well as at other locations in the Chicago area over a seven-month period in 2000. An objective of the air toxics monitoring program was to determine

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[37] California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, Appendix D, August 2003.

if emissions associated with O'Hare Interntaional Airport had a measurable impact on air quality in areas adjacent to the airport. Acrolein was not reported at measurable levels in air at locations near the airport during the air toxic monitoring program.

5.2 Evaluation of Sensitive Receptor Populations

Certain subpopulations may be more sensitive or susceptible to negative health impacts caused by environmental contaminants than the population at large. Risk estimates presented in the HHRA represent a wide range of potential exposures including the highest that can be reasonably expected. Thus, even though risk estimates are not provided for all potentially sensitive receptors in the area, populations not specifically evaluated are still expected to be represented. For example, quantitatively evaluated populations include those with the highest expected exposure durations and exposure frequencies (e.g., residents). Exposures are therefore expected to be less for other populations, even those with higher chemical sensitivities.

5.3 Uncertainties Associated with Exposure Parameter Assumptions

Evaluating human exposure requires many assumptions about how people actually contact chemicals in the environment. Key issues associated with exposure assessment are discussed below.

5.3.1 Uncertainties in Exposure Duration for Cancer Risks

An exposure duration of 70 years was used to estimate possible cancer risks associated with the proposed Project. A 70-year exposure duration is generally used by the SCAQMD in risk assessments performed for permitting purposes. This exposure duration combined with other exposure parameters used in this HHRA assumes that an individual exists who resides where maximum impacts occur in a location near construction similar to construction anticipated for LAX, and that the individual is sedentary, spending essentially all of his/her time at home. Further, this exposure duration assumes that construction emissions continue for a lifetime (6 years for a child and 70 years for an adult). In essence, SCAQMD assumes that a person would constantly be exposed to emissions at the point of greatest impact for their entire lives. This combination of factors never occurs, and any estimates of cancer risk based on such a combination will greatly overestimate possible cancer risks for everyone in the study area.

In the Air Toxics Hot Spots Guidance,[38] OEHHA recommends using a stochastic approach to evaluating cancer risks for residential receptors (it does not recommend this approach for workers or for chronic non-cancer health hazards). It suggests consideration of a range of exposure durations, e.g., 9-year, 30-year, and 70-year exposure durations. Varying exposure duration for residents evaluated for the proposed Project would not materially affect conclusions about the cancer risk impact of the proposed Project because all of the incremental cancer risks estimated for residential receptors are below the threshold of significance. The conclusions regarding potential cancer risk impacts of the proposed Project would remain the same.

5.3.2 Uncertainties Associated with the Evaluation of the Construction Emissions

For the evaluation of construction impacts, construction emissions from the proposed Project were estimated to produce a 2-year average for the 2-year construction period and then amortized over the 70-year exposure period to estimate the annualized 70-year average emissions. While this approach may be appropriate for the estimate of cancer risks for the adult resident who has an exposure duration of 70 years, it may underestimate risks for receptors whose exposure durations are less than 70 years, such as the child resident and school child with 6-year exposure durations. To check the sensitivity of the conclusions to this amortization, annual average emissions were recalculated for the peak locations by amortizing the construction emissions only over the 2-year construction period (instead of the 70-year period). Then, cancer risks and non-cancer health hazards were recalculated for exposure to these revised exposure concentrations assuming an exposure duration of 2 years for all receptors. The averaging time for the cancer risks remained at 70 years, but non-cancer averaging times were modified to be 2 years. These results are presented in **Table 5-1**. Calculations for this analysis are provided in **Attachment C.3**.

Although the incremental cancer risks and hazards are higher for the 2-year modified construction emissions analysis, the risks and hazards are still below the significance thresholds and conclusions regarding potential impacts of the proposed Project would remain the same.

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[38] California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, August 2003.

Table 5-1

Incremental Cancer Risks for Maximally Exposed Individuals for proposed Project Construction with Adjustment of Construction Emissions for 2-Year Construction Period

Receptor Type	Incremental Cancer Risk[a] (per million people)	Significance Threshold (per million people)	Significant?
Child Resident	0.09	10	No
School Child	0.02	10	No
Adult Resident	0.09	10	No
Offsite Workers	0.33	10	No
	Incremental Chronic Non-Cancer Hazards Risk	**Significance Threshold**	**Significant?**
Child Resident	0.06	1	No
School Child	0.01	1	No
Adult Resident	0.06	1	No
Offsite Workers	0.22	1	No

Notes:

[a] Values provided are the maximum number of cancer cases per million people exposed.

Source: Ricondo and Associates, 2013.

5.4 Uncertainties Associated with Toxicity Assessment

Quantitative evaluation of chemical toxicity requires assumptions to extrapolate toxicity information in the literature to possible impacts on people exposure to chemicals in the environment. Key assumptions are discussed briefly below.

5.4.1 Uncertainties Associated with Toxicity Criteria

A potentially large source of uncertainty is inherent in the derivation of the CalEPA toxicity criteria (cancer slope factors and RELs). In many cases, data used to develop toxicity criteria must be extrapolated from animals to sensitive humans. For example, the application of uncertainty factors to estimated no-observable-adverse-effects-levels (NOAELs) or lowest-observed-adverse-effects-levels (LOAELs) are typically used to develop RELs. While designed to be protective, in many cases toxicity criteria are likely to overestimate the magnitude of differences that may exist between humans and animals, and among humans.

In some cases, however, toxicity criteria may be based on studies that did not detect the most sensitive adverse effects. For example, many past studies have not measured possible toxic effects on the immune system. Moreover, some chemicals may cause subtle effects not easily recognized in animal studies. Overall, toxicity criteria are likely to be protective for most or all exposed populations. These criteria are constantly being reconsidered in light of new research and are subject to occasional change during this process. The nature and direction of these changes cannot be predicted and currently available criteria are the best source of toxicity information for use in health risk assessments.

5.4.2 Uncertainties Associated with Unavailable Toxicity Values

1,3-Butadiene, ethylbenzene, naphthalene, n-hexane, propylene, silicon, antimony, cadmium, hexavalent chromium, lead, selenium, and DPM do not have acute RELs that have been developed by OEHHA. However, 1,3-butadiene and ethylbenzene have acute toxicity screening levels from the Agency for Toxic Substances and Disease Registry (ATSDR) in the form of published acute minimal risk levels (MRLs) for hazardous substances. MRLs were established to provide a screening tool for public health professionals to use to identify if potential human health hazards exist from contamination at hazardous waste sites. MRLs are often based on animal studies because relevant human studies are lacking. ATSDR assumes that humans are more sensitive than animals to the effects of hazardous substances and that certain persons may be particularly sensitive. Thus, ATSDR recommendations for MRLs may be as much as a hundred-fold below levels shown to be non-toxic in laboratory animals. This approach is conservative (i.e., protective) for public health. Acute inhalation MRLs for 1,3-butadiene and ethylbenzene are 0.1 parts per million (ppm) and 5 ppm, respectively. These MRLs are relatively high (compared to acrolein which has an acute MRL of 0.003 ppm), reflecting the low acute toxicity of these chemicals. It's unlikely that acute non-cancer health hazards associated with these organic chemicals would rival acrolein, the risk driver for potential acute non-cancer health hazards from aircraft emissions. Lack of inclusion of these chemicals in the quantitative risk assessment is not expected to change the conclusions of the acute non-cancer health hazard evaluation.

Although DPM does not have an acute REL, several components of DPM (such as arsenic, chlorine, mercury, nickel, vanadium, and sulfates) were evaluated in the acute non-cancer health hazard analysis. As noted in Section 5.1, the Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments[39] indicates that toxicity values for DPM were developed for whole diesel exhaust (gas and particulate matter). As such, DPM should be the only TAC considered in the calculation of cancer risks and chronic non-cancer health hazards for diesel engine emissions; speciated diesel exhaust components (e.g., PAHs, metals) should not be evaluated along with DPM. Studies used to support the DPM toxicity value also indicate that "potential cancer risk from inhalation exposure to whole diesel exhaust will outweigh the multipathway cancer risk from the speciated components." DPM does not, however, have an acute REL. Therefore, in order to account for potential acute impacts from DPM, the speciated components of DPM (arsenic, chlorine, mercury, nickel, vanadium, and sulfates) were evaluated in the acute non-cancer health hazard analysis.

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[39] California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, Appendix D, August 2003.

Naphthalene, n-hexane, propylene, silicon, antimony, cadmium, hexavalent chromium, lead, and selenium do not have acute toxicity values. Therefore, their potential impact on the conclusions of the acute risk evaluation is unknown.

5.5 Uncertainties in Risk Characterization

Combining estimates of exposure and toxicity to estimate risks and hazards to human health require the use of methods that simplify actual exposure. For the inhalation pathway, important issues for risk characterization are discussed below.

5.5.1 Uncertainties Associated with Elimination of Potentially Complete Exposure Pathways

The proposed Project HHRA evaluates the potential complete exposure pathway of direct inhalation of TAC released during construction of the proposed Project. However, other exposure pathways, such as exposure to TAC deposited onto soils, could also be important. For example, children might ingest TAC that deposited onto soil through hand-to-mouth activity during outdoor play, or residents who have gardens could ingest TAC taken up from soil into plants. For the proposed Project HHRA, based on the multi-pathway screening analysis in the LAX Master Plan Final EIR and other airport HHRAs, inhalation of TAC was identified as the primary exposure pathway, and exposures and risks from inhalation of TAC were quantified.

Other potential exposure pathways were analyzed in a two-step screening process described in Technical Report 14a Attachment B, Section 2.5.3 of the LAX Master Plan Final EIR. In the first step, air dispersion modeling was used to determine potential TAC concentrations in air on or near LAX, and these concentrations were used to estimate deposition of TAC onto soils over time. In the second screening step, concentrations of TAC estimated in soil were compared to the range of background concentrations of these chemicals to determine the relative impacts of deposition from air. This analysis indicated that impacts to soils from deposition of TAC from airport construction would be negligible and that the estimated contribution from LAX emissions would result in no measurable difference in expected background concentrations of metals. Therefore, secondary pathways involving TAC in soil were not further evaluated.

5.6 Interactions among Acrolein and Criteria Pollutants

TAC that act in similar ways to produce toxicity may cause additive, or even greater than additive, impacts to human health. Acrolein and criteria pollutants, such as oxides of nitrogen and ozone, all act as irritants to the upper respiratory system. Thus, interactions among these chemicals are possible.

Whether such interactions actually occur, and are important for emissions from LAX construction, cannot be ascertained with available information. Many uncertainties exist, including:

- Reliability of acrolein concentration estimates (see Section 5.1).
- Lack of information on specific mechanisms of toxicity for the chemicals in question, which will affect the potential for and degree of any interactions.
- Lack of information on thresholds at which interactions may occur.

Without extensive additional research, the potential for impacts related to interactions among acrolein and criteria pollutants cannot be further assessed.

6 SUMMARY

The HHRA addressed possible incremental health impacts associated with construction of the proposed Project. The evaluation assessed cancer risks, chronic non-cancer health hazards, and acute health hazards. The text below summarizes the conclusions regarding significant human health impacts based on modeling estimates.

- Incremental cancer risks associated with construction of the proposed Project are anticipated to be below the threshold of significance of 10 in one million for all receptor types (i.e., child resident, school child, adult resident, and adult worker) within the study area. Incremental cancer risk estimates indicate that impacts would be less than significant.
- Incremental chronic non-cancer hazard indices associated with construction of the proposed Project are anticipated to be below the threshold of significance for all receptor types (i.e., child resident, school child, adult resident, and adult worker). Incremental chronic non-cancer hazard indices indicate that impacts would be less than significant.
- Incremental acute hazard indices would be at or above the threshold of significance of 1 at 35 of 326 modeled off-site receptor locations. Incremental acute hazard indices indicate that impacts would be significant.
- Exposure concentrations used for the risk calculations assumed that the 2-year average construction emissions were amortized over a 70-year exposure period to estimate the annualized 70-year average emissions. Because this approach could underestimate risks for receptors whose exposure durations are less than 70 years, cancer risks and hazards were recalculated using construction emissions amortized over the 2-year construction period (instead of the 70-year period) and assuming an exposure duration of 2 years for all receptors. Although this recalculation showed that the incremental cancer risks and hazards are higher for the 2-year modified construction emissions analysis, the risks and hazards are still below significance thresholds and conclusions regarding potential impacts of the proposed Project would remain the same.
- Estimated maximum air concentrations for all TAC evaluated on the proposed Project site would not exceed PEL-TWA for construction workers. Therefore, health impacts to on-airport/ on-site workers would be less than significant.

- From a cumulative standpoint, cancer risks and chronic non-cancer hazards from the proposed Project construction would likely contribute negligibly to the risks and hazards from emissions for anticipated concurrent construction projects at LAX.
- Also from a cumulative standpoint, acute hazards from the proposed Project construction would likely contribute to the hazards from emissions for anticipated concurrent construction projects at LAX.
- Estimated cumulative risks and hazards from emissions for concurrent construction projects at LAX would not be measurable against urban background conditions in the South Coast Air Basin.

Runway 7L/25R RSA Project and Associated Improvements

Draft EIR

Appendix C (Human Health Risk Assessment)

Human Health Risk Assessment Files

Provided by Ricondo & Associates

December 2013

Attachment C.1

Cancer Risk and Chronic Non-Cancer Health Hazard Calculations (RAGS Part F)

Table 1-1

RAGS F Risk Calculation for LAX Runway 7L/25R RSA Improvements and Associated Projects, 2015 Construction - Lifetime Exposure
(Based on Peak Location of Residential Cancer Risks)

Exposure Parameters	Residential Child	School Child	Residential Adult
Exposure Time	24 (hrs/day)	8 (hrs/day)	24 (hrs/day)
Exposure Frequency	350 (days/year)	200 (days/year)	350 (days/year)
Exposure Duration	6 (years)	6 (years)	70 (years)
Averaging Time (non-carcinogenic)	52560 (hrs)	52560 (hrs)	613200 (hrs)
Averaging Time (carcinogenic)	613200 (hrs)	613200 (hrs)	613200 (hrs)

RAGS F Inhalation Equations

EC = (CA x ET x EF x ED) / (AT)

Risk = IUR x EC

Hazard Quotient = EC / RfC

Where:

EC = Exposure Concentratic ED = Exposure Duration

CA = Concentration in Air AT = Averaging Time

ET = Exposure Time IUR = Inhalation Unit Risk

EF = Exposure Frequency RfC = Reference Concentration

	Toxicity Criteria					Cancer Risks			Hazard Quotients		
TAC	Concentration at Location with Maximum Risk (ug/m3)	EPA Inhalation Unit Risk (ug/m^3)$^{-1}$	CalEPA Inhalation Unit Risk (ug/m^3)$^{-1}$	EPA Chronic Inhalation RfC (ug/m^3)	CalEPA Chronic Inhalation RfC (ug/m^3)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient Child Resident	Hazard Quotient School Child	Hazard Quotient Adult Resident
Acetaldehyde	3.54E-04	2.20E-06	2.70E-06	9.00E+00	1.40E+02	7.86E-11	1.50E-11	9.17E-10	2.43E-06	4.62E-07	2.43E-06
Acrolein	1.99E-04	N/A	N/A	2.00E-02	3.50E-01	NC	NC	NC	5.44E-04	1.04E-04	5.44E-04
Benzene	1.38E-04	7.80E-06	2.90E-05	3.00E+01	6.00E+01	3.30E-10	6.28E-11	3.85E-09	2.21E-06	4.21E-07	2.21E-06
1,3-Butadiene	1.37E-04	3.00E-05	1.70E-04	2.00E+00	2.00E+01	1.91E-09	3.64E-10	2.23E-08	6.57E-06	1.25E-06	6.57E-06
Ethylbenzene	1.44E-05	2.50E-06	2.50E-06	1.00E+03	2.00E+03	2.96E-12	5.65E-13	3.46E-11	6.92E-09	1.32E-09	6.92E-09
Formaldehyde	1.01E-03	1.30E-05	6.00E-06	9.80E+00	9.00E+00	5.00E-10	9.52E-11	5.83E-09	1.08E-04	2.06E-05	1.08E-04
Hexane, n-	1.66E-07	N/A	N/A	7.00E+02	7.00E+03	NC	NC	NC	2.27E-11	4.32E-12	2.27E-11
Methanol	1.46E-04	N/A	N/A	4.00E+03	4.00E+03	NC	NC	NC	3.51E-08	6.68E-09	3.51E-08
Methyl ethyl ketone	1.56E-06	N/A	N/A	5.00E+03	N/A	NC	NC	NC	NC	NC	NC
Naphthalene	4.39E-05	N/A	3.40E-05	3.00E+00	9.00E+00	1.23E-10	2.34E-11	1.43E-09	4.68E-06	8.92E-07	4.68E-06
Propylene	3.70E-04	N/A	N/A	3.00E+03	3.00E+03	NC	NC	NC	1.18E-07	2.25E-08	1.18E-07
Styrene	2.51E-05	N/A	N/A	1.00E+03	9.00E+02	NC	NC	NC	2.68E-08	5.10E-09	2.68E-08
Toluene	5.36E-05	N/A	N/A	5.00E+03	3.00E+02	NC	NC	NC	1.71E-07	3.26E-08	1.71E-07
Xylene (total)	3.74E-05	N/A	N/A	1.00E+02	7.00E+02	NC	NC	NC	5.13E-08	9.76E-09	5.13E-08
Diesel PM	1.11E-05	N/A	3.00E-04	5.00E+00	5.00E+00	2.75E-10	5.23E-11	3.21E-09	2.14E-06	4.07E-07	2.14E-06
Arsenic	5.57E-09	4.30E-03	3.30E-03	1.50E-02	1.50E-02	1.51E-12	2.88E-13	1.76E-11	3.56E-07	6.78E-08	3.56E-07
Cadmium	4.46E-08	1.80E-03	4.20E-03	1.00E-02	2.00E-02	1.54E-11	2.93E-12	1.80E-10	2.14E-06	4.07E-07	2.14E-06
Chlorine	3.83E-07	N/A	N/A	1.50E-01	2.00E-01	NC	NC	NC	1.84E-06	3.50E-07	1.84E-06
Chromium (VI)	7.27E-09	1.20E-02	1.50E-01	1.00E-01	2.00E-01	8.96E-11	1.71E-11	1.05E-09	3.48E-08	6.64E-09	3.48E-08
Copper	5.32E-08	N/A	N/A	N/A	N/A	NC	NC	NC	NC	NC	NC
Lead	1.03E-07	N/A	1.20E-05	N/A	N/A	1.01E-13	1.93E-14	1.18E-12	NC	NC	NC
Manganese	7.50E-08	N/A	N/A	5.00E-02	9.00E-02	NC	NC	NC	7.99E-07	1.52E-07	7.99E-07
Mercury	3.34E-08	N/A	N/A	3.00E-01	3.00E-02	NC	NC	NC	1.07E-06	2.04E-07	1.07E-06
Nickel	2.12E-08	N/A	2.60E-04	9.00E-02	1.40E-02	4.52E-13	8.62E-14	5.28E-12	1.45E-06	2.76E-07	1.45E-06
Selenium	1.11E-08	N/A	N/A	2.00E+01	2.00E+01	NC	NC	NC	5.34E-10	1.02E-10	5.34E-10
Silicon	2.77E-06	N/A	N/A	3.00E+00	3.00E+00	NC	NC	NC	8.86E-07	1.69E-07	8.86E-07
Sulfates	1.94E-05	N/A	N/A	N/A	N/A	NC	NC	NC	NC	NC	NC
Vanadium	3.23E-08	8.30E-03	N/A	1.00E-01	N/A	NC	NC	NC	NC	NC	NC
					TOTAL	3.33E-09	6.34E-10	3.88E-08	0.0007	0.0001	0.0007
					1 in a million cancer risks	0.003	0.001	0.039			

Notes:

[1] Residential Maximum Grid No. Receptor_315

N/A - Not Available

NC = Not Calculated

ug/m^3 = micrograms per cubic meter

Source: Ricondo & Associates, Inc., 2013.

Table 1-2

RAGS F Risk Calculation for LAX Runway 7L/25R RSA Improvements and Associated Projects, 2015 Construction - Lifetime Exposure
(Based on Peak Location of Residential Hazards)

Exposure Parameters	Residential Child	School Child	Residential Adult
Exposure Time	24 (hrs/day)	8 (hrs/day)	24 (hrs/day)
Exposure Frequency	350 (days/year)	200 (days/year)	350 (days/year)
Exposure Duration	6 (years)	6 (years)	70 (years)
Averaging Time (non-carcinogenic)	52560 (hrs)	52560 (hrs)	613200 (hrs)
Averaging Time (carcinogenic)	613200 (hrs)	613200 (hrs)	613200 (hrs)

RAGS F Inhalation Equations

EC = (CA x ET x EF x ED) / (AT)
Risk = IUR x EC
Hazard Quotient = EC / RfC
Where:
EC = Exposure Concentratic ED = Exposure Duration
CA = Concentration in Air AT = Averaging Time
ET = Exposure Time IUR = Inhalation Unit Risk
EF = Exposure Frequency RfC = Reference Concentration

	Toxicity Criteria					Cancer Risks			Hazard Quotients		
TAC	Concentration at Location with Maximum Risk (ug/m3)	EPA Inhalation Unit Risk (ug/m^3)$^{-1}$	CalEPA Inhalation Unit Risk (ug/m^3)$^{-1}$	EPA Chronic Inhalation RfC (ug/m^3)	CalEPA Chronic Inhalation RfC (ug/m^3)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient Child Resident	Hazard Quotient School Child	Hazard Quotient Adult Resident
Acetaldehyde	8.28E-04	2.20E-06	2.70E-06	9.00E+00	1.40E+02	1.84E-10	3.50E-11	2.14E-09	5.67E-06	1.08E-06	5.67E-06
Acrolein	4.66E-04	N/A	N/A	2.00E-02	3.50E-01	NC	NC	NC	1.28E-03	2.43E-04	1.28E-03
Benzene	3.24E-04	7.80E-06	2.90E-05	3.00E+01	6.00E+01	7.72E-10	1.47E-10	9.01E-09	5.18E-06	9.86E-07	5.18E-06
1,3-Butadiene	3.21E-04	3.00E-05	1.70E-04	2.00E+00	2.00E+01	4.49E-09	8.55E-10	5.24E-08	1.54E-05	2.93E-06	1.54E-05
Ethylbenzene	3.38E-05	2.50E-06	2.50E-06	1.00E+03	2.00E+03	6.94E-12	1.32E-12	8.09E-11	1.62E-08	3.08E-09	1.62E-08
Formaldehyde	2.37E-03	1.30E-05	6.00E-06	9.80E+00	9.00E+00	1.17E-09	2.23E-10	1.37E-08	2.53E-04	4.82E-05	2.53E-04
Hexane, n-	3.44E-07	N/A	N/A	7.00E+02	7.00E+03	NC	NC	NC	4.72E-11	8.98E-12	4.72E-11
Methanol	3.43E-04	N/A	N/A	4.00E+03	4.00E+03	NC	NC	NC	8.23E-08	1.57E-08	8.23E-08
Methyl ethyl ketone	3.24E-06	N/A	N/A	5.00E+03	N/A	NC	NC	NC	NC	NC	NC
Naphthalene	1.03E-04	N/A	3.40E-05	3.00E+00	9.00E+00	2.88E-10	5.49E-11	3.36E-09	1.10E-05	2.09E-06	1.10E-05
Propylene	8.68E-04	N/A	N/A	3.00E+03	3.00E+03	NC	NC	NC	2.77E-07	5.28E-08	2.77E-07
Styrene	5.89E-05	N/A	N/A	1.00E+03	9.00E+02	NC	NC	NC	6.27E-08	1.20E-08	6.27E-08
Toluene	1.25E-04	N/A	N/A	5.00E+03	3.00E+02	NC	NC	NC	4.01E-07	7.63E-08	4.01E-07
Xylene (total)	8.75E-05	N/A	N/A	1.00E+02	7.00E+02	NC	NC	NC	1.20E-07	2.28E-08	1.20E-07
Diesel PM	2.36E-05	N/A	3.00E-04	5.00E+00	5.00E+00	5.81E-10	1.11E-10	6.78E-09	4.52E-06	8.61E-07	4.52E-06
Arsenic	1.18E-08	4.30E-03	3.30E-03	1.50E-02	1.50E-02	3.20E-12	6.09E-13	3.73E-11	7.53E-07	1.44E-07	7.53E-07
Cadmium	9.43E-08	1.80E-03	4.20E-03	1.00E-02	2.00E-02	3.25E-11	6.20E-12	3.80E-10	4.52E-06	8.61E-07	4.52E-06
Chlorine	8.11E-07	N/A	N/A	1.50E-01	2.00E-01	NC	NC	NC	3.89E-06	7.41E-07	3.89E-06
Chromium (VI)	1.38E-08	1.20E-02	1.50E-01	1.00E-01	2.00E-01	1.71E-10	3.25E-11	1.99E-09	6.63E-08	1.26E-08	6.63E-08
Copper	1.07E-07	N/A	N/A	N/A	N/A	NC	NC	NC	NC	NC	NC
Lead	2.04E-07	N/A	1.20E-05	N/A	N/A	2.01E-13	3.83E-14	2.35E-12	NC	NC	NC
Manganese	1.52E-07	N/A	N/A	5.00E-02	9.00E-02	NC	NC	NC	1.62E-06	3.08E-07	1.62E-06
Mercury	7.07E-08	N/A	N/A	3.00E-01	3.00E-02	NC	NC	NC	2.26E-06	4.31E-07	2.26E-06
Nickel	4.48E-08	N/A	2.60E-04	9.00E-02	1.40E-02	9.57E-13	1.82E-13	1.12E-11	3.07E-06	5.84E-07	3.07E-06
Selenium	2.36E-08	N/A	N/A	2.00E+01	2.00E+01	NC	NC	NC	1.13E-09	2.15E-10	1.13E-09
Silicon	5.86E-06	N/A	N/A	3.00E+00	3.00E+00	NC	NC	NC	1.87E-06	3.57E-07	1.87E-06
Sulfates	4.11E-05	N/A	N/A	N/A	N/A	NC	NC	NC	NC	NC	NC
Vanadium	6.84E-08	8.30E-03	N/A	1.00E-01	N/A	NC	NC	NC	NC	NC	NC
					TOTAL	7.70E-09	1.47E-09	8.98E-08	0.0016	0.0003	0.0016
					1 in a million cancer risks	0.008	0.001	0.090			

Notes:

[1] Residential Maximum Grid No. Receptor_306

N/A - Not Available

NC = Not Calculated

ug/m^3 = micrograms per cubic meter

Source: Ricondo & Associates, Inc., 2013.

Table 1-3

RAGS F Risk Calculation for LAX Runway 7L/25R RSA Improvements and Associated Projects, 2015 Construction - Lifetime Exposure
(Based on Peak Location of Commercial Cancer Risks)

Exposure Parameters	**Adult Worker**
Exposure Time	24 (hrs/day)
Exposure Frequency	350 (days/year)
Exposure Duration	40 (years)
Averaging Time (non-carcinogenic)	350400 (hrs)
Averaging Time (carcinogenic)	613200 (hrs)

RAGS F Inhalation Equations

EC = (CA x ET x EF x ED) / (AT)
Risk = IUR x EC
Hazard Quotient = EC / RfC
Where:
EC = Exposure Concentration
CA = Concentration in Air
ET = Exposure Time
EF = Exposure Frequency
ED = Exposure Duration
AT = Averaging Time
IUR = Inhalation Unit Risk
RfC = Reference Concentration

		Toxicity Criteria				**Cancer Risks**	**Hazard Quotients**
TAC	**Concentration at Location with Maximum Risk (ug/m3)**	**EPA Inhalation Unit Risk (ug/m^3)$^{-1}$**	**CalEPA Inhalation Unit Risk (ug/m^3)$^{-1}$**	**EPA Chronic Inhalation RfC (ug/m^3)**	**CalEPA Chronic Inhalation RfC (ug/m^3)**	**Cancer Risk to Adult Worker**	**Hazard Quotient Adult Worker**
Acetaldehyde	3.24E-03	2.20E-06	2.70E-06	9.00E+00	1.40E+02	4.79E-09	2.22E-05
Acrolein	1.84E-03	N/A	N/A	2.00E-02	3.50E-01	NC	5.05E-03
Benzene	1.27E-03	7.80E-06	2.90E-05	3.00E+01	6.00E+01	2.02E-08	2.03E-05
1,3-Butadiene	1.27E-03	3.00E-05	1.70E-04	2.00E+00	2.00E+01	1.18E-07	6.09E-05
Ethylbenzene	1.32E-04	2.50E-06	2.50E-06	1.00E+03	2.00E+03	1.81E-10	6.32E-08
Formaldehyde	9.31E-03	1.30E-05	6.00E-06	9.80E+00	9.00E+00	3.06E-08	9.92E-04
Hexane, n-	4.35E-07	N/A	N/A	7.00E+02	7.00E+03	NC	5.95E-11
Methanol	1.36E-03	N/A	N/A	4.00E+03	4.00E+03	NC	3.26E-07
Methyl ethyl ketone	4.09E-06	N/A	N/A	5.00E+03	N/A	NC	NC
Naphthalene	4.07E-04	N/A	3.40E-05	3.00E+00	9.00E+00	7.59E-09	4.34E-05
Propylene	3.42E-03	N/A	N/A	3.00E+03	3.00E+03	NC	1.09E-06
Styrene	2.33E-04	N/A	N/A	1.00E+03	9.00E+02	NC	2.48E-07
Toluene	4.87E-04	N/A	N/A	5.00E+03	3.00E+02	NC	1.56E-06
Xylene (total)	3.40E-04	N/A	N/A	1.00E+02	7.00E+02	NC	4.66E-07
Diesel PM	2.59E-05	N/A	3.00E-04	5.00E+00	5.00E+00	4.25E-09	4.96E-06
Arsenic	1.29E-08	4.30E-03	3.30E-03	1.50E-02	1.50E-02	2.34E-11	8.26E-07
Cadmium	1.03E-07	1.80E-03	4.20E-03	1.00E-02	2.00E-02	2.38E-10	4.96E-06
Chlorine	8.89E-07	N/A	N/A	1.50E-01	2.00E-01	NC	4.26E-06
Chromium (VI)	3.85E-08	1.20E-02	1.50E-01	1.00E-01	2.00E-01	3.16E-09	1.85E-07
Copper	2.07E-07	N/A	N/A	N/A	N/A	NC	NC
Lead	4.21E-07	N/A	1.20E-05	N/A	N/A	2.77E-12	NC
Manganese	2.74E-07	N/A	N/A	5.00E-02	9.00E-02	NC	2.92E-06
Mercury	7.76E-08	N/A	N/A	3.00E-01	3.00E-02	NC	2.48E-06
Nickel	4.91E-08	N/A	2.60E-04	9.00E-02	1.40E-02	7.00E-12	3.36E-06
Selenium	2.59E-08	N/A	N/A	2.00E+01	2.00E+01	NC	1.24E-09
Silicon	6.43E-06	N/A	N/A	3.00E+00	3.00E+00	NC	2.06E-06
Sulfates	4.51E-05	N/A	N/A	N/A	N/A	NC	NC
Vanadium	7.50E-08	8.30E-03	N/A	1.00E-01	N/A	NC	NC
					TOTAL	1.89E-07	0.0062
					1 in a million cancer risks	0.19	

Notes:

[1] Commercial Maximum Grid No. Receptor_328

N/A - Not Available

NC = Not Calculated

ug/m^3 = micrograms per cubic meter

Source: Ricondo & Associates, Inc., 2013.

Attachment C.2

Acute Health Hazard Calculations

Table 2-1

Summary of Incremental Acute Hazard Indices for LAX Runway 7L/25R and Associated Improvements Project for On-Site Workers and Off-Site Receptors

Construction TAC Concentrations

Receptor Location	acetaldehyde (µg/m^{3})	acrolein (µg/m^{3})	benzene (µg/m^{3})	formaldehyde (µg/m^{3})	methyl alcohol (µg/m^{3})	methyl ethyl ketone (µg/m^{3})	styrene (µg/m^{3})	toluene (µg/m^{3})	xylene, total (µg/m^{3})	arsenic (µg/m^{3})	chlorine (µg/m^{3})	copper (µg/m^{3})	mercury (µg/m^{3})	nickel (µg/m^{3})	vanadium (µg/m^{3})	sulfates (µg/m^{3})
Commerical - Onsite																
Maximum Onsite Concentration -->	4.27E+00	1.97E+00	1.58E+00	1.16E+01	1.46E+00	2.99E-01	2.56E-01	6.82E-01	1.82E-01	1.08E-03	7.46E-02	6.10E-03	6.50E-03	4.12E-03	6.29E-03	3.78E+00
Commerical - Offsite																
Maximum Offsite Concentration -->	8.84E+00	5.04E+00	3.47E+00	2.54E+01	3.72E+00	5.18E-02	6.37E-01	1.33E+00	2.94E-01	1.86E-04	1.28E-02	7.11E-04	1.12E-03	7.06E-04	1.08E-03	6.48E-01
Minimum Offsite Concentration -->	-3.77E+00	-2.25E+00	-1.49E+00	-1.09E+01	-1.66E+00	3.06E-03	-2.82E-01	-5.63E-01	-1.21E-01	1.03E-05	7.10E-04	7.78E-05	6.19E-05	3.92E-05	5.98E-05	3.60E-02
Average Offsite Concentration -->	1.18E+00	6.45E-01	4.58E-01	3.35E+00	4.76E-01	1.09E-02	8.19E-02	1.80E-01	4.17E-02	3.82E-05	2.63E-03	2.97E-04	2.29E-04	1.45E-04	2.21E-04	1.33E-01
Recreational																
Maximum Offsite Concentration -->	2.40E+00	1.37E+00	9.42E-01	6.90E+00	1.01E+00	6.01E-03	1.72E-01	3.61E-01	8.00E-02	2.21E-05	1.52E-03	1.58E-04	1.32E-04	8.38E-05	1.28E-04	7.69E-02
Minimum Offsite Concentration -->	-2.27E+00	-1.31E+00	-8.94E-01	-6.55E+00	-9.66E-01	1.67E-03	-1.65E-01	-3.39E-01	-7.37E-02	6.15E-06	4.23E-04	3.13E-05	3.69E-05	2.34E-05	3.56E-05	2.14E-02
Average Offsite Concentration -->	2.63E-01	1.41E-01	1.02E-01	7.44E-01	1.04E-01	3.52E-03	1.79E-02	4.05E-02	9.57E-03	1.29E-05	8.88E-04	1.00E-04	7.75E-05	4.91E-05	7.49E-05	4.50E-02
Residential																
Maximum Offsite Concentration -->	1.43E+01	8.17E+00	5.62E+00	4.12E+01	6.02E+00	4.07E-02	1.03E+00	2.15E+00	4.74E-01	1.48E-04	1.02E-02	8.52E-04	8.86E-04	5.61E-04	8.56E-04	5.15E-01
Minimum Offsite Concentration -->	-7.25E-01	-4.28E-01	-2.88E-01	-2.11E+00	-3.16E-01	1.68E-03	-5.39E-02	-1.08E-01	-2.29E-02	6.25E-06	4.30E-04	5.23E-05	3.75E-05	2.37E-05	3.62E-05	2.18E-02
Average Offsite Concentration -->	2.56E+00	1.45E+00	1.00E+00	7.34E+00	1.07E+00	6.48E-03	1.83E-01	3.86E-01	8.60E-02	2.36E-05	1.62E-03	2.13E-04	1.41E-04	8.95E-05	1.37E-04	8.21E-02
School																
Maximum Offsite Concentration -->	8.18E+00	4.67E+00	3.21E+00	2.35E+01	3.44E+00	7.47E-03	5.89E-01	1.23E+00	2.72E-01	2.76E-05	1.90E-03	3.99E-04	1.65E-04	1.05E-04	1.60E-04	9.61E-02
Minimum Offsite Concentration -->	-1.05E+00	-6.08E-01	-4.14E-01	-3.03E+00	-4.48E-01	2.01E-03	-7.66E-02	-1.57E-01	-3.41E-02	7.23E-06	4.97E-04	7.11E-05	4.34E-05	2.75E-05	4.19E-05	2.52E-02
Average Offsite Concentration -->	3.03E+00	1.73E+00	1.19E+00	8.72E+00	1.27E+00	3.20E-03	2.18E-01	4.56E-01	1.01E-01	1.17E-05	8.04E-04	1.59E-04	7.01E-05	4.44E-05	6.78E-05	4.07E-02
CalEPA Acute REL	470	2.5	1300	55	28000	13000	21000	37000	22000	0.2	210	100	0.6	6	30	120
Commerical - Onsite																
Maximum Onsite Acute Hazard -->	9.08E-03	7.90E-01	1.21E-03	2.10E-01	5.21E-05	2.30E-05	1.22E-05	1.84E-05	8.28E-06	5.42E-03	3.55E-04	6.10E-05	1.08E-02	6.86E-04	2.10E-04	3.15E-02
Commerical - Offsite																
Maximum Offsite Acute Hazard -->	1.88E-02	2.02E+00	2.67E-03	4.63E-01	1.33E-04	3.98E-06	3.03E-05	3.60E-05	1.34E-05	9.29E-04	6.09E-05	7.11E-06	1.86E-03	1.18E-04	3.59E-05	5.40E-03
Minimum Offsite Acute Hazard -->	-8.03E-03	-9.01E-01	-1.15E-03	-1.99E-01	-5.92E-05	2.35E-07	-1.34E-05	-1.52E-05	-5.49E-06	5.16E-05	3.38E-06	7.78E-07	1.03E-04	6.53E-06	1.99E-06	3.00E-04
Average Offsite Acute Hazard -->	2.51E-03	2.58E-01	3.52E-04	6.10E-02	1.70E-05	8.38E-07	3.90E-06	4.87E-06	1.89E-06	1.91E-04	1.25E-05	2.97E-06	3.82E-04	2.42E-05	7.38E-06	1.11E-03
Recreational																
Maximum Offsite Acute Hazard -->	5.10E-03	5.46E-01	7.25E-04	1.25E-01	3.59E-05	4.62E-07	8.21E-06	9.77E-06	3.64E-06	1.10E-04	7.23E-06	1.58E-06	2.21E-04	1.40E-05	4.27E-06	6.41E-04
Minimum Offsite Acute Hazard -->	-4.82E-03	-5.24E-01	-6.88E-04	-1.19E-01	-3.45E-05	1.29E-07	-7.87E-06	-9.17E-06	-3.35E-06	3.07E-05	2.01E-06	3.13E-07	6.15E-05	3.89E-06	1.19E-06	1.79E-04
Average Offsite Acute Hazard -->	5.60E-04	5.64E-02	7.81E-05	1.35E-02	3.71E-06	2.70E-07	8.54E-07	1.09E-06	4.35E-07	6.46E-05	4.23E-06	1.00E-06	1.29E-04	8.18E-06	2.50E-06	3.75E-04
Residential																
Maximum Offsite Acute Hazard -->	3.04E-02	3.27E+00	4.32E-03	7.48E-01	2.15E-04	3.13E-06	4.91E-05	5.81E-05	2.15E-05	7.38E-04	4.84E-05	8.52E-06	1.48E-03	9.35E-05	2.85E-05	4.29E-03
Minimum Offsite Acute Hazard -->	-1.54E-03	-1.71E-01	-2.22E-04	-3.84E-02	-1.13E-05	1.30E-07	-2.57E-06	-2.92E-06	-1.04E-06	3.12E-05	2.05E-06	5.23E-07	6.25E-05	3.96E-06	1.21E-06	1.81E-04
Average Offsite Acute Hazard -->	5.44E-03	5.79E-01	7.71E-04	1.33E-01	3.81E-05	4.98E-07	8.71E-06	1.04E-05	3.91E-06	1.18E-04	7.72E-06	2.13E-06	2.36E-04	1.49E-05	4.55E-06	6.84E-04
School																
Maximum Offsite Acute Hazard -->	1.74E-02	1.87E+00	2.47E-03	4.28E-01	1.23E-04	5.75E-07	2.81E-05	3.33E-05	1.24E-05	1.38E-04	9.03E-06	3.99E-06	2.76E-04	1.75E-05	5.33E-06	8.01E-04
Minimum Offsite Acute Hazard -->	-2.23E-03	-2.43E-01	-3.19E-04	-5.52E-02	-1.60E-05	1.55E-07	-3.65E-06	-4.25E-06	-1.55E-06	3.61E-05	2.37E-06	7.11E-07	7.23E-05	4.58E-06	1.40E-06	2.10E-04
Average Offsite Acute Hazard -->	6.45E-03	6.91E-01	9.16E-04	1.59E-01	4.55E-05	2.46E-07	1.04E-05	1.23E-05	4.58E-06	5.84E-05	3.83E-06	1.59E-06	1.17E-04	7.40E-06	2.26E-06	3.39E-04

Table 2-2

Summary of Incremental Acute Hazard Concentrations

Receptor Number	X	Y	Receptor Type	acetaldehyde (µg/m^{3})	acrolein (µg/m^{3})	benzene (µg/m^{3})	formaldehyde (µg/m^{3})	methyl alcohol (µg/m^{3})	methyl ethyl ketone (µg/m^{3})	phonel (carbolic acid) (µg/m^{3})	styrene (µg/m^{3})	toulene (µg/m^{3})	xylene, total (µg/m^{3})	arsenic (µg/m^{3})	chlorine (µg/m^{3})	copper (µg/m^{3})	mercury (µg/m^{3})	nickel (µg/m^{3})	vanadium (µg/m^{3})	sulfates (µg/m^{3})
117	370814	758243	Offsite Worker	4.83E+00	2.76E+00	1.90E+00	1.39E+01	2.04E+00	3.06E-03	8.19E-01	3.49E-01	7.27E-01	1.60E-01	1.88E-01	1.59E-01	1.03E-05	7.10E-04	1.85E-04	6.19E-05	3.92E-05
118	370810	758153	Offsite Worker	4.72E+00	2.70E+00	1.86E+00	1.36E+01	1.99E+00	3.24E-03	8.00E-01	3.41E-01	7.11E-01	1.57E-01	1.84E-01	1.56E-01	1.09E-05	7.51E-04	1.84E-04	6.55E-05	4.15E-05
119	370807	758063	Offsite Worker	4.44E+00	2.53E+00	1.74E+00	1.28E+01	1.87E+00	3.44E-03	7.51E-01	3.20E-01	6.68E-01	1.47E-01	1.73E-01	1.46E-01	1.16E-05	7.96E-04	2.27E-04	6.95E-05	4.40E-05
120	370803	757974	Offsite Worker	3.97E+00	2.27E+00	1.56E+00	1.14E+01	1.67E+00	3.65E-03	6.72E-01	2.86E-01	5.98E-01	1.32E-01	1.54E-01	1.31E-01	1.23E-05	8.46E-04	1.98E-04	7.37E-05	4.67E-05
121	370835	757927	Offsite Worker	2.71E+00	1.54E+00	1.07E+00	7.80E+00	1.14E+00	3.80E-03	4.58E-01	1.95E-01	4.09E-01	9.05E-02	1.06E-01	8.92E-02	1.28E-05	8.79E-04	2.96E-04	7.66E-05	4.85E-05
122	370868	757880	Offsite Worker	3.41E+00	1.95E+00	1.34E+00	9.82E+00	1.43E+00	3.95E-03	5.77E-01	2.46E-01	5.14E-01	1.14E-01	1.33E-01	1.12E-01	1.33E-05	9.14E-04	4.87E-04	7.97E-05	5.05E-05
123	370921	757884	Offsite Worker	4.11E+00	2.34E+00	1.61E+00	1.18E+01	1.73E+00	3.97E-03	6.95E-01	2.96E-01	6.19E-01	1.37E-01	1.60E-01	1.35E-01	1.34E-05	9.20E-04	4.90E-04	8.02E-05	5.08E-05
124	370975	757887	Offsite Worker	4.69E+00	2.68E+00	1.84E+00	1.35E+01	1.97E+00	4.00E-03	7.94E-01	3.38E-01	7.06E-01	1.56E-01	1.83E-01	1.55E-01	1.35E-05	9.26E-04	4.52E-04	8.08E-05	5.11E-05
125	370975	757794	Offsite Worker	5.36E+00	3.06E+00	2.10E+00	1.54E+01	2.25E+00	4.29E-03	9.07E-01	3.86E-01	8.06E-01	1.78E-01	2.08E-01	1.76E-01	1.44E-05	9.92E-04	6.01E-04	8.66E-05	5.48E-05
126	371026	757794	Offsite Worker	4.72E+00	2.69E+00	1.85E+00	1.36E+01	1.98E+00	4.32E-03	7.98E-01	3.40E-01	7.10E-01	1.57E-01	1.84E-01	1.55E-01	1.46E-05	1.00E-03	6.35E-04	8.73E-05	5.53E-05
127	371076	757877	Offsite Worker	4.77E+00	2.72E+00	1.87E+00	1.37E+01	2.01E+00	4.09E-03	8.07E-01	3.44E-01	7.18E-01	1.58E-01	1.85E-01	1.57E-01	1.38E-05	9.48E-04	3.96E-04	8.27E-05	5.24E-05
128	371126	757959	Offsite Worker	4.40E+00	2.51E+00	1.73E+00	1.27E+01	1.85E+00	3.87E-03	7.44E-01	3.17E-01	6.62E-01	1.46E-01	1.71E-01	1.45E-01	1.31E-05	8.99E-04	3.39E-04	7.84E-05	4.97E-05
129	371119	758031	Offsite Worker	3.65E+00	2.08E+00	1.43E+00	1.05E+01	1.53E+00	3.67E-03	6.17E-01	2.63E-01	5.49E-01	1.21E-01	1.42E-01	1.20E-01	1.24E-05	8.53E-04	3.73E-04	7.44E-05	4.71E-05
143	371953	757977	Offsite Worker	2.52E+00	1.43E+00	9.90E-01	7.25E+00	1.06E+00	4.64E-03	4.25E-01	1.81E-01	3.80E-01	8.44E-02	9.82E-02	8.28E-02	1.62E-05	1.12E-03	2.96E-04	9.73E-05	6.16E-05
144	371948	757880	Offsite Worker	2.62E+00	1.49E+00	1.03E+00	7.52E+00	1.10E+00	4.91E-03	4.41E-01	1.88E-01	3.95E-01	8.76E-02	1.02E-01	8.59E-02	1.72E-05	1.18E-03	1.89E-04	1.03E-04	6.52E-05
145	371943	757783	Offsite Worker	1.19E+00	6.67E-01	4.65E-01	3.40E+00	4.91E-01	5.20E-03	1.98E-01	8.43E-02	1.80E-01	4.05E-02	4.64E-02	3.87E-02	1.81E-05	1.25E-03	1.76E-04	1.09E-04	6.89E-05
146	372016	757794	Offsite Worker	7.92E-01	4.38E-01	3.08E-01	2.26E+00	3.23E-01	5.46E-03	1.30E-01	5.55E-02	1.20E-01	2.75E-02	3.10E-02	2.56E-02	1.91E-05	1.32E-03	1.75E-04	1.15E-04	7.27E-05
147	372102	757791	Offsite Worker	5.44E-01	2.96E-01	2.11E-01	1.54E+00	2.18E-01	5.66E-03	8.76E-02	3.75E-02	8.31E-02	1.94E-02	2.13E-02	1.74E-02	2.00E-05	1.37E-03	1.75E-04	1.20E-04	7.58E-05
148	372178	757760	Offsite Worker	7.15E-01	3.93E-01	2.78E-01	2.04E+00	2.90E-01	6.00E-03	1.17E-01	4.98E-02	1.09E-01	2.51E-02	2.80E-02	2.30E-02	2.11E-05	1.45E-03	1.96E-04	1.27E-04	8.04E-05
149	372177	757670	Offsite Worker	7.62E-01	4.18E-01	2.96E-01	2.17E+00	3.08E-01	6.46E-03	1.24E-01	5.30E-02	1.16E-01	2.68E-02	2.98E-02	2.45E-02	2.28E-05	1.57E-03	2.50E-04	1.37E-04	8.66E-05
150	372176	757579	Offsite Worker	6.37E-01	3.45E-01	2.47E-01	1.81E+00	2.55E-01	6.99E-03	1.02E-01	4.38E-02	9.75E-02	2.28E-02	2.50E-02	2.03E-02	2.47E-05	1.70E-03	2.80E-04	1.48E-04	9.38E-05
151	372174	757489	Offsite Worker	7.43E-01	4.04E-01	2.88E-01	2.11E+00	2.98E-01	7.60E-03	1.20E-01	5.13E-02	1.14E-01	2.64E-02	2.91E-02	2.38E-02	2.69E-05	1.85E-03	2.74E-04	1.61E-04	1.02E-04
152	372173	757398	Offsite Worker	3.19E-01	1.59E-01	1.20E-01	8.81E-01	1.17E-01	8.39E-03	4.70E-02	2.04E-02	5.00E-02	1.26E-02	1.27E-02	9.68E-03	2.97E-05	2.04E-03	2.91E-04	1.78E-04	1.13E-04
153	372171	757308	Offsite Worker	7.42E-01	3.99E-01	2.86E-01	2.10E+00	2.94E-01	9.32E-03	1.18E-01	5.07E-02	1.14E-01	2.68E-02	2.92E-02	2.36E-02	3.30E-05	2.27E-03	3.42E-04	1.98E-04	1.25E-04
154	372055	757309	Offsite Worker	3.64E-01	1.85E-01	1.38E-01	1.01E+00	1.36E-01	8.41E-03	5.47E-02	2.36E-02	5.68E-02	1.41E-02	1.44E-02	1.12E-02	2.95E-05	2.03E-03	3.37E-04	1.77E-04	1.12E-04
156	372055	757416	Offsite Worker	4.89E-01	2.59E-01	1.88E-01	1.38E+00	1.91E-01	7.63E-03	7.67E-02	3.29E-02	7.54E-02	1.81E-02	1.93E-02	1.54E-02	2.68E-05	1.84E-03	2.86E-04	1.61E-04	1.02E-04
157	371952	757442	Offsite Worker	1.24E+00	6.92E-01	4.84E-01	3.54E+00	5.10E-01	6.71E-03	2.05E-01	8.76E-02	1.88E-01	4.26E-02	4.84E-02	4.03E-02	2.30E-05	1.58E-03	2.75E-04	1.38E-04	8.75E-05
158	371950	757345	Offsite Worker	-3.63E-01	-2.30E-01	-1.47E-01	-1.08E+00	-1.69E-01	7.53E-03	-6.81E-02	-2.87E-02	-5.27E-02	-1.01E-02	-1.39E-02	-1.27E-02	2.58E-05	1.78E-03	2.63E-04	1.55E-04	9.82E-05
159	371864	757344	Offsite Worker	-8.73E-02	-7.14E-02	-3.89E-02	-2.84E-01	-5.24E-02	7.47E-03	-2.12E-02	-8.71E-03	-1.13E-02	-1.02E-03	-3.14E-03	-3.63E-03	2.56E-05	1.76E-03	2.65E-04	1.53E-04	9.71E-05
160	371790	757347	Offsite Worker	4.74E-01	2.51E-01	1.82E-01	1.33E+00	1.85E-01	7.36E-03	7.44E-02	3.19E-02	7.31E-02	1.75E-02	1.87E-02	1.49E-02	2.51E-05	1.73E-03	2.70E-04	1.51E-04	9.55E-05
161	371708	757356	Offsite Worker	9.56E-01	5.27E-01	3.72E-01	2.72E+00	3.89E-01	7.19E-03	1.56E-01	6.68E-02	1.45E-01	3.33E-02	3.74E-02	3.08E-02	2.45E-05	1.68E-03	2.81E-04	1.47E-04	9.31E-05
162	371615	757356	Offsite Worker	1.05E+00	5.83E-01	4.10E-01	3.00E+00	4.30E-01	7.07E-03	1.73E-01	7.38E-02	1.60E-01	3.65E-02	4.11E-02	3.40E-02	2.40E-05	1.65E-03	2.86E-04	1.44E-04	9.13E-05
163	371523	757356	Offsite Worker	1.57E+00	8.79E-01	6.13E-01	4.49E+00	6.48E-01	6.95E-03	2.61E-01	1.11E-01	2.37E-01	5.35E-02	6.12E-02	5.10E-02	2.35E-05	1.62E-03	2.92E-04	1.41E-04	8.94E-05
164	371430	757356	Offsite Worker	2.08E+00	1.17E+00	8.14E-01	5.96E+00	8.64E-01	6.83E-03	3.48E-01	1.48E-01	3.14E-01	7.03E-02	8.10E-02	6.79E-02	2.30E-05	1.59E-03	2.99E-04	1.38E-04	8.76E-05
165	371338	757356	Offsite Worker	2.23E+00	1.26E+00	8.72E-01	6.39E+00	9.27E-01	6.70E-03	3.73E-01	1.59E-01	3.36E-01	7.52E-02	8.68E-02	7.28E-02	2.26E-05	1.55E-03	3.06E-04	1.35E-04	8.57E-05
166	371245	757356	Offsite Worker	2.40E+00	1.36E+00	9.41E-01	6.89E+00	1.00E+00	6.58E-03	4.02E-01	1.72E-01	3.62E-01	8.09E-02	9.35E-02	7.86E-02	2.21E-05	1.52E-03	3.15E-04	1.33E-04	8.40E-05
167	371153	757356	Offsite Worker	2.60E+00	1.47E+00	1.02E+00	7.46E+00	1.08E+00	6.46E-03	4.36E-01	1.86E-01	3.92E-01	8.74E-02	1.01E-01	8.51E-02	2.16E-05	1.49E-03	3.25E-04	1.30E-04	8.22E-05
168	371061	757356	Offsite Worker	2.83E+00	1.61E+00	1.11E+00	8.14E+00	1.18E+00	6.34E-03	4.76E-01	2.03E-01	4.28E-01	9.52E-02	1.10E-01	9.29E-02	2.12E-05	1.46E-03	3.37E-04	1.27E-04	8.05E-05
169	371005	757357	Offsite Worker	3.03E+00	1.72E+00	1.19E+00	8.69E+00	1.27E+00	6.26E-03	5.09E-01	2.17E-01	4.56E-01	1.01E-01	1.18E-01	9.93E-02	2.09E-05	1.44E-03	3.48E-04	1.25E-04	7.94E-05
170	370998	757293	Offsite Worker	6.80E-01	3.71E-01	2.63E-01	1.93E+00	2.73E-01	6.65E-03	1.10E-01	4.70E-02	1.04E-01	2.41E-02	2.66E-02	2.18E-02	2.22E-05	1.53E-03	4.76E-04	1.33E-04	8.42E-05
171	370998	757194	Offsite Worker	5.73E+00	3.26E+00	2.25E+00	1.65E+01	2.41E+00	7.35E-03	9.68E-01	4.12E-01	8.63E-01	1.91E-01	2.23E-01	1.88E-01	2.44E-05	1.68E-03	3.52E-04	1.47E-04	9.29E-05
172	370998	757096	Offsite Worker	7.06E-01	3.81E-01	2.73E-01	2.00E+00	2.81E-01	8.17E-03	1.13E-01	4.84E-02	1.08E-01	2.53E-02	2.77E-02	2.25E-02	2.71E-05	1.86E-03	2.65E-04	1.63E-04	1.03E-04
173	370998	756998	Offsite Worker	-1.82E+00	-1.07E+00	-7.22E-01	-5.28E+00	-7.88E-01	9.15E-03	-3.17E-01	-1.35E-01	-2.71E-01	-5.78E-02	-7.04E-02	-6.10E-02	3.03E-05	2.08E-03	2.50E-04	1.82E-04	1.15E-04
174	371057	756997	Offsite Worker	-1.10E+00	-6.54E-01	-4.37E-01	-3.20E+00	-4.82E-01	9.28E-03	-1.94E-01	-8.22E-02	-1.62E-01	-3.38E-02	-4.23E-02	-3.71E-02	3.07E-05	2.11E-03	2.63E-04	1.84E-04	1.17E-04
175	371153	756997	Offsite Worker	-2.76E-01	-1.85E-01	-1.14E-01	-8.38E-01	-1.37E-01	9.48E-03	-5.50E-02	-2.30E-02	-3.92E-02	-6.76E-03	-1.04E-02	-1.01E-02	3.15E-05	2.17E-03	2.76E-04	1.89E-04	1.20E-04
176	371249	756997	Offsite Worker	-2.65E+00	-1.55E+00	-1.05E+00	-7.68E+00	-1.14E+00	9.70E-03	-4.59E-01	-1.95E-01	-3.96E-01	-8.51E-02	-1.03E-01	-8.85E-02	3.23E-05	2.22E-03	2.69E-04	1.94E-04	1.23E-04
177	371345	756997	Offsite Worker	-2.84E+00	-1.66E+00	-1.12E+00	-8.24E+00	-1.22E+00	9.95E-03	-4.92E-01	-2.09E-01	-4.25E-01	-9.14E-02	-1.10E-01	-9.48E-02	3.33E-05	2.29E-03	2.77E-04	2.00E-04	1.26E-04
178	371440	756997	Offsite Worker	-9.82E-01	-5.92E-01	-3.92E-01	-2.87E+00	-4.36E-01	1.02E-02	-1.75E-01	-7.43E-02	-1.45E-01	-2.98E-02	-3.78E-02	-3.34E-02	3.43E-05	2.36E-03	2.86E-04	2.06E-04	1.30E-04
179	371536	756997	Offsite Worker	-4.57E-01	-2.92E-01	-1.86E-01	-1.36E+00	-2.15E-01	1.05E-02	-8.66E-02	-3.65E-02	-6.61E-02	-1.25E-02	-1.74E-02	-1.61E-02	3.56E-05	2.45E-03	2.37E-04	2.13E-04	1.35E-04
180	371632	756997	Offsite Worker	1.01E+00	5.45E-01	3.89E-01	2.85E+00	4.02E-01	1.09E-02	1.62E-01	6.92E-02	1.54E-01	3.59E-02	3.94E-02	3.21E-02	3.70E-05	2.55E-03	2.19E-04	2.22E-04	1.41E-04
181	371728	756997	Offsite Worker	9.39E-01	5.06E-01	3.63E-01	2.66E+00	3.73E-01	1.13E-02	1.50E-01	6.43E-02	1.44E-01	3.38E-02	3.69E-02	2.99E-02	3.86E-05	2.65E-03	2.29E-04	2.32E-04	1.47E-04
182	371824	756997	Offsite Worker	7.02E-01	3.69E-01	2.69E-01	1.97E+00	2.72E-01	1.18E-02	1.09E-01	4.70E-02	1.08E-01	2.61E-02	2.77E-02	2.20E-02	4.03E-05	2.77E-03	2.80E-04	2.42E-04	1.53E-04
183	371920	756997	Offsite Worker	4.01E-01	1.95E-01	1.51E-01	1.10E+00	1.44E-01	1.22E-02	5.79E-02	2.51E-02	6.34E-02	1.63E-02	1.60E-02	1.20E-02	4.21E-05	2.90E-03	2.92E-04	2.53E-04	1.60E-04

Table 2-2
Summary of Incremental Acute Hazard Concentrations

Receptor Number	X	Y	Receptor Type	acetaldehyde (µg/m^3)	acrolein (µg/m^3)	benzene (µg/m^3)	formaldehyde (µg/m^3)	methyl alcohol (µg/m^3)	methyl ethyl ketone (µg/m^3)	phonel (carbolic acid) (µg/m^3)	styrene (µg/m^3)	toulene (µg/m^3)	xylene, total (µg/m^3)	arsenic (µg/m^3)	chlorine (µg/m^3)	copper (µg/m^3)	mercury (µg/m^3)	nickel (µg/m^3)	vanadium (µg/m^3)	sulfates (µg/m^3)
184	372016	756997	Offsite Worker	6.19E-01	3.19E-01	2.36E-01	1.73E+00	2.35E-01	1.27E-02	9.45E-02	4.07E-02	9.62E-02	2.36E-02	2.45E-02	1.92E-02	4.38E-05	3.01E-03	3.19E-04	2.63E-04	1.66E-04
185	372111	756997	Offsite Worker	-1.38E+00	-8.28E-01	-5.51E-01	-4.03E+00	-6.10E-01	1.30E-02	-2.45E-01	-1.04E-01	-2.04E-01	-4.23E-02	-5.32E-02	-4.68E-02	4.54E-05	3.13E-03	2.61E-04	2.73E-04	1.73E-04
186	372207	756997	Offsite Worker	-3.77E+00	-2.21E+00	-1.49E+00	-1.09E+01	-1.62E+00	1.48E-02	-6.54E-01	-2.78E-01	-5.63E-01	-1.21E-01	-1.46E-01	-1.26E-01	5.25E-05	3.61E-03	3.30E-04	3.15E-04	1.99E-04
187	372303	756997	Offsite Worker	-2.61E+00	-1.54E+00	-1.04E+00	-7.60E+00	-1.14E+00	1.57E-02	-4.57E-01	-1.94E-01	-3.89E-01	-8.23E-02	-1.01E-01	-8.78E-02	5.61E-05	3.86E-03	3.02E-04	3.37E-04	2.13E-04
188	372399	756997	Offsite Worker	-1.57E+00	-9.47E-01	-6.27E-01	-4.59E+00	-6.98E-01	1.72E-02	-2.81E-01	-1.19E-01	-2.31E-01	-4.74E-02	-6.03E-02	-5.34E-02	6.12E-05	4.21E-03	3.86E-04	3.67E-04	2.33E-04
189	372495	756997	Offsite Worker	-1.04E+00	-6.46E-01	-4.20E-01	-3.07E+00	-4.75E-01	1.71E-02	-1.91E-01	-8.08E-02	-1.52E-01	-3.01E-02	-3.99E-02	-3.61E-02	6.12E-05	4.21E-03	3.18E-04	3.67E-04	2.33E-04
190	372591	756997	Offsite Worker	-1.81E+00	-1.08E+00	-7.20E-01	-5.27E+00	-7.97E-01	1.62E-02	-3.21E-01	-1.36E-01	-2.67E-01	-5.56E-02	-6.96E-02	-6.12E-02	5.78E-05	3.98E-03	3.21E-04	3.47E-04	2.20E-04
191	372610	757063	Offsite Worker	-8.57E-01	-5.32E-01	-3.46E-01	-2.53E+00	-3.92E-01	1.44E-02	-1.58E-01	-6.66E-02	-1.25E-01	-2.47E-02	-3.28E-02	-2.97E-02	5.13E-05	3.53E-03	2.86E-04	3.08E-04	1.95E-04
192	372612	757132	Offsite Worker	-6.94E-01	-4.34E-01	-2.81E-01	-2.06E+00	-3.20E-01	1.27E-02	-1.29E-01	-5.43E-02	-1.01E-01	-1.97E-02	-2.65E-02	-2.42E-02	4.52E-05	3.11E-03	2.46E-04	2.71E-04	1.72E-04
193	372614	757201	Offsite Worker	-1.72E+00	-1.02E+00	-6.85E-01	-5.01E+00	-7.52E-01	1.13E-02	-3.02E-01	-1.28E-01	-2.56E-01	-5.41E-02	-6.66E-02	-5.80E-02	4.00E-05	2.75E-03	2.52E-04	2.40E-04	1.52E-04
194	372616	757270	Offsite Worker	-1.90E+00	-1.12E+00	-7.53E-01	-5.51E+00	-8.23E-01	1.01E-02	-3.31E-01	-1.40E-01	-2.83E-01	-6.01E-02	-7.34E-02	-6.36E-02	3.63E-05	2.49E-03	2.46E-04	2.18E-04	1.38E-04
195	372627	757351	Offsite Worker	2.44E-01	1.13E-01	9.02E-02	6.61E-01	8.36E-02	9.26E-03	3.36E-02	1.46E-02	3.89E-02	1.03E-02	9.77E-03	7.11E-03	3.31E-05	2.28E-03	2.45E-04	1.98E-04	1.26E-04
196	372651	757422	Offsite Worker	-9.13E-01	-5.48E-01	-3.64E-01	-2.67E+00	-4.03E-01	8.40E-03	-1.62E-01	-6.88E-02	-1.35E-01	-2.81E-02	-3.52E-02	-3.10E-02	3.00E-05	2.06E-03	2.48E-04	1.80E-04	1.14E-04
197	372676	757494	Offsite Worker	-4.01E-01	-2.51E-01	-1.62E-01	-1.19E+00	-1.85E-01	7.64E-03	-7.45E-02	-3.14E-02	-5.83E-02	-1.13E-02	-1.53E-02	-1.40E-02	2.72E-05	1.87E-03	2.30E-04	1.63E-04	1.03E-04
198	372704	757569	Offsite Worker	-1.40E-01	-1.00E-01	-5.93E-02	-4.34E-01	-7.38E-02	7.06E-03	-2.98E-02	-1.24E-02	-1.93E-02	-2.86E-03	-5.20E-03	-5.32E-03	2.48E-05	1.71E-03	2.40E-04	1.49E-04	9.44E-05
199	372733	757645	Offsite Worker	-1.57E-01	-1.09E-01	-6.56E-02	-4.80E-01	-7.99E-02	6.58E-03	-3.22E-02	-1.34E-02	-2.19E-02	-3.53E-03	-5.87E-03	-5.83E-03	2.31E-05	1.59E-03	2.35E-04	1.39E-04	8.79E-05
200	372746	757702	Offsite Worker	-1.36E-02	-2.55E-02	-9.11E-03	-6.65E-02	-1.87E-02	6.21E-03	-7.57E-03	-2.98E-03	-5.01E-04	1.10E-03	-3.22E-04	-1.07E-03	2.18E-05	1.50E-03	2.18E-04	1.31E-04	8.30E-05
201	372746	757768	Offsite Worker	-5.95E-01	-3.58E-01	-2.38E-01	-1.74E+00	-2.64E-01	5.83E-03	-1.06E-01	-4.49E-02	-8.80E-02	-1.82E-02	-2.29E-02	-2.02E-02	2.06E-05	1.42E-03	1.90E-04	1.24E-04	7.82E-05
204	372994	757783	Offsite Worker	-5.28E-01	-3.20E-01	-2.11E-01	-1.55E+00	-2.35E-01	5.96E-03	-9.48E-02	-4.01E-02	-7.79E-02	-1.59E-02	-2.03E-02	-1.80E-02	2.11E-05	1.45E-03	1.87E-04	1.27E-04	8.03E-05
205	373087	757783	Offsite Worker	-6.47E-01	-3.87E-01	-2.58E-01	-1.89E+00	-2.85E-01	5.51E-03	-1.15E-01	-4.86E-02	-9.59E-02	-2.00E-02	-2.50E-02	-2.19E-02	1.96E-05	1.35E-03	1.78E-04	1.17E-04	7.43E-05
206	373180	757784	Offsite Worker	-7.36E-01	-4.36E-01	-2.93E-01	-2.14E+00	-3.22E-01	5.18E-03	-1.29E-01	-5.49E-02	-1.09E-01	-2.30E-02	-2.84E-02	-2.48E-02	1.81E-05	1.25E-03	1.71E-04	1.09E-04	6.89E-05
207	373274	757785	Offsite Worker	-7.81E-01	-4.62E-01	-3.10E-01	-2.27E+00	-3.41E-01	5.09E-03	-1.37E-01	-5.81E-02	-1.16E-01	-2.45E-02	-3.02E-02	-2.63E-02	1.79E-05	1.23E-03	1.69E-04	1.07E-04	6.80E-05
208	373367	757786	Offsite Worker	-7.91E-01	-4.67E-01	-3.14E-01	-2.30E+00	-3.44E-01	4.89E-03	-1.38E-01	-5.87E-02	-1.18E-01	-2.49E-02	-3.06E-02	-2.66E-02	1.72E-05	1.18E-03	1.64E-04	1.03E-04	6.54E-05
209	373418	757742	Offsite Worker	-7.12E-01	-4.22E-01	-2.83E-01	-2.07E+00	-3.11E-01	5.01E-03	-1.25E-01	-5.31E-02	-1.06E-01	-2.22E-02	-2.75E-02	-2.40E-02	1.75E-05	1.20E-03	1.75E-04	1.05E-04	6.65E-05
210	373418	757653	Offsite Worker	-3.83E-01	-2.35E-01	-1.54E-01	-1.13E+00	-1.73E-01	5.40E-03	-6.96E-02	-2.94E-02	-5.62E-02	-1.13E-02	-1.47E-02	-1.32E-02	1.89E-05	1.30E-03	1.84E-04	1.14E-04	7.19E-05
211	373419	757564	Offsite Worker	-7.42E-02	-5.89E-02	-3.27E-02	-2.39E-01	-4.33E-02	5.73E-03	-1.75E-02	-7.21E-03	-9.72E-03	-1.02E-03	-2.69E-03	-3.02E-03	2.02E-05	1.39E-03	1.72E-04	1.21E-04	7.67E-05
212	373419	757475	Offsite Worker	4.29E-02	7.12E-03	1.32E-02	9.67E-02	5.37E-03	6.11E-03	2.11E-03	1.14E-03	7.96E-03	2.94E-03	1.87E-03	8.03E-04	2.15E-05	1.48E-03	1.17E-04	1.29E-04	8.15E-05
213	373420	757386	Offsite Worker	2.19E-01	1.07E-01	8.22E-02	6.02E-01	7.90E-02	6.49E-03	3.17E-02	1.38E-02	3.45E-02	8.84E-03	8.72E-03	6.58E-03	2.29E-05	1.57E-03	1.21E-04	1.37E-04	8.69E-05
214	373420	757297	Offsite Worker	2.89E-02	-2.90E-03	7.24E-03	5.33E-02	-2.00E-03	6.82E-03	-8.61E-04	-9.85E-05	6.04E-03	2.65E-03	1.35E-03	2.71E-04	2.38E-05	1.64E-03	1.37E-04	1.43E-04	9.06E-05
215	373421	757207	Offsite Worker	-5.93E-01	-3.61E-01	-2.38E-01	-1.74E+00	-2.66E-01	7.25E-03	-1.07E-01	-4.52E-02	-8.74E-02	-1.78E-02	-2.28E-02	-2.03E-02	2.51E-05	1.73E-03	1.44E-04	1.51E-04	9.54E-05
216	373421	757118	Offsite Worker	-6.12E-02	-5.86E-02	-2.91E-02	-2.13E-01	-4.30E-02	8.23E-03	-1.74E-02	-7.07E-03	-7.15E-03	3.14E-05	-2.10E-03	-2.84E-03	2.87E-05	1.97E-03	1.54E-04	1.72E-04	1.09E-04
217	373292	757117	Offsite Worker	-4.49E-01	-2.81E-01	-1.82E-01	-1.33E+00	-2.07E-01	8.27E-03	-8.33E-02	-3.51E-02	-6.54E-02	-1.27E-02	-1.72E-02	-1.56E-02	2.91E-05	2.00E-03	1.67E-04	1.75E-04	1.11E-04
218	373213	757118	Offsite Worker	-7.02E-01	-4.27E-01	-2.81E-01	-2.06E+00	-3.15E-01	8.81E-03	-1.27E-01	-5.36E-02	-1.03E-01	-2.10E-02	-2.70E-02	-2.40E-02	3.12E-05	2.15E-03	1.64E-04	1.87E-04	1.19E-04
219	373158	757066	Offsite Worker	-5.50E-01	-3.43E-01	-2.22E-01	-1.63E+00	-2.52E-01	9.59E-03	-1.02E-01	-4.29E-02	-8.03E-02	-1.58E-02	-2.11E-02	-1.91E-02	3.40E-05	2.34E-03	1.75E-04	2.04E-04	1.29E-04
220	373084	757026	Offsite Worker	-5.26E-01	-3.32E-01	-2.13E-01	-1.56E+00	-2.44E-01	1.07E-02	-9.84E-02	-4.15E-02	-7.64E-02	-1.47E-02	-2.01E-02	-1.84E-02	3.78E-05	2.60E-03	1.80E-04	2.27E-04	1.44E-04
221	373009	757011	Offsite Worker	-6.85E-01	-4.25E-01	-2.76E-01	-2.02E+00	-3.13E-01	1.15E-02	-1.26E-01	-5.32E-02	-1.00E-01	-1.97E-02	-2.62E-02	-2.37E-02	4.08E-05	2.81E-03	1.71E-04	2.45E-04	1.55E-04
222	372922	757009	Offsite Worker	-9.86E-01	-6.00E-01	-3.96E-01	-2.90E+00	-4.42E-01	1.23E-02	-1.78E-01	-7.53E-02	-1.45E-01	-2.95E-02	-3.79E-02	-3.38E-02	4.36E-05	3.00E-03	1.73E-04	2.62E-04	1.66E-04
223	372835	757007	Offsite Worker	-2.36E-01	-1.71E-01	-1.01E-01	-7.35E-01	-1.26E-01	1.25E-02	-5.07E-02	-2.11E-02	-3.24E-02	-4.66E-03	-8.76E-03	-9.05E-03	4.45E-05	3.06E-03	2.17E-04	2.67E-04	1.69E-04
224	372747	757006	Offsite Worker	-6.04E-01	-3.85E-01	-2.46E-01	-1.80E+00	-2.84E-01	1.36E-02	-1.14E-01	-4.81E-02	-8.75E-02	-1.66E-02	-2.30E-02	-2.13E-02	4.86E-05	3.34E-03	2.70E-04	2.92E-04	1.85E-04
225	372660	757004	Offsite Worker	-1.62E+00	-9.71E-01	-6.46E-01	-4.73E+00	-7.16E-01	1.56E-02	-2.88E-01	-1.22E-01	-2.39E-01	-4.95E-02	-6.23E-02	-5.49E-02	5.59E-05	3.85E-03	3.25E-04	3.35E-04	2.12E-04
226	372651	757063	Offsite Worker	-1.96E-01	-1.53E-01	-8.56E-02	-6.27E-01	-1.13E-01	1.44E-02	-4.54E-02	-1.88E-02	-2.58E-02	-2.87E-03	-7.12E-03	-7.89E-03	5.13E-05	3.53E-03	3.08E-04	3.08E-04	1.95E-04
227	372629	756931	Offsite Worker	-4.46E-01	-3.07E-01	-1.86E-01	-1.36E+00	-2.26E-01	1.80E-02	-9.10E-02	-3.80E-02	-6.25E-02	-1.02E-02	-1.67E-02	-1.65E-02	6.45E-05	4.44E-03	3.61E-04	3.87E-04	2.45E-04
228	372631	756857	Offsite Worker	-2.11E-01	-1.79E-01	-9.53E-02	-6.97E-01	-1.31E-01	2.02E-02	-5.30E-02	-2.18E-02	-2.67E-02	-1.95E-03	-7.54E-03	-8.99E-03	7.24E-05	4.98E-03	3.81E-04	4.34E-04	2.75E-04
229	372634	756783	Offsite Worker	-9.05E-01	-5.82E-01	-3.69E-01	-2.70E+00	-4.29E-01	2.22E-02	-1.73E-01	-7.26E-02	-1.30E-01	-2.43E-02	-3.44E-02	-3.21E-02	7.98E-05	5.49E-03	3.82E-04	4.79E-04	3.03E-04
230	372702	756778	Offsite Worker	-9.23E-01	-5.90E-01	-3.76E-01	-2.75E+00	-4.34E-01	2.12E-02	-1.75E-01	-7.36E-02	-1.33E-01	-2.52E-02	-3.52E-02	-3.26E-02	7.57E-05	5.21E-03	3.10E-04	4.54E-04	2.88E-04
231	372756	756775	Offsite Worker	-7.70E-01	-5.00E-01	-3.15E-01	-2.31E+00	-3.68E-01	2.04E-02	-1.48E-01	-6.22E-02	-1.11E-01	-2.03E-02	-2.92E-02	-2.75E-02	7.29E-05	5.02E-03	2.55E-04	4.38E-04	2.77E-04
232	372729	756712	Offsite Worker	-1.69E+00	-1.04E+00	-6.78E-01	-4.97E+00	-7.63E-01	2.39E-02	-3.07E-01	-1.30E-01	-2.48E-01	-4.97E-02	-6.48E-02	-5.81E-02	8.54E-05	5.88E-03	3.06E-04	5.13E-04	3.25E-04
233	372703	756650	Offsite Worker	-1.09E+00	-7.04E-01	-4.45E-01	-3.25E+00	-5.18E-01	2.84E-02	-2.09E-01	-8.77E-02	-1.56E-01	-2.88E-02	-4.13E-02	-3.87E-02	1.02E-04	7.00E-03	3.75E-04	6.11E-04	3.87E-04
234	372677	756588	Offsite Worker	-1.92E+00	-1.20E+00	-7.77E-01	-5.69E+00	-8.83E-01	3.41E-02	-3.56E-01	-1.50E-01	-2.80E-01	-5.49E-02	-7.36E-02	-6.69E-02	1.22E-04	8.37E-03	4.60E-04	7.30E-04	4.62E-04
235	372619	756588	Offsite Worker	-2.16E+00	-1.35E+00	-8.74E-01	-6.40E+00	-9.94E-01	3.89E-02	-4.00E-01	-1.69E-01	-3.15E-01	-6.16E-02	-8.26E-02	-7.52E-02	1.40E-04	9.63E-03	4.74E-04	8.40E-04	5.32E-04
236	372622	756509	Offsite Worker	-3.67E+00	-2.25E+00	-1.48E+00	-1.08E+01	-1.66E+00	5.18E-02	-6.67E-01	-2.82E-01	-5.39E-01	-1.08E-01	-1.41E-01	-1.26E-01	1.86E-04	1.28E-02	7.11E-04	1.12E-03	7.06E-04

Table 2-2
Summary of Incremental Acute Hazard Concentrations

Receptor Number	X	Y	Receptor Type	acetaldehyde (µg/m^3)	acrolein (µg/m^3)	benzene (µg/m^3)	formaldehyde (µg/m^3)	methyl alcohol (µg/m^3)	methyl ethyl ketone (µg/m^3)	phonel (carbolic acid) (µg/m^3)	styrene (µg/m^3)	toulene (µg/m^3)	xylene, total (µg/m^3)	arsenic (µg/m^3)	chlorine (µg/m^3)	copper (µg/m^3)	mercury (µg/m^3)	nickel (µg/m^3)	vanadium (µg/m^3)	sulfates (µg/m^3)
237	372700	756511	Offsite Worker	-2.66E+00	-1.64E+00	-1.07E+00	-7.84E+00	-1.21E+00	4.26E-02	-4.87E-01	-2.06E-01	-3.89E-01	-7.70E-02	-1.02E-01	-9.19E-02	1.52E-04	1.05E-02	5.77E-04	9.13E-04	5.78E-04
238	372789	756510	Offsite Worker	-1.71E+00	-1.07E+00	-6.93E-01	-5.07E+00	-7.92E-01	3.34E-02	-3.19E-01	-1.34E-01	-2.49E-01	-4.81E-02	-6.53E-02	-5.97E-02	1.19E-04	8.20E-03	5.26E-04	7.15E-04	4.53E-04
239	372871	756509	Offsite Worker	-1.05E+00	-6.79E-01	-4.29E-01	-3.14E+00	-5.00E-01	2.76E-02	-2.01E-01	-8.46E-02	-1.51E-01	-2.77E-02	-3.98E-02	-3.73E-02	9.78E-05	6.73E-03	5.15E-04	5.87E-04	3.72E-04
240	372871	756437	Offsite Worker	-1.66E+00	-1.03E+00	-6.69E-01	-4.90E+00	-7.58E-01	2.75E-02	-3.05E-01	-1.29E-01	-2.42E-01	-4.79E-02	-6.35E-02	-5.75E-02	9.73E-05	6.69E-03	1.49E-04	5.84E-04	3.70E-04
241	372970	756437	Offsite Worker	-1.36E+00	-8.44E-01	-5.49E-01	-4.02E+00	-6.22E-01	2.28E-02	-2.50E-01	-1.06E-01	-1.99E-01	-3.92E-02	-5.21E-02	-4.71E-02	8.04E-05	5.53E-03	1.75E-04	4.83E-04	3.06E-04
242	373069	756437	Offsite Worker	-3.66E+00	-2.15E+00	-1.45E+00	-1.06E+01	-1.59E+00	1.94E-02	-6.39E-01	-2.71E-01	-5.45E-01	-1.16E-01	-1.42E-01	-1.23E-01	6.81E-05	4.68E-03	1.86E-04	4.09E-04	2.59E-04
243	373168	756437	Offsite Worker	-2.74E+00	-1.62E+00	-1.09E+00	-7.95E+00	-1.19E+00	1.67E-02	-4.79E-01	-2.03E-01	-4.07E-01	-8.61E-02	-1.06E-01	-9.19E-02	5.88E-05	4.04E-03	1.72E-04	3.53E-04	2.23E-04
244	373267	756437	Offsite Worker	-2.21E+00	-1.31E+00	-8.79E-01	-6.44E+00	-9.65E-01	1.47E-02	-3.88E-01	-1.65E-01	-3.29E-01	-6.93E-02	-8.55E-02	-7.45E-02	5.15E-05	3.54E-03	1.40E-04	3.09E-04	1.96E-04
245	373412	756437	Offsite Worker	-1.62E+00	-9.65E-01	-6.46E-01	-4.73E+00	-7.11E-01	1.24E-02	-2.86E-01	-1.21E-01	-2.41E-01	-5.04E-02	-6.26E-02	-5.48E-02	4.34E-05	2.98E-03	7.78E-05	2.60E-04	1.65E-04
246	373409	756339	Offsite Worker	1.15E+00	6.26E-01	4.46E-01	3.27E+00	4.61E-01	1.24E-02	1.85E-01	7.94E-02	1.76E-01	4.12E-02	4.52E-02	3.68E-02	4.33E-05	2.98E-03	2.92E-04	2.60E-04	1.65E-04
247	373406	756240	Offsite Worker	1.41E+00	7.76E-01	5.47E-01	4.01E+00	5.72E-01	1.10E-02	2.30E-01	9.83E-02	2.14E-01	4.92E-02	5.51E-02	4.54E-02	3.83E-05	2.63E-03	4.19E-04	2.30E-04	1.45E-04
248	373403	756142	Offsite Worker	1.38E+00	7.66E-01	5.38E-01	3.94E+00	5.65E-01	8.84E-03	2.27E-01	9.70E-02	2.10E-01	4.78E-02	5.39E-02	4.47E-02	3.06E-05	2.11E-03	4.12E-04	1.84E-04	1.16E-04
249	373400	756042	Offsite Worker	1.19E+00	6.56E-01	4.63E-01	3.39E+00	4.84E-01	9.64E-03	1.94E-01	8.31E-02	1.82E-01	4.17E-02	4.66E-02	3.84E-02	3.42E-05	2.36E-03	3.19E-04	2.05E-04	1.30E-04
250	373397	755944	Offsite Worker	-5.30E-01	-3.34E-01	-2.15E-01	-1.57E+00	-2.46E-01	1.05E-02	-9.90E-02	-4.17E-02	-7.71E-02	-1.49E-02	-2.03E-02	-1.85E-02	3.70E-05	2.55E-03	3.00E-04	2.22E-04	1.41E-04
251	373393	755846	Offsite Worker	4.69E-01	2.40E-01	1.78E-01	1.31E+00	1.77E-01	1.01E-02	7.11E-02	3.07E-02	7.30E-02	1.80E-02	1.86E-02	1.45E-02	3.55E-05	2.45E-03	3.03E-04	2.13E-04	1.35E-04
252	373390	755747	Offsite Worker	1.88E+00	1.05E+00	7.34E-01	5.37E+00	7.75E-01	8.91E-03	3.12E-01	1.33E-01	2.85E-01	6.42E-02	7.33E-02	6.11E-02	3.11E-05	2.14E-03	1.97E-04	1.87E-04	1.18E-04
253	373309	755744	Offsite Worker	2.24E+00	1.26E+00	8.76E-01	6.42E+00	9.28E-01	9.02E-03	3.73E-01	1.59E-01	3.39E-01	7.62E-02	8.74E-02	7.30E-02	3.14E-05	2.16E-03	2.13E-04	1.88E-04	1.19E-04
254	373229	755743	Offsite Worker	2.60E+00	1.47E+00	1.02E+00	7.46E+00	1.08E+00	9.03E-03	4.35E-01	1.85E-01	3.93E-01	8.82E-02	1.01E-01	8.50E-02	3.13E-05	2.15E-03	2.20E-04	1.88E-04	1.19E-04
255	373143	755741	Offsite Worker	3.02E+00	1.71E+00	1.18E+00	8.67E+00	1.26E+00	8.90E-03	5.06E-01	2.16E-01	4.57E-01	1.02E-01	1.18E-01	9.89E-02	3.11E-05	2.14E-03	2.30E-04	1.87E-04	1.18E-04
256	373143	755823	Offsite Worker	2.08E+00	1.16E+00	8.11E-01	5.94E+00	8.55E-01	1.09E-02	3.44E-01	1.47E-01	3.15E-01	7.13E-02	8.11E-02	6.75E-02	3.80E-05	2.61E-03	2.94E-04	2.28E-04	1.44E-04
257	373143	755906	Offsite Worker	1.99E-01	7.71E-02	7.06E-02	5.17E-01	5.71E-02	1.30E-02	2.29E-02	1.02E-02	3.32E-02	9.82E-03	8.18E-03	5.28E-03	4.58E-05	3.15E-03	4.05E-04	2.75E-04	1.74E-04
258	373065	755906	Offsite Worker	5.96E-01	3.03E-01	2.26E-01	1.66E+00	2.24E-01	1.35E-02	8.98E-02	3.88E-02	9.29E-02	2.30E-02	2.36E-02	1.83E-02	4.75E-05	3.27E-03	4.17E-04	2.85E-04	1.80E-04
259	373065	755827	Offsite Worker	2.50E+00	1.40E+00	9.76E-01	7.15E+00	1.03E+00	1.10E-02	4.15E-01	1.77E-01	3.78E-01	8.52E-02	9.74E-02	8.13E-02	3.82E-05	2.63E-03	2.89E-04	2.29E-04	1.45E-04
260	373068	755733	Offsite Worker	3.43E+00	1.94E+00	1.35E+00	9.85E+00	1.43E+00	9.19E-03	5.76E-01	2.45E-01	5.18E-01	1.16E-01	1.34E-01	1.12E-01	3.29E-05	2.26E-03	2.60E-04	1.97E-04	1.25E-04
261	373007	755733	Offsite Worker	3.74E+00	2.12E+00	1.47E+00	1.07E+01	1.56E+00	1.03E-02	6.27E-01	2.67E-01	5.65E-01	1.26E-01	1.46E-01	1.22E-01	3.70E-05	2.54E-03	2.89E-04	2.22E-04	1.41E-04
262	372941	755733	Offsite Worker	4.09E+00	2.31E+00	1.60E+00	1.17E+01	1.70E+00	1.15E-02	6.85E-01	2.92E-01	6.18E-01	1.38E-01	1.59E-01	1.34E-01	4.12E-05	2.83E-03	3.34E-04	2.47E-04	1.56E-04
263	372941	755636	Offsite Worker	3.55E+00	2.01E+00	1.39E+00	1.02E+01	1.48E+00	1.05E-02	5.95E-01	2.54E-01	5.37E-01	1.20E-01	1.38E-01	1.16E-01	3.74E-05	2.57E-03	3.25E-04	2.24E-04	1.42E-04
264	372941	755539	Offsite Worker	2.90E+00	1.64E+00	1.14E+00	8.33E+00	1.21E+00	9.29E-03	4.86E-01	2.07E-01	4.39E-01	9.82E-02	1.13E-01	9.49E-02	3.30E-05	2.27E-03	2.36E-04	1.98E-04	1.26E-04
265	372941	755442	Offsite Worker	1.54E+00	8.61E-01	6.02E-01	4.41E+00	6.34E-01	8.29E-03	2.55E-01	1.09E-01	2.34E-01	5.30E-02	6.02E-02	5.01E-02	2.94E-05	2.02E-03	3.01E-04	1.76E-04	1.12E-04
266	372913	755342	Offsite Worker	6.19E-01	3.34E-01	2.39E-01	1.75E+00	2.46E-01	7.25E-03	9.90E-02	4.24E-02	9.48E-02	2.22E-02	2.43E-02	1.97E-02	2.59E-05	1.78E-03	2.24E-04	1.55E-04	9.85E-05
267	372817	755346	Offsite Worker	7.33E-01	3.97E-01	2.83E-01	2.08E+00	2.92E-01	8.31E-03	1.18E-01	5.04E-02	1.12E-01	2.63E-02	2.88E-02	2.34E-02	2.97E-05	2.04E-03	2.49E-04	1.78E-04	1.13E-04
268	372720	755349	Offsite Worker	9.00E-01	4.90E-01	3.49E-01	2.55E+00	3.61E-01	8.97E-03	1.45E-01	6.22E-02	1.37E-01	3.19E-02	3.53E-02	2.88E-02	3.19E-05	2.20E-03	2.47E-04	1.92E-04	1.21E-04
269	372624	755352	Offsite Worker	1.12E+00	6.14E-01	4.34E-01	3.18E+00	4.53E-01	9.03E-03	1.82E-01	7.78E-02	1.70E-01	3.91E-02	4.37E-02	3.59E-02	3.20E-05	2.20E-03	3.15E-04	1.92E-04	1.22E-04
270	372527	755349	Offsite Worker	1.44E+00	8.02E-01	5.63E-01	4.12E+00	5.92E-01	9.00E-03	2.38E-01	1.02E-01	2.19E-01	4.99E-02	5.64E-02	4.68E-02	3.20E-05	2.20E-03	3.92E-04	1.92E-04	1.22E-04
271	372431	755353	Offsite Worker	1.80E+00	1.00E+00	7.02E-01	5.14E+00	7.40E-01	9.51E-03	2.98E-01	1.27E-01	2.73E-01	6.17E-02	7.02E-02	5.84E-02	3.38E-05	2.33E-03	3.41E-04	2.03E-04	1.28E-04
272	372334	755356	Offsite Worker	2.22E+00	1.24E+00	8.67E-01	6.35E+00	9.17E-01	9.93E-03	3.69E-01	1.57E-01	3.36E-01	7.57E-02	8.66E-02	7.23E-02	3.52E-05	2.42E-03	2.78E-04	2.11E-04	1.34E-04
273	372237	755359	Offsite Worker	2.69E+00	1.51E+00	1.05E+00	7.70E+00	1.12E+00	9.47E-03	4.48E-01	1.91E-01	4.06E-01	9.10E-02	1.05E-01	8.77E-02	3.33E-05	2.29E-03	2.39E-04	2.00E-04	1.27E-04
274	372141	755362	Offsite Worker	1.97E+00	1.10E+00	7.70E-01	5.64E+00	8.13E-01	9.71E-03	3.27E-01	1.40E-01	2.99E-01	6.75E-02	7.70E-02	6.41E-02	3.44E-05	2.37E-03	2.78E-04	2.07E-04	1.31E-04
275	372044	755366	Offsite Worker	-2.85E-01	-1.91E-01	-1.18E-01	-8.64E-01	-1.41E-01	9.87E-03	-5.67E-02	-2.38E-02	-4.03E-02	-6.94E-03	-1.07E-02	-1.04E-02	3.51E-05	2.41E-03	3.86E-04	2.11E-04	1.33E-04
276	371948	755369	Offsite Worker	1.37E+00	7.54E-01	5.31E-01	3.89E+00	5.56E-01	9.85E-03	2.24E-01	9.56E-02	2.08E-01	4.75E-02	5.34E-02	4.41E-02	3.48E-05	2.40E-03	2.53E-04	2.09E-04	1.32E-04
277	371851	755372	Offsite Worker	1.20E+00	6.55E-01	4.64E-01	3.40E+00	4.83E-01	1.05E-02	1.94E-01	8.31E-02	1.82E-01	4.21E-02	4.68E-02	3.84E-02	3.69E-05	2.54E-03	3.87E-04	2.22E-04	1.40E-04
278	371755	755375	Offsite Worker	2.21E+00	1.24E+00	8.63E-01	6.32E+00	9.11E-01	1.07E-02	3.66E-01	1.56E-01	3.35E-01	7.56E-02	8.62E-02	7.18E-02	3.78E-05	2.60E-03	3.16E-04	2.27E-04	1.44E-04
279	371658	755378	Offsite Worker	3.98E+00	2.25E+00	1.56E+00	1.14E+01	1.66E+00	1.03E-02	6.68E-01	2.85E-01	6.01E-01	1.34E-01	1.55E-01	1.30E-01	3.58E-05	2.46E-03	3.32E-04	2.15E-04	1.36E-04
280	371562	755382	Offsite Worker	4.15E+00	2.35E+00	1.63E+00	1.19E+01	1.73E+00	9.67E-03	6.96E-01	2.97E-01	6.25E-01	1.39E-01	1.61E-01	1.36E-01	3.36E-05	2.31E-03	3.04E-04	2.01E-04	1.28E-04
281	371465	755385	Offsite Worker	4.28E+00	2.43E+00	1.68E+00	1.23E+01	1.79E+00	9.04E-03	7.20E-01	3.07E-01	6.46E-01	1.44E-01	1.67E-01	1.41E-01	3.04E-05	2.09E-03	3.60E-04	1.82E-04	1.15E-04
282	371368	755388	Offsite Worker	4.26E+00	2.42E+00	1.67E+00	1.22E+01	1.78E+00	9.08E-03	7.17E-01	3.05E-01	6.43E-01	1.43E-01	1.66E-01	1.40E-01	3.02E-05	2.08E-03	3.63E-04	1.81E-04	1.15E-04
283	371272	755391	Offsite Worker	4.42E+00	2.51E+00	1.74E+00	1.27E+01	1.85E+00	9.13E-03	7.44E-01	3.17E-01	6.67E-01	1.48E-01	1.72E-01	1.45E-01	3.03E-05	2.09E-03	3.70E-04	1.82E-04	1.15E-04
284	371175	755395	Offsite Worker	4.93E+00	2.80E+00	1.93E+00	1.42E+01	2.06E+00	9.21E-03	8.29E-01	3.53E-01	7.43E-01	1.65E-01	1.92E-01	1.62E-01	3.05E-05	2.10E-03	4.09E-04	1.83E-04	1.16E-04
285	371079	755398	Offsite Worker	5.00E+00	2.84E+00	1.96E+00	1.44E+01	2.09E+00	9.29E-03	8.41E-01	3.58E-01	7.53E-01	1.67E-01	1.94E-01	1.64E-01	3.06E-05	2.11E-03	4.13E-04	1.84E-04	1.16E-04
286	371042	755478	Offsite Worker	5.51E+00	3.13E+00	2.16E+00	1.58E+01	2.31E+00	1.03E-02	9.27E-01	3.95E-01	8.30E-01	1.84E-01	2.14E-01	1.81E-01	3.40E-05	2.34E-03	4.57E-04	2.04E-04	1.29E-04
287	371009	755538	Offsite Worker	5.65E+00	3.20E+00	2.21E+00	1.62E+01	2.36E+00	1.13E-02	9.50E-01	4.05E-01	8.51E-01	1.89E-01	2.20E-01	1.85E-01	3.70E-05	2.55E-03	4.86E-04	2.22E-04	1.41E-04
288	370975	755597	Offsite Worker	6.78E+00	3.85E+00	2.66E+00	1.95E+01	2.84E+00	1.24E-02	1.14E+00	4.87E-01	1.02E+00	2.27E-01	2.64E-01	2.23E-01	4.06E-05	2.79E-03	5.28E-04	2.44E-04	1.54E-04
289	370925	755597	Offsite Worker	6.64E+00	3.77E+00	2.61E+00	1.91E+01	2.78E+00	1.25E-02	1.12E+00	4.77E-01	1.00E+00	2.22E-01	2.59E-01	2.18E-01	4.09E-05	2.81E-03	5.10E-04	2.45E-04	1.55E-04

Table 2-2
Summary of Incremental Acute Hazard Concentrations

Receptor Number	X	Y	Receptor Type	acetaldehyde (µg/m^3)	acrolein (µg/m^3)	benzene (µg/m^3)	formaldehyde (µg/m^3)	methyl alcohol (µg/m^3)	methyl ethyl ketone (µg/m^3)	phonel (carbolic acid) (µg/m^3)	styrene (µg/m^3)	toulene (µg/m^3)	xylene, total (µg/m^3)	arsenic (µg/m^3)	chlorine (µg/m^3)	copper (µg/m^3)	mercury (µg/m^3)	nickel (µg/m^3)	vanadium (µg/m^3)	sulfates (µg/m^3)
290	370860	755547	Offsite Worker	6.38E+00	3.63E+00	2.50E+00	1.83E+01	2.67E+00	1.17E-02	1.07E+00	4.58E-01	9.62E-01	2.14E-01	2.48E-01	2.10E-01	3.80E-05	2.61E-03	4.40E-04	2.28E-04	1.44E-04
291	370796	755497	Offsite Worker	5.61E+00	3.19E+00	2.20E+00	1.61E+01	2.35E+00	1.08E-02	9.45E-01	4.03E-01	8.46E-01	1.88E-01	2.18E-01	1.84E-01	3.53E-05	2.43E-03	3.77E-04	2.12E-04	1.34E-04
292	370733	755428	Offsite Worker	4.00E+00	2.27E+00	1.57E+00	1.15E+01	1.67E+00	9.77E-03	6.72E-01	2.86E-01	6.04E-01	1.35E-01	1.56E-01	1.31E-01	3.19E-05	2.20E-03	3.12E-04	1.92E-04	1.21E-04
293	370634	755428	Offsite Worker	4.34E+00	2.46E+00	1.70E+00	1.25E+01	1.81E+00	9.73E-03	7.30E-01	3.11E-01	6.55E-01	1.46E-01	1.69E-01	1.42E-01	3.18E-05	2.19E-03	3.17E-04	1.91E-04	1.21E-04
294	370536	755428	Offsite Worker	6.42E+00	3.65E+00	2.52E+00	1.85E+01	2.69E+00	9.64E-03	1.08E+00	4.61E-01	9.68E-01	2.14E-01	2.50E-01	2.11E-01	3.14E-05	2.16E-03	2.81E-04	1.89E-04	1.19E-04
295	370437	755428	Offsite Worker	8.84E+00	5.04E+00	3.47E+00	2.54E+01	3.72E+00	9.48E-03	1.49E+00	6.37E-01	1.33E+00	2.94E-01	3.44E-01	2.91E-01	3.09E-05	2.13E-03	2.82E-04	1.85E-04	1.17E-04
296	370338	755427	Offsite Worker	6.54E+00	3.72E+00	2.57E+00	1.88E+01	2.74E+00	9.23E-03	1.10E+00	4.70E-01	9.85E-01	2.18E-01	2.54E-01	2.15E-01	3.01E-05	2.07E-03	2.78E-04	1.81E-04	1.14E-04
307	369249	755442	Offsite Worker	7.47E+00	4.24E+00	2.93E+00	2.15E+01	3.12E+00	1.50E-02	1.26E+00	5.35E-01	1.13E+00	2.50E-01	2.91E-01	2.45E-01	5.55E-05	3.82E-03	5.11E-04	3.33E-04	2.11E-04
308	369151	755442	Offsite Worker	5.87E+00	3.32E+00	2.30E+00	1.68E+01	2.44E+00	1.84E-02	9.83E-01	4.19E-01	8.87E-01	1.98E-01	2.29E-01	1.92E-01	6.86E-05	4.72E-03	5.02E-04	4.12E-04	2.61E-04
309	369052	755442	Offsite Worker	4.66E+00	2.61E+00	1.82E+00	1.33E+01	1.93E+00	2.14E-02	7.75E-01	3.31E-01	7.06E-01	1.59E-01	1.82E-01	1.52E-01	7.99E-05	5.50E-03	5.69E-04	4.79E-04	3.04E-04
320	368035	755402	Offsite Worker	2.17E+00	1.19E+00	8.42E-01	6.17E+00	8.78E-01	1.85E-02	3.53E-01	1.51E-01	3.31E-01	7.62E-02	8.49E-02	6.97E-02	6.38E-05	4.39E-03	4.13E-04	3.83E-04	2.42E-04
321	367960	755389	Offsite Worker	1.88E+00	1.03E+00	7.31E-01	5.35E+00	7.59E-01	1.80E-02	3.05E-01	1.31E-01	2.88E-01	6.67E-02	7.38E-02	6.04E-02	6.26E-05	4.31E-03	4.02E-04	3.76E-04	2.38E-04
322	367863	755390	Offsite Worker	1.54E+00	8.43E-01	5.98E-01	4.38E+00	6.21E-01	1.45E-02	2.50E-01	1.07E-01	2.35E-01	5.45E-02	6.04E-02	4.94E-02	5.08E-05	3.50E-03	3.32E-04	3.05E-04	1.93E-04
323	367766	755392	Offsite Worker	1.27E+00	7.04E-01	4.95E-01	3.63E+00	5.19E-01	8.96E-03	2.09E-01	8.91E-02	1.93E-01	4.42E-02	4.97E-02	4.11E-02	3.32E-05	2.28E-03	2.32E-04	1.99E-04	1.26E-04
324	367669	755393	Offsite Worker	1.10E+00	6.07E-01	4.27E-01	3.13E+00	4.47E-01	7.82E-03	1.80E-01	7.69E-02	1.67E-01	3.82E-02	4.29E-02	3.54E-02	2.89E-05	1.99E-03	2.00E-04	1.74E-04	1.10E-04
325	367572	755394	Offsite Worker	9.93E-01	5.49E-01	3.86E-01	2.83E+00	4.05E-01	6.87E-03	1.63E-01	6.96E-02	1.51E-01	3.45E-02	3.88E-02	3.21E-02	2.54E-05	1.75E-03	1.73E-04	1.52E-04	9.64E-05
326	367475	755395	Offsite Worker	9.52E-01	5.28E-01	3.71E-01	2.72E+00	3.90E-01	6.08E-03	1.57E-01	6.69E-02	1.45E-01	3.29E-02	3.72E-02	3.08E-02	2.24E-05	1.54E-03	1.50E-04	1.35E-04	8.52E-05
327	370400	756850	On-Site Occupational	2.00E+00	1.12E+00	7.79E-01	5.71E+00	8.23E-01	9.39E-03	3.31E-01	1.41E-01	3.02E-01	6.82E-02	7.78E-02	6.49E-02	3.06E-05	2.11E-03	3.95E-04	1.84E-04	1.16E-04
328	368758	756094	On-Site Occupational	5.65E-01	0.00E+00	1.54E-01	1.13E+00	2.30E-03	1.13E-01	0.00E+00	4.46E-03	1.13E-01	4.69E-02	2.57E-02	7.30E-03	3.40E-04	2.34E-02	1.70E-03	2.04E-03	1.29E-03
329	372284	756445	On-Site Occupational	6.61E-01	0.00E+00	1.80E-01	1.32E+00	2.70E-03	1.33E-01	0.00E+00	5.21E-03	1.32E-01	5.49E-02	3.01E-02	8.54E-03	4.77E-04	3.28E-02	2.38E-03	2.86E-03	1.81E-03
330	371472	756387	On-Site Occupational	1.82E-01	0.00E+00	4.96E-02	3.65E-01	7.44E-04	3.66E-02	0.00E+00	1.44E-03	3.65E-02	1.51E-02	8.31E-03	2.36E-03	1.14E-04	7.87E-03	5.72E-04	6.86E-04	4.35E-04
331	372340	756220	On-Site Occupational	4.27E+00	1.97E+00	1.58E+00	1.16E+01	1.46E+00	1.65E-01	5.85E-01	2.56E-01	6.82E-01	1.82E-01	1.71E-01	1.24E-01	5.95E-04	4.10E-02	3.90E-03	3.57E-03	2.26E-03
332	368310	755876	On-Site Occupational	1.69E+00	1.17E-01	4.85E-01	3.56E+00	9.22E-02	2.99E-01	3.46E-02	2.65E-02	3.29E-01	1.30E-01	7.57E-02	2.60E-02	1.08E-03	7.46E-02	6.10E-03	6.50E-03	4.12E-03
333	372383	756712	On-Site Occupational	1.67E-01	0.00E+00	4.56E-02	3.35E-01	6.83E-04	3.36E-02	0.00E+00	1.32E-03	3.35E-02	1.39E-02	7.63E-03	2.16E-03	1.21E-04	8.31E-03	6.11E-04	7.25E-04	4.59E-04
334	369876	756398	On-Site Occupational	6.26E-02	0.00E+00	1.70E-02	1.25E-01	2.55E-04	1.26E-02	0.00E+00	4.94E-04	1.25E-02	5.20E-03	2.85E-03	8.09E-04	4.08E-05	2.80E-03	2.13E-04	2.45E-04	1.55E-04
335	370477	755934	On-Site Occupational	1.70E-01	0.00E+00	4.62E-02	3.40E-01	6.93E-04	3.41E-02	0.00E+00	1.34E-03	3.40E-02	1.41E-02	7.74E-03	2.19E-03	1.08E-04	7.45E-03	8.01E-04	6.50E-04	4.12E-04
1	367379	755396	Recreational	9.53E-01	5.31E-01	3.72E-01	2.72E+00	3.92E-01	5.43E-03	1.57E-01	6.72E-02	1.45E-01	3.28E-02	3.72E-02	3.09E-02	2.01E-05	1.38E-03	1.32E-04	1.21E-04	7.64E-05
2	367340	755485	Recreational	1.07E+00	5.98E-01	4.18E-01	3.06E+00	4.41E-01	5.40E-03	1.77E-01	7.57E-02	1.62E-01	3.67E-02	4.18E-02	3.48E-02	1.99E-05	1.37E-03	1.09E-04	1.19E-04	7.56E-05
3	367301	755573	Recreational	1.11E+00	6.22E-01	4.35E-01	3.18E+00	4.58E-01	5.85E-03	1.84E-01	7.87E-02	1.69E-01	3.82E-02	4.35E-02	3.62E-02	2.15E-05	1.48E-03	1.25E-04	1.29E-04	8.15E-05
4	367263	755661	Recreational	1.35E+00	7.54E-01	5.26E-01	3.85E+00	5.56E-01	6.01E-03	2.24E-01	9.54E-02	2.04E-01	4.59E-02	5.25E-02	4.38E-02	2.21E-05	1.52E-03	1.28E-04	1.32E-04	8.38E-05
5	367224	755749	Recreational	5.75E-01	3.13E-01	2.23E-01	1.63E+00	2.31E-01	5.83E-03	9.28E-02	3.97E-02	8.79E-02	2.04E-02	2.25E-02	1.84E-02	2.14E-05	1.47E-03	9.61E-05	1.28E-04	8.13E-05
6	367186	755838	Recreational	-4.38E-01	-2.66E-01	-1.75E-01	-1.28E+00	-1.96E-01	5.36E-03	-7.89E-02	-3.34E-02	-6.44E-02	-1.31E-02	-1.68E-02	-1.50E-02	1.97E-05	1.35E-03	6.27E-05	1.18E-04	7.47E-05
7	367147	755926	Recreational	-1.27E+00	-7.43E-01	-5.03E-01	-3.69E+00	-5.47E-01	4.71E-03	-2.20E-01	-9.35E-02	-1.90E-01	-4.08E-02	-4.93E-02	-4.24E-02	1.72E-05	1.19E-03	3.40E-05	1.03E-04	6.55E-05
8	367109	756014	Recreational	-6.92E-01	-4.10E-01	-2.75E-01	-2.01E+00	-3.02E-01	4.45E-03	-1.21E-01	-5.15E-02	-1.03E-01	-2.17E-02	-2.68E-02	-2.33E-02	1.64E-05	1.13E-03	1.03E-04	9.81E-05	6.21E-05
9	367070	756103	Recreational	-2.27E+00	-1.31E+00	-8.94E-01	-6.55E+00	-9.66E-01	4.26E-03	-3.89E-01	-1.65E-01	-3.39E-01	-7.37E-02	-8.79E-02	-7.52E-02	1.57E-05	1.08E-03	1.13E-04	9.43E-05	5.97E-05
10	367032	756191	Recreational	-1.94E+00	-1.12E+00	-7.64E-01	-5.59E+00	-8.26E-01	4.00E-03	-3.32E-01	-1.41E-01	-2.90E-01	-6.29E-02	-7.51E-02	-6.43E-02	1.47E-05	1.01E-03	1.10E-04	8.81E-05	5.58E-05
11	366993	756279	Recreational	-9.46E-01	-5.54E-01	-3.75E-01	-2.74E+00	-4.08E-01	4.05E-03	-1.64E-01	-6.97E-02	-1.41E-01	-3.02E-02	-3.66E-02	-3.16E-02	1.49E-05	1.03E-03	1.33E-04	8.96E-05	5.67E-05
12	366954	756367	Recreational	-4.53E-01	-2.71E-01	-1.80E-01	-1.32E+00	-1.99E-01	3.92E-03	-8.02E-02	-3.40E-02	-6.70E-02	-1.40E-02	-1.75E-02	-1.53E-02	1.45E-05	1.00E-03	1.53E-04	8.72E-05	5.52E-05
13	366916	756456	Recreational	1.91E-01	9.93E-02	7.29E-02	5.34E-01	7.32E-02	3.52E-03	2.94E-02	1.27E-02	2.95E-02	7.17E-03	7.53E-03	5.94E-03	1.31E-05	9.02E-04	1.58E-04	7.87E-05	4.98E-05
14	366877	756544	Recreational	6.21E-01	3.47E-01	2.42E-01	1.78E+00	2.56E-01	3.17E-03	1.03E-01	4.39E-02	9.41E-02	2.13E-02	2.42E-02	2.02E-02	1.16E-05	7.98E-04	1.55E-04	6.96E-05	4.41E-05
15	366839	756632	Recreational	1.29E+00	7.34E-01	5.08E-01	3.72E+00	5.41E-01	2.99E-03	2.17E-01	9.27E-02	1.95E-01	4.35E-02	5.04E-02	4.24E-02	1.09E-05	7.53E-04	1.46E-04	6.56E-05	4.16E-05
16	366800	756720	Recreational	1.56E+00	8.86E-01	6.12E-01	4.48E+00	6.53E-01	2.82E-03	2.63E-01	1.12E-01	2.35E-01	5.22E-02	6.07E-02	5.12E-02	1.03E-05	7.09E-04	1.29E-04	6.19E-05	3.92E-05
17	366762	756809	Recreational	4.69E-01	2.61E-01	1.83E-01	1.34E+00	1.93E-01	2.67E-03	7.74E-02	3.31E-02	7.11E-02	1.61E-02	1.83E-02	1.52E-02	9.73E-06	6.69E-04	1.34E-04	5.84E-05	3.70E-05
18	366723	756897	Recreational	4.88E-01	2.73E-01	1.90E-01	1.40E+00	2.01E-01	2.52E-03	8.08E-02	3.45E-02	7.40E-02	1.67E-02	1.90E-02	1.59E-02	9.19E-06	6.32E-04	1.26E-04	5.51E-05	3.49E-05
19	366685	756985	Recreational	5.88E-01	3.30E-01	2.30E-01	1.68E+00	2.43E-01	2.39E-03	9.79E-02	4.17E-02	8.89E-02	2.00E-02	2.29E-02	1.92E-02	8.69E-06	5.98E-04	1.17E-04	5.21E-05	3.30E-05
20	366646	757074	Recreational	3.21E-01	1.77E-01	1.25E-01	9.14E-01	1.31E-01	2.26E-03	5.26E-02	2.25E-02	4.87E-02	1.11E-02	1.25E-02	1.04E-02	8.21E-06	5.65E-04	1.13E-04	4.93E-05	3.12E-05
21	366607	757162	Recreational	-1.92E-01	-1.16E-01	-7.67E-02	-5.62E-01	-8.55E-02	2.14E-03	-3.44E-02	-1.46E-02	-2.83E-02	-5.79E-03	-7.38E-03	-6.54E-03	7.78E-06	5.35E-04	7.60E-05	4.67E-05	2.96E-05
22	366569	757250	Recreational	-2.76E-01	-1.64E-01	-1.10E-01	-8.06E-01	-1.21E-01	2.03E-03	-4.87E-02	-2.06E-02	-4.10E-02	-8.62E-03	-1.07E-02	-9.33E-03	7.38E-06	5.08E-04	5.05E-05	4.43E-05	2.80E-05
23	366530	757338	Recreational	-9.32E-02	-5.90E-02	-3.79E-02	-2.77E-01	-4.34E-02	1.93E-03	-1.75E-02	-7.36E-03	-1.35E-02	-2.60E-03	-3.56E-03	-3.27E-03	7.01E-06	4.82E-04	4.65E-05	4.20E-05	2.66E-05
24	366492	757427	Recreational	-8.79E-01	-5.09E-01	-3.47E-01	-2.54E+00	-3.75E-01	1.84E-03	-1.51E-01	-6.42E-02	-1.32E-01	-2.85E-02	-3.41E-02	-2.92E-02	6.66E-06	4.58E-04	3.29E-05	4.00E-05	2.53E-05
25	366453	757515	Recreational	-1.45E+00	-8.38E-01	-5.73E-01	-4.19E+00	-6.17E-01	1.75E-03	-2.48E-01	-1.06E-01	-2.18E-01	-4.75E-02	-5.64E-02	-4.81E-02	6.34E-06	4.36E-04	3.96E-05	3.80E-05	2.41E-05
26	366415	757603	Recreational	-4.50E-01	-2.63E-01	-1.78E-01	-1.30E+00	-1.93E-01	1.67E-03	-7.78E-02	-3.31E-02	-6.72E-02	-1.44E-02	-1.74E-02	-1.50E-02	6.15E-06	4.23E-04	3.13E-05	3.69E-05	2.34E-05
27	366376	757692	Recreational	-2.56E-01	-1.52E-01	-1.02E-01	-7.46E-01	-1.12E-01	1.67E-03	-4.50E-02	-1.91E-02	-3.81E-02	-8.04E-03	-9.90E-03	-8.62E-03	6.21E-06	4.27E-04	4.36E-05	3.72E-05	2.36E-05

Table 2-2
Summary of Incremental Acute Hazard Concentrations

Receptor Number	X	Y	Receptor Type	acetaldehyde (µg/m^3)	acrolein (µg/m^3)	benzene (µg/m^3)	formaldehyde (µg/m^3)	methyl alcohol (µg/m^3)	methyl ethyl ketone (µg/m^3)	phonel (carbolic acid) (µg/m^3)	styrene (µg/m^3)	toulene (µg/m^3)	xylene, total (µg/m^3)	arsenic (µg/m^3)	chlorine (µg/m^3)	copper (µg/m^3)	mercury (µg/m^3)	nickel (µg/m^3)	vanadium (µg/m^3)	sulfates (µg/m^3)
84	369336	758100	Recreational	3.78E-01	2.05E-01	1.46E-01	1.07E+00	1.51E-01	3.92E-03	6.09E-02	2.61E-02	5.77E-02	1.34E-02	1.48E-02	1.21E-02	1.44E-05	9.94E-04	1.06E-04	8.67E-05	5.49E-05
85	369269	758170	Recreational	8.07E-01	4.52E-01	3.15E-01	2.31E+00	3.33E-01	3.86E-03	1.34E-01	5.72E-02	1.22E-01	2.76E-02	3.15E-02	2.63E-02	1.42E-05	9.79E-04	1.02E-04	8.54E-05	5.41E-05
86	369202	758239	Recreational	8.87E-01	4.98E-01	3.47E-01	2.54E+00	3.67E-01	3.71E-03	1.48E-01	6.29E-02	1.34E-01	3.02E-02	3.46E-02	2.89E-02	1.37E-05	9.43E-04	9.61E-05	8.22E-05	5.21E-05
87	369264	758285	Recreational	7.14E-01	3.99E-01	2.79E-01	2.04E+00	2.94E-01	3.62E-03	1.18E-01	5.05E-02	1.08E-01	2.45E-02	2.79E-02	2.32E-02	1.34E-05	9.20E-04	9.61E-05	8.02E-05	5.08E-05
88	369326	758330	Recreational	5.83E-01	3.24E-01	2.27E-01	1.66E+00	2.39E-01	3.51E-03	9.61E-02	4.10E-02	8.85E-02	2.01E-02	2.28E-02	1.89E-02	1.30E-05	8.91E-04	9.60E-05	7.77E-05	4.92E-05
89	369389	758376	Recreational	2.40E+00	1.37E+00	9.42E-01	6.90E+00	1.01E+00	3.39E-03	4.05E-01	1.72E-01	3.61E-01	8.00E-02	9.33E-02	7.88E-02	1.25E-05	8.58E-04	1.09E-04	7.49E-05	4.74E-05
90	369389	758462	Recreational	2.28E+00	1.30E+00	8.96E-01	6.56E+00	9.58E-01	3.26E-03	3.85E-01	1.64E-01	3.44E-01	7.62E-02	8.88E-02	7.50E-02	1.20E-05	8.25E-04	1.06E-04	7.20E-05	4.56E-05
91	369389	758548	Recreational	2.18E+00	1.24E+00	8.56E-01	6.27E+00	9.15E-01	3.13E-03	3.68E-01	1.57E-01	3.29E-01	7.28E-02	8.48E-02	7.17E-02	1.15E-05	7.93E-04	1.03E-04	6.92E-05	4.38E-05
28	366338	757780	Residential	-1.24E-01	-7.57E-02	-4.97E-02	-3.64E-01	-5.58E-02	1.68E-03	-2.24E-02	-9.49E-03	-1.82E-02	-3.66E-03	-4.75E-03	-4.25E-03	6.25E-06	4.30E-04	5.23E-05	3.75E-05	2.37E-05
29	366402	757746	Residential	-1.37E-01	-8.34E-02	-5.48E-02	-4.02E-01	-6.15E-02	1.79E-03	-2.47E-02	-1.05E-02	-2.01E-02	-4.06E-03	-5.25E-03	-4.69E-03	6.63E-06	4.56E-04	5.35E-05	3.98E-05	2.52E-05
30	366467	757713	Residential	-1.53E-01	-9.30E-02	-6.13E-02	-4.48E-01	-6.85E-02	1.90E-03	-2.76E-02	-1.17E-02	-2.25E-02	-4.57E-03	-5.87E-03	-5.23E-03	7.07E-06	4.86E-04	5.50E-05	4.24E-05	2.68E-05
31	366531	757679	Residential	-1.77E-01	-1.07E-01	-7.10E-02	-5.20E-01	-7.91E-02	2.03E-03	-3.18E-02	-1.35E-02	-2.61E-02	-5.35E-03	-6.82E-03	-6.05E-03	7.52E-06	5.17E-04	5.60E-05	4.51E-05	2.86E-05
32	366567	757773	Residential	-6.78E-03	-1.02E-02	-4.00E-03	-2.92E-02	-7.45E-03	2.20E-03	-3.01E-03	-1.20E-03	-4.72E-04	3.24E-04	-1.90E-04	-4.44E-04	8.16E-06	5.61E-04	6.71E-05	4.90E-05	3.10E-05
33	366625	757758	Residential	1.19E-02	1.98E-04	3.29E-03	2.42E-02	1.93E-04	2.33E-03	5.87E-05	1.16E-04	2.37E-03	9.75E-04	5.42E-04	1.61E-04	8.65E-06	5.95E-04	6.98E-05	5.19E-05	3.29E-05
34	366682	757744	Residential	3.23E-02	1.15E-02	1.12E-02	8.23E-02	8.52E-03	2.46E-03	3.41E-03	1.55E-03	5.47E-03	1.68E-03	1.34E-03	8.20E-04	9.15E-06	6.30E-04	7.24E-05	5.49E-05	3.48E-05
35	366768	757788	Residential	-8.02E-02	-5.36E-02	-3.32E-02	-2.43E-01	-3.95E-02	2.69E-03	-1.59E-02	-6.66E-03	-1.14E-02	-1.98E-03	-3.03E-03	-2.92E-03	9.98E-06	6.87E-04	9.14E-05	5.99E-05	3.79E-05
36	366854	757833	Residential	2.79E-01	1.52E-01	1.08E-01	7.93E-01	1.12E-01	2.86E-03	4.51E-02	1.93E-02	4.27E-02	9.94E-03	1.10E-02	8.94E-03	1.06E-05	7.32E-04	9.59E-05	6.38E-05	4.04E-05
37	366941	757877	Residential	7.46E-01	4.19E-01	2.92E-01	2.14E+00	3.09E-01	2.98E-03	1.24E-01	5.30E-02	1.13E-01	2.54E-02	2.91E-02	2.43E-02	1.11E-05	7.61E-04	1.01E-04	6.64E-05	4.20E-05
38	367027	757922	Residential	1.18E+00	6.71E-01	4.64E-01	3.40E+00	4.94E-01	3.02E-03	1.99E-01	8.47E-02	1.79E-01	3.99E-02	4.61E-02	3.88E-02	1.12E-05	7.71E-04	1.08E-04	6.73E-05	4.26E-05
39	367113	757966	Residential	1.45E+00	8.22E-01	5.68E-01	4.16E+00	6.06E-01	2.98E-03	2.44E-01	1.04E-01	2.18E-01	4.86E-02	5.64E-02	4.75E-02	1.11E-05	7.61E-04	1.17E-04	6.64E-05	4.20E-05
40	367192	757916	Residential	1.44E+00	8.19E-01	5.66E-01	4.15E+00	6.04E-01	3.09E-03	2.43E-01	1.03E-01	2.18E-01	4.84E-02	5.62E-02	4.74E-02	1.15E-05	7.88E-04	1.16E-04	6.87E-05	4.35E-05
41	367264	757916	Residential	1.52E+00	8.64E-01	5.98E-01	4.38E+00	6.37E-01	3.06E-03	2.56E-01	1.09E-01	2.30E-01	5.10E-02	5.93E-02	5.00E-02	1.13E-05	7.81E-04	1.20E-04	6.81E-05	4.31E-05
42	367335	757916	Residential	1.57E+00	8.92E-01	6.16E-01	4.51E+00	6.57E-01	3.00E-03	2.64E-01	1.13E-01	2.37E-01	5.26E-02	6.11E-02	5.15E-02	1.11E-05	7.65E-04	5.84E-05	6.68E-05	4.23E-05
43	367343	757966	Residential	3.07E-01	1.68E-01	1.19E-01	8.73E-01	1.24E-01	2.86E-03	4.98E-02	2.13E-02	4.69E-02	1.09E-02	1.20E-02	9.85E-03	1.06E-05	7.28E-04	9.02E-05	6.35E-05	4.02E-05
44	367404	757995	Residential	2.76E+00	1.58E+00	1.09E+00	7.95E+00	1.16E+00	2.69E-03	4.67E-01	1.99E-01	4.16E-01	9.18E-02	1.07E-01	9.09E-02	9.95E-06	6.84E-04	9.11E-05	5.97E-05	3.78E-05
45	367465	758024	Residential	3.00E+00	1.71E+00	1.18E+00	8.63E+00	1.26E+00	2.50E-03	5.08E-01	2.16E-01	4.51E-01	9.96E-02	1.17E-01	9.87E-02	9.24E-06	6.36E-04	1.25E-04	5.54E-05	3.51E-05
55	367673	758189	Residential	1.28E+00	7.30E-01	5.04E-01	3.69E+00	5.38E-01	2.06E-03	2.16E-01	9.22E-02	1.93E-01	4.29E-02	4.99E-02	4.21E-02	7.40E-06	5.09E-04	1.42E-04	4.44E-05	2.81E-05
59	367816	758096	Residential	1.29E+00	7.32E-01	5.05E-01	3.70E+00	5.39E-01	2.25E-03	2.17E-01	9.24E-02	1.94E-01	4.31E-02	5.01E-02	4.23E-02	8.11E-06	5.58E-04	1.55E-04	4.86E-05	3.08E-05
60	367898	758066	Residential	1.07E+00	6.09E-01	4.21E-01	3.09E+00	4.49E-01	2.34E-03	1.81E-01	7.70E-02	1.62E-01	3.60E-02	4.18E-02	3.52E-02	8.43E-06	5.80E-04	1.52E-04	5.06E-05	3.20E-05
61	367980	758035	Residential	8.71E-01	4.93E-01	3.41E-01	2.50E+00	3.63E-01	2.43E-03	1.46E-01	6.22E-02	1.32E-01	2.94E-02	3.39E-02	2.85E-02	8.76E-06	6.03E-04	1.49E-04	5.26E-05	3.33E-05
62	368062	758005	Residential	1.01E+00	5.70E-01	3.95E-01	2.89E+00	4.20E-01	2.53E-03	1.69E-01	7.20E-02	1.52E-01	3.39E-02	3.92E-02	3.30E-02	9.10E-06	6.26E-04	1.39E-04	5.46E-05	3.46E-05
63	368144	757975	Residential	1.84E+00	1.05E+00	7.22E-01	5.28E+00	7.71E-01	2.62E-03	3.10E-01	1.32E-01	2.77E-01	6.13E-02	7.15E-02	6.04E-02	9.44E-06	6.49E-04	1.13E-04	5.66E-05	3.59E-05
64	368226	757945	Residential	2.35E+00	1.34E+00	9.21E-01	6.75E+00	9.85E-01	2.94E-03	3.96E-01	1.69E-01	3.53E-01	7.82E-02	9.13E-02	7.71E-02	1.09E-05	7.48E-04	1.14E-04	6.52E-05	4.13E-05
65	368301	757943	Residential	2.75E+00	1.57E+00	1.08E+00	7.92E+00	1.16E+00	3.42E-03	4.65E-01	1.98E-01	4.15E-01	9.17E-02	1.07E-01	9.05E-02	1.27E-05	8.71E-04	1.23E-04	7.60E-05	4.81E-05
66	368376	757941	Residential	3.17E+00	1.81E+00	1.25E+00	9.12E+00	1.33E+00	3.90E-03	5.36E-01	2.28E-01	4.78E-01	1.06E-01	1.23E-01	1.04E-01	1.45E-05	9.95E-04	1.30E-04	8.67E-05	5.49E-05
67	368452	757940	Residential	-7.25E-01	-4.28E-01	-2.88E-01	-2.11E+00	-3.16E-01	4.35E-03	-1.27E-01	-5.39E-02	-1.08E-01	-2.29E-02	-2.80E-02	-2.44E-02	1.61E-05	1.11E-03	1.35E-04	9.66E-05	6.12E-05
68	368527	757938	Residential	1.48E-03	-1.26E-02	-2.26E-03	-1.63E-02	-9.17E-03	4.70E-03	-3.73E-03	-1.40E-03	1.39E-03	1.22E-03	2.15E-04	-4.21E-04	1.74E-05	1.20E-03	1.35E-04	1.05E-04	6.62E-05
69	368563	757880	Residential	8.87E-02	3.65E-02	3.19E-02	2.34E-01	2.70E-02	5.02E-03	1.08E-02	4.81E-03	1.46E-02	4.18E-03	3.61E-03	2.43E-03	1.86E-05	1.28E-03	1.49E-04	1.12E-04	7.07E-05
70	368636	757926	Residential	1.21E+00	6.77E-01	4.72E-01	3.45E+00	4.99E-01	5.02E-03	2.01E-01	8.57E-02	1.83E-01	4.11E-02	4.71E-02	3.93E-02	1.86E-05	1.28E-03	1.26E-04	1.11E-04	7.06E-05
71	368709	757971	Residential	1.92E+00	1.09E+00	7.54E-01	5.52E+00	8.02E-01	4.88E-03	3.23E-01	1.38E-01	2.90E-01	6.47E-02	7.49E-02	6.30E-02	1.80E-05	1.24E-03	1.57E-04	1.08E-04	6.85E-05
72	368782	758017	Residential	2.59E+00	1.47E+00	1.02E+00	7.45E+00	1.09E+00	4.61E-03	4.36E-01	1.86E-01	3.90E-01	8.67E-02	1.01E-01	8.51E-02	1.70E-05	1.17E-03	1.49E-04	1.02E-04	6.47E-05
73	368855	758062	Residential	1.62E+00	9.16E-01	6.34E-01	4.65E+00	6.75E-01	4.26E-03	2.71E-01	1.16E-01	2.44E-01	5.45E-02	6.30E-02	5.30E-02	1.57E-05	1.08E-03	1.57E-04	9.41E-05	5.96E-05
74	368928	758108	Residential	8.91E-01	5.00E-01	3.48E-01	2.55E+00	3.68E-01	3.86E-03	1.48E-01	6.32E-02	1.35E-01	3.04E-02	3.48E-02	2.90E-02	1.42E-05	9.75E-04	1.77E-04	8.50E-05	5.38E-05
75	369001	758153	Residential	5.56E-01	3.08E-01	2.16E-01	1.59E+00	2.27E-01	3.63E-03	9.14E-02	3.90E-02	8.44E-02	1.92E-02	2.17E-02	1.80E-02	1.34E-05	9.24E-04	1.13E-04	8.06E-05	5.10E-05
76	369058	758074	Residential	3.53E-01	1.91E-01	1.36E-01	9.98E-01	1.41E-01	3.98E-03	5.65E-02	2.42E-02	5.40E-02	1.26E-02	1.38E-02	1.12E-02	1.47E-05	1.01E-03	1.20E-04	8.84E-05	5.60E-05
77	369102	758103	Residential	3.69E-01	2.00E-01	1.43E-01	1.04E+00	1.47E-01	3.97E-03	5.93E-02	2.54E-02	5.64E-02	1.32E-02	1.45E-02	1.18E-02	1.47E-05	1.01E-03	1.04E-04	8.81E-05	5.58E-05
78	369145	758132	Residential	2.75E+00	1.56E+00	1.08E+00	7.90E+00	1.15E+00	3.94E-03	4.64E-01	1.98E-01	4.14E-01	9.17E-02	1.07E-01	9.03E-02	1.46E-05	1.00E-03	9.98E-05	8.73E-05	5.53E-05
79	369200	758065	Residential	1.88E+00	1.06E+00	7.36E-01	5.39E+00	7.84E-01	4.13E-03	3.15E-01	1.34E-01	2.83E-01	6.30E-02	7.30E-02	6.15E-02	1.53E-05	1.05E-03	1.03E-04	9.15E-05	5.80E-05
80	369255	757998	Residential	1.10E+00	6.16E-01	4.29E-01	3.14E+00	4.54E-01	4.25E-03	1.83E-01	7.79E-02	1.66E-01	3.72E-02	4.27E-02	3.58E-02	1.57E-05	1.08E-03	1.10E-04	9.42E-05	5.96E-05
81	369310	757931	Residential	9.66E-01	5.42E-01	3.78E-01	2.77E+00	3.99E-01	4.29E-03	1.61E-01	6.85E-02	1.46E-01	3.30E-02	3.77E-02	3.15E-02	1.58E-05	1.09E-03	1.14E-04	9.50E-05	6.02E-05
82	369356	757981	Residential	2.91E+00	1.65E+00	1.14E+00	8.36E+00	1.22E+00	4.17E-03	4.90E-01	2.09E-01	4.38E-01	9.70E-02	1.13E-01	9.55E-02	1.54E-05	1.06E-03	1.12E-04	9.23E-05	5.84E-05
83	369403	758031	Residential	3.08E+00	1.75E+00	1.21E+00	8.85E+00	1.29E+00	4.06E-03	5.20E-01	2.21E-01	4.64E-01	1.03E-01	1.20E-01	1.01E-01	1.50E-05	1.03E-03	1.29E-04	8.98E-05	5.69E-05
92	369389	758634	Residential	2.08E+00	1.19E+00	8.18E-01	5.99E+00	8.74E-01	3.00E-03	3.51E-01	1.50E-01	3.14E-01	6.95E-02	8.10E-02	6.84E-02	1.11E-05	7.61E-04	9.93E-05	6.64E-05	4.20E-05

Table 2-2

Summary of Incremental Acute Hazard Concentrations

Receptor Number	X	Y	Receptor Type	acetaldehyde (μg/m^3)	acrolein (μg/m^3)	benzene (μg/m^3)	formaldehyde (μg/m^3)	methyl alcohol (μg/m^3)	methyl ethyl ketone (μg/m^3)	phonel (carbolic acid) (μg/m^3)	styrene (μg/m^3)	toulene (μg/m^3)	xylene, total (μg/m^3)	arsenic (μg/m^3)	chlorine (μg/m^3)	copper (μg/m^3)	mercury (μg/m^3)	nickel (μg/m^3)	vanadium (μg/m^3)	sulfates (μg/m^3)
93	369469	758630	Residential	1.22E+00	6.90E-01	4.78E-01	3.50E+00	5.09E-01	2.97E-03	2.05E-01	8.72E-02	1.84E-01	4.10E-02	4.74E-02	3.99E-02	1.09E-05	7.51E-04	1.09E-04	6.55E-05	4.15E-05
94	369549	758625	Residential	2.84E+00	1.62E+00	1.12E+00	8.17E+00	1.19E+00	2.89E-03	4.80E-01	2.05E-01	4.28E-01	9.45E-02	1.10E-01	9.35E-02	1.06E-05	7.30E-04	1.09E-04	6.37E-05	4.03E-05
95	369630	758621	Residential	2.97E+00	1.69E+00	1.17E+00	8.54E+00	1.25E+00	2.90E-03	5.02E-01	2.14E-01	4.47E-01	9.87E-02	1.15E-01	9.77E-02	1.07E-05	7.35E-04	1.15E-04	6.41E-05	4.06E-05
96	369710	758617	Residential	2.82E+00	1.61E+00	1.11E+00	8.12E+00	1.19E+00	2.93E-03	4.77E-01	2.03E-01	4.25E-01	9.39E-02	1.10E-01	9.29E-02	1.08E-05	7.41E-04	1.18E-04	6.46E-05	4.09E-05
97	369791	758613	Residential	3.10E+00	1.77E+00	1.22E+00	8.91E+00	1.30E+00	2.91E-03	5.24E-01	2.23E-01	4.66E-01	1.03E-01	1.20E-01	1.02E-01	1.07E-05	7.36E-04	1.15E-04	6.42E-05	4.06E-05
98	369791	758514	Residential	3.17E+00	1.81E+00	1.25E+00	9.13E+00	1.33E+00	3.03E-03	5.37E-01	2.29E-01	4.78E-01	1.05E-01	1.23E-01	1.04E-01	1.11E-05	7.66E-04	1.20E-04	6.68E-05	4.23E-05
99	369791	758416	Residential	3.23E+00	1.84E+00	1.27E+00	9.30E+00	1.36E+00	3.17E-03	5.47E-01	2.33E-01	4.87E-01	1.08E-01	1.26E-01	1.06E-01	1.17E-05	8.03E-04	1.26E-04	7.01E-05	4.44E-05
100	369791	758318	Residential	3.28E+00	1.87E+00	1.29E+00	9.44E+00	1.38E+00	3.38E-03	5.55E-01	2.36E-01	4.94E-01	1.09E-01	1.28E-01	1.08E-01	1.25E-05	8.57E-04	1.33E-04	7.48E-05	4.73E-05
101	369881	758318	Residential	2.72E+00	1.55E+00	1.07E+00	7.82E+00	1.14E+00	3.40E-03	4.59E-01	1.95E-01	4.09E-01	9.05E-02	1.06E-01	8.94E-02	1.25E-05	8.61E-04	1.22E-04	7.51E-05	4.76E-05
102	369972	758318	Residential	2.29E+00	1.30E+00	8.99E-01	6.59E+00	9.61E-01	3.36E-03	3.86E-01	1.65E-01	3.45E-01	7.64E-02	8.91E-02	7.53E-02	1.24E-05	8.50E-04	1.23E-04	7.41E-05	4.69E-05
103	370062	758318	Residential	3.02E+00	1.72E+00	1.19E+00	8.69E+00	1.27E+00	3.26E-03	5.11E-01	2.18E-01	4.55E-01	1.01E-01	1.18E-01	9.94E-02	1.20E-05	8.26E-04	1.20E-04	7.20E-05	4.56E-05
104	370153	758318	Residential	3.62E+00	2.07E+00	1.42E+00	1.04E+01	1.52E+00	3.27E-03	6.13E-01	2.61E-01	5.45E-01	1.20E-01	1.41E-01	1.19E-01	1.19E-05	8.20E-04	1.16E-04	7.15E-05	4.53E-05
105	370243	758318	Residential	3.88E+00	2.21E+00	1.52E+00	1.12E+01	1.63E+00	3.35E-03	6.56E-01	2.79E-01	5.83E-01	1.29E-01	1.51E-01	1.28E-01	1.22E-05	8.38E-04	1.40E-04	7.31E-05	4.63E-05
111	370408	758347	Residential	3.87E+00	2.21E+00	1.52E+00	1.11E+01	1.63E+00	3.28E-03	6.54E-01	2.79E-01	5.82E-01	1.28E-01	1.50E-01	1.27E-01	1.19E-05	8.19E-04	1.38E-04	7.14E-05	4.52E-05
112	370490	758344	Residential	3.71E+00	2.12E+00	1.46E+00	1.07E+01	1.56E+00	3.20E-03	6.27E-01	2.67E-01	5.58E-01	1.23E-01	1.44E-01	1.22E-01	1.16E-05	7.99E-04	1.55E-04	6.97E-05	4.41E-05
113	370572	758341	Residential	3.82E+00	2.18E+00	1.50E+00	1.10E+01	1.61E+00	3.09E-03	6.46E-01	2.75E-01	5.75E-01	1.27E-01	1.48E-01	1.26E-01	1.12E-05	7.68E-04	1.29E-04	6.70E-05	4.24E-05
114	370654	758338	Residential	4.53E+00	2.59E+00	1.78E+00	1.30E+01	1.91E+00	2.94E-03	7.67E-01	3.27E-01	6.81E-01	1.50E-01	1.76E-01	1.49E-01	1.06E-05	7.30E-04	1.69E-04	6.36E-05	4.03E-05
115	370735	758335	Residential	4.91E+00	2.81E+00	1.93E+00	1.41E+01	2.07E+00	2.85E-03	8.32E-01	3.54E-01	7.39E-01	1.63E-01	1.91E-01	1.62E-01	9.96E-06	6.85E-04	1.64E-04	5.97E-05	3.78E-05
116	370817	758333	Residential	4.85E+00	2.77E+00	1.91E+00	1.40E+01	2.04E+00	2.89E-03	8.21E-01	3.50E-01	7.29E-01	1.61E-01	1.88E-01	1.60E-01	9.76E-06	6.71E-04	1.71E-04	5.86E-05	3.71E-05
130	371183	758027	Residential	4.02E+00	2.29E+00	1.58E+00	1.16E+01	1.69E+00	3.71E-03	6.80E-01	2.89E-01	6.05E-01	1.34E-01	1.56E-01	1.32E-01	1.25E-05	8.63E-04	3.40E-04	7.52E-05	4.77E-05
131	371248	758024	Residential	4.08E+00	2.33E+00	1.60E+00	1.18E+01	1.72E+00	3.74E-03	6.91E-01	2.94E-01	6.15E-01	1.36E-01	1.59E-01	1.34E-01	1.27E-05	8.71E-04	2.77E-04	7.60E-05	4.81E-05
132	371326	758075	Residential	3.74E+00	2.14E+00	1.47E+00	1.08E+01	1.57E+00	3.63E-03	6.33E-01	2.70E-01	5.63E-01	1.24E-01	1.46E-01	1.23E-01	1.23E-05	8.47E-04	2.57E-04	7.39E-05	4.68E-05
133	371404	758127	Residential	3.41E+00	1.94E+00	1.34E+00	9.81E+00	1.43E+00	3.52E-03	5.76E-01	2.45E-01	5.13E-01	1.13E-01	1.33E-01	1.12E-01	1.19E-05	8.22E-04	2.40E-04	7.17E-05	4.54E-05
134	371481	758178	Residential	3.11E+00	1.77E+00	1.22E+00	8.94E+00	1.31E+00	3.41E-03	5.25E-01	2.24E-01	4.68E-01	1.03E-01	1.21E-01	1.02E-01	1.16E-05	7.97E-04	2.27E-04	6.95E-05	4.40E-05
135	371559	758230	Residential	2.82E+00	1.61E+00	1.11E+00	8.13E+00	1.19E+00	3.30E-03	4.77E-01	2.03E-01	4.25E-01	9.41E-02	1.10E-01	9.29E-02	1.12E-05	7.72E-04	2.15E-04	6.73E-05	4.26E-05
136	371637	758281	Residential	2.57E+00	1.47E+00	1.01E+00	7.40E+00	1.08E+00	3.19E-03	4.34E-01	1.85E-01	3.87E-01	8.57E-02	1.00E-01	8.46E-02	1.09E-05	7.47E-04	2.05E-04	6.51E-05	4.12E-05
137	371715	758333	Residential	2.35E+00	1.34E+00	9.22E-01	6.75E+00	9.86E-01	3.25E-03	3.96E-01	1.69E-01	3.54E-01	7.83E-02	9.14E-02	7.72E-02	1.12E-05	7.71E-04	2.00E-04	6.72E-05	4.26E-05
138	371769	758261	Residential	2.02E+00	1.15E+00	7.91E-01	5.80E+00	8.45E-01	3.50E-03	3.40E-01	1.45E-01	3.04E-01	6.74E-02	7.85E-02	6.62E-02	1.21E-05	8.32E-04	1.32E-04	7.25E-05	4.59E-05
139	371822	758189	Residential	1.24E+00	6.99E-01	4.85E-01	3.55E+00	5.15E-01	3.77E-03	2.07E-01	8.83E-02	1.87E-01	4.18E-02	4.82E-02	4.05E-02	1.31E-05	8.99E-04	2.28E-04	7.84E-05	4.96E-05
140	371894	758160	Residential	1.95E+00	1.11E+00	7.64E-01	5.60E+00	8.15E-01	4.02E-03	3.28E-01	1.40E-01	2.94E-01	6.53E-02	7.58E-02	6.39E-02	1.40E-05	9.64E-04	2.81E-04	8.41E-05	5.33E-05
141	371894	758081	Residential	2.65E+00	1.51E+00	1.04E+00	7.63E+00	1.11E+00	4.20E-03	4.47E-01	1.91E-01	4.00E-01	8.86E-02	1.03E-01	8.72E-02	1.46E-05	1.01E-03	3.43E-04	8.77E-05	5.56E-05
142	371959	758074	Residential	2.65E+00	1.51E+00	1.04E+00	7.61E+00	1.11E+00	4.39E-03	4.46E-01	1.90E-01	3.99E-01	8.85E-02	1.03E-01	8.70E-02	1.53E-05	1.06E-03	3.46E-04	9.21E-05	5.83E-05
155	372055	757363	Residential	-1.49E-01	-1.08E-01	-6.36E-02	-4.66E-01	-7.98E-02	8.00E-03	-3.22E-02	-1.34E-02	-2.05E-02	-2.94E-03	-5.54E-03	-5.73E-03	2.81E-05	1.93E-03	2.82E-04	1.69E-04	1.07E-04
297	370239	755427	Residential	1.06E+01	6.03E+00	4.15E+00	3.04E+01	4.45E+00	8.93E-03	1.79E+00	7.62E-01	1.59E+00	3.51E-01	4.11E-01	3.48E-01	2.92E-05	2.01E-03	2.79E-04	1.75E-04	1.11E-04
298	370138	755427	Residential	9.15E+00	5.22E+00	3.60E+00	2.63E+01	3.85E+00	8.55E-03	1.55E+00	6.59E-01	1.38E+00	3.04E-01	3.56E-01	3.01E-01	2.80E-05	1.93E-03	2.89E-04	1.68E-04	1.06E-04
299	370040	755427	Residential	5.10E+00	2.90E+00	2.00E+00	1.47E+01	2.14E+00	8.13E-03	8.59E-01	3.66E-01	7.68E-01	1.70E-01	1.98E-01	1.67E-01	2.67E-05	1.84E-03	1.96E-04	1.60E-04	1.01E-04
300	369941	755426	Residential	4.26E+00	2.42E+00	1.67E+00	1.22E+01	1.78E+00	7.68E-03	7.17E-01	3.05E-01	6.42E-01	1.42E-01	1.66E-01	1.40E-01	2.53E-05	1.74E-03	2.00E-04	1.52E-04	9.61E-05
301	369842	755426	Residential	3.46E+00	1.96E+00	1.36E+00	9.93E+00	1.45E+00	7.29E-03	5.81E-01	2.48E-01	5.21E-01	1.16E-01	1.35E-01	1.13E-01	2.58E-05	1.78E-03	2.15E-04	1.55E-04	9.81E-05
304	369544	755434	Residential	8.78E+00	5.01E+00	3.45E+00	2.53E+01	3.69E+00	7.85E-03	1.49E+00	6.33E-01	1.32E+00	2.92E-01	3.42E-01	2.89E-01	2.84E-05	1.95E-03	4.73E-04	1.70E-04	1.08E-04
305	369445	755434	Residential	1.43E+01	8.17E+00	5.62E+00	4.12E+01	6.02E+00	9.09E-03	2.42E+00	1.03E+00	2.15E+00	4.74E-01	5.56E-01	4.71E-01	3.35E-05	2.30E-03	4.98E-04	2.01E-04	1.27E-04
306	369346	755434	Residential	8.55E+00	4.87E+00	3.36E+00	2.46E+01	3.59E+00	1.18E-02	1.44E+00	6.15E-01	1.29E+00	2.85E-01	3.33E-01	2.81E-01	4.37E-05	3.01E-03	5.05E-04	2.62E-04	1.66E-04
310	368953	755441	Residential	3.89E+00	2.16E+00	1.52E+00	1.11E+01	1.60E+00	2.28E-02	6.41E-01	2.74E-01	5.90E-01	1.34E-01	1.52E-01	1.26E-01	8.53E-05	5.87E-03	5.96E-04	5.12E-04	3.24E-04
311	368854	755441	Residential	3.33E+00	1.84E+00	1.30E+00	9.50E+00	1.36E+00	2.30E-02	5.47E-01	2.34E-01	5.06E-01	1.16E-01	1.30E-01	1.08E-01	8.60E-05	5.91E-03	5.92E-04	5.16E-04	3.27E-04
312	368755	755441	Residential	2.73E+00	1.50E+00	1.06E+00	7.77E+00	1.10E+00	2.46E-02	4.44E-01	1.90E-01	4.17E-01	9.64E-02	1.07E-01	8.78E-02	9.21E-05	6.34E-03	6.04E-04	5.53E-04	3.50E-04
313	368657	755441	Residential	1.92E+00	1.03E+00	7.40E-01	5.42E+00	7.58E-01	2.54E-02	3.05E-01	1.31E-01	2.95E-01	6.97E-02	7.55E-02	6.08E-02	9.47E-05	6.51E-03	6.00E-04	5.68E-04	3.60E-04
314	368558	755440	Residential	2.33E+00	1.26E+00	9.00E-01	6.59E+00	9.27E-01	2.73E-02	3.73E-01	1.60E-01	3.57E-01	8.37E-02	9.14E-02	7.42E-02	1.01E-04	6.98E-03	6.16E-04	6.09E-04	3.86E-04
315	368459	755440	Residential	2.68E+00	1.44E+00	1.03E+00	7.57E+00	1.06E+00	3.30E-02	4.27E-01	1.83E-01	4.11E-01	9.66E-02	1.05E-01	8.51E-02	1.24E-04	8.50E-03	7.51E-04	7.41E-04	4.70E-04
316	368360	755440	Residential	2.91E+00	1.56E+00	1.12E+00	8.21E+00	1.15E+00	3.76E-02	4.62E-01	1.98E-01	4.46E-01	1.05E-01	1.14E-01	9.22E-02	1.37E-04	9.41E-03	8.07E-04	8.21E-04	5.20E-04
317	368262	755439	Residential	2.99E+00	1.60E+00	1.15E+00	8.43E+00	1.18E+00	4.07E-02	4.73E-01	2.03E-01	4.59E-01	1.09E-01	1.17E-01	9.45E-02	1.48E-04	1.02E-02	8.52E-04	8.86E-04	5.61E-04
318	368186	755427	Residential	2.79E+00	1.50E+00	1.08E+00	7.88E+00	1.11E+00	3.39E-02	4.45E-01	1.91E-01	4.27E-01	1.00E-01	1.09E-01	8.85E-02	1.23E-04	8.46E-03	7.22E-04	7.38E-04	4.67E-04
319	368111	755414	Residential	2.52E+00	1.38E+00	9.78E-01	7.16E+00	1.02E+00	2.26E-02	4.09E-01	1.75E-01	3.84E-01	8.88E-02	9.87E-02	8.09E-02	8.26E-05	5.69E-03	5.13E-04	4.96E-04	3.14E-04
46	367504	757948	School	3.00E+00	1.71E+00	1.18E+00	8.64E+00	1.26E+00	2.65E-03	5.08E-01	2.16E-01	4.52E-01	9.98E-02	1.17E-01	9.89E-02	9.78E-06	6.73E-04	1.01E-04	5.87E-05	3.72E-05
47	367544	757873	School	4.68E-01	2.61E-01	1.83E-01	1.34E+00	1.92E-01	2.80E-03	7.72E-02	3.30E-02	7.11E-02	1.62E-02	1.83E-02	1.52E-02	1.04E-05	7.12E-04	7.11E-05	6.21E-05	3.93E-05

Table 2-2

Summary of Incremental Acute Hazard Concentrations

Receptor Number	X	Y	Receptor Type	acetaldehyde (µg/m^3)	acrolein (µg/m^3)	benzene (µg/m^3)	formaldehyde (µg/m^3)	methyl alcohol (µg/m^3)	methyl ethyl ketone (µg/m^3)	phonel (carbolic acid) (µg/m^3)	styrene (µg/m^3)	toulene (µg/m^3)	xylene, total (µg/m^3)	arsenic (µg/m^3)	chlorine (µg/m^3)	copper (µg/m^3)	mercury (µg/m^3)	nickel (µg/m^3)	vanadium (µg/m^3)	sulfates (µg/m^3)
48	367587	757909	School	3.15E+00	1.80E+00	1.24E+00	9.07E+00	1.33E+00	2.59E-03	5.33E-01	2.27E-01	4.74E-01	1.05E-01	1.23E-01	1.04E-01	9.56E-06	6.58E-04	1.09E-04	5.74E-05	3.63E-05
49	367623	757866	School	3.17E+00	1.81E+00	1.25E+00	9.12E+00	1.33E+00	2.65E-03	5.37E-01	2.28E-01	4.77E-01	1.05E-01	1.23E-01	1.04E-01	9.76E-06	6.71E-04	9.80E-05	5.85E-05	3.71E-05
50	367694	757866	School	3.30E+00	1.88E+00	1.30E+00	9.49E+00	1.39E+00	2.50E-03	5.58E-01	2.38E-01	4.96E-01	1.09E-01	1.28E-01	1.09E-01	9.07E-06	6.24E-04	1.25E-04	5.44E-05	3.44E-05
51	367716	757927	School	3.10E+00	1.77E+00	1.22E+00	8.92E+00	1.30E+00	2.43E-03	5.25E-01	2.23E-01	4.66E-01	1.03E-01	1.21E-01	1.02E-01	8.76E-06	6.03E-04	1.60E-04	5.26E-05	3.33E-05
52	367737	757988	School	2.65E+00	1.51E+00	1.04E+00	7.63E+00	1.12E+00	2.35E-03	4.49E-01	1.91E-01	3.99E-01	8.81E-02	1.03E-01	8.73E-02	8.49E-06	5.84E-04	1.79E-04	5.09E-05	3.22E-05
53	367727	758067	School	2.07E+00	1.18E+00	8.11E-01	5.94E+00	8.68E-01	2.24E-03	3.49E-01	1.49E-01	3.11E-01	6.87E-02	8.03E-02	6.80E-02	8.06E-06	5.55E-04	1.65E-04	4.84E-05	3.06E-05
54	367716	758146	School	1.42E+00	8.10E-01	5.59E-01	4.09E+00	5.97E-01	2.13E-03	2.40E-01	1.02E-01	2.14E-01	4.75E-02	5.54E-02	4.67E-02	7.67E-06	5.28E-04	1.49E-04	4.60E-05	2.91E-05
56	367723	758254	School	-8.25E-01	-4.79E-01	-3.26E-01	-2.39E+00	-3.53E-01	2.01E-03	-1.42E-01	-6.03E-02	-1.23E-01	-2.67E-02	-3.20E-02	-2.74E-02	7.23E-06	4.97E-04	1.17E-04	4.34E-05	2.75E-05
57	367784	758221	School	-1.05E+00	-6.08E-01	-4.14E-01	-3.03E+00	-4.48E-01	2.08E-03	-1.80E-01	-7.66E-02	-1.57E-01	-3.41E-02	-4.07E-02	-3.49E-02	7.47E-06	5.14E-04	1.18E-04	4.48E-05	2.84E-05
58	367845	758189	School	4.65E-01	2.61E-01	1.82E-01	1.33E+00	1.92E-01	2.15E-03	7.72E-02	3.30E-02	7.04E-02	1.59E-02	1.81E-02	1.51E-02	7.72E-06	5.31E-04	1.18E-04	4.63E-05	2.93E-05
106	370247	758254	School	4.08E+00	2.33E+00	1.60E+00	1.17E+01	1.72E+00	3.48E-03	6.90E-01	2.94E-01	6.14E-01	1.35E-01	1.59E-01	1.34E-01	1.27E-05	8.72E-04	1.48E-04	7.61E-05	4.82E-05
107	370250	758189	School	4.26E+00	2.43E+00	1.68E+00	1.23E+01	1.79E+00	3.61E-03	7.22E-01	3.07E-01	6.42E-01	1.42E-01	1.66E-01	1.40E-01	1.31E-05	9.03E-04	1.44E-04	7.88E-05	4.99E-05
108	370308	758196	School	4.30E+00	2.45E+00	1.69E+00	1.24E+01	1.81E+00	3.56E-03	7.27E-01	3.10E-01	6.47E-01	1.43E-01	1.67E-01	1.41E-01	1.29E-05	8.90E-04	1.79E-04	7.76E-05	4.92E-05
109	370361	758236	School	4.17E+00	2.38E+00	1.64E+00	1.20E+01	1.76E+00	3.46E-03	7.06E-01	3.01E-01	6.28E-01	1.39E-01	1.62E-01	1.37E-01	1.26E-05	8.64E-04	1.57E-04	7.53E-05	4.77E-05
110	370415	758275	School	3.97E+00	2.27E+00	1.56E+00	1.14E+01	1.67E+00	3.36E-03	6.73E-01	2.86E-01	5.98E-01	1.32E-01	1.55E-01	1.31E-01	1.22E-05	8.38E-04	1.45E-04	7.31E-05	4.63E-05
202	372807	757781	School	-5.58E-01	-3.37E-01	-2.23E-01	-1.63E+00	-2.48E-01	5.93E-03	-9.99E-02	-4.23E-02	-8.24E-02	-1.69E-02	-2.15E-02	-1.90E-02	2.09E-05	1.44E-03	1.87E-04	1.25E-04	7.93E-05
203	372901	757782	School	-3.74E-01	-2.32E-01	-1.51E-01	-1.10E+00	-1.71E-01	6.11E-03	-6.87E-02	-2.90E-02	-5.47E-02	-1.08E-02	-1.43E-02	-1.29E-02	2.16E-05	1.49E-03	1.90E-04	1.30E-04	8.21E-05
302	369741	755435	School	8.18E+00	4.67E+00	3.21E+00	2.35E+01	3.44E+00	7.35E-03	1.38E+00	5.89E-01	1.23E+00	2.72E-01	3.18E-01	2.69E-01	2.71E-05	1.86E-03	3.44E-04	1.62E-04	1.03E-04
303	369643	755434	School	7.69E+00	4.39E+00	3.02E+00	2.21E+01	3.23E+00	7.47E-03	1.30E+00	5.54E-01	1.16E+00	2.56E-01	2.99E-01	2.53E-01	2.76E-05	1.90E-03	3.99E-04	1.65E-04	1.05E-04

Table 2-3

Summary of Incremental Acute Hazard Concentrations and Hazard Indices

Receptor Number	X	Y	Receptor Type	acetaldehyde (µg/m^3)	acetaldehyde Acute Hazard	acrolein (µg/m^3)	acrolein Acute Hazard	benzene (µg/m^3)	benzene Acute Hazard	formaldehyde (µg/m^3)	formaldehyde Acute Hazard	methyl alcohol (µg/m^3)	methyl alcohol Acute Hazard	methyl ethyl ketone (µg/m^3)	methyl ethyl ketone Acute Hazard	styrene (µg/m^3)	styrene Acute Hazard	toluene (µg/m^3)	toluene Acute Hazard
			CalEPA Acute REL		470		2.5		1300		55		28000		13000		21000		37000
117	370814	758243	Offsite Worker	4.83E+00	1.03E-02	2.76E+00	1.10E+00	1.90E+00	1.46E-03	1.39E+01	2.53E-01	2.04E+00	7.27E-05	3.06E-03	2.35E-07	3.49E-01	1.66E-05	7.27E-01	1.96E-05
118	370810	758153	Offsite Worker	4.72E+00	1.01E-02	2.70E+00	1.08E+00	1.86E+00	1.43E-03	1.36E+01	2.47E-01	1.99E+00	7.10E-05	3.24E-03	2.49E-07	3.41E-01	1.62E-05	7.11E-01	1.92E-05
119	370807	758063	Offsite Worker	4.44E+00	9.44E-03	2.53E+00	1.01E+00	1.74E+00	1.34E-03	1.28E+01	2.32E-01	1.87E+00	6.67E-05	3.44E-03	2.64E-07	3.20E-01	1.52E-05	6.68E-01	1.80E-05
120	370803	757974	Offsite Worker	3.97E+00	8.45E-03	2.27E+00	9.07E-01	1.56E+00	1.20E-03	1.14E+01	2.08E-01	1.67E+00	5.97E-05	3.65E-03	2.81E-07	2.86E-01	1.36E-05	5.98E-01	1.62E-05
121	370835	757927	Offsite Worker	2.71E+00	5.77E-03	1.54E+00	6.18E-01	1.07E+00	8.19E-04	7.80E+00	1.42E-01	1.14E+00	4.07E-05	3.80E-03	2.92E-07	1.95E-01	9.29E-06	4.09E-01	1.10E-05
122	370868	757880	Offsite Worker	3.41E+00	7.26E-03	1.95E+00	7.78E-01	1.34E+00	1.03E-03	9.82E+00	1.78E-01	1.43E+00	5.12E-05	3.95E-03	3.04E-07	2.46E-01	1.17E-05	5.14E-01	1.39E-05
123	370921	757884	Offsite Worker	4.11E+00	8.74E-03	2.34E+00	9.38E-01	1.61E+00	1.24E-03	1.18E+01	2.15E-01	1.73E+00	6.17E-05	3.97E-03	3.06E-07	2.96E-01	1.41E-05	6.19E-01	1.67E-05
124	370975	757887	Offsite Worker	4.69E+00	9.99E-03	2.68E+00	1.07E+00	1.84E+00	1.42E-03	1.35E+01	2.46E-01	1.97E+00	7.05E-05	4.00E-03	3.08E-07	3.38E-01	1.61E-05	7.06E-01	1.91E-05
125	370975	757794	Offsite Worker	5.36E+00	1.14E-02	3.06E+00	1.22E+00	2.10E+00	1.62E-03	1.54E+01	2.80E-01	2.25E+00	8.05E-05	4.29E-03	3.30E-07	3.86E-01	1.84E-05	8.06E-01	2.18E-05
126	371026	757794	Offsite Worker	4.72E+00	1.00E-02	2.69E+00	1.08E+00	1.85E+00	1.43E-03	1.36E+01	2.47E-01	1.98E+00	7.09E-05	4.32E-03	3.33E-07	3.40E-01	1.62E-05	7.10E-01	1.92E-05
127	371076	757877	Offsite Worker	4.77E+00	1.01E-02	2.72E+00	1.09E+00	1.87E+00	1.44E-03	1.37E+01	2.50E-01	2.01E+00	7.17E-05	4.09E-03	3.15E-07	3.44E-01	1.64E-05	7.18E-01	1.94E-05
128	371126	757959	Offsite Worker	4.40E+00	9.36E-03	2.51E+00	1.00E+00	1.73E+00	1.33E-03	1.27E+01	2.30E-01	1.85E+00	6.61E-05	3.87E-03	2.98E-07	3.17E-01	1.51E-05	6.62E-01	1.79E-05
129	371119	758031	Offsite Worker	3.65E+00	7.77E-03	2.08E+00	8.33E-01	1.43E+00	1.10E-03	1.05E+01	1.91E-01	1.53E+00	5.48E-05	3.67E-03	2.82E-07	2.63E-01	1.25E-05	5.49E-01	1.48E-05
143	371953	757977	Offsite Worker	2.52E+00	5.37E-03	1.43E+00	5.73E-01	9.90E-01	7.61E-04	7.25E+00	1.32E-01	1.06E+00	3.77E-05	4.64E-03	3.57E-07	1.81E-01	8.62E-06	3.80E-01	1.03E-05
144	371948	757880	Offsite Worker	2.62E+00	5.57E-03	1.49E+00	5.95E-01	1.03E+00	7.90E-04	7.52E+00	1.37E-01	1.10E+00	3.91E-05	4.91E-03	3.78E-07	1.88E-01	8.94E-06	3.95E-01	1.07E-05
145	371943	757783	Offsite Worker	1.19E+00	2.53E-03	6.67E-01	2.67E-01	4.65E-01	3.57E-04	3.40E+00	6.19E-02	4.91E-01	1.76E-05	5.20E-03	4.00E-07	8.43E-02	4.01E-06	1.80E-01	4.86E-06
146	372016	757794	Offsite Worker	7.92E-01	1.68E-03	4.38E-01	1.75E-01	3.08E-01	2.37E-04	2.26E+00	4.11E-02	3.23E-01	1.15E-05	5.46E-03	4.20E-07	5.55E-02	2.64E-06	1.20E-01	3.25E-06
147	372102	757791	Offsite Worker	5.44E-01	1.16E-03	2.96E-01	1.18E-01	2.11E-01	1.62E-04	1.54E+00	2.80E-02	2.18E-01	7.78E-06	5.66E-03	4.36E-07	3.75E-02	1.79E-06	8.31E-02	2.25E-06
148	372178	757760	Offsite Worker	7.15E-01	1.52E-03	3.93E-01	1.57E-01	2.78E-01	2.14E-04	2.04E+00	3.70E-02	2.90E-01	1.04E-05	6.00E-03	4.61E-07	4.98E-02	2.37E-06	1.09E-01	2.95E-06
149	372177	757670	Offsite Worker	7.62E-01	1.62E-03	4.18E-01	1.67E-01	2.96E-01	2.28E-04	2.17E+00	3.94E-02	3.08E-01	1.10E-05	6.46E-03	4.97E-07	5.30E-02	2.53E-06	1.16E-01	3.14E-06
150	372176	757579	Offsite Worker	6.37E-01	1.36E-03	3.45E-01	1.38E-01	2.47E-01	1.90E-04	1.81E+00	3.28E-02	2.55E-01	9.10E-06	6.99E-03	5.38E-07	4.38E-02	2.09E-06	9.75E-02	2.64E-06
151	372174	757489	Offsite Worker	7.43E-01	1.58E-03	4.04E-01	1.62E-01	2.88E-01	2.21E-04	2.11E+00	3.83E-02	2.98E-01	1.06E-05	7.60E-03	5.84E-07	5.13E-02	2.44E-06	1.14E-01	3.07E-06
152	372173	757398	Offsite Worker	3.19E-01	6.78E-04	1.59E-01	6.35E-02	1.20E-01	9.25E-05	8.81E-01	1.60E-02	1.17E-01	4.18E-06	8.39E-03	6.46E-07	2.04E-02	9.69E-07	5.00E-02	1.35E-06
153	372171	757308	Offsite Worker	7.42E-01	1.58E-03	3.99E-01	1.60E-01	2.86E-01	2.20E-04	2.10E+00	3.81E-02	2.94E-01	1.05E-05	9.32E-03	7.17E-07	5.07E-02	2.41E-06	1.14E-01	3.08E-06
154	372055	757309	Offsite Worker	3.64E-01	7.74E-04	1.85E-01	7.38E-02	1.38E-01	1.06E-04	1.01E+00	1.84E-02	1.36E-01	4.86E-06	8.41E-03	6.47E-07	2.36E-02	1.12E-06	5.68E-02	1.53E-06
156	372055	757416	Offsite Worker	4.89E-01	1.04E-03	2.59E-01	1.03E-01	1.88E-01	1.45E-04	1.38E+00	2.50E-02	1.91E-01	6.82E-06	7.63E-03	5.87E-07	3.29E-02	1.57E-06	7.54E-02	2.04E-06
157	371952	757442	Offsite Worker	1.24E+00	2.64E-03	6.92E-01	2.77E-01	4.84E-01	3.72E-04	3.54E+00	6.44E-02	5.10E-01	1.82E-05	6.71E-03	5.16E-07	8.76E-02	4.17E-06	1.88E-01	5.08E-06
158	371950	757345	Offsite Worker	-3.63E-01	-7.73E-04	-2.30E-01	-9.19E-02	-1.47E-01	-1.13E-04	-1.08E+00	-1.96E-02	-1.69E-01	-6.04E-06	7.53E-03	5.79E-07	-2.87E-02	-1.37E-06	-5.27E-02	-1.42E-06
159	371864	757344	Offsite Worker	-8.73E-02	-1.86E-04	-7.14E-02	-2.85E-02	-3.89E-02	-2.99E-05	-2.84E-01	-5.17E-03	-5.24E-02	-1.87E-06	7.47E-03	5.74E-07	-8.71E-03	-4.15E-07	-1.13E-02	-3.04E-07
160	371790	757347	Offsite Worker	4.74E-01	1.01E-03	2.51E-01	1.00E-01	1.82E-01	1.40E-04	1.33E+00	2.43E-02	1.85E-01	6.61E-06	7.36E-03	5.66E-07	3.19E-02	1.52E-06	7.31E-02	1.98E-06
161	371708	757356	Offsite Worker	9.56E-01	2.03E-03	5.27E-01	2.11E-01	3.72E-01	2.86E-04	2.72E+00	4.95E-02	3.89E-01	1.39E-05	7.19E-03	5.53E-07	6.68E-02	3.18E-06	1.45E-01	3.93E-06
162	371615	757356	Offsite Worker	1.05E+00	2.24E-03	5.83E-01	2.33E-01	4.10E-01	3.15E-04	3.00E+00	5.46E-02	4.30E-01	1.54E-05	7.07E-03	5.44E-07	7.38E-02	3.52E-06	1.60E-01	4.32E-06
163	371523	757356	Offsite Worker	1.57E+00	3.34E-03	8.79E-01	3.52E-01	6.13E-01	4.71E-04	4.49E+00	8.16E-02	6.48E-01	2.31E-05	6.95E-03	5.35E-07	1.11E-01	5.29E-06	2.37E-01	6.41E-06
164	371430	757356	Offsite Worker	2.08E+00	4.42E-03	1.17E+00	4.69E-01	8.14E-01	6.26E-04	5.96E+00	1.08E-01	8.64E-01	3.09E-05	6.83E-03	5.25E-07	1.48E-01	7.06E-06	3.14E-01	8.49E-06
165	371338	757356	Offsite Worker	2.23E+00	4.74E-03	1.26E+00	5.03E-01	8.72E-01	6.71E-04	6.39E+00	1.16E-01	9.27E-01	3.31E-05	6.70E-03	5.16E-07	1.59E-01	7.57E-06	3.36E-01	9.09E-06
166	371245	757356	Offsite Worker	2.40E+00	5.11E-03	1.36E+00	5.43E-01	9.41E-01	7.23E-04	6.89E+00	1.25E-01	1.00E+00	3.57E-05	6.58E-03	5.06E-07	1.72E-01	8.17E-06	3.62E-01	9.79E-06
167	371153	757356	Offsite Worker	2.60E+00	5.53E-03	1.47E+00	5.89E-01	1.02E+00	7.84E-04	7.46E+00	1.36E-01	1.08E+00	3.87E-05	6.46E-03	4.97E-07	1.86E-01	8.85E-06	3.92E-01	1.06E-05
168	371061	757356	Offsite Worker	2.83E+00	6.03E-03	1.61E+00	6.43E-01	1.11E+00	8.55E-04	8.14E+00	1.48E-01	1.18E+00	4.23E-05	6.34E-03	4.88E-07	2.03E-01	9.67E-06	4.28E-01	1.16E-05
169	371005	757357	Offsite Worker	3.03E+00	6.44E-03	1.72E+00	6.87E-01	1.19E+00	9.13E-04	8.69E+00	1.58E-01	1.27E+00	4.52E-05	6.26E-03	4.82E-07	2.17E-01	1.03E-05	4.56E-01	1.23E-05
170	370998	757293	Offsite Worker	6.80E-01	1.45E-03	3.71E-01	1.48E-01	2.63E-01	2.03E-04	1.93E+00	3.51E-02	2.73E-01	9.76E-06	6.65E-03	5.11E-07	4.70E-02	2.24E-06	1.04E-01	2.80E-06
171	370998	757194	Offsite Worker	5.73E+00	1.22E-02	3.26E+00	1.31E+00	2.25E+00	1.73E-03	1.65E+01	3.00E-01	2.41E+00	8.59E-05	7.35E-03	5.65E-07	4.12E-01	1.96E-05	8.63E-01	2.33E-05
172	370998	757096	Offsite Worker	7.06E-01	1.50E-03	3.81E-01	1.53E-01	2.73E-01	2.10E-04	2.00E+00	3.63E-02	2.81E-01	1.00E-05	8.17E-03	6.28E-07	4.84E-02	2.31E-06	1.08E-01	2.92E-06
173	370998	756998	Offsite Worker	-1.82E+00	-3.87E-03	-1.07E+00	-4.28E-01	-7.22E-01	-5.55E-04	-5.28E+00	-9.61E-02	-7.88E-01	-2.81E-05	9.15E-03	7.04E-07	-1.35E-01	-6.41E-06	-2.71E-01	-7.33E-06
174	371057	756997	Offsite Worker	-1.10E+00	-2.33E-03	-6.54E-01	-2.62E-01	-4.37E-01	-3.36E-04	-3.20E+00	-5.81E-02	-4.82E-01	-1.72E-05	9.28E-03	7.14E-07	-8.22E-02	-3.91E-06	-1.62E-01	-4.39E-06
175	371153	756997	Offsite Worker	-2.76E-01	-5.88E-04	-1.85E-01	-7.42E-02	-1.14E-01	-8.81E-05	-8.38E-01	-1.52E-02	-1.37E-01	-4.88E-06	9.48E-03	7.29E-07	-2.30E-02	-1.10E-06	-3.92E-02	-1.06E-06
176	371249	756997	Offsite Worker	-2.65E+00	-5.64E-03	-1.55E+00	-6.19E-01	-1.05E+00	-8.07E-04	-7.68E+00	-1.40E-01	-1.14E+00	-4.07E-05	9.70E-03	7.46E-07	-1.95E-01	-9.28E-06	-3.96E-01	-1.07E-05
177	371345	756997	Offsite Worker	-2.84E+00	-6.05E-03	-1.66E+00	-6.63E-01	-1.12E+00	-8.65E-04	-8.24E+00	-1.50E-01	-1.22E+00	-4.36E-05	9.95E-03	7.65E-07	-2.09E-01	-9.95E-06	-4.25E-01	-1.15E-05
178	371440	756997	Offsite Worker	-9.82E-01	-2.09E-03	-5.92E-01	-2.37E-01	-3.92E-01	-3.02E-04	-2.87E+00	-5.22E-02	-4.36E-01	-1.56E-05	1.02E-02	7.87E-07	-7.43E-02	-3.54E-06	-1.45E-01	-3.92E-06
179	371536	756997	Offsite Worker	-4.57E-01	-9.73E-04	-2.92E-01	-1.17E-01	-1.86E-01	-1.43E-04	-1.36E+00	-2.48E-02	-2.15E-01	-7.68E-06	1.05E-02	8.11E-07	-3.65E-02	-1.74E-06	-6.61E-02	-1.79E-06
180	371632	756997	Offsite Worker	1.01E+00	2.14E-03	5.45E-01	2.18E-01	3.89E-01	2.99E-04	2.85E+00	5.18E-02	4.02E-01	1.44E-05	1.09E-02	8.40E-07	6.92E-02	3.30E-06	1.54E-01	4.16E-06
181	371728	756997	Offsite Worker	9.39E-01	2.00E-03	5.06E-01	2.02E-01	3.63E-01	2.79E-04	2.66E+00	4.83E-02	3.73E-01	1.33E-05	1.13E-02	8.72E-07	6.43E-02	3.06E-06	1.44E-01	3.89E-06
182	371824	756997	Offsite Worker	7.02E-01	1.49E-03	3.69E-01	1.48E-01	2.69E-01	2.07E-04	1.97E+00	3.58E-02	2.72E-01	9.72E-06	1.18E-02	9.06E-07	4.70E-02	2.24E-06	1.08E-01	2.93E-06
183	371920	756997	Offsite Worker	4.01E-01	8.54E-04	1.95E-01	7.81E-02	1.51E-01	1.16E-04	1.10E+00	2.01E-02	1.44E-01	5.15E-06	1.22E-02	9.42E-07	2.51E-02	1.20E-06	6.34E-02	1.71E-06

Table 2-3

Summary of Incremental Acute Hazard Concentrations and Hazard Indices

Receptor Number	X	Y	Receptor Type	acetaldehyde (µg/m^{3})	acetaldehyde Acute Hazard	acrolein (µg/m^{3})	acrolein Acute Hazard	benzene (µg/m^{3})	benzene Acute Hazard	formaldehyde (µg/m^{3})	formaldehyde Acute Hazard	methyl alcohol (µg/m^{3})	methyl alcohol Acute Hazard	methyl ethyl ketone (µg/m^{3})	methyl ethyl ketone Acute Hazard	styrene (µg/m^{3})	styrene Acute Hazard	toluene (µg/m^{3})	toluene Acute Hazard
			CalEPA Acute REL		470		2.5		1300		55		28000		13000		21000		37000
184	372016	756997	Offsite Worker	6.19E-01	1.32E-03	3.19E-01	1.28E-01	2.36E-01	1.82E-04	1.73E+00	3.14E-02	2.35E-01	8.40E-06	1.27E-02	9.75E-07	4.07E-02	1.94E-06	9.62E-02	2.60E-06
185	372111	756997	Offsite Worker	-1.38E+00	-2.93E-03	-8.28E-01	-3.31E-01	-5.51E-01	-4.24E-04	-4.03E+00	-7.33E-02	-6.10E-01	-2.18E-05	1.30E-02	1.00E-06	-1.04E-01	-4.95E-06	-2.04E-01	-5.51E-06
186	372207	756997	Offsite Worker	-3.77E+00	-8.03E-03	-2.21E+00	-8.82E-01	-1.49E+00	-1.15E-03	-1.09E+01	-1.99E-01	-1.62E+00	-5.80E-05	1.48E-02	1.14E-06	-2.78E-01	-1.32E-05	-5.63E-01	-1.52E-05
187	372303	756997	Offsite Worker	-2.61E+00	-5.56E-03	-1.54E+00	-6.17E-01	-1.04E+00	-7.98E-04	-7.60E+00	-1.38E-01	-1.14E+00	-4.06E-05	1.57E-02	1.21E-06	-1.94E-01	-9.24E-06	-3.89E-01	-1.05E-05
188	372399	756997	Offsite Worker	-1.57E+00	-3.33E-03	-9.47E-01	-3.79E-01	-6.27E-01	-4.82E-04	-4.59E+00	-8.35E-02	-6.98E-01	-2.49E-05	1.72E-02	1.32E-06	-1.19E-01	-5.66E-06	-2.31E-01	-6.25E-06
189	372495	756997	Offsite Worker	-1.04E+00	-2.21E-03	-6.46E-01	-2.58E-01	-4.20E-01	-3.23E-04	-3.07E+00	-5.59E-02	-4.75E-01	-1.70E-05	1.71E-02	1.31E-06	-8.08E-02	-3.85E-06	-1.52E-01	-4.11E-06
190	372591	756997	Offsite Worker	-1.81E+00	-3.84E-03	-1.08E+00	-4.33E-01	-7.20E-01	-5.54E-04	-5.27E+00	-9.59E-02	-7.97E-01	-2.85E-05	1.62E-02	1.25E-06	-1.36E-01	-6.47E-06	-2.67E-01	-7.23E-06
191	372610	757063	Offsite Worker	-8.57E-01	-1.82E-03	-5.32E-01	-2.13E-01	-3.46E-01	-2.66E-04	-2.53E+00	-4.60E-02	-3.92E-01	-1.40E-05	1.44E-02	1.11E-06	-6.66E-02	-3.17E-06	-1.25E-01	-3.38E-06
192	372612	757132	Offsite Worker	-6.94E-01	-1.48E-03	-4.34E-01	-1.74E-01	-2.81E-01	-2.16E-04	-2.06E+00	-3.74E-02	-3.20E-01	-1.14E-05	1.27E-02	9.78E-07	-5.43E-02	-2.58E-06	-1.01E-01	-2.73E-06
193	372614	757201	Offsite Worker	-1.72E+00	-3.67E-03	-1.02E+00	-4.08E-01	-6.85E-01	-5.27E-04	-5.01E+00	-9.12E-02	-7.52E-01	-2.68E-05	1.13E-02	8.68E-07	-1.28E-01	-6.11E-06	-2.56E-01	-6.92E-06
194	372616	757270	Offsite Worker	-1.90E+00	-4.04E-03	-1.12E+00	-4.47E-01	-7.53E-01	-5.79E-04	-5.51E+00	-1.00E-01	-8.23E-01	-2.94E-05	1.01E-02	7.80E-07	-1.40E-01	-6.69E-06	-2.83E-01	-7.64E-06
195	372627	757351	Offsite Worker	2.44E-01	5.18E-04	1.13E-01	4.53E-02	9.02E-02	6.94E-05	6.61E-01	1.20E-02	8.36E-02	2.99E-06	9.26E-03	7.12E-07	1.46E-02	6.97E-07	3.89E-02	1.05E-06
196	372651	757422	Offsite Worker	-9.13E-01	-1.94E-03	-5.48E-01	-2.19E-01	-3.64E-01	-2.80E-04	-2.67E+00	-4.85E-02	-4.03E-01	-1.44E-05	8.40E-03	6.46E-07	-6.88E-02	-3.27E-06	-1.35E-01	-3.65E-06
197	372676	757494	Offsite Worker	-4.01E-01	-8.52E-04	-2.51E-01	-1.01E-01	-1.62E-01	-1.25E-04	-1.19E+00	-2.16E-02	-1.85E-01	-6.61E-06	7.64E-03	5.87E-07	-3.14E-02	-1.50E-06	-5.83E-02	-1.58E-06
198	372704	757569	Offsite Worker	-1.40E-01	-2.98E-04	-1.00E-01	-4.01E-02	-5.93E-02	-4.56E-05	-4.34E-01	-7.89E-03	-7.38E-02	-2.64E-06	7.06E-03	5.43E-07	-1.24E-02	-5.90E-07	-1.93E-02	-5.21E-07
199	372733	757645	Offsite Worker	-1.57E-01	-3.33E-04	-1.09E-01	-4.34E-02	-6.56E-02	-5.05E-05	-4.80E-01	-8.73E-03	-7.99E-02	-2.85E-06	6.58E-03	5.06E-07	-1.34E-02	-6.40E-07	-2.19E-02	-5.92E-07
200	372746	757702	Offsite Worker	-1.36E-02	-2.90E-05	-2.55E-02	-1.02E-02	-9.11E-03	-7.01E-06	-6.65E-02	-1.21E-03	-1.87E-02	-6.68E-07	6.21E-03	4.78E-07	-2.98E-03	-1.42E-07	-5.01E-04	-1.35E-08
201	372746	757768	Offsite Worker	-5.95E-01	-1.27E-03	-3.58E-01	-1.43E-01	-2.38E-01	-1.83E-04	-1.74E+00	-3.17E-02	-2.64E-01	-9.42E-06	5.83E-03	4.49E-07	-4.49E-02	-2.14E-06	-8.80E-02	-2.38E-06
204	372994	757783	Offsite Worker	-5.28E-01	-1.12E-03	-3.20E-01	-1.28E-01	-2.11E-01	-1.63E-04	-1.55E+00	-2.81E-02	-2.35E-01	-8.41E-06	5.96E-03	4.58E-07	-4.01E-02	-1.91E-06	-7.79E-02	-2.10E-06
205	373087	757783	Offsite Worker	-6.47E-01	-1.38E-03	-3.87E-01	-1.55E-01	-2.58E-01	-1.99E-04	-1.89E+00	-3.44E-02	-2.85E-01	-1.02E-05	5.51E-03	4.24E-07	-4.86E-02	-2.31E-06	-9.59E-02	-2.59E-06
206	373180	757784	Offsite Worker	-7.36E-01	-1.56E-03	-4.36E-01	-1.75E-01	-2.93E-01	-2.25E-04	-2.14E+00	-3.89E-02	-3.22E-01	-1.15E-05	5.18E-03	3.99E-07	-5.49E-02	-2.61E-06	-1.09E-01	-2.95E-06
207	373274	757785	Offsite Worker	-7.81E-01	-1.66E-03	-4.62E-01	-1.85E-01	-3.10E-01	-2.39E-04	-2.27E+00	-4.13E-02	-3.41E-01	-1.22E-05	5.09E-03	3.92E-07	-5.81E-02	-2.77E-06	-1.16E-01	-3.14E-06
208	373367	757786	Offsite Worker	-7.91E-01	-1.68E-03	-4.67E-01	-1.87E-01	-3.14E-01	-2.42E-04	-2.30E+00	-4.18E-02	-3.44E-01	-1.23E-05	4.89E-03	3.76E-07	-5.87E-02	-2.80E-06	-1.18E-01	-3.18E-06
209	373418	757742	Offsite Worker	-7.12E-01	-1.51E-03	-4.22E-01	-1.69E-01	-2.83E-01	-2.18E-04	-2.07E+00	-3.77E-02	-3.11E-01	-1.11E-05	5.01E-03	3.86E-07	-5.31E-02	-2.53E-06	-1.06E-01	-2.86E-06
210	373418	757653	Offsite Worker	-3.83E-01	-8.15E-04	-2.35E-01	-9.40E-02	-1.54E-01	-1.18E-04	-1.13E+00	-2.05E-02	-1.73E-01	-6.18E-06	5.40E-03	4.15E-07	-2.94E-02	-1.40E-06	-5.62E-02	-1.52E-06
211	373419	757564	Offsite Worker	-7.42E-02	-1.58E-04	-5.89E-02	-2.36E-02	-3.27E-02	-2.51E-05	-2.39E-01	-4.35E-03	-4.33E-02	-1.55E-06	5.73E-03	4.41E-07	-7.21E-03	-3.43E-07	-9.72E-03	-2.63E-07
212	373419	757475	Offsite Worker	4.29E-02	9.12E-05	7.12E-03	2.85E-03	1.32E-02	1.01E-05	9.67E-02	1.76E-03	5.37E-03	1.92E-07	6.11E-03	4.70E-07	1.14E-03	5.42E-08	7.96E-03	2.15E-07
213	373420	757386	Offsite Worker	2.19E-01	4.66E-04	1.07E-01	4.28E-02	8.22E-02	6.32E-05	6.02E-01	1.10E-02	7.90E-02	2.82E-06	6.49E-03	4.99E-07	1.38E-02	6.55E-07	3.45E-02	9.33E-07
214	373420	757297	Offsite Worker	2.89E-02	6.14E-05	-2.90E-03	-1.16E-03	7.24E-03	5.57E-06	5.33E-02	9.70E-04	-2.00E-03	-7.15E-08	6.82E-03	5.24E-07	-9.85E-05	-4.69E-09	6.04E-03	1.63E-07
215	373421	757207	Offsite Worker	-5.93E-01	-1.26E-03	-3.61E-01	-1.44E-01	-2.38E-01	-1.83E-04	-1.74E+00	-3.17E-02	-2.66E-01	-9.49E-06	7.25E-03	5.58E-07	-4.52E-02	-2.15E-06	-8.74E-02	-2.36E-06
216	373421	757118	Offsite Worker	-6.12E-02	-1.30E-04	-5.86E-02	-2.34E-02	-2.91E-02	-2.24E-05	-2.13E-01	-3.86E-03	-4.30E-02	-1.54E-06	8.23E-03	6.33E-07	-7.07E-03	-3.37E-07	-7.15E-03	-1.93E-07
217	373292	757117	Offsite Worker	-4.49E-01	-9.55E-04	-2.81E-01	-1.12E-01	-1.82E-01	-1.40E-04	-1.33E+00	-2.42E-02	-2.07E-01	-7.39E-06	8.27E-03	6.37E-07	-3.51E-02	-1.67E-06	-6.54E-02	-1.77E-06
218	373213	757118	Offsite Worker	-7.02E-01	-1.49E-03	-4.27E-01	-1.71E-01	-2.81E-01	-2.16E-04	-2.06E+00	-3.75E-02	-3.15E-01	-1.12E-05	8.81E-03	6.77E-07	-5.36E-02	-2.55E-06	-1.03E-01	-2.79E-06
219	373158	757066	Offsite Worker	-5.50E-01	-1.17E-03	-3.43E-01	-1.37E-01	-2.22E-01	-1.71E-04	-1.63E+00	-2.96E-02	-2.52E-01	-9.01E-06	9.59E-03	7.38E-07	-4.29E-02	-2.04E-06	-8.03E-02	-2.17E-06
220	373084	757026	Offsite Worker	-5.26E-01	-1.12E-03	-3.32E-01	-1.33E-01	-2.13E-01	-1.64E-04	-1.56E+00	-2.84E-02	-2.44E-01	-8.73E-06	1.07E-02	8.19E-07	-4.15E-02	-1.97E-06	-7.64E-02	-2.06E-06
221	373009	757011	Offsite Worker	-6.85E-01	-1.46E-03	-4.25E-01	-1.70E-01	-2.76E-01	-2.13E-04	-2.02E+00	-3.68E-02	-3.13E-01	-1.12E-05	1.15E-02	8.86E-07	-5.32E-02	-2.53E-06	-1.00E-01	-2.70E-06
222	372922	757009	Offsite Worker	-9.86E-01	-2.10E-03	-6.00E-01	-2.40E-01	-3.96E-01	-3.04E-04	-2.90E+00	-5.27E-02	-4.42E-01	-1.58E-05	1.23E-02	9.44E-07	-7.53E-02	-3.58E-06	-1.45E-01	-3.92E-06
223	372835	757007	Offsite Worker	-2.36E-01	-5.02E-04	-1.71E-01	-6.85E-02	-1.01E-01	-7.73E-05	-7.35E-01	-1.34E-02	-1.26E-01	-4.50E-06	1.25E-02	9.65E-07	-2.11E-02	-1.01E-06	-3.24E-02	-8.75E-07
224	372747	757006	Offsite Worker	-6.04E-01	-1.29E-03	-3.85E-01	-1.54E-01	-2.46E-01	-1.89E-04	-1.80E+00	-3.27E-02	-2.84E-01	-1.01E-05	1.36E-02	1.04E-06	-4.81E-02	-2.29E-06	-8.75E-02	-2.36E-06
225	372660	757004	Offsite Worker	-1.62E+00	-3.44E-03	-9.71E-01	-3.89E-01	-6.46E-01	-4.97E-04	-4.73E+00	-8.59E-02	-7.16E-01	-2.56E-05	1.56E-02	1.20E-06	-1.22E-01	-5.81E-06	-2.39E-01	-6.46E-06
226	372651	757063	Offsite Worker	-1.96E-01	-4.16E-04	-1.53E-01	-6.12E-02	-8.56E-02	-6.59E-05	-6.27E-01	-1.14E-02	-1.13E-01	-4.02E-06	1.44E-02	1.11E-06	-1.88E-02	-8.93E-07	-2.58E-02	-6.98E-07
227	372629	756931	Offsite Worker	-4.46E-01	-9.49E-04	-3.07E-01	-1.23E-01	-1.86E-01	-1.43E-04	-1.36E+00	-2.48E-02	-2.26E-01	-8.07E-06	1.80E-02	1.38E-06	-3.80E-02	-1.81E-06	-6.25E-02	-1.69E-06
228	372631	756857	Offsite Worker	-2.11E-01	-4.50E-04	-1.79E-01	-7.15E-02	-9.53E-02	-7.33E-05	-6.97E-01	-1.27E-02	-1.31E-01	-4.69E-06	2.02E-02	1.55E-06	-2.18E-02	-1.04E-06	-2.67E-02	-7.23E-07
229	372634	756783	Offsite Worker	-9.05E-01	-1.93E-03	-5.82E-01	-2.33E-01	-3.69E-01	-2.84E-04	-2.70E+00	-4.92E-02	-4.29E-01	-1.53E-05	2.22E-02	1.71E-06	-7.26E-02	-3.46E-06	-1.30E-01	-3.53E-06
230	372702	756778	Offsite Worker	-9.23E-01	-1.96E-03	-5.90E-01	-2.36E-01	-3.76E-01	-2.89E-04	-2.75E+00	-5.01E-02	-4.34E-01	-1.55E-05	2.12E-02	1.63E-06	-7.36E-02	-3.50E-06	-1.33E-01	-3.61E-06
231	372756	756775	Offsite Worker	-7.70E-01	-1.64E-03	-5.00E-01	-2.00E-01	-3.15E-01	-2.43E-04	-2.31E+00	-4.20E-02	-3.68E-01	-1.31E-05	2.04E-02	1.57E-06	-6.22E-02	-2.96E-06	-1.11E-01	-2.99E-06
232	372729	756712	Offsite Worker	-1.69E+00	-3.59E-03	-1.04E+00	-4.14E-01	-6.78E-01	-5.22E-04	-4.97E+00	-9.03E-02	-7.63E-01	-2.72E-05	2.39E-02	1.84E-06	-1.30E-01	-6.18E-06	-2.48E-01	-6.69E-06
233	372703	756650	Offsite Worker	-1.09E+00	-2.31E-03	-7.04E-01	-2.81E-01	-4.45E-01	-3.42E-04	-3.25E+00	-5.92E-02	-5.18E-01	-1.85E-05	2.84E-02	2.18E-06	-8.77E-02	-4.17E-06	-1.56E-01	-4.22E-06
234	372677	756588	Offsite Worker	-1.92E+00	-4.09E-03	-1.20E+00	-4.80E-01	-7.77E-01	-5.98E-04	-5.69E+00	-1.03E-01	-8.83E-01	-3.15E-05	3.41E-02	2.62E-06	-1.50E-01	-7.14E-06	-2.80E-01	-7.58E-06
235	372619	756588	Offsite Worker	-2.16E+00	-4.60E-03	-1.35E+00	-5.40E-01	-8.74E-01	-6.72E-04	-6.40E+00	-1.16E-01	-9.94E-01	-3.55E-05	3.89E-02	3.00E-06	-1.69E-01	-8.04E-06	-3.15E-01	-8.51E-06
236	372622	756509	Offsite Worker	-3.67E+00	-7.81E-03	-2.25E+00	-9.01E-01	-1.48E+00	-1.13E-03	-1.08E+01	-1.96E-01	-1.66E+00	-5.92E-05	5.18E-02	3.98E-06	-2.82E-01	-1.34E-05	-5.39E-01	-1.46E-05
237	372700	756511	Offsite Worker	-2.66E+00	-5.65E-03	-1.64E+00	-6.58E-01	-1.07E+00	-8.24E-04	-7.84E+00	-1.43E-01	-1.21E+00	-4.32E-05	4.26E-02	3.27E-06	-2.06E-01	-9.80E-06	-3.89E-01	-1.05E-05
238	372789	756510	Offsite Worker	-1.71E+00	-3.64E-03	-1.07E+00	-4.30E-01	-6.93E-01	-5.33E-04	-5.07E+00	-9.22E-02	-7.92E-01	-2.83E-05	3.34E-02	2.57E-06	-1.34E-01	-6.40E-06	-2.49E-01	-6.72E-06

Table 2-3

Summary of Incremental Acute Hazard Concentrations and Hazard Indices

Receptor Number	X	Y	Receptor Type	acetaldehyde (µg/m^3)	acetaldehyde Acute Hazard	acrolein (µg/m^3)	acrolein Acute Hazard	benzene (µg/m^3)	benzene Acute Hazard	formaldehyde (µg/m^3)	formaldehyde Acute Hazard	methyl alcohol (µg/m^3)	methyl alcohol Acute Hazard	methyl ethyl ketone (µg/m^3)	methyl ethyl ketone Acute Hazard	styrene (µg/m^3)	styrene Acute Hazard	toluene (µg/m^3)	toluene Acute Hazard
			CalEPA Acute REL		470		2.5		1300		55		28000		13000		21000		37000
239	372871	756509	Offsite Worker	-1.05E+00	-2.23E-03	-6.79E-01	-2.72E-01	-4.29E-01	-3.30E-04	-3.14E+00	-5.71E-02	-5.00E-01	-1.79E-05	2.76E-02	2.12E-06	-8.46E-02	-4.03E-06	-1.51E-01	-4.07E-06
240	372871	756437	Offsite Worker	-1.66E+00	-3.53E-03	-1.03E+00	-4.12E-01	-6.69E-01	-5.15E-04	-4.90E+00	-8.91E-02	-7.58E-01	-2.71E-05	2.75E-02	2.12E-06	-1.29E-01	-6.13E-06	-2.42E-01	-6.55E-06
241	372970	756437	Offsite Worker	-1.36E+00	-2.89E-03	-8.44E-01	-3.38E-01	-5.49E-01	-4.22E-04	-4.02E+00	-7.30E-02	-6.22E-01	-2.22E-05	2.28E-02	1.75E-06	-1.06E-01	-5.03E-06	-1.99E-01	-5.37E-06
242	373069	756437	Offsite Worker	-3.66E+00	-7.79E-03	-2.15E+00	-8.62E-01	-1.45E+00	-1.12E-03	-1.06E+01	-1.93E-01	-1.59E+00	-5.67E-05	1.94E-02	1.49E-06	-2.71E-01	-1.29E-05	-5.45E-01	-1.47E-05
243	373168	756437	Offsite Worker	-2.74E+00	-5.82E-03	-1.62E+00	-6.46E-01	-1.09E+00	-8.36E-04	-7.95E+00	-1.45E-01	-1.19E+00	-4.25E-05	1.67E-02	1.29E-06	-2.03E-01	-9.68E-06	-4.07E-01	-1.10E-05
244	373267	756437	Offsite Worker	-2.21E+00	-4.71E-03	-1.31E+00	-5.24E-01	-8.79E-01	-6.76E-04	-6.44E+00	-1.17E-01	-9.65E-01	-3.45E-05	1.47E-02	1.13E-06	-1.65E-01	-7.84E-06	-3.29E-01	-8.88E-06
245	373412	756437	Offsite Worker	-1.62E+00	-3.45E-03	-9.65E-01	-3.86E-01	-6.46E-01	-4.97E-04	-4.73E+00	-8.60E-02	-7.11E-01	-2.54E-05	1.24E-02	9.55E-07	-1.21E-01	-5.78E-06	-2.41E-01	-6.50E-06
246	373409	756339	Offsite Worker	1.15E+00	2.45E-03	6.26E-01	2.50E-01	4.46E-01	3.43E-04	3.27E+00	5.94E-02	4.61E-01	1.65E-05	1.24E-02	9.55E-07	7.94E-02	3.78E-06	1.76E-01	4.77E-06
247	373406	756240	Offsite Worker	1.41E+00	3.00E-03	7.76E-01	3.10E-01	5.47E-01	4.21E-04	4.01E+00	7.29E-02	5.72E-01	2.04E-05	1.10E-02	8.46E-07	9.83E-02	4.68E-06	2.14E-01	5.79E-06
248	373403	756142	Offsite Worker	1.38E+00	2.94E-03	7.66E-01	3.06E-01	5.38E-01	4.14E-04	3.94E+00	7.16E-02	5.65E-01	2.02E-05	8.84E-03	6.80E-07	9.70E-02	4.62E-06	2.10E-01	5.67E-06
249	373400	756042	Offsite Worker	1.19E+00	2.54E-03	6.56E-01	2.62E-01	4.63E-01	3.56E-04	3.39E+00	6.17E-02	4.84E-01	1.73E-05	9.64E-03	7.42E-07	8.31E-02	3.96E-06	1.82E-01	4.91E-06
250	373397	755944	Offsite Worker	-5.30E-01	-1.13E-03	-3.34E-01	-1.34E-01	-2.15E-01	-1.65E-04	-1.57E+00	-2.86E-02	-2.46E-01	-8.78E-06	1.05E-02	8.04E-07	-4.17E-02	-1.99E-06	-7.71E-02	-2.08E-06
251	373393	755846	Offsite Worker	4.69E-01	9.98E-04	2.40E-01	9.60E-02	1.78E-01	1.37E-04	1.31E+00	2.38E-02	1.77E-01	6.32E-06	1.01E-02	7.77E-07	3.07E-02	1.46E-06	7.30E-02	1.97E-06
252	373390	755747	Offsite Worker	1.88E+00	4.00E-03	1.05E+00	4.21E-01	7.34E-01	5.65E-04	5.37E+00	9.77E-02	7.75E-01	2.77E-05	8.91E-03	6.86E-07	1.33E-01	6.34E-06	2.85E-01	7.69E-06
253	373309	755744	Offsite Worker	2.24E+00	4.77E-03	1.26E+00	5.03E-01	8.76E-01	6.74E-04	6.42E+00	1.17E-01	9.28E-01	3.31E-05	9.02E-03	6.94E-07	1.59E-01	7.58E-06	3.39E-01	9.16E-06
254	373229	755743	Offsite Worker	2.60E+00	5.54E-03	1.47E+00	5.87E-01	1.02E+00	7.84E-04	7.46E+00	1.36E-01	1.08E+00	3.86E-05	9.03E-03	6.95E-07	1.85E-01	8.83E-06	3.93E-01	1.06E-05
255	373143	755741	Offsite Worker	3.02E+00	6.43E-03	1.71E+00	6.83E-01	1.18E+00	9.11E-04	8.67E+00	1.58E-01	1.26E+00	4.50E-05	8.90E-03	6.84E-07	2.16E-01	1.03E-05	4.57E-01	1.23E-05
256	373143	755823	Offsite Worker	2.08E+00	4.42E-03	1.16E+00	4.64E-01	8.11E-01	6.24E-04	5.94E+00	1.08E-01	8.55E-01	3.05E-05	1.09E-02	8.37E-07	1.47E-01	6.99E-06	3.15E-01	8.51E-06
257	373143	755906	Offsite Worker	1.99E-01	4.24E-04	7.71E-02	3.08E-02	7.06E-02	5.43E-05	5.17E-01	9.40E-03	5.71E-02	2.04E-06	1.30E-02	1.00E-06	1.02E-02	4.88E-07	3.32E-02	8.97E-07
258	373065	755906	Offsite Worker	5.96E-01	1.27E-03	3.03E-01	1.21E-01	2.26E-01	1.74E-04	1.66E+00	3.01E-02	2.24E-01	7.99E-06	1.35E-02	1.04E-06	3.88E-02	1.85E-06	9.29E-02	2.51E-06
259	373065	755827	Offsite Worker	2.50E+00	5.31E-03	1.40E+00	5.60E-01	9.76E-01	7.51E-04	7.15E+00	1.30E-01	1.03E+00	3.69E-05	1.10E-02	8.45E-07	1.77E-01	8.43E-06	3.78E-01	1.02E-05
260	373068	755733	Offsite Worker	3.43E+00	7.30E-03	1.94E+00	7.77E-01	1.35E+00	1.03E-03	9.85E+00	1.79E-01	1.43E+00	5.11E-05	9.19E-03	7.07E-07	2.45E-01	1.17E-05	5.18E-01	1.40E-05
261	373007	755733	Offsite Worker	3.74E+00	7.96E-03	2.12E+00	8.46E-01	1.47E+00	1.13E-03	1.07E+01	1.95E-01	1.56E+00	5.57E-05	1.03E-02	7.96E-07	2.67E-01	1.27E-05	5.65E-01	1.53E-05
262	372941	755733	Offsite Worker	4.09E+00	8.70E-03	2.31E+00	9.25E-01	1.60E+00	1.23E-03	1.17E+01	2.13E-01	1.70E+00	6.09E-05	1.15E-02	8.86E-07	2.92E-01	1.39E-05	6.18E-01	1.67E-05
263	372941	755636	Offsite Worker	3.55E+00	7.56E-03	2.01E+00	8.03E-01	1.39E+00	1.07E-03	1.02E+01	1.85E-01	1.48E+00	5.28E-05	1.05E-02	8.07E-07	2.54E-01	1.21E-05	5.37E-01	1.45E-05
264	372941	755539	Offsite Worker	2.90E+00	6.18E-03	1.64E+00	6.55E-01	1.14E+00	8.75E-04	8.33E+00	1.51E-01	1.21E+00	4.31E-05	9.29E-03	7.14E-07	2.07E-01	9.86E-06	4.39E-01	1.19E-05
265	372941	755442	Offsite Worker	1.54E+00	3.28E-03	8.61E-01	3.44E-01	6.02E-01	4.63E-04	4.41E+00	8.02E-02	6.34E-01	2.27E-05	8.29E-03	6.38E-07	1.09E-01	5.19E-06	2.34E-01	6.32E-06
266	372913	755342	Offsite Worker	6.19E-01	1.32E-03	3.34E-01	1.34E-01	2.39E-01	1.84E-04	1.75E+00	3.18E-02	2.46E-01	8.79E-06	7.25E-03	5.58E-07	4.24E-02	2.02E-06	9.48E-02	2.56E-06
267	372817	755346	Offsite Worker	7.33E-01	1.56E-03	3.97E-01	1.59E-01	2.83E-01	2.18E-04	2.08E+00	3.77E-02	2.92E-01	1.04E-05	8.31E-03	6.39E-07	5.04E-02	2.40E-06	1.12E-01	3.03E-06
268	372720	755349	Offsite Worker	9.00E-01	1.91E-03	4.90E-01	1.96E-01	3.49E-01	2.68E-04	2.55E+00	4.64E-02	3.61E-01	1.29E-05	8.97E-03	6.90E-07	6.22E-02	2.96E-06	1.37E-01	3.71E-06
269	372624	755352	Offsite Worker	1.12E+00	2.37E-03	6.14E-01	2.46E-01	4.34E-01	3.34E-04	3.18E+00	5.78E-02	4.53E-01	1.62E-05	9.03E-03	6.95E-07	7.78E-02	3.71E-06	1.70E-01	4.59E-06
270	372527	755349	Offsite Worker	1.44E+00	3.07E-03	8.02E-01	3.21E-01	5.63E-01	4.33E-04	4.12E+00	7.50E-02	5.92E-01	2.11E-05	9.00E-03	6.92E-07	1.02E-01	4.84E-06	2.19E-01	5.93E-06
271	372431	755353	Offsite Worker	1.80E+00	3.83E-03	1.00E+00	4.01E-01	7.02E-01	5.40E-04	5.14E+00	9.35E-02	7.40E-01	2.64E-05	9.51E-03	7.32E-07	1.27E-01	6.05E-06	2.73E-01	7.37E-06
272	372334	755356	Offsite Worker	2.22E+00	4.72E-03	1.24E+00	4.98E-01	8.67E-01	6.67E-04	6.35E+00	1.15E-01	9.17E-01	3.28E-05	9.93E-03	7.64E-07	1.57E-01	7.49E-06	3.36E-01	9.08E-06
273	372237	755359	Offsite Worker	2.69E+00	5.72E-03	1.51E+00	6.05E-01	1.05E+00	8.09E-04	7.70E+00	1.40E-01	1.12E+00	3.98E-05	9.47E-03	7.29E-07	1.91E-01	9.11E-06	4.06E-01	1.10E-05
274	372141	755362	Offsite Worker	1.97E+00	4.20E-03	1.10E+00	4.41E-01	7.70E-01	5.93E-04	5.64E+00	1.03E-01	8.13E-01	2.90E-05	9.71E-03	7.47E-07	1.40E-01	6.65E-06	2.99E-01	8.08E-06
275	372044	755366	Offsite Worker	-2.85E-01	-6.06E-04	-1.91E-01	-7.66E-02	-1.18E-01	-9.08E-05	-8.64E-01	-1.57E-02	-1.41E-01	-5.03E-06	9.87E-03	7.59E-07	-2.38E-02	-1.13E-06	-4.03E-02	-1.09E-06
276	371948	755369	Offsite Worker	1.37E+00	2.90E-03	7.54E-01	3.02E-01	5.31E-01	4.09E-04	3.89E+00	7.07E-02	5.56E-01	1.99E-05	9.85E-03	7.58E-07	9.56E-02	4.55E-06	2.08E-01	5.61E-06
277	371851	755372	Offsite Worker	1.20E+00	2.54E-03	6.55E-01	2.62E-01	4.64E-01	3.57E-04	3.40E+00	6.18E-02	4.83E-01	1.73E-05	1.05E-02	8.05E-07	8.31E-02	3.96E-06	1.82E-01	4.93E-06
278	371755	755375	Offsite Worker	2.21E+00	4.70E-03	1.24E+00	4.94E-01	8.63E-01	6.63E-04	6.32E+00	1.15E-01	9.11E-01	3.25E-05	1.07E-02	8.27E-07	1.56E-01	7.44E-06	3.35E-01	9.04E-06
279	371658	755378	Offsite Worker	3.98E+00	8.47E-03	2.25E+00	9.01E-01	1.56E+00	1.20E-03	1.14E+01	2.08E-01	1.66E+00	5.93E-05	1.03E-02	7.89E-07	2.85E-01	1.36E-05	6.01E-01	1.62E-05
280	371562	755382	Offsite Worker	4.15E+00	8.82E-03	2.35E+00	9.40E-01	1.63E+00	1.25E-03	1.19E+01	2.16E-01	1.73E+00	6.18E-05	9.67E-03	7.44E-07	2.97E-01	1.41E-05	6.25E-01	1.69E-05
281	371465	755385	Offsite Worker	4.28E+00	9.12E-03	2.43E+00	9.72E-01	1.68E+00	1.29E-03	1.23E+01	2.24E-01	1.79E+00	6.40E-05	9.04E-03	6.96E-07	3.07E-01	1.46E-05	6.46E-01	1.75E-05
282	371368	755388	Offsite Worker	4.26E+00	9.07E-03	2.42E+00	9.67E-01	1.67E+00	1.29E-03	1.22E+01	2.23E-01	1.78E+00	6.37E-05	9.08E-03	6.99E-07	3.05E-01	1.45E-05	6.43E-01	1.74E-05
283	371272	755391	Offsite Worker	4.42E+00	9.41E-03	2.51E+00	1.00E+00	1.74E+00	1.33E-03	1.27E+01	2.31E-01	1.85E+00	6.61E-05	9.13E-03	7.03E-07	3.17E-01	1.51E-05	6.67E-01	1.80E-05
284	371175	755395	Offsite Worker	4.93E+00	1.05E-02	2.80E+00	1.12E+00	1.93E+00	1.49E-03	1.42E+01	2.57E-01	2.06E+00	7.37E-05	9.21E-03	7.09E-07	3.53E-01	1.68E-05	7.43E-01	2.01E-05
285	371079	755398	Offsite Worker	5.00E+00	1.06E-02	2.84E+00	1.14E+00	1.96E+00	1.51E-03	1.44E+01	2.61E-01	2.09E+00	7.47E-05	9.29E-03	7.14E-07	3.58E-01	1.71E-05	7.53E-01	2.04E-05
286	371042	755478	Offsite Worker	5.51E+00	1.17E-02	3.13E+00	1.25E+00	2.16E+00	1.66E-03	1.58E+01	2.88E-01	2.31E+00	8.23E-05	1.03E-02	7.96E-07	3.95E-01	1.88E-05	8.30E-01	2.24E-05
287	371009	755538	Offsite Worker	5.65E+00	1.20E-02	3.20E+00	1.28E+00	2.21E+00	1.70E-03	1.62E+01	2.95E-01	2.36E+00	8.44E-05	1.13E-02	8.70E-07	4.05E-01	1.93E-05	8.51E-01	2.30E-05
288	370975	755597	Offsite Worker	6.78E+00	1.44E-02	3.85E+00	1.54E+00	2.66E+00	2.05E-03	1.95E+01	3.54E-01	2.84E+00	1.01E-04	1.24E-02	9.57E-07	4.87E-01	2.32E-05	1.02E+00	2.76E-05
289	370925	755597	Offsite Worker	6.64E+00	1.41E-02	3.77E+00	1.51E+00	2.61E+00	2.01E-03	1.91E+01	3.47E-01	2.78E+00	9.93E-05	1.25E-02	9.65E-07	4.77E-01	2.27E-05	1.00E+00	2.71E-05
290	370860	755547	Offsite Worker	6.38E+00	1.36E-02	3.63E+00	1.45E+00	2.50E+00	1.93E-03	1.83E+01	3.34E-01	2.67E+00	9.55E-05	1.17E-02	8.96E-07	4.58E-01	2.18E-05	9.62E-01	2.60E-05
291	370796	755497	Offsite Worker	5.61E+00	1.19E-02	3.19E+00	1.27E+00	2.20E+00	1.69E-03	1.61E+01	2.93E-01	2.35E+00	8.39E-05	1.08E-02	8.32E-07	4.03E-01	1.92E-05	8.46E-01	2.29E-05

Table 2-3
Summary of Incremental Acute Hazard Concentrations and Hazard Indices

Receptor Number	X	Y	Receptor Type	acetaldehyde (µg/m^3)	acetaldehyde Acute Hazard	acrolein (µg/m^3)	acrolein Acute Hazard	benzene (µg/m^3)	benzene Acute Hazard	formaldehyde (µg/m^3)	formaldehyde Acute Hazard	methyl alcohol (µg/m^3)	methyl alcohol Acute Hazard	methyl ethyl ketone (µg/m^3)	methyl ethyl ketone Acute Hazard	styrene (µg/m^3)	styrene Acute Hazard	toluene (µg/m^3)	toluene Acute Hazard
			CalEPA Acute REL		470		2.5		1300		55		28000		13000		21000		37000
292	370733	755428	Offsite Worker	4.00E+00	8.51E-03	2.27E+00	9.06E-01	1.57E+00	1.21E-03	1.15E+01	2.09E-01	1.67E+00	5.97E-05	9.77E-03	7.52E-07	2.86E-01	1.36E-05	6.04E-01	1.63E-05
293	370634	755428	Offsite Worker	4.34E+00	9.24E-03	2.46E+00	9.85E-01	1.70E+00	1.31E-03	1.25E+01	2.27E-01	1.81E+00	6.48E-05	9.73E-03	7.49E-07	3.11E-01	1.48E-05	6.55E-01	1.77E-05
294	370536	755428	Offsite Worker	6.42E+00	1.37E-02	3.65E+00	1.46E+00	2.52E+00	1.94E-03	1.85E+01	3.36E-01	2.69E+00	9.62E-05	9.64E-03	7.41E-07	4.61E-01	2.20E-05	9.68E-01	2.62E-05
295	370437	755428	Offsite Worker	8.84E+00	1.88E-02	5.04E+00	2.02E+00	3.47E+00	2.67E-03	2.54E+01	4.63E-01	3.72E+00	1.33E-04	9.48E-03	7.29E-07	6.37E-01	3.03E-05	1.33E+00	3.60E-05
296	370338	755427	Offsite Worker	6.54E+00	1.39E-02	3.72E+00	1.49E+00	2.57E+00	1.97E-03	1.88E+01	3.42E-01	2.74E+00	9.80E-05	9.23E-03	7.10E-07	4.70E-01	2.24E-05	9.85E-01	2.66E-05
307	369249	755442	Offsite Worker	7.47E+00	1.59E-02	4.24E+00	1.70E+00	2.93E+00	2.25E-03	2.15E+01	3.90E-01	3.12E+00	1.12E-04	1.50E-02	1.15E-06	5.35E-01	2.55E-05	1.13E+00	3.04E-05
308	369151	755442	Offsite Worker	5.87E+00	1.25E-02	3.32E+00	1.33E+00	2.30E+00	1.77E-03	1.68E+01	3.06E-01	2.44E+00	8.73E-05	1.84E-02	1.42E-06	4.19E-01	2.00E-05	8.87E-01	2.40E-05
309	369052	755442	Offsite Worker	4.66E+00	9.92E-03	2.61E+00	1.05E+00	1.82E+00	1.40E-03	1.33E+01	2.43E-01	1.93E+00	6.88E-05	2.14E-02	1.64E-06	3.31E-01	1.57E-05	7.06E-01	1.91E-05
320	368035	755402	Offsite Worker	2.17E+00	4.61E-03	1.19E+00	4.76E-01	8.42E-01	6.48E-04	6.17E+00	1.12E-01	8.78E-01	3.14E-05	1.85E-02	1.42E-06	1.51E-01	7.19E-06	3.31E-01	8.93E-06
321	367960	755389	Offsite Worker	1.88E+00	4.01E-03	1.03E+00	4.12E-01	7.31E-01	5.62E-04	5.35E+00	9.73E-02	7.59E-01	2.71E-05	1.80E-02	1.39E-06	1.31E-01	6.22E-06	2.88E-01	7.78E-06
322	367863	755390	Offsite Worker	1.54E+00	3.28E-03	8.43E-01	3.37E-01	5.98E-01	4.60E-04	4.38E+00	7.96E-02	6.21E-01	2.22E-05	1.45E-02	1.12E-06	1.07E-01	5.09E-06	2.35E-01	6.36E-06
323	367766	755392	Offsite Worker	1.27E+00	2.71E-03	7.04E-01	2.81E-01	4.95E-01	3.81E-04	3.63E+00	6.59E-02	5.19E-01	1.85E-05	8.96E-03	6.89E-07	8.91E-02	4.24E-06	1.93E-01	5.23E-06
324	367669	755393	Offsite Worker	1.10E+00	2.33E-03	6.07E-01	2.43E-01	4.27E-01	3.28E-04	3.13E+00	5.69E-02	4.47E-01	1.60E-05	7.82E-03	6.01E-07	7.69E-02	3.66E-06	1.67E-01	4.51E-06
325	367572	755394	Offsite Worker	9.93E-01	2.11E-03	5.49E-01	2.20E-01	3.86E-01	2.97E-04	2.83E+00	5.15E-02	4.05E-01	1.45E-05	6.87E-03	5.28E-07	6.96E-02	3.31E-06	1.51E-01	4.08E-06
326	367475	755395	Offsite Worker	9.52E-01	2.03E-03	5.28E-01	2.11E-01	3.71E-01	2.85E-04	2.72E+00	4.94E-02	3.90E-01	1.39E-05	6.08E-03	4.67E-07	6.69E-02	3.19E-06	1.45E-01	3.91E-06
327	370400	756850	On-Site Occupational	2.00E+00	4.25E-03	1.12E+00	4.47E-01	7.79E-01	6.00E-04	5.71E+00	1.04E-01	8.23E-01	2.94E-05	9.39E-03	7.22E-07	1.41E-01	6.73E-06	3.02E-01	8.17E-06
328	368758	756094	On-Site Occupational	5.65E-01	1.20E-03	0.00E+00	0.00E+00	1.54E-01	1.18E-04	1.13E+00	2.06E-02	2.30E-03	8.23E-08	1.13E-01	8.73E-06	4.46E-03	2.12E-07	1.13E-01	3.058E-06
329	372284	756445	On-Site Occupational	6.61E-01	1.41E-03	0.00E+00	0.00E+00	1.80E-01	1.38E-04	1.32E+00	2.41E-02	2.70E-03	9.63E-08	1.33E-01	1.02E-05	5.21E-03	2.48E-07	1.32E-01	3.579E-06
330	371472	756387	On-Site Occupational	1.82E-01	3.88E-04	0.00E+00	0.00E+00	4.96E-02	3.82E-05	3.65E-01	6.63E-03	7.44E-04	2.66E-08	3.66E-02	2.82E-06	1.44E-03	6.85E-08	3.65E-02	9.871E-07
331	372340	756220	On-Site Occupational	4.27E+00	9.08E-03	1.97E+00	7.90E-01	1.58E+00	1.21E-03	1.16E+01	2.10E-01	1.46E+00	5.21E-05	1.65E-01	1.27E-05	2.56E-01	1.22E-05	6.82E-01	1.845E-05
332	368310	755876	On-Site Occupational	1.69E+00	3.60E-03	1.17E-01	4.68E-02	4.85E-01	3.73E-04	3.56E+00	6.48E-02	9.22E-02	3.29E-06	2.99E-01	2.30E-05	2.65E-02	1.26E-06	3.29E-01	8.884E-06
333	372383	756712	On-Site Occupational	1.67E-01	3.56E-04	0.00E+00	0.00E+00	4.56E-02	3.51E-05	3.35E-01	6.09E-03	6.83E-04	2.44E-08	3.36E-02	2.59E-06	1.32E-03	6.29E-08	3.35E-02	9.065E-07
334	369876	756398	On-Site Occupational	6.26E-02	1.33E-04	0.00E+00	0.00E+00	1.70E-02	1.31E-05	1.25E-01	2.28E-03	2.55E-04	9.12E-09	1.26E-02	9.67E-07	4.94E-04	2.35E-08	1.25E-02	3.389E-07
335	370477	755934	On-Site Occupational	1.70E-01	3.61E-04	0.00E+00	0.00E+00	4.62E-02	3.55E-05	3.40E-01	6.18E-03	6.93E-04	2.47E-08	3.41E-02	2.62E-06	1.34E-03	6.38E-08	3.40E-02	9.193E-07
1	367379	755396	Recreational	9.53E-01	2.03E-03	5.31E-01	2.12E-01	3.72E-01	2.86E-04	2.72E+00	4.95E-02	3.92E-01	1.40E-05	5.43E-03	4.18E-07	6.72E-02	3.20E-06	1.45E-01	3.91E-06
2	367340	755485	Recreational	1.07E+00	2.28E-03	5.98E-01	2.39E-01	4.18E-01	3.22E-04	3.06E+00	5.57E-02	4.41E-01	1.58E-05	5.40E-03	4.15E-07	7.57E-02	3.60E-06	1.62E-01	4.38E-06
3	367301	755573	Recreational	1.11E+00	2.37E-03	6.22E-01	2.49E-01	4.35E-01	3.34E-04	3.18E+00	5.79E-02	4.58E-01	1.64E-05	5.85E-03	4.50E-07	7.87E-02	3.75E-06	1.69E-01	4.56E-06
4	367263	755661	Recreational	1.35E+00	2.86E-03	7.54E-01	3.02E-01	5.26E-01	4.04E-04	3.85E+00	7.00E-02	5.56E-01	1.99E-05	6.01E-03	4.62E-07	9.54E-02	4.54E-06	2.04E-01	5.50E-06
5	367224	755749	Recreational	5.75E-01	1.22E-03	3.13E-01	1.25E-01	2.23E-01	1.71E-04	1.63E+00	2.97E-02	2.31E-01	8.24E-06	5.83E-03	4.48E-07	3.97E-02	1.89E-06	8.79E-02	2.37E-06
6	367186	755838	Recreational	-4.38E-01	-9.31E-04	-2.66E-01	-1.06E-01	-1.75E-01	-1.35E-04	-1.28E+00	-2.34E-02	-1.96E-01	-7.00E-06	5.36E-03	4.12E-07	-3.34E-02	-1.59E-06	-6.44E-02	-1.74E-06
7	367147	755926	Recreational	-1.27E+00	-2.71E-03	-7.43E-01	-2.97E-01	-5.03E-01	-3.87E-04	-3.69E+00	-6.70E-02	-5.47E-01	-1.95E-05	4.71E-03	3.63E-07	-9.35E-02	-4.45E-06	-1.90E-01	-5.13E-06
8	367109	756014	Recreational	-6.92E-01	-1.47E-03	-4.10E-01	-1.64E-01	-2.75E-01	-2.12E-04	-2.01E+00	-3.66E-02	-3.02E-01	-1.08E-05	4.45E-03	3.42E-07	-5.15E-02	-2.45E-06	-1.03E-01	-2.78E-06
9	367070	756103	Recreational	-2.27E+00	-4.82E-03	-1.31E+00	-5.24E-01	-8.94E-01	-6.88E-04	-6.55E+00	-1.19E-01	-9.66E-01	-3.45E-05	4.26E-03	3.27E-07	-1.65E-01	-7.87E-06	-3.39E-01	-9.17E-06
10	367032	756191	Recreational	-1.94E+00	-4.12E-03	-1.12E+00	-4.48E-01	-7.64E-01	-5.88E-04	-5.59E+00	-1.02E-01	-8.26E-01	-2.95E-05	4.00E-03	3.08E-07	-1.41E-01	-6.73E-06	-2.90E-01	-7.83E-06
11	366993	756279	Recreational	-9.46E-01	-2.01E-03	-5.54E-01	-2.22E-01	-3.75E-01	-2.88E-04	-2.74E+00	-4.99E-02	-4.08E-01	-1.46E-05	4.05E-03	3.12E-07	-6.97E-02	-3.32E-06	-1.41E-01	-3.82E-06
12	366954	756367	Recreational	-4.53E-01	-9.63E-04	-2.71E-01	-1.08E-01	-1.80E-01	-1.39E-04	-1.32E+00	-2.40E-02	-1.99E-01	-7.12E-06	3.92E-03	3.02E-07	-3.40E-02	-1.62E-06	-6.70E-02	-1.81E-06
13	366916	756456	Recreational	1.91E-01	4.06E-04	9.93E-02	3.97E-02	7.29E-02	5.61E-05	5.34E-01	9.71E-03	7.32E-02	2.62E-06	3.52E-03	2.71E-07	1.27E-02	6.03E-07	2.95E-02	7.98E-07
14	366877	756544	Recreational	6.21E-01	1.32E-03	3.47E-01	1.39E-01	2.42E-01	1.86E-04	1.78E+00	3.23E-02	2.56E-01	9.13E-06	3.17E-03	2.44E-07	4.39E-02	2.09E-06	9.41E-02	2.54E-06
15	366839	756632	Recreational	1.29E+00	2.75E-03	7.34E-01	2.93E-01	5.08E-01	3.90E-04	3.72E+00	6.76E-02	5.41E-01	1.93E-05	2.99E-03	2.30E-07	9.27E-02	4.41E-06	1.95E-01	5.28E-06
16	366800	756720	Recreational	1.56E+00	3.32E-03	8.86E-01	3.54E-01	6.12E-01	4.71E-04	4.48E+00	8.15E-02	6.53E-01	2.33E-05	2.82E-03	2.17E-07	1.12E-01	5.33E-06	2.35E-01	6.35E-06
17	366762	756809	Recreational	4.69E-01	9.98E-04	2.61E-01	1.04E-01	1.83E-01	1.41E-04	1.34E+00	2.44E-02	1.93E-01	6.88E-06	2.67E-03	2.05E-07	3.31E-02	1.57E-06	7.11E-02	1.92E-06
18	366723	756897	Recreational	4.88E-01	1.04E-03	2.73E-01	1.09E-01	1.90E-01	1.47E-04	1.40E+00	2.54E-02	2.01E-01	7.18E-06	2.52E-03	1.94E-07	3.45E-02	1.64E-06	7.40E-02	2.00E-06
19	366685	756985	Recreational	5.88E-01	1.25E-03	3.30E-01	1.32E-01	2.30E-01	1.77E-04	1.68E+00	3.06E-02	2.43E-01	8.69E-06	2.39E-03	1.84E-07	4.17E-02	1.99E-06	8.89E-02	2.40E-06
20	366646	757074	Recreational	3.21E-01	6.82E-04	1.77E-01	7.09E-02	1.25E-01	9.60E-05	9.14E-01	1.66E-02	1.31E-01	4.67E-06	2.26E-03	1.74E-07	2.25E-02	1.07E-06	4.87E-02	1.32E-06
21	366607	757162	Recreational	-1.92E-01	-4.08E-04	-1.16E-01	-4.64E-02	-7.67E-02	-5.90E-05	-5.62E-01	-1.02E-02	-8.55E-02	-3.05E-06	2.14E-03	1.65E-07	-1.46E-02	-6.93E-07	-2.83E-02	-7.64E-07
22	366569	757250	Recreational	-2.76E-01	-5.88E-04	-1.64E-01	-6.57E-02	-1.10E-01	-8.46E-05	-8.06E-01	-1.46E-02	-1.21E-01	-4.32E-06	2.03E-03	1.56E-07	-2.06E-02	-9.83E-07	-4.10E-02	-1.11E-06
23	366530	757338	Recreational	-9.32E-02	-1.98E-04	-5.90E-02	-2.36E-02	-3.79E-02	-2.91E-05	-2.77E-01	-5.04E-03	-4.34E-02	-1.55E-06	1.93E-03	1.49E-07	-7.36E-03	-3.51E-07	-1.35E-02	-3.66E-07
24	366492	757427	Recreational	-8.79E-01	-1.87E-03	-5.09E-01	-2.04E-01	-3.47E-01	-2.67E-04	-2.54E+00	-4.62E-02	-3.75E-01	-1.34E-05	1.84E-03	1.42E-07	-6.42E-02	-3.06E-06	-1.32E-01	-3.56E-06
25	366453	757515	Recreational	-1.45E+00	-3.09E-03	-8.38E-01	-3.35E-01	-5.73E-01	-4.40E-04	-4.19E+00	-7.62E-02	-6.17E-01	-2.20E-05	1.75E-03	1.35E-07	-1.06E-01	-5.03E-06	-2.18E-01	-5.89E-06
26	366415	757603	Recreational	-4.50E-01	-9.57E-04	-2.63E-01	-1.05E-01	-1.78E-01	-1.37E-04	-1.30E+00	-2.37E-02	-1.93E-01	-6.91E-06	1.67E-03	1.29E-07	-3.31E-02	-1.57E-06	-6.72E-02	-1.82E-06
27	366376	757692	Recreational	-2.56E-01	-5.45E-04	-1.52E-01	-6.07E-02	-1.02E-01	-7.83E-05	-7.46E-01	-1.36E-02	-1.12E-01	-3.99E-06	1.67E-03	1.29E-07	-1.91E-02	-9.08E-07	-3.81E-02	-1.03E-06
84	369336	758100	Recreational	3.78E-01	8.03E-04	2.05E-01	8.21E-02	1.46E-01	1.12E-04	1.07E+00	1.95E-02	1.51E-01	5.41E-06	3.92E-03	3.01E-07	2.61E-02	1.24E-06	5.77E-02	1.56E-06
85	369269	758170	Recreational	8.07E-01	1.72E-03	4.52E-01	1.81E-01	3.15E-01	2.43E-04	2.31E+00	4.20E-02	3.33E-01	1.19E-05	3.86E-03	2.97E-07	5.72E-02	2.72E-06	1.22E-01	3.31E-06

Table 2-3

Summary of Incremental Acute Hazard Concentrations and Hazard Indices

Receptor Number	X	Y	Receptor Type	acetaldehyde (µg/m^3)	acetaldehyde Acute Hazard	acrolein (µg/m^3)	acrolein Acute Hazard	benzene (µg/m^3)	benzene Acute Hazard	formaldehyde (µg/m^3)	formaldehyde Acute Hazard	methyl alcohol (µg/m^3)	methyl alcohol Acute Hazard	methyl ethyl ketone (µg/m^3)	methyl ethyl ketone Acute Hazard	styrene (µg/m^3)	styrene Acute Hazard	toluene (µg/m^3)	toluene Acute Hazard
			CalEPA Acute REL		470		2.5		1300		55		28000		13000		21000		37000
86	369202	758239	Recreational	8.87E-01	1.89E-03	4.98E-01	1.99E-01	3.47E-01	2.67E-04	2.54E+00	4.62E-02	3.67E-01	1.31E-05	3.71E-03	2.85E-07	6.29E-02	3.00E-06	1.34E-01	3.63E-06
87	369264	758285	Recreational	7.14E-01	1.52E-03	3.99E-01	1.60E-01	2.79E-01	2.15E-04	2.04E+00	3.71E-02	2.94E-01	1.05E-05	3.62E-03	2.79E-07	5.05E-02	2.40E-06	1.08E-01	2.93E-06
88	369326	758330	Recreational	5.83E-01	1.24E-03	3.24E-01	1.30E-01	2.27E-01	1.75E-04	1.66E+00	3.03E-02	2.39E-01	8.53E-06	3.51E-03	2.70E-07	4.10E-02	1.95E-06	8.85E-02	2.39E-06
89	369389	758376	Recreational	2.40E+00	5.10E-03	1.37E+00	5.46E-01	9.42E-01	7.25E-04	6.90E+00	1.25E-01	1.01E+00	3.59E-05	3.39E-03	2.61E-07	1.72E-01	8.21E-06	3.61E-01	9.77E-06
90	369389	758462	Recreational	2.28E+00	4.86E-03	1.30E+00	5.20E-01	8.96E-01	6.90E-04	6.56E+00	1.19E-01	9.58E-01	3.42E-05	3.26E-03	2.50E-07	1.64E-01	7.81E-06	3.44E-01	9.30E-06
91	369389	758548	Recreational	2.18E+00	4.64E-03	1.24E+00	4.96E-01	8.56E-01	6.59E-04	6.27E+00	1.14E-01	9.15E-01	3.27E-05	3.13E-03	2.41E-07	1.57E-01	7.46E-06	3.29E-01	8.88E-06
28	366338	757780	Residential	-1.24E-01	-2.63E-04	-7.57E-02	-3.03E-02	-4.97E-02	-3.82E-05	-3.64E-01	-6.61E-03	-5.58E-02	-1.99E-06	1.68E-03	1.30E-07	-9.49E-03	-4.52E-07	-1.82E-02	-4.91E-07
29	366402	757746	Residential	-1.37E-01	-2.91E-04	-8.34E-02	-3.34E-02	-5.48E-02	-4.22E-05	-4.02E-01	-7.30E-03	-6.15E-02	-2.19E-06	1.79E-03	1.38E-07	-1.05E-02	-4.98E-07	-2.01E-02	-5.43E-07
30	366467	757713	Residential	-1.53E-01	-3.25E-04	-9.30E-02	-3.72E-02	-6.13E-02	-4.71E-05	-4.48E-01	-8.15E-03	-6.85E-02	-2.45E-06	1.90E-03	1.46E-07	-1.17E-02	-5.55E-07	-2.25E-02	-6.08E-07
31	366531	757679	Residential	-1.77E-01	-3.77E-04	-1.07E-01	-4.30E-02	-7.10E-02	-5.46E-05	-5.20E-01	-9.45E-03	-7.91E-02	-2.83E-06	2.03E-03	1.56E-07	-1.35E-02	-6.42E-07	-2.61E-02	-7.07E-07
32	366567	757773	Residential	-6.78E-03	-1.44E-05	-1.02E-02	-4.07E-03	-4.00E-03	-3.08E-06	-2.92E-02	-5.31E-04	-7.45E-03	-2.66E-07	2.20E-03	1.69E-07	-1.20E-03	-5.70E-08	-4.72E-04	-1.28E-08
33	366625	757758	Residential	1.19E-02	2.54E-05	1.98E-04	7.92E-05	3.29E-03	2.53E-06	2.42E-02	4.40E-04	1.93E-04	6.90E-09	2.33E-03	1.79E-07	1.16E-04	5.54E-09	2.37E-03	6.42E-08
34	366682	757744	Residential	3.23E-02	6.88E-05	1.15E-02	4.60E-03	1.12E-02	8.64E-06	8.23E-02	1.50E-03	8.52E-03	3.04E-07	2.46E-03	1.89E-07	1.55E-03	7.37E-08	5.47E-03	1.48E-07
35	366768	757788	Residential	-8.02E-02	-1.71E-04	-5.36E-02	-2.15E-02	-3.32E-02	-2.55E-05	-2.43E-01	-4.41E-03	-3.95E-02	-1.41E-06	2.69E-03	2.07E-07	-6.66E-03	-3.17E-07	-1.14E-02	-3.08E-07
36	366854	757833	Residential	2.79E-01	5.95E-04	1.52E-01	6.08E-02	1.08E-01	8.33E-05	7.93E-01	1.44E-02	1.12E-01	4.00E-06	2.86E-03	2.20E-07	1.93E-02	9.19E-07	4.27E-02	1.15E-06
37	366941	757877	Residential	7.46E-01	1.59E-03	4.19E-01	1.68E-01	2.92E-01	2.24E-04	2.14E+00	3.88E-02	3.09E-01	1.10E-05	2.98E-03	2.29E-07	5.30E-02	2.52E-06	1.13E-01	3.05E-06
38	367027	757922	Residential	1.18E+00	2.52E-03	6.71E-01	2.68E-01	4.64E-01	3.57E-04	3.40E+00	6.18E-02	4.94E-01	1.77E-05	3.02E-03	2.32E-07	8.47E-02	4.03E-06	1.79E-01	4.83E-06
39	367113	757966	Residential	1.45E+00	3.08E-03	8.22E-01	3.29E-01	5.68E-01	4.37E-04	4.16E+00	7.57E-02	6.06E-01	2.16E-05	2.98E-03	2.30E-07	1.04E-01	4.94E-06	2.18E-01	5.90E-06
40	367192	757916	Residential	1.44E+00	3.07E-03	8.19E-01	3.28E-01	5.66E-01	4.36E-04	4.15E+00	7.54E-02	6.04E-01	2.16E-05	3.09E-03	2.38E-07	1.03E-01	4.93E-06	2.18E-01	5.89E-06
41	367264	757916	Residential	1.52E+00	3.24E-03	8.64E-01	3.46E-01	5.98E-01	4.60E-04	4.38E+00	7.96E-02	6.37E-01	2.28E-05	3.06E-03	2.36E-07	1.09E-01	5.20E-06	2.30E-01	6.21E-06
42	367335	757916	Residential	1.57E+00	3.34E-03	8.92E-01	3.57E-01	6.16E-01	4.74E-04	4.51E+00	8.20E-02	6.57E-01	2.35E-05	3.00E-03	2.31E-07	1.13E-01	5.36E-06	2.37E-01	6.40E-06
43	367343	757966	Residential	3.07E-01	6.54E-04	1.68E-01	6.72E-02	1.19E-01	9.16E-05	8.73E-01	1.59E-02	1.24E-01	4.42E-06	2.86E-03	2.20E-07	2.13E-02	1.01E-06	4.69E-02	1.27E-06
44	367404	757995	Residential	2.76E+00	5.88E-03	1.58E+00	6.30E-01	1.09E+00	8.35E-04	7.95E+00	1.44E-01	1.16E+00	4.15E-05	2.69E-03	2.07E-07	1.99E-01	9.47E-06	4.16E-01	1.12E-05
45	367465	758024	Residential	3.00E+00	6.38E-03	1.71E+00	6.85E-01	1.18E+00	9.07E-04	8.63E+00	1.57E-01	1.26E+00	4.51E-05	2.50E-03	1.93E-07	2.16E-01	1.03E-05	4.51E-01	1.22E-05
55	367673	758189	Residential	1.28E+00	2.73E-03	7.30E-01	2.92E-01	5.04E-01	3.87E-04	3.69E+00	6.71E-02	5.38E-01	1.92E-05	2.06E-03	1.58E-07	9.22E-02	4.39E-06	1.93E-01	5.23E-06
59	367816	758096	Residential	1.29E+00	2.74E-03	7.32E-01	2.93E-01	5.05E-01	3.89E-04	3.70E+00	6.73E-02	5.39E-01	1.93E-05	2.25E-03	1.73E-07	9.24E-02	4.40E-06	1.94E-01	5.25E-06
60	367898	758066	Residential	1.07E+00	2.29E-03	6.09E-01	2.44E-01	4.21E-01	3.24E-04	3.09E+00	5.61E-02	4.49E-01	1.60E-05	2.34E-03	1.80E-07	7.70E-02	3.66E-06	1.62E-01	4.38E-06
61	367980	758035	Residential	8.71E-01	1.85E-03	4.93E-01	1.97E-01	3.41E-01	2.63E-04	2.50E+00	4.55E-02	3.63E-01	1.30E-05	2.43E-03	1.87E-07	6.22E-02	2.96E-06	1.32E-01	3.56E-06
62	368062	758005	Residential	1.01E+00	2.14E-03	5.70E-01	2.28E-01	3.95E-01	3.04E-04	2.89E+00	5.26E-02	4.20E-01	1.50E-05	2.53E-03	1.94E-07	7.20E-02	3.43E-06	1.52E-01	4.11E-06
63	368144	757975	Residential	1.84E+00	3.91E-03	1.05E+00	4.18E-01	7.22E-01	5.55E-04	5.28E+00	9.61E-02	7.71E-01	2.75E-05	2.62E-03	2.02E-07	1.32E-01	6.29E-06	2.77E-01	7.48E-06
64	368226	757945	Residential	2.35E+00	4.99E-03	1.34E+00	5.35E-01	9.21E-01	7.09E-04	6.75E+00	1.23E-01	9.85E-01	3.52E-05	2.94E-03	2.26E-07	1.69E-01	8.04E-06	3.53E-01	9.55E-06
65	368301	757943	Residential	2.75E+00	5.86E-03	1.57E+00	6.27E-01	1.08E+00	8.32E-04	7.92E+00	1.44E-01	1.16E+00	4.13E-05	3.42E-03	2.63E-07	1.98E-01	9.43E-06	4.15E-01	1.12E-05
66	368376	757941	Residential	3.17E+00	6.75E-03	1.81E+00	7.23E-01	1.25E+00	9.58E-04	9.12E+00	1.66E-01	1.33E+00	4.76E-05	3.90E-03	3.00E-07	2.28E-01	1.09E-05	4.78E-01	1.29E-05
67	368452	757940	Residential	-7.25E-01	-1.54E-03	-4.28E-01	-1.71E-01	-2.88E-01	-2.22E-04	-2.11E+00	-3.84E-02	-3.16E-01	-1.13E-05	4.35E-03	3.34E-07	-5.39E-02	-2.57E-06	-1.08E-01	-2.92E-06
68	368527	757938	Residential	1.48E-03	3.16E-06	-1.26E-02	-5.03E-03	-2.26E-03	-1.74E-06	-1.63E-02	-2.97E-04	-9.17E-03	-3.28E-07	4.70E-03	3.62E-07	-1.40E-03	-6.67E-08	1.39E-03	3.77E-08
69	368563	757880	Residential	8.87E-02	1.89E-04	3.65E-02	1.46E-02	3.19E-02	2.45E-05	2.34E-01	4.25E-03	2.70E-02	9.65E-07	5.02E-03	3.86E-07	4.81E-03	2.29E-07	1.46E-02	3.94E-07
70	368636	757926	Residential	1.21E+00	2.57E-03	6.77E-01	2.71E-01	4.72E-01	3.63E-04	3.45E+00	6.28E-02	4.99E-01	1.78E-05	5.02E-03	3.86E-07	8.57E-02	4.08E-06	1.83E-01	4.93E-06
71	368709	757971	Residential	1.92E+00	4.09E-03	1.09E+00	4.35E-01	7.54E-01	5.80E-04	5.52E+00	1.00E-01	8.02E-01	2.86E-05	4.88E-03	3.75E-07	1.38E-01	6.55E-06	2.90E-01	7.84E-06
72	368782	758017	Residential	2.59E+00	5.51E-03	1.47E+00	5.89E-01	1.02E+00	7.82E-04	7.45E+00	1.35E-01	1.09E+00	3.88E-05	4.61E-03	3.55E-07	1.86E-01	8.85E-06	3.90E-01	1.06E-05
73	368855	758062	Residential	1.62E+00	3.44E-03	9.16E-01	3.66E-01	6.34E-01	4.88E-04	4.65E+00	8.45E-02	6.75E-01	2.41E-05	4.26E-03	3.28E-07	1.16E-01	5.51E-06	2.44E-01	6.60E-06
74	368928	758108	Residential	8.91E-01	1.90E-03	5.00E-01	2.00E-01	3.48E-01	2.68E-04	2.55E+00	4.64E-02	3.68E-01	1.32E-05	3.86E-03	2.97E-07	6.32E-02	3.01E-06	1.35E-01	3.65E-06
75	369001	758153	Residential	5.56E-01	1.18E-03	3.08E-01	1.23E-01	2.16E-01	1.67E-04	1.59E+00	2.88E-02	2.27E-01	8.11E-06	3.63E-03	2.79E-07	3.90E-02	1.86E-06	8.44E-02	2.28E-06
76	369058	758074	Residential	3.53E-01	7.50E-04	1.91E-01	7.63E-02	1.36E-01	1.05E-04	9.98E-01	1.82E-02	1.41E-01	5.02E-06	3.98E-03	3.07E-07	2.42E-02	1.15E-06	5.40E-02	1.46E-06
77	369102	758103	Residential	3.69E-01	7.84E-04	2.00E-01	8.00E-02	1.43E-01	1.10E-04	1.04E+00	1.90E-02	1.47E-01	5.27E-06	3.97E-03	3.05E-07	2.54E-02	1.21E-06	5.64E-02	1.52E-06
78	369145	758132	Residential	2.75E+00	5.85E-03	1.56E+00	6.26E-01	1.08E+00	8.30E-04	7.90E+00	1.44E-01	1.15E+00	4.12E-05	3.94E-03	3.03E-07	1.98E-01	9.41E-06	4.14E-01	1.12E-05
79	369200	758065	Residential	1.88E+00	3.99E-03	1.06E+00	4.26E-01	7.36E-01	5.66E-04	5.39E+00	9.80E-02	7.84E-01	2.80E-05	4.13E-03	3.18E-07	1.34E-01	6.40E-06	2.83E-01	7.65E-06
80	369255	757998	Residential	1.10E+00	2.33E-03	6.16E-01	2.46E-01	4.29E-01	3.30E-04	3.14E+00	5.71E-02	4.54E-01	1.62E-05	4.25E-03	3.27E-07	7.79E-02	3.71E-06	1.66E-01	4.48E-06
81	369310	757931	Residential	9.66E-01	2.06E-03	5.42E-01	2.17E-01	3.78E-01	2.90E-04	2.77E+00	5.03E-02	3.99E-01	1.43E-05	4.29E-03	3.30E-07	6.85E-02	3.26E-06	1.46E-01	3.95E-06
82	369356	757981	Residential	2.91E+00	6.18E-03	1.65E+00	6.62E-01	1.14E+00	8.78E-04	8.36E+00	1.52E-01	1.22E+00	4.35E-05	4.17E-03	3.21E-07	2.09E-01	9.95E-06	4.38E-01	1.18E-05
83	369403	758031	Residential	3.08E+00	6.55E-03	1.75E+00	7.01E-01	1.21E+00	9.30E-04	8.85E+00	1.61E-01	1.29E+00	4.62E-05	4.06E-03	3.12E-07	2.21E-01	1.05E-05	4.64E-01	1.25E-05
92	369389	758634	Residential	2.08E+00	4.43E-03	1.19E+00	4.74E-01	8.18E-01	6.29E-04	5.99E+00	1.09E-01	8.74E-01	3.12E-05	3.00E-03	2.31E-07	1.50E-01	7.13E-06	3.14E-01	8.48E-06
93	369469	758630	Residential	1.22E+00	2.59E-03	6.90E-01	2.76E-01	4.78E-01	3.67E-04	3.50E+00	6.36E-02	5.09E-01	1.82E-05	2.97E-03	2.28E-07	8.72E-02	4.15E-06	1.84E-01	4.97E-06
94	369549	758625	Residential	2.84E+00	6.04E-03	1.62E+00	6.48E-01	1.12E+00	8.59E-04	8.17E+00	1.49E-01	1.19E+00	4.27E-05	2.89E-03	2.22E-07	2.05E-01	9.74E-06	4.28E-01	1.16E-05

Table 2-3

Summary of Incremental Acute Hazard Concentrations and Hazard Indices

Receptor Number	X	Y	Receptor Type	acetaldehyde (µg/m^3)	acetaldehyde Acute Hazard	acrolein (µg/m^3)	acrolein Acute Hazard	benzene (µg/m^3)	benzene Acute Hazard	formaldehyde (µg/m^3)	formaldehyde Acute Hazard	methyl alcohol (µg/m^3)	methyl alcohol Acute Hazard	methyl ethyl ketone (µg/m^3)	methyl ethyl ketone Acute Hazard	styrene (µg/m^3)	styrene Acute Hazard	toluene (µg/m^3)	toluene Acute Hazard
			CalEPA Acute REL		470		2.5		1300		55		28000		13000		21000		37000
95	369630	758621	Residential	2.97E+00	6.31E-03	1.69E+00	6.77E-01	1.17E+00	8.97E-04	8.54E+00	1.55E-01	1.25E+00	4.46E-05	2.90E-03	2.23E-07	2.14E-01	1.02E-05	4.47E-01	1.21E-05
96	369710	758617	Residential	2.82E+00	6.01E-03	1.61E+00	6.44E-01	1.11E+00	8.53E-04	8.12E+00	1.48E-01	1.19E+00	4.24E-05	2.93E-03	2.25E-07	2.03E-01	9.68E-06	4.25E-01	1.15E-05
97	369791	758613	Residential	3.10E+00	6.59E-03	1.77E+00	7.07E-01	1.22E+00	9.36E-04	8.91E+00	1.62E-01	1.30E+00	4.65E-05	2.91E-03	2.24E-07	2.23E-01	1.06E-05	4.66E-01	1.26E-05
98	369791	758514	Residential	3.17E+00	6.75E-03	1.81E+00	7.24E-01	1.25E+00	9.59E-04	9.13E+00	1.66E-01	1.33E+00	4.77E-05	3.03E-03	2.33E-07	2.29E-01	1.09E-05	4.78E-01	1.29E-05
99	369791	758416	Residential	3.23E+00	6.88E-03	1.84E+00	7.38E-01	1.27E+00	9.77E-04	9.30E+00	1.69E-01	1.36E+00	4.86E-05	3.17E-03	2.44E-07	2.33E-01	1.11E-05	4.87E-01	1.32E-05
100	369791	758318	Residential	3.28E+00	6.98E-03	1.87E+00	7.49E-01	1.29E+00	9.92E-04	9.44E+00	1.72E-01	1.38E+00	4.93E-05	3.38E-03	2.60E-07	2.36E-01	1.13E-05	4.94E-01	1.34E-05
101	369881	758318	Residential	2.72E+00	5.78E-03	1.55E+00	6.19E-01	1.07E+00	8.21E-04	7.82E+00	1.42E-01	1.14E+00	4.08E-05	3.40E-03	2.61E-07	1.95E-01	9.31E-06	4.09E-01	1.11E-05
102	369972	758318	Residential	2.29E+00	4.87E-03	1.30E+00	5.21E-01	8.99E-01	6.92E-04	6.59E+00	1.20E-01	9.61E-01	3.43E-05	3.36E-03	2.58E-07	1.65E-01	7.84E-06	3.45E-01	9.33E-06
103	370062	758318	Residential	3.02E+00	6.43E-03	1.72E+00	6.89E-01	1.19E+00	9.13E-04	8.69E+00	1.58E-01	1.27E+00	4.54E-05	3.26E-03	2.51E-07	2.18E-01	1.04E-05	4.55E-01	1.23E-05
104	370153	758318	Residential	3.62E+00	7.71E-03	2.07E+00	8.27E-01	1.42E+00	1.09E-03	1.04E+01	1.89E-01	1.52E+00	5.44E-05	3.27E-03	2.52E-07	2.61E-01	1.24E-05	5.45E-01	1.47E-05
105	370243	758318	Residential	3.88E+00	8.25E-03	2.21E+00	8.85E-01	1.52E+00	1.17E-03	1.12E+01	2.03E-01	1.63E+00	5.82E-05	3.35E-03	2.57E-07	2.79E-01	1.33E-05	5.83E-01	1.58E-05
111	370408	758347	Residential	3.87E+00	8.23E-03	2.21E+00	8.83E-01	1.52E+00	1.17E-03	1.11E+01	2.02E-01	1.63E+00	5.81E-05	3.28E-03	2.52E-07	2.79E-01	1.33E-05	5.82E-01	1.57E-05
112	370490	758344	Residential	3.71E+00	7.89E-03	2.12E+00	8.46E-01	1.46E+00	1.12E-03	1.07E+01	1.94E-01	1.56E+00	5.57E-05	3.20E-03	2.46E-07	2.67E-01	1.27E-05	5.58E-01	1.51E-05
113	370572	758341	Residential	3.82E+00	8.13E-03	2.18E+00	8.72E-01	1.50E+00	1.15E-03	1.10E+01	2.00E-01	1.61E+00	5.74E-05	3.09E-03	2.38E-07	2.75E-01	1.31E-05	5.75E-01	1.55E-05
114	370654	758338	Residential	4.53E+00	9.64E-03	2.59E+00	1.04E+00	1.78E+00	1.37E-03	1.30E+01	2.37E-01	1.91E+00	6.81E-05	2.94E-03	2.26E-07	3.27E-01	1.56E-05	6.81E-01	1.84E-05
115	370735	758335	Residential	4.91E+00	1.05E-02	2.81E+00	1.12E+00	1.93E+00	1.49E-03	1.41E+01	2.57E-01	2.07E+00	7.39E-05	2.85E-03	2.20E-07	3.54E-01	1.69E-05	7.39E-01	2.00E-05
116	370817	758333	Residential	4.85E+00	1.03E-02	2.77E+00	1.11E+00	1.91E+00	1.47E-03	1.40E+01	2.54E-01	2.04E+00	7.29E-05	2.89E-03	2.22E-07	3.50E-01	1.67E-05	7.29E-01	1.97E-05
130	371183	758027	Residential	4.02E+00	8.55E-03	2.29E+00	9.17E-01	1.58E+00	1.21E-03	1.16E+01	2.10E-01	1.69E+00	6.04E-05	3.71E-03	2.85E-07	2.89E-01	1.38E-05	6.05E-01	1.63E-05
131	371248	758024	Residential	4.08E+00	8.69E-03	2.33E+00	9.32E-01	1.60E+00	1.23E-03	1.18E+01	2.14E-01	1.72E+00	6.13E-05	3.74E-03	2.88E-07	2.94E-01	1.40E-05	6.15E-01	1.66E-05
132	371326	758075	Residential	3.74E+00	7.96E-03	2.14E+00	8.54E-01	1.47E+00	1.13E-03	1.08E+01	1.96E-01	1.57E+00	5.62E-05	3.63E-03	2.80E-07	2.70E-01	1.28E-05	5.63E-01	1.52E-05
133	371404	758127	Residential	3.41E+00	7.25E-03	1.94E+00	7.78E-01	1.34E+00	1.03E-03	9.81E+00	1.78E-01	1.43E+00	5.12E-05	3.52E-03	2.71E-07	2.45E-01	1.17E-05	5.13E-01	1.39E-05
134	371481	758178	Residential	3.11E+00	6.61E-03	1.77E+00	7.08E-01	1.22E+00	9.39E-04	8.94E+00	1.62E-01	1.31E+00	4.66E-05	3.41E-03	2.62E-07	2.24E-01	1.06E-05	4.68E-01	1.26E-05
135	371559	758230	Residential	2.82E+00	6.01E-03	1.61E+00	6.44E-01	1.11E+00	8.54E-04	8.13E+00	1.48E-01	1.19E+00	4.24E-05	3.30E-03	2.54E-07	2.03E-01	9.68E-06	4.25E-01	1.15E-05
136	371637	758281	Residential	2.57E+00	5.47E-03	1.47E+00	5.86E-01	1.01E+00	7.77E-04	7.40E+00	1.35E-01	1.08E+00	3.86E-05	3.19E-03	2.45E-07	1.85E-01	8.81E-06	3.87E-01	1.05E-05
137	371715	758333	Residential	2.35E+00	5.00E-03	1.34E+00	5.35E-01	9.22E-01	7.10E-04	6.75E+00	1.23E-01	9.86E-01	3.52E-05	3.25E-03	2.50E-07	1.69E-01	8.04E-06	3.54E-01	9.56E-06
138	371769	758261	Residential	2.02E+00	4.29E-03	1.15E+00	4.58E-01	7.91E-01	6.09E-04	5.80E+00	1.05E-01	8.45E-01	3.02E-05	3.50E-03	2.69E-07	1.45E-01	6.89E-06	3.04E-01	8.22E-06
139	371822	758189	Residential	1.24E+00	2.63E-03	6.99E-01	2.79E-01	4.85E-01	3.73E-04	3.55E+00	6.45E-02	5.15E-01	1.84E-05	3.77E-03	2.90E-07	8.83E-02	4.21E-06	1.87E-01	5.05E-06
140	371894	758160	Residential	1.95E+00	4.15E-03	1.11E+00	4.42E-01	7.64E-01	5.88E-04	5.60E+00	1.02E-01	8.15E-01	2.91E-05	4.02E-03	3.09E-07	1.40E-01	6.65E-06	2.94E-01	7.94E-06
141	371894	758081	Residential	2.65E+00	5.65E-03	1.51E+00	6.04E-01	1.04E+00	8.01E-04	7.63E+00	1.39E-01	1.11E+00	3.97E-05	4.20E-03	3.23E-07	1.91E-01	9.08E-06	4.00E-01	1.08E-05
142	371959	758074	Residential	2.65E+00	5.63E-03	1.51E+00	6.02E-01	1.04E+00	7.99E-04	7.61E+00	1.38E-01	1.11E+00	3.96E-05	4.39E-03	3.37E-07	1.90E-01	9.05E-06	3.99E-01	1.08E-05
155	372055	757363	Residential	-1.49E-01	-3.18E-04	-1.08E-01	-4.34E-02	-6.36E-02	-4.89E-05	-4.66E-01	-8.46E-03	-7.98E-02	-2.85E-06	8.00E-03	6.15E-07	-1.34E-02	-6.37E-07	-2.05E-02	-5.53E-07
297	370239	755427	Residential	1.06E+01	2.25E-02	6.03E+00	2.41E+00	4.15E+00	3.19E-03	3.04E+01	5.53E-01	4.45E+00	1.59E-04	8.93E-03	6.87E-07	7.62E-01	3.63E-05	1.59E+00	4.30E-05
298	370138	755427	Residential	9.15E+00	1.95E-02	5.22E+00	2.09E+00	3.60E+00	2.77E-03	2.63E+01	4.79E-01	3.85E+00	1.37E-04	8.55E-03	6.58E-07	6.59E-01	3.14E-05	1.38E+00	3.72E-05
299	370040	755427	Residential	5.10E+00	1.08E-02	2.90E+00	1.16E+00	2.00E+00	1.54E-03	1.47E+01	2.66E-01	2.14E+00	7.63E-05	8.13E-03	6.26E-07	3.66E-01	1.74E-05	7.68E-01	2.08E-05
300	369941	755426	Residential	4.26E+00	9.06E-03	2.42E+00	9.68E-01	1.67E+00	1.29E-03	1.22E+01	2.22E-01	1.78E+00	6.37E-05	7.68E-03	5.91E-07	3.05E-01	1.45E-05	6.42E-01	1.73E-05
301	369842	755426	Residential	3.46E+00	7.36E-03	1.96E+00	7.84E-01	1.36E+00	1.04E-03	9.93E+00	1.81E-01	1.45E+00	5.16E-05	7.29E-03	5.61E-07	2.48E-01	1.18E-05	5.21E-01	1.41E-05
304	369544	755434	Residential	8.78E+00	1.87E-02	5.01E+00	2.00E+00	3.45E+00	2.65E-03	2.53E+01	4.59E-01	3.69E+00	1.32E-04	7.85E-03	6.04E-07	6.33E-01	3.01E-05	1.32E+00	3.57E-05
305	369445	755434	Residential	1.43E+01	3.04E-02	8.17E+00	3.27E+00	5.62E+00	4.32E-03	4.12E+01	7.48E-01	6.02E+00	2.15E-04	9.09E-03	6.99E-07	1.03E+00	4.91E-05	2.15E+00	5.81E-05
306	369346	755434	Residential	8.55E+00	1.82E-02	4.87E+00	1.95E+00	3.36E+00	2.58E-03	2.46E+01	4.47E-01	3.59E+00	1.28E-04	1.18E-02	9.10E-07	6.15E-01	2.93E-05	1.29E+00	3.48E-05
310	368953	755441	Residential	3.89E+00	8.27E-03	2.16E+00	8.65E-01	1.52E+00	1.17E-03	1.11E+01	2.02E-01	1.60E+00	5.70E-05	2.28E-02	1.75E-06	2.74E-01	1.30E-05	5.90E-01	1.59E-05
311	368854	755441	Residential	3.33E+00	7.09E-03	1.84E+00	7.38E-01	1.30E+00	9.98E-04	9.50E+00	1.73E-01	1.36E+00	4.86E-05	2.30E-02	1.77E-06	2.34E-01	1.11E-05	5.06E-01	1.37E-05
312	368755	755441	Residential	2.73E+00	5.82E-03	1.50E+00	5.99E-01	1.06E+00	8.16E-04	7.77E+00	1.41E-01	1.10E+00	3.94E-05	2.46E-02	1.89E-06	1.90E-01	9.04E-06	4.17E-01	1.13E-05
313	368657	755441	Residential	1.92E+00	4.09E-03	1.03E+00	4.11E-01	7.40E-01	5.69E-04	5.42E+00	9.86E-02	7.58E-01	2.71E-05	2.54E-02	1.96E-06	1.31E-01	6.23E-06	2.95E-01	7.97E-06
314	368558	755440	Residential	2.33E+00	4.96E-03	1.26E+00	5.03E-01	9.00E-01	6.92E-04	6.59E+00	1.20E-01	9.27E-01	3.31E-05	2.73E-02	2.10E-06	1.60E-01	7.61E-06	3.57E-01	9.64E-06
315	368459	755440	Residential	2.68E+00	5.70E-03	1.44E+00	5.76E-01	1.03E+00	7.95E-04	7.57E+00	1.38E-01	1.06E+00	3.79E-05	3.30E-02	2.54E-06	1.83E-01	8.72E-06	4.11E-01	1.11E-05
316	368360	755440	Residential	2.91E+00	6.18E-03	1.56E+00	6.24E-01	1.12E+00	8.62E-04	8.21E+00	1.49E-01	1.15E+00	4.11E-05	3.76E-02	2.89E-06	1.98E-01	9.44E-06	4.46E-01	1.21E-05
317	368262	755439	Residential	2.99E+00	6.35E-03	1.60E+00	6.38E-01	1.15E+00	8.85E-04	8.43E+00	1.53E-01	1.18E+00	4.20E-05	4.07E-02	3.13E-06	2.03E-01	9.66E-06	4.59E-01	1.24E-05
318	368186	755427	Residential	2.79E+00	5.93E-03	1.50E+00	6.00E-01	1.08E+00	8.27E-04	7.88E+00	1.43E-01	1.11E+00	3.95E-05	3.39E-02	2.61E-06	1.91E-01	9.07E-06	4.27E-01	1.15E-05
319	368111	755414	Residential	2.52E+00	5.36E-03	1.38E+00	5.52E-01	9.78E-01	7.52E-04	7.16E+00	1.30E-01	1.02E+00	3.64E-05	2.26E-02	1.74E-06	1.75E-01	8.34E-06	3.84E-01	1.04E-05
46	367504	757948	School	3.00E+00	6.39E-03	1.71E+00	6.86E-01	1.18E+00	9.08E-04	8.64E+00	1.57E-01	1.26E+00	4.51E-05	2.65E-03	2.04E-07	2.16E-01	1.03E-05	4.52E-01	1.22E-05
47	367544	757873	School	4.68E-01	9.97E-04	2.61E-01	1.04E-01	1.83E-01	1.40E-04	1.34E+00	2.43E-02	1.92E-01	6.86E-06	2.80E-03	2.16E-07	3.30E-02	1.57E-06	7.11E-02	1.92E-06
48	367587	757909	School	3.15E+00	6.71E-03	1.80E+00	7.20E-01	1.24E+00	9.53E-04	9.07E+00	1.65E-01	1.33E+00	4.74E-05	2.59E-03	1.99E-07	2.27E-01	1.08E-05	4.74E-01	1.28E-05
49	367623	757866	School	3.17E+00	6.75E-03	1.81E+00	7.24E-01	1.25E+00	9.58E-04	9.12E+00	1.66E-01	1.33E+00	4.76E-05	2.65E-03	2.03E-07	2.28E-01	1.09E-05	4.77E-01	1.29E-05

Table 2-3

Summary of Incremental Acute Hazard Concentrations and Hazard Indices

Receptor Number	X	Y	Receptor Type	acetaldehyde (μg/m^3)	acetaldehyde Acute Hazard	acrolein (μg/m^3)	acrolein Acute Hazard	benzene (μg/m^3)	benzene Acute Hazard	formaldehyde (μg/m^3)	formaldehyde Acute Hazard	methyl alcohol (μg/m^3)	methyl alcohol Acute Hazard	methyl ethyl ketone (μg/m^3)	methyl ethyl ketone Acute Hazard	styrene (μg/m^3)	styrene Acute Hazard	toluene (μg/m^3)	toluene Acute Hazard
			CalEPA Acute REL		470		2.5		1300		55		28000		13000		21000		37000
50	367694	757866	School	3.30E+00	7.01E-03	1.88E+00	7.53E-01	1.30E+00	9.97E-04	9.49E+00	1.73E-01	1.39E+00	4.96E-05	2.50E-03	1.93E-07	2.38E-01	1.13E-05	4.96E-01	1.34E-05
51	367716	757927	School	3.10E+00	6.59E-03	1.77E+00	7.08E-01	1.22E+00	9.37E-04	8.92E+00	1.62E-01	1.30E+00	4.66E-05	2.43E-03	1.87E-07	2.23E-01	1.06E-05	4.66E-01	1.26E-05
52	367737	757988	School	2.65E+00	5.64E-03	1.51E+00	6.06E-01	1.04E+00	8.02E-04	7.63E+00	1.39E-01	1.12E+00	3.99E-05	2.35E-03	1.81E-07	1.91E-01	9.10E-06	3.99E-01	1.08E-05
53	367727	758067	School	2.07E+00	4.40E-03	1.18E+00	4.71E-01	8.11E-01	6.24E-04	5.94E+00	1.08E-01	8.68E-01	3.10E-05	2.24E-03	1.72E-07	1.49E-01	7.08E-06	3.11E-01	8.41E-06
54	367716	758146	School	1.42E+00	3.03E-03	8.10E-01	3.24E-01	5.59E-01	4.30E-04	4.09E+00	7.44E-02	5.97E-01	2.13E-05	2.13E-03	1.64E-07	1.02E-01	4.87E-06	2.14E-01	5.79E-06
56	367723	758254	School	-8.25E-01	-1.76E-03	-4.79E-01	-1.91E-01	-3.26E-01	-2.51E-04	-2.39E+00	-4.34E-02	-3.53E-01	-1.26E-05	2.01E-03	1.55E-07	-6.03E-02	-2.87E-06	-1.23E-01	-3.34E-06
57	367784	758221	School	-1.05E+00	-2.23E-03	-6.08E-01	-2.43E-01	-4.14E-01	-3.19E-04	-3.03E+00	-5.52E-02	-4.48E-01	-1.60E-05	2.08E-03	1.60E-07	-7.66E-02	-3.65E-06	-1.57E-01	-4.25E-06
58	367845	758189	School	4.65E-01	9.90E-04	2.61E-01	1.04E-01	1.82E-01	1.40E-04	1.33E+00	2.42E-02	1.92E-01	6.86E-06	2.15E-03	1.65E-07	3.30E-02	1.57E-06	7.04E-02	1.90E-06
106	370247	758254	School	4.08E+00	8.67E-03	2.33E+00	9.31E-01	1.60E+00	1.23E-03	1.17E+01	2.13E-01	1.72E+00	6.13E-05	3.48E-03	2.68E-07	2.94E-01	1.40E-05	6.14E-01	1.66E-05
107	370250	758189	School	4.26E+00	9.07E-03	2.43E+00	9.74E-01	1.68E+00	1.29E-03	1.23E+01	2.23E-01	1.79E+00	6.41E-05	3.61E-03	2.78E-07	3.07E-01	1.46E-05	6.42E-01	1.73E-05
108	370308	758196	School	4.30E+00	9.14E-03	2.45E+00	9.81E-01	1.69E+00	1.30E-03	1.24E+01	2.25E-01	1.81E+00	6.46E-05	3.56E-03	2.74E-07	3.10E-01	1.47E-05	6.47E-01	1.75E-05
109	370361	758236	School	4.17E+00	8.88E-03	2.38E+00	9.53E-01	1.64E+00	1.26E-03	1.20E+01	2.18E-01	1.76E+00	6.27E-05	3.46E-03	2.66E-07	3.01E-01	1.43E-05	6.28E-01	1.70E-05
110	370415	758275	School	3.97E+00	8.46E-03	2.27E+00	9.08E-01	1.56E+00	1.20E-03	1.14E+01	2.08E-01	1.67E+00	5.97E-05	3.36E-03	2.58E-07	2.86E-01	1.36E-05	5.98E-01	1.62E-05
202	372807	757781	School	-5.58E-01	-1.19E-03	-3.37E-01	-1.35E-01	-2.23E-01	-1.72E-04	-1.63E+00	-2.97E-02	-2.48E-01	-8.87E-06	5.93E-03	4.57E-07	-4.23E-02	-2.01E-06	-8.24E-02	-2.23E-06
203	372901	757782	School	-3.74E-01	-7.95E-04	-2.32E-01	-9.27E-02	-1.51E-01	-1.16E-04	-1.10E+00	-2.01E-02	-1.71E-01	-6.10E-06	6.11E-03	4.70E-07	-2.90E-02	-1.38E-06	-5.47E-02	-1.48E-06
302	369741	755435	School	8.18E+00	1.74E-02	4.67E+00	1.87E+00	3.21E+00	2.47E-03	2.35E+01	4.28E-01	3.44E+00	1.23E-04	7.35E-03	5.65E-07	5.89E-01	2.81E-05	1.23E+00	3.33E-05
303	369643	755434	School	7.69E+00	1.64E-02	4.39E+00	1.75E+00	3.02E+00	2.32E-03	2.21E+01	4.02E-01	3.23E+00	1.15E-04	7.47E-03	5.75E-07	5.54E-01	2.64E-05	1.16E+00	3.13E-05

Table 2-3
Summary of Incremental Acute Hazard Concentrations and Hazard Indices

Receptor Number	X	Y	Receptor Type	xylene, total (µg/m^3)	xylene, total Acute Hazard	arsenic (µg/m^3)	arsenic Acute Hazard	chlorine (µg/m^3)	chlorine Acute Hazard	copper (µg/m^3)	copper Acute Hazard	mercury (µg/m^3)	mercury Acute Hazard	nickel (µg/m^3)	nickel Acute Hazard	vanadium (µg/m^3)	vanadium Acute Hazard	sulfates (µg/m^3)	sulfates Acute Hazard
			CalEPA Acute REL		22000		0.2		210		100		0.6		6		30		120
117	370814	758243	Offsite Worker	1.60E-01	7.28E-06	1.88E-01	9.39E-01	1.59E-01	7.58E-04	1.03E-05	1.03E-07	7.10E-04	1.18E-03	1.85E-04	3.08E-05	6.19E-05	2.06E-06	3.92E-05	3.27E-07
118	370810	758153	Offsite Worker	1.57E-01	7.12E-06	1.84E-01	9.18E-01	1.56E-01	7.41E-04	1.09E-05	1.09E-07	7.51E-04	1.25E-03	1.84E-04	3.06E-05	6.55E-05	2.18E-06	4.15E-05	3.46E-07
119	370807	758063	Offsite Worker	1.47E-01	6.70E-06	1.73E-01	8.63E-01	1.46E-01	6.96E-04	1.16E-05	1.16E-07	7.96E-04	1.33E-03	2.27E-04	3.78E-05	6.95E-05	2.32E-06	4.40E-05	3.67E-07
120	370803	757974	Offsite Worker	1.32E-01	6.00E-06	1.54E-01	7.72E-01	1.31E-01	6.23E-04	1.23E-05	1.23E-07	8.46E-04	1.41E-03	1.98E-04	3.29E-05	7.37E-05	2.46E-06	4.67E-05	3.89E-07
121	370835	757927	Offsite Worker	9.05E-02	4.11E-06	1.06E-01	5.28E-01	8.92E-02	4.25E-04	1.28E-05	1.28E-07	8.79E-04	1.46E-03	2.96E-04	4.94E-05	7.66E-05	2.55E-06	4.85E-05	4.04E-07
122	370868	757880	Offsite Worker	1.14E-01	5.16E-06	1.33E-01	6.64E-01	1.12E-01	5.35E-04	1.33E-05	1.33E-07	9.14E-04	1.52E-03	4.87E-04	8.12E-05	7.97E-05	2.66E-06	5.05E-05	4.21E-07
123	370921	757884	Offsite Worker	1.37E-01	6.21E-06	1.60E-01	7.99E-01	1.35E-01	6.44E-04	1.34E-05	1.34E-07	9.20E-04	1.53E-03	4.90E-04	8.16E-05	8.02E-05	2.67E-06	5.08E-05	4.23E-07
124	370975	757887	Offsite Worker	1.56E-01	7.09E-06	1.83E-01	9.13E-01	1.55E-01	7.36E-04	1.35E-05	1.35E-07	9.26E-04	1.54E-03	4.52E-04	7.53E-05	8.08E-05	2.69E-06	5.11E-05	4.26E-07
125	370975	757794	Offsite Worker	1.78E-01	8.08E-06	2.08E-01	1.04E+00	1.76E-01	8.40E-04	1.44E-05	1.44E-07	9.92E-04	1.65E-03	6.01E-04	1.00E-04	8.66E-05	2.89E-06	5.48E-05	4.57E-07
126	371026	757794	Offsite Worker	1.57E-01	7.13E-06	1.84E-01	9.18E-01	1.55E-01	7.40E-04	1.46E-05	1.46E-07	1.00E-03	1.67E-03	6.35E-04	1.06E-04	8.73E-05	2.91E-06	5.53E-05	4.61E-07
127	371076	757877	Offsite Worker	1.58E-01	7.20E-06	1.85E-01	9.27E-01	1.57E-01	7.48E-04	1.38E-05	1.38E-07	9.48E-04	1.58E-03	3.96E-04	6.60E-05	8.27E-05	2.76E-06	5.24E-05	4.37E-07
128	371126	757959	Offsite Worker	1.46E-01	6.64E-06	1.71E-01	8.55E-01	1.45E-01	6.89E-04	1.31E-05	1.31E-07	8.99E-04	1.50E-03	3.39E-04	5.65E-05	7.84E-05	2.61E-06	4.97E-05	4.14E-07
129	371119	758031	Offsite Worker	1.21E-01	5.52E-06	1.42E-01	7.10E-01	1.20E-01	5.72E-04	1.24E-05	1.24E-07	8.53E-04	1.42E-03	3.73E-04	6.22E-05	7.44E-05	2.48E-06	4.71E-05	3.93E-07
143	371953	757977	Offsite Worker	8.44E-02	3.84E-06	9.82E-02	4.91E-01	8.28E-02	3.94E-04	1.62E-05	1.62E-07	1.12E-03	1.86E-03	2.96E-04	4.93E-05	9.73E-05	3.24E-06	6.16E-05	5.14E-07
144	371948	757880	Offsite Worker	8.76E-02	3.98E-06	1.02E-01	5.09E-01	8.59E-02	4.09E-04	1.72E-05	1.72E-07	1.18E-03	1.97E-03	1.89E-04	3.16E-05	1.03E-04	3.43E-06	6.52E-05	5.43E-07
145	371943	757783	Offsite Worker	4.05E-02	1.84E-06	4.64E-02	2.32E-01	3.87E-02	1.84E-04	1.81E-05	1.81E-07	1.25E-03	2.08E-03	1.76E-04	2.93E-05	1.09E-04	3.63E-06	6.89E-05	5.74E-07
146	372016	757794	Offsite Worker	2.75E-02	1.25E-06	3.10E-02	1.55E-01	2.56E-02	1.22E-04	1.91E-05	1.91E-07	1.32E-03	2.19E-03	1.75E-04	2.92E-05	1.15E-04	3.83E-06	7.27E-05	6.06E-07
147	372102	757791	Offsite Worker	1.94E-02	8.80E-07	2.13E-02	1.07E-01	1.74E-02	8.28E-05	2.00E-05	2.00E-07	1.37E-03	2.29E-03	1.75E-04	2.92E-05	1.20E-04	3.99E-06	7.58E-05	6.32E-07
148	372178	757760	Offsite Worker	2.51E-02	1.14E-06	2.80E-02	1.40E-01	2.30E-02	1.10E-04	2.11E-05	2.11E-07	1.45E-03	2.42E-03	1.96E-04	3.27E-05	1.27E-04	4.23E-06	8.04E-05	6.70E-07
149	372177	757670	Offsite Worker	2.68E-02	1.22E-06	2.98E-02	1.49E-01	2.45E-02	1.17E-04	2.28E-05	2.28E-07	1.57E-03	2.61E-03	2.50E-04	4.17E-05	1.37E-04	4.56E-06	8.66E-05	7.22E-07
150	372176	757579	Offsite Worker	2.28E-02	1.04E-06	2.50E-02	1.25E-01	2.03E-02	9.68E-05	2.47E-05	2.47E-07	1.70E-03	2.83E-03	2.80E-04	4.67E-05	1.48E-04	4.94E-06	9.38E-05	7.82E-07
151	372174	757489	Offsite Worker	2.64E-02	1.20E-06	2.91E-02	1.46E-01	2.38E-02	1.13E-04	2.69E-05	2.69E-07	1.85E-03	3.08E-03	2.74E-04	4.56E-05	1.61E-04	5.37E-06	1.02E-04	8.51E-07
152	372173	757398	Offsite Worker	1.26E-02	5.73E-07	1.27E-02	6.33E-02	9.68E-03	4.61E-05	2.97E-05	2.97E-07	2.04E-03	3.41E-03	2.91E-04	4.85E-05	1.78E-04	5.94E-06	1.13E-04	9.41E-07
153	372171	757308	Offsite Worker	2.68E-02	1.22E-06	2.92E-02	1.46E-01	2.36E-02	1.12E-04	3.30E-05	3.30E-07	2.27E-03	3.78E-03	3.42E-04	5.70E-05	1.98E-04	6.60E-06	1.25E-04	1.04E-06
154	372055	757309	Offsite Worker	1.41E-02	6.41E-07	1.44E-02	7.21E-02	1.12E-02	5.32E-05	2.95E-05	2.95E-07	2.03E-03	3.38E-03	3.37E-04	5.62E-05	1.77E-04	5.90E-06	1.12E-04	9.35E-07
156	372055	757416	Offsite Worker	1.81E-02	8.21E-07	1.93E-02	9.63E-02	1.54E-02	7.33E-05	2.68E-05	2.68E-07	1.84E-03	3.07E-03	2.86E-04	4.77E-05	1.61E-04	5.36E-06	1.02E-04	8.48E-07
157	371952	757442	Offsite Worker	4.26E-02	1.94E-06	4.84E-02	2.42E-01	4.03E-02	1.92E-04	2.30E-05	2.30E-07	1.58E-03	2.64E-03	2.75E-04	4.58E-05	1.38E-04	4.60E-06	8.75E-05	7.29E-07
158	371950	757345	Offsite Worker	-1.01E-02	-4.59E-07	-1.39E-02	-6.93E-02	-1.27E-02	-6.07E-05	2.58E-05	2.58E-07	1.78E-03	2.96E-03	2.63E-04	4.38E-05	1.55E-04	5.17E-06	9.82E-05	8.18E-07
159	371864	757344	Offsite Worker	-1.02E-03	-4.64E-08	-3.14E-03	-1.57E-02	-3.63E-03	-1.73E-05	2.56E-05	2.56E-07	1.76E-03	2.93E-03	2.65E-04	4.42E-05	1.53E-04	5.11E-06	9.71E-05	8.09E-07
160	371790	757347	Offsite Worker	1.75E-02	7.95E-07	1.87E-02	9.34E-02	1.49E-02	7.10E-05	2.51E-05	2.51E-07	1.73E-03	2.88E-03	2.70E-04	4.51E-05	1.51E-04	5.03E-06	9.55E-05	7.96E-07
161	371708	757356	Offsite Worker	3.33E-02	1.52E-06	3.74E-02	1.87E-01	3.08E-02	1.47E-04	2.45E-05	2.45E-07	1.68E-03	2.81E-03	2.81E-04	4.69E-05	1.47E-04	4.90E-06	9.31E-05	7.76E-07
162	371615	757356	Offsite Worker	3.65E-02	1.66E-06	4.11E-02	2.06E-01	3.40E-02	1.62E-04	2.40E-05	2.40E-07	1.65E-03	2.75E-03	2.86E-04	4.77E-05	1.44E-04	4.80E-06	9.13E-05	7.60E-07
163	371523	757356	Offsite Worker	5.35E-02	2.43E-06	6.12E-02	3.06E-01	5.10E-02	2.43E-04	2.35E-05	2.35E-07	1.62E-03	2.70E-03	2.92E-04	4.87E-05	1.41E-04	4.71E-06	8.94E-05	7.45E-07
164	371430	757356	Offsite Worker	7.03E-02	3.20E-06	8.10E-02	4.05E-01	6.79E-02	3.24E-04	2.30E-05	2.30E-07	1.59E-03	2.64E-03	2.99E-04	4.98E-05	1.38E-04	4.61E-06	8.76E-05	7.30E-07
165	371338	757356	Offsite Worker	7.52E-02	3.42E-06	8.68E-02	4.34E-01	7.28E-02	3.47E-04	2.26E-05	2.26E-07	1.55E-03	2.59E-03	3.06E-04	5.10E-05	1.35E-04	4.51E-06	8.57E-05	7.15E-07
166	371245	757356	Offsite Worker	8.09E-02	3.68E-06	9.35E-02	4.67E-01	7.86E-02	3.74E-04	2.21E-05	2.21E-07	1.52E-03	2.53E-03	3.15E-04	5.25E-05	1.33E-04	4.42E-06	8.40E-05	7.00E-07
167	371153	757356	Offsite Worker	8.74E-02	3.97E-06	1.01E-01	5.06E-01	8.51E-02	4.05E-04	2.16E-05	2.16E-07	1.49E-03	2.48E-03	3.25E-04	5.42E-05	1.30E-04	4.33E-06	8.22E-05	6.85E-07
168	371061	757356	Offsite Worker	9.52E-02	4.33E-06	1.10E-01	5.52E-01	9.29E-02	4.43E-04	2.12E-05	2.12E-07	1.46E-03	2.43E-03	3.37E-04	5.62E-05	1.27E-04	4.24E-06	8.05E-05	6.71E-07
169	371005	757357	Offsite Worker	1.01E-01	4.61E-06	1.18E-01	5.89E-01	9.93E-02	4.73E-04	2.09E-05	2.09E-07	1.44E-03	2.40E-03	3.48E-04	5.80E-05	1.25E-04	4.18E-06	7.94E-05	6.62E-07
170	370998	757293	Offsite Worker	2.41E-02	1.09E-06	2.66E-02	1.33E-01	2.18E-02	1.04E-04	2.22E-05	2.22E-07	1.53E-03	2.54E-03	4.76E-04	7.93E-05	1.33E-04	4.43E-06	8.42E-05	7.02E-07
171	370998	757194	Offsite Worker	1.91E-01	8.68E-06	2.23E-01	1.11E+00	1.88E-01	8.97E-04	2.44E-05	2.44E-07	1.68E-03	2.80E-03	3.52E-04	5.86E-05	1.47E-04	4.89E-06	9.29E-05	7.74E-07
172	370998	757096	Offsite Worker	2.53E-02	1.15E-06	2.77E-02	1.38E-01	2.25E-02	1.07E-04	2.71E-05	2.71E-07	1.86E-03	3.11E-03	2.65E-04	4.42E-05	1.63E-04	5.42E-06	1.03E-04	8.58E-07
173	370998	756998	Offsite Worker	-5.78E-02	-2.63E-06	-7.04E-02	-3.52E-01	-6.10E-02	-2.90E-04	3.03E-05	3.03E-07	2.08E-03	3.47E-03	2.50E-04	4.17E-05	1.82E-04	6.05E-06	1.15E-04	9.58E-07
174	371057	756997	Offsite Worker	-3.38E-02	-1.54E-06	-4.23E-02	-2.11E-01	-3.71E-02	-1.77E-04	3.07E-05	3.07E-07	2.11E-03	3.52E-03	2.63E-04	4.38E-05	1.84E-04	6.15E-06	1.17E-04	9.73E-07
175	371153	756997	Offsite Worker	-6.76E-03	-3.07E-07	-1.04E-02	-5.21E-02	-1.01E-02	-4.80E-05	3.15E-05	3.15E-07	2.17E-03	3.61E-03	2.76E-04	4.60E-05	1.89E-04	6.30E-06	1.20E-04	9.97E-07
176	371249	756997	Offsite Worker	-8.51E-02	-3.87E-06	-1.03E-01	-5.14E-01	-8.85E-02	-4.21E-04	3.23E-05	3.23E-07	2.22E-03	3.71E-03	2.69E-04	4.48E-05	1.94E-04	6.46E-06	1.23E-04	1.02E-06
177	371345	756997	Offsite Worker	-9.14E-02	-4.15E-06	-1.10E-01	-5.51E-01	-9.48E-02	-4.52E-04	3.33E-05	3.33E-07	2.29E-03	3.81E-03	2.77E-04	4.62E-05	2.00E-04	6.65E-06	1.26E-04	1.05E-06
178	371440	756997	Offsite Worker	-2.98E-02	-1.36E-06	-3.78E-02	-1.89E-01	-3.34E-02	-1.59E-04	3.43E-05	3.43E-07	2.36E-03	3.94E-03	2.86E-04	4.77E-05	2.06E-04	6.87E-06	1.30E-04	1.09E-06
179	371536	756997	Offsite Worker	-1.25E-02	-5.66E-07	-1.74E-02	-8.71E-02	-1.61E-02	-7.69E-05	3.56E-05	3.56E-07	2.45E-03	4.08E-03	2.37E-04	3.96E-05	2.13E-04	7.12E-06	1.35E-04	1.13E-06
180	371632	756997	Offsite Worker	3.59E-02	1.63E-06	3.94E-02	1.97E-01	3.21E-02	1.53E-04	3.70E-05	3.70E-07	2.55E-03	4.24E-03	2.19E-04	3.65E-05	2.22E-04	7.40E-06	1.41E-04	1.17E-06
181	371728	756997	Offsite Worker	3.38E-02	1.54E-06	3.69E-02	1.84E-01	2.99E-02	1.42E-04	3.86E-05	3.86E-07	2.65E-03	4.42E-03	2.29E-04	3.82E-05	2.32E-04	7.72E-06	1.47E-04	1.22E-06
182	371824	756997	Offsite Worker	2.61E-02	1.19E-06	2.77E-02	1.38E-01	2.20E-02	1.05E-04	4.03E-05	4.03E-07	2.77E-03	4.62E-03	2.80E-04	4.67E-05	2.42E-04	8.06E-06	1.53E-04	1.28E-06
183	371920	756997	Offsite Worker	1.63E-02	7.41E-07	1.60E-02	8.00E-02	1.20E-02	5.73E-05	4.21E-05	4.21E-07	2.90E-03	4.83E-03	2.92E-04	4.87E-05	2.53E-04	8.42E-06	1.60E-04	1.33E-06

Table 2-3

Summary of Incremental Acute Hazard Concentrations and Hazard Indices

Receptor Number	X	Y	Receptor Type	xylene, total (µg/m^3)	xylene, total Acute Hazard	arsenic (µg/m^3)	arsenic Acute Hazard	chlorine (µg/m^3)	chlorine Acute Hazard	copper (µg/m^3)	copper Acute Hazard	mercury (µg/m^3)	mercury Acute Hazard	nickel (µg/m^3)	nickel Acute Hazard	vanadium (µg/m^3)	vanadium Acute Hazard	sulfates (µg/m^3)	sulfates Acute Hazard
			CalEPA Acute REL		22000		0.2		210		100		0.6		6		30		120
184	372016	756997	Offsite Worker	2.36E-02	1.07E-06	2.45E-02	1.22E-01	1.92E-02	9.13E-05	4.38E-05	4.38E-07	3.01E-03	5.02E-03	3.19E-04	5.32E-05	2.63E-04	8.76E-06	1.66E-04	1.39E-06
185	372111	756997	Offsite Worker	-4.23E-02	-1.92E-06	-5.32E-02	-2.66E-01	-4.68E-02	-2.23E-04	4.54E-05	4.54E-07	3.13E-03	5.21E-03	2.61E-04	4.35E-05	2.73E-04	9.09E-06	1.73E-04	1.44E-06
186	372207	756997	Offsite Worker	-1.21E-01	-5.49E-06	-1.46E-01	-7.31E-01	-1.26E-01	-6.00E-04	5.25E-05	5.25E-07	3.61E-03	6.02E-03	3.30E-04	5.49E-05	3.15E-04	1.05E-05	1.99E-04	1.66E-06
187	372303	756997	Offsite Worker	-8.23E-02	-3.74E-06	-1.01E-01	-5.05E-01	-8.78E-02	-4.18E-04	5.61E-05	5.61E-07	3.86E-03	6.43E-03	3.02E-04	5.04E-05	3.37E-04	1.12E-05	2.13E-04	1.78E-06
188	372399	756997	Offsite Worker	-4.74E-02	-2.16E-06	-6.03E-02	-3.02E-01	-5.34E-02	-2.54E-04	6.12E-05	6.12E-07	4.21E-03	7.02E-03	3.86E-04	6.43E-05	3.67E-04	1.22E-05	2.33E-04	1.94E-06
189	372495	756997	Offsite Worker	-3.01E-02	-1.37E-06	-3.99E-02	-1.99E-01	-3.61E-02	-1.72E-04	6.12E-05	6.12E-07	4.21E-03	7.02E-03	3.18E-04	5.31E-05	3.67E-04	1.22E-05	2.33E-04	1.94E-06
190	372591	756997	Offsite Worker	-5.56E-02	-2.53E-06	-6.96E-02	-3.48E-01	-6.12E-02	-2.92E-04	5.78E-05	5.78E-07	3.98E-03	6.63E-03	3.21E-04	5.35E-05	3.47E-04	1.16E-05	2.20E-04	1.83E-06
191	372610	757063	Offsite Worker	-2.47E-02	-1.12E-06	-3.28E-02	-1.64E-01	-2.97E-02	-1.42E-04	5.13E-05	5.13E-07	3.53E-03	5.88E-03	2.86E-04	4.76E-05	3.08E-04	1.03E-05	1.95E-04	1.62E-06
192	372612	757132	Offsite Worker	-1.97E-02	-8.97E-07	-2.65E-02	-1.33E-01	-2.42E-02	-1.15E-04	4.52E-05	4.52E-07	3.11E-03	5.18E-03	2.46E-04	4.09E-05	2.71E-04	9.04E-06	1.72E-04	1.43E-06
193	372614	757201	Offsite Worker	-5.41E-02	-2.46E-06	-6.66E-02	-3.33E-01	-5.80E-02	-2.76E-04	4.00E-05	4.00E-07	2.75E-03	4.59E-03	2.52E-04	4.20E-05	2.40E-04	8.01E-06	1.52E-04	1.27E-06
194	372616	757270	Offsite Worker	-6.01E-02	-2.73E-06	-7.34E-02	-3.67E-01	-6.36E-02	-3.03E-04	3.63E-05	3.63E-07	2.49E-03	4.16E-03	2.46E-04	4.09E-05	2.18E-04	7.25E-06	1.38E-04	1.15E-06
195	372627	757351	Offsite Worker	1.03E-02	4.70E-07	9.77E-03	4.89E-02	7.11E-03	3.39E-05	3.31E-05	3.31E-07	2.28E-03	3.79E-03	2.45E-04	4.09E-05	1.98E-04	6.61E-06	1.26E-04	1.05E-06
196	372651	757422	Offsite Worker	-2.81E-02	-1.28E-06	-3.52E-02	-1.76E-01	-3.10E-02	-1.48E-04	3.00E-05	3.00E-07	2.06E-03	3.44E-03	2.48E-04	4.14E-05	1.80E-04	5.99E-06	1.14E-04	9.49E-07
197	372676	757494	Offsite Worker	-1.13E-02	-5.14E-07	-1.53E-02	-7.66E-02	-1.40E-02	-6.66E-05	2.72E-05	2.72E-07	1.87E-03	3.12E-03	2.30E-04	3.83E-05	1.63E-04	5.45E-06	1.03E-04	8.62E-07
198	372704	757569	Offsite Worker	-2.86E-03	-1.30E-07	-5.20E-03	-2.60E-02	-5.32E-03	-2.54E-05	2.48E-05	2.48E-07	1.71E-03	2.85E-03	2.40E-04	4.00E-05	1.49E-04	4.97E-06	9.44E-05	7.87E-07
199	372733	757645	Offsite Worker	-3.53E-03	-1.60E-07	-5.87E-03	-2.93E-02	-5.83E-03	-2.78E-05	2.31E-05	2.31E-07	1.59E-03	2.65E-03	2.35E-04	3.91E-05	1.39E-04	4.63E-06	8.79E-05	7.32E-07
200	372746	757702	Offsite Worker	1.10E-03	5.00E-08	-3.22E-04	-1.61E-03	-1.07E-03	-5.10E-06	2.18E-05	2.18E-07	1.50E-03	2.50E-03	2.18E-04	3.63E-05	1.31E-04	4.37E-06	8.30E-05	6.92E-07
201	372746	757768	Offsite Worker	-1.82E-02	-8.27E-07	-2.29E-02	-1.15E-01	-2.02E-02	-9.64E-05	2.06E-05	2.06E-07	1.42E-03	2.36E-03	1.90E-04	3.17E-05	1.24E-04	4.12E-06	7.82E-05	6.52E-07
204	372994	757783	Offsite Worker	-1.59E-02	-7.25E-07	-2.03E-02	-1.02E-01	-1.80E-02	-8.58E-05	2.11E-05	2.11E-07	1.45E-03	2.42E-03	1.87E-04	3.11E-05	1.27E-04	4.23E-06	8.03E-05	6.69E-07
205	373087	757783	Offsite Worker	-2.00E-02	-9.09E-07	-2.50E-02	-1.25E-01	-2.19E-02	-1.04E-04	1.96E-05	1.96E-07	1.35E-03	2.24E-03	1.78E-04	2.97E-05	1.17E-04	3.91E-06	7.43E-05	6.19E-07
206	373180	757784	Offsite Worker	-2.30E-02	-1.04E-06	-2.84E-02	-1.42E-01	-2.48E-02	-1.18E-04	1.81E-05	1.81E-07	1.25E-03	2.08E-03	1.71E-04	2.85E-05	1.09E-04	3.63E-06	6.89E-05	5.74E-07
207	373274	757785	Offsite Worker	-2.45E-02	-1.11E-06	-3.02E-02	-1.51E-01	-2.63E-02	-1.25E-04	1.79E-05	1.79E-07	1.23E-03	2.05E-03	1.69E-04	2.81E-05	1.07E-04	3.58E-06	6.80E-05	5.66E-07
208	373367	757786	Offsite Worker	-2.49E-02	-1.13E-06	-3.06E-02	-1.53E-01	-2.66E-02	-1.27E-04	1.72E-05	1.72E-07	1.18E-03	1.97E-03	1.64E-04	2.73E-05	1.03E-04	3.44E-06	6.54E-05	5.45E-07
209	373418	757742	Offsite Worker	-2.22E-02	-1.01E-06	-2.75E-02	-1.37E-01	-2.40E-02	-1.14E-04	1.75E-05	1.75E-07	1.20E-03	2.01E-03	1.75E-04	2.91E-05	1.05E-04	3.50E-06	6.65E-05	5.54E-07
210	373418	757653	Offsite Worker	-1.13E-02	-5.13E-07	-1.47E-02	-7.35E-02	-1.32E-02	-6.28E-05	1.89E-05	1.89E-07	1.30E-03	2.17E-03	1.84E-04	3.06E-05	1.14E-04	3.79E-06	7.19E-05	5.99E-07
211	373419	757564	Offsite Worker	-1.02E-03	-4.64E-08	-2.69E-03	-1.35E-02	-3.02E-03	-1.44E-05	2.02E-05	2.02E-07	1.39E-03	2.32E-03	1.72E-04	2.87E-05	1.21E-04	4.04E-06	7.67E-05	6.39E-07
212	373419	757475	Offsite Worker	2.94E-03	1.34E-07	1.87E-03	9.35E-03	8.03E-04	3.82E-06	2.15E-05	2.15E-07	1.48E-03	2.46E-03	1.17E-04	1.96E-05	1.29E-04	4.29E-06	8.15E-05	6.79E-07
213	373420	757386	Offsite Worker	8.84E-03	4.02E-07	8.72E-03	4.36E-02	6.58E-03	3.13E-05	2.29E-05	2.29E-07	1.57E-03	2.62E-03	1.21E-04	2.01E-05	1.37E-04	4.57E-06	8.69E-05	7.24E-07
214	373420	757297	Offsite Worker	2.65E-03	1.21E-07	1.35E-03	6.75E-03	2.71E-04	1.29E-06	2.38E-05	2.38E-07	1.64E-03	2.73E-03	1.37E-04	2.28E-05	1.43E-04	4.77E-06	9.06E-05	7.55E-07
215	373421	757207	Offsite Worker	-1.78E-02	-8.08E-07	-2.28E-02	-1.14E-01	-2.03E-02	-9.67E-05	2.51E-05	2.51E-07	1.73E-03	2.88E-03	1.44E-04	2.39E-05	1.51E-04	5.02E-06	9.54E-05	7.95E-07
216	373421	757118	Offsite Worker	3.14E-05	1.43E-09	-2.10E-03	-1.05E-02	-2.84E-03	-1.35E-05	2.87E-05	2.87E-07	1.97E-03	3.29E-03	1.54E-04	2.56E-05	1.72E-04	5.74E-06	1.09E-04	9.09E-07
217	373292	757117	Offsite Worker	-1.27E-02	-5.80E-07	-1.72E-02	-8.58E-02	-1.56E-02	-7.45E-05	2.91E-05	2.91E-07	2.00E-03	3.34E-03	1.67E-04	2.78E-05	1.75E-04	5.82E-06	1.11E-04	9.22E-07
218	373213	757118	Offsite Worker	-2.10E-02	-9.53E-07	-2.70E-02	-1.35E-01	-2.40E-02	-1.14E-04	3.12E-05	3.12E-07	2.15E-03	3.58E-03	1.64E-04	2.73E-05	1.87E-04	6.25E-06	1.19E-04	9.89E-07
219	373158	757066	Offsite Worker	-1.58E-02	-7.17E-07	-2.11E-02	-1.05E-01	-1.91E-02	-9.10E-05	3.40E-05	3.40E-07	2.34E-03	3.90E-03	1.75E-04	2.91E-05	2.04E-04	6.81E-06	1.29E-04	1.08E-06
220	373084	757026	Offsite Worker	-1.47E-02	-6.68E-07	-2.01E-02	-1.00E-01	-1.84E-02	-8.77E-05	3.78E-05	3.78E-07	2.60E-03	4.34E-03	1.80E-04	3.00E-05	2.27E-04	7.57E-06	1.44E-04	1.20E-06
221	373009	757011	Offsite Worker	-1.97E-02	-8.96E-07	-2.62E-02	-1.31E-01	-2.37E-02	-1.13E-04	4.08E-05	4.08E-07	2.81E-03	4.68E-03	1.71E-04	2.85E-05	2.45E-04	8.17E-06	1.55E-04	1.29E-06
222	372922	757009	Offsite Worker	-2.95E-02	-1.34E-06	-3.79E-02	-1.90E-01	-3.38E-02	-1.61E-04	4.36E-05	4.36E-07	3.00E-03	5.00E-03	1.73E-04	2.89E-05	2.62E-04	8.73E-06	1.66E-04	1.38E-06
223	372835	757007	Offsite Worker	-4.66E-03	-2.12E-07	-8.76E-03	-4.38E-02	-9.05E-03	-4.31E-05	4.45E-05	4.45E-07	3.06E-03	5.10E-03	2.17E-04	3.61E-05	2.67E-04	8.89E-06	1.69E-04	1.41E-06
224	372747	757006	Offsite Worker	-1.66E-02	-7.53E-07	-2.30E-02	-1.15E-01	-2.13E-02	-1.01E-04	4.86E-05	4.86E-07	3.34E-03	5.57E-03	2.70E-04	4.51E-05	2.92E-04	9.72E-06	1.85E-04	1.54E-06
225	372660	757004	Offsite Worker	-4.95E-02	-2.25E-06	-6.23E-02	-3.11E-01	-5.49E-02	-2.62E-04	5.59E-05	5.59E-07	3.85E-03	6.41E-03	3.25E-04	5.42E-05	3.35E-04	1.12E-05	2.12E-04	1.77E-06
226	372651	757063	Offsite Worker	-2.87E-03	-1.31E-07	-7.12E-03	-3.56E-02	-7.89E-03	-3.76E-05	5.13E-05	5.13E-07	3.53E-03	5.89E-03	3.08E-04	5.13E-05	3.08E-04	1.03E-05	1.95E-04	1.63E-06
227	372629	756931	Offsite Worker	-1.02E-02	-4.65E-07	-1.67E-02	-8.36E-02	-1.65E-02	-7.87E-05	6.45E-05	6.45E-07	4.44E-03	7.40E-03	3.61E-04	6.02E-05	3.87E-04	1.29E-05	2.45E-04	2.04E-06
228	372631	756857	Offsite Worker	-1.95E-03	-8.87E-08	-7.54E-03	-3.77E-02	-8.99E-03	-4.28E-05	7.24E-05	7.24E-07	4.98E-03	8.30E-03	3.81E-04	6.35E-05	4.34E-04	1.45E-05	2.75E-04	2.29E-06
229	372634	756783	Offsite Worker	-2.43E-02	-1.11E-06	-3.44E-02	-1.72E-01	-3.21E-02	-1.53E-04	7.98E-05	7.98E-07	5.49E-03	9.16E-03	3.82E-04	6.37E-05	4.79E-04	1.60E-05	3.03E-04	2.53E-06
230	372702	756778	Offsite Worker	-2.52E-02	-1.14E-06	-3.52E-02	-1.76E-01	-3.26E-02	-1.55E-04	7.57E-05	7.57E-07	5.21E-03	8.68E-03	3.10E-04	5.17E-05	4.54E-04	1.51E-05	2.88E-04	2.40E-06
231	372756	756775	Offsite Worker	-2.03E-02	-9.24E-07	-2.92E-02	-1.46E-01	-2.75E-02	-1.31E-04	7.29E-05	7.29E-07	5.02E-03	8.36E-03	2.55E-04	4.25E-05	4.38E-04	1.46E-05	2.77E-04	2.31E-06
232	372729	756712	Offsite Worker	-4.97E-02	-2.26E-06	-6.48E-02	-3.24E-01	-5.81E-02	-2.77E-04	8.54E-05	8.54E-07	5.88E-03	9.80E-03	3.06E-04	5.09E-05	5.13E-04	1.71E-05	3.25E-04	2.71E-06
233	372703	756650	Offsite Worker	-2.88E-02	-1.31E-06	-4.13E-02	-2.06E-01	-3.87E-02	-1.84E-04	1.02E-04	1.02E-06	7.00E-03	1.17E-02	3.75E-04	6.25E-05	6.11E-04	2.04E-05	3.87E-04	3.22E-06
234	372677	756588	Offsite Worker	-5.49E-02	-2.50E-06	-7.36E-02	-3.68E-01	-6.69E-02	-3.18E-04	1.22E-04	1.22E-06	8.37E-03	1.40E-02	4.60E-04	7.67E-05	7.30E-04	2.43E-05	4.62E-04	3.85E-06
235	372619	756588	Offsite Worker	-6.16E-02	-2.80E-06	-8.26E-02	-4.13E-01	-7.52E-02	-3.58E-04	1.40E-04	1.40E-06	9.63E-03	1.60E-02	4.74E-04	7.90E-05	8.40E-04	2.80E-05	5.32E-04	4.43E-06
236	372622	756509	Offsite Worker	-1.08E-01	-4.92E-06	-1.41E-01	-7.04E-01	-1.26E-01	-6.01E-04	1.86E-04	1.86E-06	1.28E-02	2.13E-02	7.11E-04	1.18E-04	1.12E-03	3.72E-05	7.06E-04	5.89E-06
237	372700	756511	Offsite Worker	-7.70E-02	-3.50E-06	-1.02E-01	-5.09E-01	-9.19E-02	-4.38E-04	1.52E-04	1.52E-06	1.05E-02	1.74E-02	5.77E-04	9.62E-05	9.13E-04	3.04E-05	5.78E-04	4.82E-06
238	372789	756510	Offsite Worker	-4.81E-02	-2.19E-06	-6.53E-02	-3.26E-01	-5.97E-02	-2.84E-04	1.19E-04	1.19E-06	8.20E-03	1.37E-02	5.26E-04	8.76E-05	7.15E-04	2.38E-05	4.53E-04	3.77E-06

Table 2-3
Summary of Incremental Acute Hazard Concentrations and Hazard Indices

Receptor Number	X	Y	Receptor Type	xylene, total (µg/m^3)	xylene, total Acute Hazard	arsenic (µg/m^3)	arsenic Acute Hazard	chlorine (µg/m^3)	chlorine Acute Hazard	copper (µg/m^3)	copper Acute Hazard	mercury (µg/m^3)	mercury Acute Hazard	nickel (µg/m^3)	nickel Acute Hazard	vanadium (µg/m^3)	vanadium Acute Hazard	sulfates (µg/m^3)	sulfates Acute Hazard
			CalEPA Acute REL		22000		0.2		210		100		0.6		6		30		120
239	372871	756509	Offsite Worker	-2.77E-02	-1.26E-06	-3.98E-02	-1.99E-01	-3.73E-02	-1.78E-04	9.78E-05	9.78E-07	6.73E-03	1.12E-02	5.15E-04	8.58E-05	5.87E-04	1.96E-05	3.72E-04	3.10E-06
240	372871	756437	Offsite Worker	-4.79E-02	-2.18E-06	-6.35E-02	-3.18E-01	-5.75E-02	-2.74E-04	9.73E-05	9.73E-07	6.69E-03	1.12E-02	1.49E-04	2.48E-05	5.84E-04	1.95E-05	3.70E-04	3.08E-06
241	372970	756437	Offsite Worker	-3.92E-02	-1.78E-06	-5.21E-02	-2.60E-01	-4.71E-02	-2.24E-04	8.04E-05	8.04E-07	5.53E-03	9.22E-03	1.75E-04	2.92E-05	4.83E-04	1.61E-05	3.06E-04	2.55E-06
242	373069	756437	Offsite Worker	-1.16E-01	-5.27E-06	-1.42E-01	-7.08E-01	-1.23E-01	-5.85E-04	6.81E-05	6.81E-07	4.68E-03	7.81E-03	1.86E-04	3.10E-05	4.09E-04	1.36E-05	2.59E-04	2.16E-06
243	373168	756437	Offsite Worker	-8.61E-02	-3.91E-06	-1.06E-01	-5.29E-01	-9.19E-02	-4.38E-04	5.88E-05	5.88E-07	4.04E-03	6.74E-03	1.72E-04	2.87E-05	3.53E-04	1.18E-05	2.23E-04	1.86E-06
244	373267	756437	Offsite Worker	-6.93E-02	-3.15E-06	-8.55E-02	-4.27E-01	-7.45E-02	-3.55E-04	5.15E-05	5.15E-07	3.54E-03	5.90E-03	1.40E-04	2.33E-05	3.09E-04	1.03E-05	1.96E-04	1.63E-06
245	373412	756437	Offsite Worker	-5.04E-02	-2.29E-06	-6.26E-02	-3.13E-01	-5.48E-02	-2.61E-04	4.34E-05	4.34E-07	2.98E-03	4.97E-03	7.78E-05	1.30E-05	2.60E-04	8.67E-06	1.65E-04	1.37E-06
246	373409	756339	Offsite Worker	4.12E-02	1.87E-06	4.52E-02	2.26E-01	3.68E-02	1.75E-04	4.33E-05	4.33E-07	2.98E-03	4.97E-03	2.92E-04	4.86E-05	2.60E-04	8.67E-06	1.65E-04	1.37E-06
247	373406	756240	Offsite Worker	4.92E-02	2.24E-06	5.51E-02	2.75E-01	4.54E-02	2.16E-04	3.83E-05	3.83E-07	2.63E-03	4.39E-03	4.19E-04	6.98E-05	2.30E-04	7.66E-06	1.45E-04	1.21E-06
248	373403	756142	Offsite Worker	4.78E-02	2.17E-06	5.39E-02	2.70E-01	4.47E-02	2.13E-04	3.06E-05	3.06E-07	2.11E-03	3.51E-03	4.12E-04	6.86E-05	1.84E-04	6.13E-06	1.16E-04	9.70E-07
249	373400	756042	Offsite Worker	4.17E-02	1.90E-06	4.66E-02	2.33E-01	3.84E-02	1.83E-04	3.42E-05	3.42E-07	2.36E-03	3.93E-03	3.19E-04	5.31E-05	2.05E-04	6.85E-06	1.30E-04	1.08E-06
250	373397	755944	Offsite Worker	-1.49E-02	-6.77E-07	-2.03E-02	-1.01E-01	-1.85E-02	-8.83E-05	3.70E-05	3.70E-07	2.55E-03	4.24E-03	3.00E-04	5.01E-05	2.22E-04	7.40E-06	1.41E-04	1.17E-06
251	373393	755846	Offsite Worker	1.80E-02	8.18E-07	1.86E-02	9.28E-02	1.45E-02	6.89E-05	3.55E-05	3.55E-07	2.45E-03	4.08E-03	3.03E-04	5.04E-05	2.13E-04	7.11E-06	1.35E-04	1.13E-06
252	373390	755747	Offsite Worker	6.42E-02	2.92E-06	7.33E-02	3.67E-01	6.11E-02	2.91E-04	3.11E-05	3.11E-07	2.14E-03	3.57E-03	1.97E-04	3.28E-05	1.87E-04	6.22E-06	1.18E-04	9.85E-07
253	373309	755744	Offsite Worker	7.62E-02	3.46E-06	8.74E-02	4.37E-01	7.30E-02	3.48E-04	3.14E-05	3.14E-07	2.16E-03	3.60E-03	2.13E-04	3.56E-05	1.88E-04	6.28E-06	1.19E-04	9.94E-07
254	373229	755743	Offsite Worker	8.82E-02	4.01E-06	1.01E-01	5.07E-01	8.50E-02	4.05E-04	3.13E-05	3.13E-07	2.15E-03	3.59E-03	2.20E-04	3.66E-05	1.88E-04	6.26E-06	1.19E-04	9.92E-07
255	373143	755741	Offsite Worker	1.02E-01	4.64E-06	1.18E-01	5.89E-01	9.89E-02	4.71E-04	3.11E-05	3.11E-07	2.14E-03	3.57E-03	2.30E-04	3.84E-05	1.87E-04	6.23E-06	1.18E-04	9.86E-07
256	373143	755823	Offsite Worker	7.13E-02	3.24E-06	8.11E-02	4.05E-01	6.75E-02	3.21E-04	3.80E-05	3.80E-07	2.61E-03	4.35E-03	2.94E-04	4.90E-05	2.28E-04	7.59E-06	1.44E-04	1.20E-06
257	373143	755906	Offsite Worker	9.82E-03	4.47E-07	8.18E-03	4.09E-02	5.28E-03	2.51E-05	4.58E-05	4.58E-07	3.15E-03	5.26E-03	4.05E-04	6.75E-05	2.75E-04	9.17E-06	1.74E-04	1.45E-06
258	373065	755906	Offsite Worker	2.30E-02	1.05E-06	2.36E-02	1.18E-01	1.83E-02	8.72E-05	4.75E-05	4.75E-07	3.27E-03	5.45E-03	4.17E-04	6.95E-05	2.85E-04	9.50E-06	1.80E-04	1.50E-06
259	373065	755827	Offsite Worker	8.52E-02	3.87E-06	9.74E-02	4.87E-01	8.13E-02	3.87E-04	3.82E-05	3.82E-07	2.63E-03	4.39E-03	2.89E-04	4.82E-05	2.29E-04	7.65E-06	1.45E-04	1.21E-06
260	373068	755733	Offsite Worker	1.16E-01	5.25E-06	1.34E-01	6.68E-01	1.12E-01	5.35E-04	3.29E-05	3.29E-07	2.26E-03	3.77E-03	2.60E-04	4.33E-05	1.97E-04	6.57E-06	1.25E-04	1.04E-06
261	373007	755733	Offsite Worker	1.26E-01	5.73E-06	1.46E-01	7.29E-01	1.22E-01	5.83E-04	3.70E-05	3.70E-07	2.54E-03	4.24E-03	2.89E-04	4.82E-05	2.22E-04	7.40E-06	1.41E-04	1.17E-06
262	372941	755733	Offsite Worker	1.38E-01	6.27E-06	1.59E-01	7.97E-01	1.34E-01	6.37E-04	4.12E-05	4.12E-07	2.83E-03	4.72E-03	3.34E-04	5.56E-05	2.47E-04	8.23E-06	1.56E-04	1.30E-06
263	372941	755636	Offsite Worker	1.20E-01	5.45E-06	1.38E-01	6.92E-01	1.16E-01	5.54E-04	3.74E-05	3.74E-07	2.57E-03	4.28E-03	3.25E-04	5.42E-05	2.24E-04	7.47E-06	1.42E-04	1.18E-06
264	372941	755539	Offsite Worker	9.82E-02	4.46E-06	1.13E-01	5.66E-01	9.49E-02	4.52E-04	3.30E-05	3.30E-07	2.27E-03	3.79E-03	2.36E-04	3.93E-05	1.98E-04	6.61E-06	1.26E-04	1.05E-06
265	372941	755442	Offsite Worker	5.30E-02	2.41E-06	6.02E-02	3.01E-01	5.01E-02	2.38E-04	2.94E-05	2.94E-07	2.02E-03	3.37E-03	3.01E-04	5.02E-05	1.76E-04	5.88E-06	1.12E-04	9.30E-07
266	372913	755342	Offsite Worker	2.22E-02	1.01E-06	2.43E-02	1.21E-01	1.97E-02	9.38E-05	2.59E-05	2.59E-07	1.78E-03	2.97E-03	2.24E-04	3.73E-05	1.55E-04	5.18E-06	9.85E-05	8.20E-07
267	372817	755346	Offsite Worker	2.63E-02	1.19E-06	2.88E-02	1.44E-01	2.34E-02	1.11E-04	2.97E-05	2.97E-07	2.04E-03	3.40E-03	2.49E-04	4.15E-05	1.78E-04	5.93E-06	1.13E-04	9.40E-07
268	372720	755349	Offsite Worker	3.19E-02	1.45E-06	3.53E-02	1.76E-01	2.88E-02	1.37E-04	3.19E-05	3.19E-07	2.20E-03	3.66E-03	2.47E-04	4.12E-05	1.92E-04	6.38E-06	1.21E-04	1.01E-06
269	372624	755352	Offsite Worker	3.91E-02	1.78E-06	4.37E-02	2.18E-01	3.59E-02	1.71E-04	3.20E-05	3.20E-07	2.20E-03	3.67E-03	3.15E-04	5.25E-05	1.92E-04	6.40E-06	1.22E-04	1.01E-06
270	372527	755349	Offsite Worker	4.99E-02	2.27E-06	5.64E-02	2.82E-01	4.68E-02	2.23E-04	3.20E-05	3.20E-07	2.20E-03	3.67E-03	3.92E-04	6.54E-05	1.92E-04	6.40E-06	1.22E-04	1.01E-06
271	372431	755353	Offsite Worker	6.17E-02	2.81E-06	7.02E-02	3.51E-01	5.84E-02	2.78E-04	3.38E-05	3.38E-07	2.33E-03	3.88E-03	3.41E-04	5.68E-05	2.03E-04	6.76E-06	1.28E-04	1.07E-06
272	372334	755356	Offsite Worker	7.57E-02	3.44E-06	8.66E-02	4.33E-01	7.23E-02	3.44E-04	3.52E-05	3.52E-07	2.42E-03	4.03E-03	2.78E-04	4.64E-05	2.11E-04	7.03E-06	1.34E-04	1.11E-06
273	372237	755359	Offsite Worker	9.10E-02	4.14E-06	1.05E-01	5.23E-01	8.77E-02	4.18E-04	3.33E-05	3.33E-07	2.29E-03	3.82E-03	2.39E-04	3.98E-05	2.00E-04	6.67E-06	1.27E-04	1.06E-06
274	372141	755362	Offsite Worker	6.75E-02	3.07E-06	7.70E-02	3.85E-01	6.41E-02	3.05E-04	3.44E-05	3.44E-07	2.37E-03	3.95E-03	2.78E-04	4.63E-05	2.07E-04	6.89E-06	1.31E-04	1.09E-06
275	372044	755366	Offsite Worker	-6.94E-03	-3.15E-07	-1.07E-02	-5.37E-02	-1.04E-02	-4.95E-05	3.51E-05	3.51E-07	2.41E-03	4.02E-03	3.86E-04	6.43E-05	2.11E-04	7.02E-06	1.33E-04	1.11E-06
276	371948	755369	Offsite Worker	4.75E-02	2.16E-06	5.34E-02	2.67E-01	4.41E-02	2.10E-04	3.48E-05	3.48E-07	2.40E-03	3.99E-03	2.53E-04	4.21E-05	2.09E-04	6.97E-06	1.32E-04	1.10E-06
277	371851	755372	Offsite Worker	4.21E-02	1.91E-06	4.68E-02	2.34E-01	3.84E-02	1.83E-04	3.69E-05	3.69E-07	2.54E-03	4.23E-03	3.87E-04	6.44E-05	2.22E-04	7.39E-06	1.40E-04	1.17E-06
278	371755	755375	Offsite Worker	7.56E-02	3.44E-06	8.62E-02	4.31E-01	7.18E-02	3.42E-04	3.78E-05	3.78E-07	2.60E-03	4.33E-03	3.16E-04	5.26E-05	2.27E-04	7.56E-06	1.44E-04	1.20E-06
279	371658	755378	Offsite Worker	1.34E-01	6.09E-06	1.55E-01	7.75E-01	1.30E-01	6.21E-04	3.58E-05	3.58E-07	2.46E-03	4.10E-03	3.32E-04	5.53E-05	2.15E-04	7.16E-06	1.36E-04	1.13E-06
280	371562	755382	Offsite Worker	1.39E-01	6.33E-06	1.61E-01	8.07E-01	1.36E-01	6.47E-04	3.36E-05	3.36E-07	2.31E-03	3.85E-03	3.04E-04	5.07E-05	2.01E-04	6.71E-06	1.28E-04	1.06E-06
281	371465	755385	Offsite Worker	1.44E-01	6.53E-06	1.67E-01	8.34E-01	1.41E-01	6.69E-04	3.04E-05	3.04E-07	2.09E-03	3.48E-03	3.60E-04	6.00E-05	1.82E-04	6.07E-06	1.15E-04	9.61E-07
282	371368	755388	Offsite Worker	1.43E-01	6.50E-06	1.66E-01	8.30E-01	1.40E-01	6.66E-04	3.02E-05	3.02E-07	2.08E-03	3.47E-03	3.63E-04	6.04E-05	1.81E-04	6.05E-06	1.15E-04	9.58E-07
283	371272	755391	Offsite Worker	1.48E-01	6.74E-06	1.72E-01	8.61E-01	1.45E-01	6.91E-04	3.03E-05	3.03E-07	2.09E-03	3.48E-03	3.70E-04	6.16E-05	1.82E-04	6.06E-06	1.15E-04	9.60E-07
284	371175	755395	Offsite Worker	1.65E-01	7.50E-06	1.92E-01	9.59E-01	1.62E-01	7.70E-04	3.05E-05	3.05E-07	2.10E-03	3.49E-03	4.09E-04	6.82E-05	1.83E-04	6.09E-06	1.16E-04	9.65E-07
285	371079	755398	Offsite Worker	1.67E-01	7.60E-06	1.94E-01	9.72E-01	1.64E-01	7.81E-04	3.06E-05	3.06E-07	2.11E-03	3.51E-03	4.13E-04	6.88E-05	1.84E-04	6.12E-06	1.16E-04	9.70E-07
286	371042	755478	Offsite Worker	1.84E-01	8.38E-06	2.14E-01	1.07E+00	1.81E-01	8.61E-04	3.40E-05	3.40E-07	2.34E-03	3.90E-03	4.57E-04	7.62E-05	2.04E-04	6.80E-06	1.29E-04	1.08E-06
287	371009	755538	Offsite Worker	1.89E-01	8.60E-06	2.20E-01	1.10E+00	1.85E-01	8.82E-04	3.70E-05	3.70E-07	2.55E-03	4.24E-03	4.86E-04	8.09E-05	2.22E-04	7.40E-06	1.41E-04	1.17E-06
288	370975	755597	Offsite Worker	2.27E-01	1.03E-05	2.64E-01	1.32E+00	2.23E-01	1.06E-03	4.06E-05	4.06E-07	2.79E-03	4.66E-03	5.28E-04	8.79E-05	2.44E-04	8.12E-06	1.54E-04	1.29E-06
289	370925	755597	Offsite Worker	2.22E-01	1.01E-05	2.59E-01	1.29E+00	2.18E-01	1.04E-03	4.09E-05	4.09E-07	2.81E-03	4.69E-03	5.10E-04	8.50E-05	2.45E-04	8.17E-06	1.55E-04	1.29E-06
290	370860	755547	Offsite Worker	2.14E-01	9.71E-06	2.48E-01	1.24E+00	2.10E-01	9.98E-04	3.80E-05	3.80E-07	2.61E-03	4.36E-03	4.40E-04	7.33E-05	2.28E-04	7.60E-06	1.44E-04	1.20E-06
291	370796	755497	Offsite Worker	1.88E-01	8.54E-06	2.18E-01	1.09E+00	1.84E-01	8.77E-04	3.53E-05	3.53E-07	2.43E-03	4.05E-03	3.77E-04	6.29E-05	2.12E-04	7.06E-06	1.34E-04	1.12E-06

Table 2-3

Summary of Incremental Acute Hazard Concentrations and Hazard Indices

Receptor Number	X	Y	Receptor Type	xylene, total (µg/m^3)	xylene, total Acute Hazard	arsenic (µg/m^3)	arsenic Acute Hazard	chlorine (µg/m^3)	chlorine Acute Hazard	copper (µg/m^3)	copper Acute Hazard	mercury (µg/m^3)	mercury Acute Hazard	nickel (µg/m^3)	nickel Acute Hazard	vanadium (µg/m^3)	vanadium Acute Hazard	sulfates (µg/m^3)	sulfates Acute Hazard
			CalEPA Acute REL		22000		0.2		210		100		0.6		6		30		120
292	370733	755428	Offsite Worker	1.35E-01	6.11E-06	1.56E-01	7.79E-01	1.31E-01	6.24E-04	3.19E-05	3.19E-07	2.20E-03	3.66E-03	3.12E-04	5.21E-05	1.92E-04	6.39E-06	1.21E-04	1.01E-06
293	370634	755428	Offsite Worker	1.46E-01	6.63E-06	1.69E-01	8.45E-01	1.42E-01	6.78E-04	3.18E-05	3.18E-07	2.19E-03	3.64E-03	3.17E-04	5.28E-05	1.91E-04	6.35E-06	1.21E-04	1.01E-06
294	370536	755428	Offsite Worker	2.14E-01	9.74E-06	2.50E-01	1.25E+00	2.11E-01	1.00E-03	3.14E-05	3.14E-07	2.16E-03	3.60E-03	2.81E-04	4.69E-05	1.89E-04	6.29E-06	1.19E-04	9.95E-07
295	370437	755428	Offsite Worker	2.94E-01	1.34E-05	3.44E-01	1.72E+00	2.91E-01	1.39E-03	3.09E-05	3.09E-07	2.13E-03	3.54E-03	2.82E-04	4.70E-05	1.85E-04	6.18E-06	1.17E-04	9.79E-07
296	370338	755427	Offsite Worker	2.18E-01	9.91E-06	2.54E-01	1.27E+00	2.15E-01	1.02E-03	3.01E-05	3.01E-07	2.07E-03	3.45E-03	2.78E-04	4.63E-05	1.81E-04	6.02E-06	1.14E-04	9.54E-07
307	369249	755442	Offsite Worker	2.50E-01	1.14E-05	2.91E-01	1.45E+00	2.45E-01	1.17E-03	5.55E-05	5.55E-07	3.82E-03	6.37E-03	5.11E-04	8.52E-05	3.33E-04	1.11E-05	2.11E-04	1.76E-06
308	369151	755442	Offsite Worker	1.98E-01	9.02E-06	2.29E-01	1.14E+00	1.92E-01	9.15E-04	6.86E-05	6.86E-07	4.72E-03	7.87E-03	5.02E-04	8.36E-05	4.12E-04	1.37E-05	2.61E-04	2.17E-06
309	369052	755442	Offsite Worker	1.59E-01	7.24E-06	1.82E-01	9.10E-01	1.52E-01	7.23E-04	7.99E-05	7.99E-07	5.50E-03	9.16E-03	5.69E-04	9.49E-05	4.79E-04	1.60E-05	3.04E-04	2.53E-06
320	368035	755402	Offsite Worker	7.62E-02	3.46E-06	8.49E-02	4.24E-01	6.97E-02	3.32E-04	6.38E-05	6.38E-07	4.39E-03	7.31E-03	4.13E-04	6.88E-05	3.83E-04	1.28E-05	2.42E-04	2.02E-06
321	367960	755389	Offsite Worker	6.67E-02	3.03E-06	7.38E-02	3.69E-01	6.04E-02	2.88E-04	6.26E-05	6.26E-07	4.31E-03	7.18E-03	4.02E-04	6.70E-05	3.76E-04	1.25E-05	2.38E-04	1.98E-06
322	367863	755390	Offsite Worker	5.45E-02	2.48E-06	6.04E-02	3.02E-01	4.94E-02	2.35E-04	5.08E-05	5.08E-07	3.50E-03	5.83E-03	3.32E-04	5.54E-05	3.05E-04	1.02E-05	1.93E-04	1.61E-06
323	367766	755392	Offsite Worker	4.42E-02	2.01E-06	4.97E-02	2.49E-01	4.11E-02	1.96E-04	3.32E-05	3.32E-07	2.28E-03	3.81E-03	2.32E-04	3.87E-05	1.99E-04	6.64E-06	1.26E-04	1.05E-06
324	367669	755393	Offsite Worker	3.82E-02	1.73E-06	4.29E-02	2.14E-01	3.54E-02	1.69E-04	2.89E-05	2.89E-07	1.99E-03	3.32E-03	2.00E-04	3.33E-05	1.74E-04	5.78E-06	1.10E-04	9.16E-07
325	367572	755394	Offsite Worker	3.45E-02	1.57E-06	3.88E-02	1.94E-01	3.21E-02	1.53E-04	2.54E-05	2.54E-07	1.75E-03	2.91E-03	1.73E-04	2.88E-05	1.52E-04	5.08E-06	9.64E-05	8.04E-07
326	367475	755395	Offsite Worker	3.29E-02	1.50E-06	3.72E-02	1.86E-01	3.08E-02	1.47E-04	2.24E-05	2.24E-07	1.54E-03	2.57E-03	1.50E-04	2.51E-05	1.35E-04	4.49E-06	8.52E-05	7.10E-07
327	370400	756850	On-Site Occupational	6.82E-02	3.10E-06	7.78E-02	3.89E-01	6.49E-02	3.09E-04	3.06E-05	3.06E-07	2.11E-03	3.51E-03	3.95E-04	6.58E-05	1.84E-04	6.13E-06	1.16E-04	9.70E-07
328	368758	756094	On-Site Occupational	0.0469379	2.134E-06	0.0257352	0.1286758	0.007298	3.475E-05	0.0003401	3.401E-06	0.0233968	0.0389947	0.0017004	0.0002834	0.0020404	6.801E-05	0.0012923	1.077E-05
329	372284	756445	On-Site Occupational	0.05493	2.497E-06	0.0301171	0.1505855	0.0085407	4.067E-05	0.0004769	4.769E-06	0.0328104	0.054684	0.0023845	0.0003974	0.0028614	9.538E-05	0.0018122	1.51E-05
330	371472	756387	On-Site Occupational	0.0151496	6.886E-07	0.0083063	0.0415313	0.0023555	1.122E-05	0.0001144	1.144E-06	0.0078704	0.0131173	0.000572	9.533E-05	0.0006864	2.288E-05	0.0004347	3.623E-06
331	372340	756220	On-Site Occupational	0.1820551	8.275E-06	0.1713329	0.8566644	0.1243219	0.000592	0.0005953	5.953E-06	0.0409597	0.0682662	0.003904	0.0006507	0.0035721	0.0001191	0.0022623	1.885E-05
332	368310	755876	On-Site Occupational	0.1303664	5.926E-06	0.0757104	0.3785522	0.0259528	0.0001236	0.0010836	1.084E-05	0.0745548	0.124258	0.0060953	0.0010159	0.0065019	0.0002167	0.0041179	3.432E-05
333	372383	756712	On-Site Occupational	0.0139133	6.324E-07	0.0076284	0.0381421	0.0021633	1.03E-05	0.0001208	1.208E-06	0.0083128	0.0138546	0.0006112	0.0001019	0.000725	2.417E-05	0.0004591	3.826E-06
334	369876	756398	On-Site Occupational	0.0052009	2.364E-07	0.0028516	0.0142578	0.0008086	3.851E-06	4.075E-05	4.075E-07	0.0028036	0.0046727	0.0002135	3.558E-05	0.0002445	8.15E-06	0.0001549	1.29E-06
335	370477	755934	On-Site Occupational	0.0141084	6.413E-07	0.0077354	0.0386768	0.0021936	1.045E-05	0.0001084	1.084E-06	0.0074548	0.0124247	0.0008006	0.0001334	0.0006501	2.167E-05	0.0004117	3.431E-06
1	367379	755396	Recreational	3.28E-02	1.49E-06	3.72E-02	1.86E-01	3.09E-02	1.47E-04	2.01E-05	2.01E-07	1.38E-03	2.30E-03	1.32E-04	2.20E-05	1.21E-04	4.02E-06	7.64E-05	6.37E-07
2	367340	755485	Recreational	3.67E-02	1.67E-06	4.18E-02	2.09E-01	3.48E-02	1.66E-04	1.99E-05	1.99E-07	1.37E-03	2.28E-03	1.09E-04	1.81E-05	1.19E-04	3.98E-06	7.56E-05	6.30E-07
3	367301	755573	Recreational	3.82E-02	1.74E-06	4.35E-02	2.17E-01	3.62E-02	1.72E-04	2.15E-05	2.15E-07	1.48E-03	2.46E-03	1.25E-04	2.08E-05	1.29E-04	4.29E-06	8.15E-05	6.79E-07
4	367263	755661	Recreational	4.59E-02	2.09E-06	5.25E-02	2.62E-01	4.38E-02	2.09E-04	2.21E-05	2.21E-07	1.52E-03	2.53E-03	1.28E-04	2.14E-05	1.32E-04	4.41E-06	8.38E-05	6.99E-07
5	367224	755749	Recreational	2.04E-02	9.29E-07	2.25E-02	1.13E-01	1.84E-02	8.76E-05	2.14E-05	2.14E-07	1.47E-03	2.45E-03	9.61E-05	1.60E-05	1.28E-04	4.28E-06	8.13E-05	6.77E-07
6	367186	755838	Recreational	-1.31E-02	-5.96E-07	-1.68E-02	-8.41E-02	-1.50E-02	-7.13E-05	1.97E-05	1.97E-07	1.35E-03	2.25E-03	6.27E-05	1.04E-05	1.18E-04	3.93E-06	7.47E-05	6.22E-07
7	367147	755926	Recreational	-4.08E-02	-1.85E-06	-4.93E-02	-2.46E-01	-4.24E-02	-2.02E-04	1.72E-05	1.72E-07	1.19E-03	1.98E-03	3.40E-05	5.67E-06	1.03E-04	3.45E-06	6.55E-05	5.46E-07
8	367109	756014	Recreational	-2.17E-02	-9.88E-07	-2.68E-02	-1.34E-01	-2.33E-02	-1.11E-04	1.64E-05	1.64E-07	1.13E-03	1.88E-03	1.03E-04	1.71E-05	9.81E-05	3.27E-06	6.21E-05	5.18E-07
9	367070	756103	Recreational	-7.37E-02	-3.35E-06	-8.79E-02	-4.40E-01	-7.52E-02	-3.58E-04	1.57E-05	1.57E-07	1.08E-03	1.80E-03	1.13E-04	1.89E-05	9.43E-05	3.14E-06	5.97E-05	4.97E-07
10	367032	756191	Recreational	-6.29E-02	-2.86E-06	-7.51E-02	-3.75E-01	-6.43E-02	-3.06E-04	1.47E-05	1.47E-07	1.01E-03	1.68E-03	1.10E-04	1.83E-05	8.81E-05	2.94E-06	5.58E-05	4.65E-07
11	366993	756279	Recreational	-3.02E-02	-1.37E-06	-3.66E-02	-1.83E-01	-3.16E-02	-1.51E-04	1.49E-05	1.49E-07	1.03E-03	1.71E-03	1.33E-04	2.21E-05	8.96E-05	2.99E-06	5.67E-05	4.73E-07
12	366954	756367	Recreational	-1.40E-02	-6.35E-07	-1.75E-02	-8.73E-02	-1.53E-02	-7.30E-05	1.45E-05	1.45E-07	1.00E-03	1.67E-03	1.53E-04	2.55E-05	8.72E-05	2.91E-06	5.52E-05	4.60E-07
13	366916	756456	Recreational	7.17E-03	3.26E-07	7.53E-03	3.76E-02	5.94E-03	2.83E-05	1.31E-05	1.31E-07	9.02E-04	1.50E-03	1.58E-04	2.63E-05	7.87E-05	2.62E-06	4.98E-05	4.15E-07
14	366877	756544	Recreational	2.13E-02	9.68E-07	2.42E-02	1.21E-01	2.02E-02	9.61E-05	1.16E-05	1.16E-07	7.98E-04	1.33E-03	1.55E-04	2.58E-05	6.96E-05	2.32E-06	4.41E-05	3.67E-07
15	366839	756632	Recreational	4.35E-02	1.98E-06	5.04E-02	2.52E-01	4.24E-02	2.02E-04	1.09E-05	1.09E-07	7.53E-04	1.25E-03	1.46E-04	2.44E-05	6.56E-05	2.19E-06	4.16E-05	3.46E-07
16	366800	756720	Recreational	5.22E-02	2.37E-06	6.07E-02	3.03E-01	5.12E-02	2.44E-04	1.03E-05	1.03E-07	7.09E-04	1.18E-03	1.29E-04	2.15E-05	6.19E-05	2.06E-06	3.92E-05	3.26E-07
17	366762	756809	Recreational	1.61E-02	7.34E-07	1.83E-02	9.16E-02	1.52E-02	7.24E-05	9.73E-06	9.73E-08	6.69E-04	1.12E-03	1.34E-04	2.24E-05	5.84E-05	1.95E-06	3.70E-05	3.08E-07
18	366723	756897	Recreational	1.67E-02	7.61E-07	1.90E-02	9.52E-02	1.59E-02	7.55E-05	9.19E-06	9.19E-08	6.32E-04	1.05E-03	1.26E-04	2.10E-05	5.51E-05	1.84E-06	3.49E-05	2.91E-07
19	366685	756985	Recreational	2.00E-02	9.09E-07	2.29E-02	1.15E-01	1.92E-02	9.12E-05	8.69E-06	8.69E-08	5.98E-04	9.96E-04	1.17E-04	1.94E-05	5.21E-05	1.74E-06	3.30E-05	2.75E-07
20	366646	757074	Recreational	1.11E-02	5.06E-07	1.25E-02	6.26E-02	1.04E-02	4.93E-05	8.21E-06	8.21E-08	5.65E-04	9.41E-04	1.13E-04	1.88E-05	4.93E-05	1.64E-06	3.12E-05	2.60E-07
21	366607	757162	Recreational	-5.79E-03	-2.63E-07	-7.38E-03	-3.69E-02	-6.54E-03	-3.12E-05	7.78E-06	7.78E-08	5.35E-04	8.92E-04	7.60E-05	1.27E-05	4.67E-05	1.56E-06	2.96E-05	2.46E-07
22	366569	757250	Recreational	-8.62E-03	-3.92E-07	-1.07E-02	-5.34E-02	-9.33E-03	-4.44E-05	7.38E-06	7.38E-08	5.08E-04	8.46E-04	5.05E-05	8.41E-06	4.43E-05	1.48E-06	2.80E-05	2.34E-07
23	366530	757338	Recreational	-2.60E-03	-1.18E-07	-3.56E-03	-1.78E-02	-3.27E-03	-1.56E-05	7.01E-06	7.01E-08	4.82E-04	8.03E-04	4.65E-05	7.74E-06	4.20E-05	1.40E-06	2.66E-05	2.22E-07
24	366492	757427	Recreational	-2.85E-02	-1.30E-06	-3.41E-02	-1.70E-01	-2.92E-02	-1.39E-04	6.66E-06	6.66E-08	4.58E-04	7.64E-04	3.29E-05	5.49E-06	4.00E-05	1.33E-06	2.53E-05	2.11E-07
25	366453	757515	Recreational	-4.75E-02	-2.16E-06	-5.64E-02	-2.82E-01	-4.81E-02	-2.29E-04	6.34E-06	6.34E-08	4.36E-04	7.26E-04	3.96E-05	6.61E-06	3.80E-05	1.27E-06	2.41E-05	2.01E-07
26	366415	757603	Recreational	-1.44E-02	-6.56E-07	-1.74E-02	-8.71E-02	-1.50E-02	-7.15E-05	6.15E-06	6.15E-08	4.23E-04	7.05E-04	3.13E-05	5.22E-06	3.69E-05	1.23E-06	2.34E-05	1.95E-07
27	366376	757692	Recreational	-8.04E-03	-3.65E-07	-9.90E-03	-4.95E-02	-8.62E-03	-4.11E-05	6.21E-06	6.21E-08	4.27E-04	7.12E-04	4.36E-05	7.27E-06	3.72E-05	1.24E-06	2.36E-05	1.96E-07
84	369336	758100	Recreational	1.34E-02	6.11E-07	1.48E-02	7.40E-02	1.21E-02	5.75E-05	1.44E-05	1.44E-07	9.94E-04	1.66E-03	1.06E-04	1.76E-05	8.67E-05	2.89E-06	5.49E-05	4.57E-07
85	369269	758170	Recreational	2.76E-02	1.25E-06	3.15E-02	1.58E-01	2.63E-02	1.25E-04	1.42E-05	1.42E-07	9.79E-04	1.63E-03	1.02E-04	1.69E-05	8.54E-05	2.85E-06	5.41E-05	4.51E-07

Table 2-3

Summary of Incremental Acute Hazard Concentrations and Hazard Indices

Receptor Number	X	Y	Receptor Type	xylene, total (µg/m^3)	xylene, total Acute Hazard	arsenic (µg/m^3)	arsenic Acute Hazard	chlorine (µg/m^3)	chlorine Acute Hazard	copper (µg/m^3)	copper Acute Hazard	mercury (µg/m^3)	mercury Acute Hazard	nickel (µg/m^3)	nickel Acute Hazard	vanadium (µg/m^3)	vanadium Acute Hazard	sulfates (µg/m^3)	sulfates Acute Hazard
			CalEPA Acute REL		22000		0.2		210		100		0.6		6		30		120
86	369202	758239	Recreational	3.02E-02	1.37E-06	3.46E-02	1.73E-01	2.89E-02	1.38E-04	1.37E-05	1.37E-07	9.43E-04	1.57E-03	9.61E-05	1.60E-05	8.22E-05	2.74E-06	5.21E-05	4.34E-07
87	369264	758285	Recreational	2.45E-02	1.11E-06	2.79E-02	1.39E-01	2.32E-02	1.11E-04	1.34E-05	1.34E-07	9.20E-04	1.53E-03	9.61E-05	1.60E-05	8.02E-05	2.67E-06	5.08E-05	4.23E-07
88	369326	758330	Recreational	2.01E-02	9.14E-07	2.28E-02	1.14E-01	1.89E-02	8.99E-05	1.30E-05	1.30E-07	8.91E-04	1.49E-03	9.60E-05	1.60E-05	7.77E-05	2.59E-06	4.92E-05	4.10E-07
89	369389	758376	Recreational	8.00E-02	3.64E-06	9.33E-02	4.67E-01	7.88E-02	3.75E-04	1.25E-05	1.25E-07	8.58E-04	1.43E-03	1.09E-04	1.82E-05	7.49E-05	2.50E-06	4.74E-05	3.95E-07
90	369389	758462	Recreational	7.62E-02	3.46E-06	8.88E-02	4.44E-01	7.50E-02	3.57E-04	1.20E-05	1.20E-07	8.25E-04	1.38E-03	1.06E-04	1.76E-05	7.20E-05	2.40E-06	4.56E-05	3.80E-07
91	369389	758548	Recreational	7.28E-02	3.31E-06	8.48E-02	4.24E-01	7.17E-02	3.41E-04	1.15E-05	1.15E-07	7.93E-04	1.32E-03	1.03E-04	1.71E-05	6.92E-05	2.31E-06	4.38E-05	3.65E-07
28	366338	757780	Residential	-3.66E-03	-1.66E-07	-4.75E-03	-2.37E-02	-4.25E-03	-2.02E-05	6.25E-06	6.25E-08	4.30E-04	7.16E-04	5.23E-05	8.71E-06	3.75E-05	1.25E-06	2.37E-05	1.98E-07
29	366402	757746	Residential	-4.06E-03	-1.85E-07	-5.25E-03	-2.62E-02	-4.69E-03	-2.23E-05	6.63E-06	6.63E-08	4.56E-04	7.60E-04	5.35E-05	8.92E-06	3.98E-05	1.33E-06	2.52E-05	2.10E-07
30	366467	757713	Residential	-4.57E-03	-2.08E-07	-5.87E-03	-2.94E-02	-5.23E-03	-2.49E-05	7.07E-06	7.07E-08	4.86E-04	8.10E-04	5.50E-05	9.16E-06	4.24E-05	1.41E-06	2.68E-05	2.24E-07
31	366531	757679	Residential	-5.35E-03	-2.43E-07	-6.82E-03	-3.41E-02	-6.05E-03	-2.88E-05	7.52E-06	7.52E-08	5.17E-04	8.62E-04	5.60E-05	9.33E-06	4.51E-05	1.50E-06	2.86E-05	2.38E-07
32	366567	757773	Residential	3.24E-04	1.47E-08	-1.90E-04	-9.51E-04	-4.44E-04	-2.11E-06	8.16E-06	8.16E-08	5.61E-04	9.36E-04	6.71E-05	1.12E-05	4.90E-05	1.63E-06	3.10E-05	2.58E-07
33	366625	757758	Residential	9.75E-04	4.43E-08	5.42E-04	2.71E-03	1.61E-04	7.68E-07	8.65E-06	8.65E-08	5.95E-04	9.92E-04	6.98E-05	1.16E-05	5.19E-05	1.73E-06	3.29E-05	2.74E-07
34	366682	757744	Residential	1.68E-03	7.64E-08	1.34E-03	6.69E-03	8.20E-04	3.91E-06	9.15E-06	9.15E-08	6.30E-04	1.05E-03	7.24E-05	1.21E-05	5.49E-05	1.83E-06	3.48E-05	2.90E-07
35	366768	757788	Residential	-1.98E-03	-8.98E-08	-3.03E-03	-1.51E-02	-2.92E-03	-1.39E-05	9.98E-06	9.98E-08	6.87E-04	1.14E-03	9.14E-05	1.52E-05	5.99E-05	2.00E-06	3.79E-05	3.16E-07
36	366854	757833	Residential	9.94E-03	4.52E-07	1.10E-02	5.48E-02	8.94E-03	4.26E-05	1.06E-05	1.06E-07	7.32E-04	1.22E-03	9.59E-05	1.60E-05	6.38E-05	2.13E-06	4.04E-05	3.37E-07
37	366941	757877	Residential	2.54E-02	1.15E-06	2.91E-02	1.45E-01	2.43E-02	1.16E-04	1.11E-05	1.11E-07	7.61E-04	1.27E-03	1.01E-04	1.69E-05	6.64E-05	2.21E-06	4.20E-05	3.50E-07
38	367027	757922	Residential	3.99E-02	1.81E-06	4.61E-02	2.31E-01	3.88E-02	1.85E-04	1.12E-05	1.12E-07	7.71E-04	1.29E-03	1.08E-04	1.80E-05	6.73E-05	2.24E-06	4.26E-05	3.55E-07
39	367113	757966	Residential	4.86E-02	2.21E-06	5.64E-02	2.82E-01	4.75E-02	2.26E-04	1.11E-05	1.11E-07	7.61E-04	1.27E-03	1.17E-04	1.95E-05	6.64E-05	2.21E-06	4.20E-05	3.50E-07
40	367192	757916	Residential	4.84E-02	2.20E-06	5.62E-02	2.81E-01	4.74E-02	2.25E-04	1.15E-05	1.15E-07	7.88E-04	1.31E-03	1.16E-04	1.94E-05	6.87E-05	2.29E-06	4.35E-05	3.63E-07
41	367264	757916	Residential	5.10E-02	2.32E-06	5.93E-02	2.96E-01	5.00E-02	2.38E-04	1.13E-05	1.13E-07	7.81E-04	1.30E-03	1.20E-04	2.01E-05	6.81E-05	2.27E-06	4.31E-05	3.59E-07
42	367335	757916	Residential	5.26E-02	2.39E-06	6.11E-02	3.06E-01	5.15E-02	2.45E-04	1.11E-05	1.11E-07	7.65E-04	1.28E-03	5.84E-05	9.74E-06	6.68E-05	2.23E-06	4.23E-05	3.52E-07
43	367343	757966	Residential	1.09E-02	4.93E-07	1.20E-02	6.02E-02	9.85E-03	4.69E-05	1.06E-05	1.06E-07	7.28E-04	1.21E-03	9.02E-05	1.50E-05	6.35E-05	2.12E-06	4.02E-05	3.35E-07
44	367404	757995	Residential	9.18E-02	4.17E-06	1.07E-01	5.37E-01	9.09E-02	4.33E-04	9.95E-06	9.95E-08	6.84E-04	1.14E-03	9.11E-05	1.52E-05	5.97E-05	1.99E-06	3.78E-05	3.15E-07
45	367465	758024	Residential	9.96E-02	4.53E-06	1.17E-01	5.83E-01	9.87E-02	4.70E-04	9.24E-06	9.24E-08	6.36E-04	1.06E-03	1.25E-04	2.09E-05	5.54E-05	1.85E-06	3.51E-05	2.93E-07
55	367673	758189	Residential	4.29E-02	1.95E-06	4.99E-02	2.50E-01	4.21E-02	2.01E-04	7.40E-06	7.40E-08	5.09E-04	8.49E-04	1.42E-04	2.37E-05	4.44E-05	1.48E-06	2.81E-05	2.34E-07
59	367816	758096	Residential	4.31E-02	1.96E-06	5.01E-02	2.51E-01	4.23E-02	2.01E-04	8.11E-06	8.11E-08	5.58E-04	9.29E-04	1.55E-04	2.58E-05	4.86E-05	1.62E-06	3.08E-05	2.57E-07
60	367898	758066	Residential	3.60E-02	1.64E-06	4.18E-02	2.09E-01	3.52E-02	1.68E-04	8.43E-06	8.43E-08	5.80E-04	9.66E-04	1.52E-04	2.53E-05	5.06E-05	1.69E-06	3.20E-05	2.67E-07
61	367980	758035	Residential	2.94E-02	1.33E-06	3.39E-02	1.70E-01	2.85E-02	1.36E-04	8.76E-06	8.76E-08	6.03E-04	1.00E-03	1.49E-04	2.49E-05	5.26E-05	1.75E-06	3.33E-05	2.77E-07
62	368062	758005	Residential	3.39E-02	1.54E-06	3.92E-02	1.96E-01	3.30E-02	1.57E-04	9.10E-06	9.10E-08	6.26E-04	1.04E-03	1.39E-04	2.31E-05	5.46E-05	1.82E-06	3.46E-05	2.88E-07
63	368144	757975	Residential	6.13E-02	2.79E-06	7.15E-02	3.58E-01	6.04E-02	2.88E-04	9.44E-06	9.44E-08	6.49E-04	1.08E-03	1.13E-04	1.89E-05	5.66E-05	1.89E-06	3.59E-05	2.99E-07
64	368226	757945	Residential	7.82E-02	3.55E-06	9.13E-02	4.56E-01	7.71E-02	3.67E-04	1.09E-05	1.09E-07	7.48E-04	1.25E-03	1.14E-04	1.90E-05	6.52E-05	2.17E-06	4.13E-05	3.44E-07
65	368301	757943	Residential	9.17E-02	4.17E-06	1.07E-01	5.35E-01	9.05E-02	4.31E-04	1.27E-05	1.27E-07	8.71E-04	1.45E-03	1.23E-04	2.04E-05	7.60E-05	2.53E-06	4.81E-05	4.01E-07
66	368376	757941	Residential	1.06E-01	4.80E-06	1.23E-01	6.17E-01	1.04E-01	4.97E-04	1.45E-05	1.45E-07	9.95E-04	1.66E-03	1.30E-04	2.17E-05	8.67E-05	2.89E-06	5.49E-05	4.58E-07
67	368452	757940	Residential	-2.29E-02	-1.04E-06	-2.80E-02	-1.40E-01	-2.44E-02	-1.16E-04	1.61E-05	1.61E-07	1.11E-03	1.85E-03	1.35E-04	2.25E-05	9.66E-05	3.22E-06	6.12E-05	5.10E-07
68	368527	757938	Residential	1.22E-03	5.55E-08	2.15E-04	1.07E-03	-4.21E-04	-2.01E-06	1.74E-05	1.74E-07	1.20E-03	2.00E-03	1.35E-04	2.26E-05	1.05E-04	3.48E-06	6.62E-05	5.52E-07
69	368563	757880	Residential	4.18E-03	1.90E-07	3.61E-03	1.81E-02	2.43E-03	1.16E-05	1.86E-05	1.86E-07	1.28E-03	2.13E-03	1.49E-04	2.48E-05	1.12E-04	3.72E-06	7.07E-05	5.89E-07
70	368636	757926	Residential	4.11E-02	1.87E-06	4.71E-02	2.35E-01	3.93E-02	1.87E-04	1.86E-05	1.86E-07	1.28E-03	2.13E-03	1.26E-04	2.10E-05	1.11E-04	3.71E-06	7.06E-05	5.88E-07
71	368709	757971	Residential	6.47E-02	2.94E-06	7.49E-02	3.74E-01	6.30E-02	3.00E-04	1.80E-05	1.80E-07	1.24E-03	2.07E-03	1.57E-04	2.62E-05	1.08E-04	3.61E-06	6.85E-05	5.71E-07
72	368782	758017	Residential	8.67E-02	3.94E-06	1.01E-01	5.04E-01	8.51E-02	4.05E-04	1.70E-05	1.70E-07	1.17E-03	1.95E-03	1.49E-04	2.48E-05	1.02E-04	3.40E-06	6.47E-05	5.39E-07
73	368855	758062	Residential	5.45E-02	2.48E-06	6.30E-02	3.15E-01	5.30E-02	2.52E-04	1.57E-05	1.57E-07	1.08E-03	1.80E-03	1.57E-04	2.62E-05	9.41E-05	3.14E-06	5.96E-05	4.97E-07
74	368928	758108	Residential	3.04E-02	1.38E-06	3.48E-02	1.74E-01	2.90E-02	1.38E-04	1.42E-05	1.42E-07	9.75E-04	1.62E-03	1.77E-04	2.95E-05	8.50E-05	2.83E-06	5.38E-05	4.49E-07
75	369001	758153	Residential	1.92E-02	8.75E-07	2.17E-02	1.09E-01	1.80E-02	8.56E-05	1.34E-05	1.34E-07	9.24E-04	1.54E-03	1.13E-04	1.88E-05	8.06E-05	2.69E-06	5.10E-05	4.25E-07
76	369058	758074	Residential	1.26E-02	5.74E-07	1.38E-02	6.92E-02	1.12E-02	5.35E-05	1.47E-05	1.47E-07	1.01E-03	1.69E-03	1.20E-04	2.00E-05	8.84E-05	2.95E-06	5.60E-05	4.67E-07
77	369102	758103	Residential	1.32E-02	5.98E-07	1.45E-02	7.23E-02	1.18E-02	5.60E-05	1.47E-05	1.47E-07	1.01E-03	1.68E-03	1.04E-04	1.73E-05	8.81E-05	2.94E-06	5.58E-05	4.65E-07
78	369145	758132	Residential	9.17E-02	4.17E-06	1.07E-01	5.35E-01	9.03E-02	4.30E-04	1.46E-05	1.46E-07	1.00E-03	1.67E-03	9.98E-05	1.66E-05	8.73E-05	2.91E-06	5.53E-05	4.61E-07
79	369200	758065	Residential	6.30E-02	2.86E-06	7.30E-02	3.65E-01	6.15E-02	2.93E-04	1.53E-05	1.53E-07	1.05E-03	1.75E-03	1.03E-04	1.72E-05	9.15E-05	3.05E-06	5.80E-05	4.83E-07
80	369255	757998	Residential	3.72E-02	1.69E-06	4.27E-02	2.14E-01	3.58E-02	1.70E-04	1.57E-05	1.57E-07	1.08E-03	1.80E-03	1.10E-04	1.84E-05	9.42E-05	3.14E-06	5.96E-05	4.97E-07
81	369310	757931	Residential	3.30E-02	1.50E-06	3.77E-02	1.88E-01	3.15E-02	1.50E-04	1.58E-05	1.58E-07	1.09E-03	1.82E-03	1.14E-04	1.89E-05	9.50E-05	3.17E-06	6.02E-05	5.01E-07
82	369356	757981	Residential	9.70E-02	4.41E-06	1.13E-01	5.65E-01	9.55E-02	4.55E-04	1.54E-05	1.54E-07	1.06E-03	1.76E-03	1.12E-04	1.87E-05	9.23E-05	3.08E-06	5.84E-05	4.87E-07
83	369403	758031	Residential	1.03E-01	4.67E-06	1.20E-01	5.99E-01	1.01E-01	4.82E-04	1.50E-05	1.50E-07	1.03E-03	1.72E-03	1.29E-04	2.15E-05	8.98E-05	2.99E-06	5.69E-05	4.74E-07
92	369389	758634	Residential	6.95E-02	3.16E-06	8.10E-02	4.05E-01	6.84E-02	3.26E-04	1.11E-05	1.11E-07	7.61E-04	1.27E-03	9.93E-05	1.66E-05	6.64E-05	2.21E-06	4.20E-05	3.50E-07
93	369469	758630	Residential	4.10E-02	1.86E-06	4.74E-02	2.37E-01	3.99E-02	1.90E-04	1.09E-05	1.09E-07	7.51E-04	1.25E-03	1.09E-04	1.82E-05	6.55E-05	2.18E-06	4.15E-05	3.46E-07
94	369549	758625	Residential	9.45E-02	4.29E-06	1.10E-01	5.52E-01	9.35E-02	4.45E-04	1.06E-05	1.06E-07	7.30E-04	1.22E-03	1.09E-04	1.82E-05	6.37E-05	2.12E-06	4.03E-05	3.36E-07

Table 2-3
Summary of Incremental Acute Hazard Concentrations and Hazard Indices

Receptor Number	X	Y	Receptor Type	xylene, total (µg/m^3)	xylene, total Acute Hazard	arsenic (µg/m^3)	arsenic Acute Hazard	chlorine (µg/m^3)	chlorine Acute Hazard	copper (µg/m^3)	copper Acute Hazard	mercury (µg/m^3)	mercury Acute Hazard	nickel (µg/m^3)	nickel Acute Hazard	vanadium (µg/m^3)	vanadium Acute Hazard	sulfates (µg/m^3)	sulfates Acute Hazard
			CalEPA Acute REL		22000		0.2		210		100		0.6		6		30		120
95	369630	758621	Residential	9.87E-02	4.49E-06	1.15E-01	5.77E-01	9.77E-02	4.65E-04	1.07E-05	1.07E-07	7.35E-04	1.22E-03	1.15E-04	1.92E-05	6.41E-05	2.14E-06	4.06E-05	3.38E-07
96	369710	758617	Residential	9.39E-02	4.27E-06	1.10E-01	5.49E-01	9.29E-02	4.42E-04	1.08E-05	1.08E-07	7.41E-04	1.23E-03	1.18E-04	1.97E-05	6.46E-05	2.15E-06	4.09E-05	3.41E-07
97	369791	758613	Residential	1.03E-01	4.68E-06	1.20E-01	6.02E-01	1.02E-01	4.85E-04	1.07E-05	1.07E-07	7.36E-04	1.23E-03	1.15E-04	1.91E-05	6.42E-05	2.14E-06	4.06E-05	3.39E-07
98	369791	758514	Residential	1.05E-01	4.80E-06	1.23E-01	6.17E-01	1.04E-01	4.97E-04	1.11E-05	1.11E-07	7.66E-04	1.28E-03	1.20E-04	2.00E-05	6.68E-05	2.23E-06	4.23E-05	3.52E-07
99	369791	758416	Residential	1.08E-01	4.89E-06	1.26E-01	6.29E-01	1.06E-01	5.07E-04	1.17E-05	1.17E-07	8.03E-04	1.34E-03	1.26E-04	2.10E-05	7.01E-05	2.34E-06	4.44E-05	3.70E-07
100	369791	758318	Residential	1.09E-01	4.96E-06	1.28E-01	6.38E-01	1.08E-01	5.14E-04	1.25E-05	1.25E-07	8.57E-04	1.43E-03	1.33E-04	2.22E-05	7.48E-05	2.49E-06	4.73E-05	3.95E-07
101	369881	758318	Residential	9.05E-02	4.12E-06	1.06E-01	5.29E-01	8.94E-02	4.26E-04	1.25E-05	1.25E-07	8.61E-04	1.44E-03	1.22E-04	2.03E-05	7.51E-05	2.50E-06	4.76E-05	3.96E-07
102	369972	758318	Residential	7.64E-02	3.47E-06	8.91E-02	4.46E-01	7.53E-02	3.58E-04	1.24E-05	1.24E-07	8.50E-04	1.42E-03	1.23E-04	2.05E-05	7.41E-05	2.47E-06	4.69E-05	3.91E-07
103	370062	758318	Residential	1.01E-01	4.57E-06	1.18E-01	5.88E-01	9.94E-02	4.73E-04	1.20E-05	1.20E-07	8.26E-04	1.38E-03	1.20E-04	2.00E-05	7.20E-05	2.40E-06	4.56E-05	3.80E-07
104	370153	758318	Residential	1.20E-01	5.47E-06	1.41E-01	7.04E-01	1.19E-01	5.68E-04	1.19E-05	1.19E-07	8.20E-04	1.37E-03	1.16E-04	1.93E-05	7.15E-05	2.38E-06	4.53E-05	3.77E-07
105	370243	758318	Residential	1.29E-01	5.85E-06	1.51E-01	7.54E-01	1.28E-01	6.08E-04	1.22E-05	1.22E-07	8.38E-04	1.40E-03	1.40E-04	2.34E-05	7.31E-05	2.44E-06	4.63E-05	3.86E-07
111	370408	758347	Residential	1.28E-01	5.84E-06	1.50E-01	7.52E-01	1.27E-01	6.06E-04	1.19E-05	1.19E-07	8.19E-04	1.36E-03	1.38E-04	2.30E-05	7.14E-05	2.38E-06	4.52E-05	3.77E-07
112	370490	758344	Residential	1.23E-01	5.60E-06	1.44E-01	7.21E-01	1.22E-01	5.81E-04	1.16E-05	1.16E-07	7.99E-04	1.33E-03	1.55E-04	2.58E-05	6.97E-05	2.32E-06	4.41E-05	3.68E-07
113	370572	758341	Residential	1.27E-01	5.76E-06	1.48E-01	7.42E-01	1.26E-01	5.99E-04	1.12E-05	1.12E-07	7.68E-04	1.28E-03	1.29E-04	2.15E-05	6.70E-05	2.23E-06	4.24E-05	3.54E-07
114	370654	758338	Residential	1.50E-01	6.83E-06	1.76E-01	8.81E-01	1.49E-01	7.11E-04	1.06E-05	1.06E-07	7.30E-04	1.22E-03	1.69E-04	2.82E-05	6.36E-05	2.12E-06	4.03E-05	3.36E-07
115	370735	758335	Residential	1.63E-01	7.40E-06	1.91E-01	9.55E-01	1.62E-01	7.71E-04	9.96E-06	9.96E-08	6.85E-04	1.14E-03	1.64E-04	2.73E-05	5.97E-05	1.99E-06	3.78E-05	3.15E-07
116	370817	758333	Residential	1.61E-01	7.31E-06	1.88E-01	9.42E-01	1.60E-01	7.61E-04	9.76E-06	9.76E-08	6.71E-04	1.12E-03	1.71E-04	2.85E-05	5.86E-05	1.95E-06	3.71E-05	3.09E-07
130	371183	758027	Residential	1.34E-01	6.07E-06	1.56E-01	7.81E-01	1.32E-01	6.30E-04	1.25E-05	1.25E-07	8.63E-04	1.44E-03	3.40E-04	5.67E-05	7.52E-05	2.51E-06	4.77E-05	3.97E-07
131	371248	758024	Residential	1.36E-01	6.17E-06	1.59E-01	7.94E-01	1.34E-01	6.40E-04	1.27E-05	1.27E-07	8.71E-04	1.45E-03	2.77E-04	4.62E-05	7.60E-05	2.53E-06	4.81E-05	4.01E-07
132	371326	758075	Residential	1.24E-01	5.66E-06	1.46E-01	7.28E-01	1.23E-01	5.87E-04	1.23E-05	1.23E-07	8.47E-04	1.41E-03	2.57E-04	4.28E-05	7.39E-05	2.46E-06	4.68E-05	3.90E-07
133	371404	758127	Residential	1.13E-01	5.15E-06	1.33E-01	6.63E-01	1.12E-01	5.34E-04	1.19E-05	1.19E-07	8.22E-04	1.37E-03	2.40E-04	4.01E-05	7.17E-05	2.39E-06	4.54E-05	3.78E-07
134	371481	758178	Residential	1.03E-01	4.70E-06	1.21E-01	6.04E-01	1.02E-01	4.87E-04	1.16E-05	1.16E-07	7.97E-04	1.33E-03	2.27E-04	3.78E-05	6.95E-05	2.32E-06	4.40E-05	3.67E-07
135	371559	758230	Residential	9.41E-02	4.28E-06	1.10E-01	5.49E-01	9.29E-02	4.42E-04	1.12E-05	1.12E-07	7.72E-04	1.29E-03	2.15E-04	3.59E-05	6.73E-05	2.24E-06	4.26E-05	3.55E-07
136	371637	758281	Residential	8.57E-02	3.90E-06	1.00E-01	5.00E-01	8.46E-02	4.03E-04	1.09E-05	1.09E-07	7.47E-04	1.24E-03	2.05E-04	3.41E-05	6.51E-05	2.17E-06	4.12E-05	3.44E-07
137	371715	758333	Residential	7.83E-02	3.56E-06	9.14E-02	4.57E-01	7.72E-02	3.68E-04	1.12E-05	1.12E-07	7.71E-04	1.28E-03	2.00E-04	3.33E-05	6.72E-05	2.24E-06	4.26E-05	3.55E-07
138	371769	758261	Residential	6.74E-02	3.07E-06	7.85E-02	3.92E-01	6.62E-02	3.15E-04	1.21E-05	1.21E-07	8.32E-04	1.39E-03	1.32E-04	2.19E-05	7.25E-05	2.42E-06	4.59E-05	3.83E-07
139	371822	758189	Residential	4.18E-02	1.90E-06	4.82E-02	2.41E-01	4.05E-02	1.93E-04	1.31E-05	1.31E-07	8.99E-04	1.50E-03	2.28E-04	3.80E-05	7.84E-05	2.61E-06	4.96E-05	4.14E-07
140	371894	758160	Residential	6.53E-02	2.97E-06	7.58E-02	3.79E-01	6.39E-02	3.04E-04	1.40E-05	1.40E-07	9.64E-04	1.61E-03	2.81E-04	4.68E-05	8.41E-05	2.80E-06	5.33E-05	4.44E-07
141	371894	758081	Residential	8.86E-02	4.03E-06	1.03E-01	5.16E-01	8.72E-02	4.15E-04	1.46E-05	1.46E-07	1.01E-03	1.68E-03	3.43E-04	5.71E-05	8.77E-05	2.92E-06	5.56E-05	4.63E-07
142	371959	758074	Residential	8.85E-02	4.02E-06	1.03E-01	5.15E-01	8.70E-02	4.14E-04	1.53E-05	1.53E-07	1.06E-03	1.76E-03	3.46E-04	5.76E-05	9.21E-05	3.07E-06	5.83E-05	4.86E-07
155	372055	757363	Residential	-2.94E-03	-1.33E-07	-5.54E-03	-2.77E-02	-5.73E-03	-2.73E-05	2.81E-05	2.81E-07	1.93E-03	3.22E-03	2.82E-04	4.69E-05	1.69E-04	5.62E-06	1.07E-04	8.90E-07
297	370239	755427	Residential	3.51E-01	1.60E-05	4.11E-01	2.05E+00	3.48E-01	1.66E-03	2.92E-05	2.92E-07	2.01E-03	3.34E-03	2.79E-04	4.65E-05	1.75E-04	5.83E-06	1.11E-04	9.24E-07
298	370138	755427	Residential	3.04E-01	1.38E-05	3.56E-01	1.78E+00	3.01E-01	1.43E-03	2.80E-05	2.80E-07	1.93E-03	3.21E-03	2.89E-04	4.82E-05	1.68E-04	5.60E-06	1.06E-04	8.86E-07
299	370040	755427	Residential	1.70E-01	7.74E-06	1.98E-01	9.92E-01	1.67E-01	7.97E-04	2.67E-05	2.67E-07	1.84E-03	3.06E-03	1.96E-04	3.26E-05	1.60E-04	5.34E-06	1.01E-04	8.45E-07
300	369941	755426	Residential	1.42E-01	6.47E-06	1.66E-01	8.28E-01	1.40E-01	6.66E-04	2.53E-05	2.53E-07	1.74E-03	2.90E-03	2.00E-04	3.33E-05	1.52E-04	5.06E-06	9.61E-05	8.01E-07
301	369842	755426	Residential	1.16E-01	5.27E-06	1.35E-01	6.73E-01	1.13E-01	5.40E-04	2.58E-05	2.58E-07	1.78E-03	2.96E-03	2.15E-04	3.58E-05	1.55E-04	5.16E-06	9.81E-05	8.17E-07
304	369544	755434	Residential	2.92E-01	1.33E-05	3.42E-01	1.71E+00	2.89E-01	1.38E-03	2.84E-05	2.84E-07	1.95E-03	3.26E-03	4.73E-04	7.89E-05	1.70E-04	5.68E-06	1.08E-04	8.99E-07
305	369445	755434	Residential	4.74E-01	2.15E-05	5.56E-01	2.78E+00	4.71E-01	2.24E-03	3.35E-05	3.35E-07	2.30E-03	3.84E-03	4.98E-04	8.30E-05	2.01E-04	6.69E-06	1.27E-04	1.06E-06
306	369346	755434	Residential	2.85E-01	1.30E-05	3.33E-01	1.66E+00	2.81E-01	1.34E-03	4.37E-05	4.37E-07	3.01E-03	5.01E-03	5.05E-04	8.42E-05	2.62E-04	8.74E-06	1.66E-04	1.38E-06
310	368953	755441	Residential	1.34E-01	6.09E-06	1.52E-01	7.59E-01	1.26E-01	6.00E-04	8.53E-05	8.53E-07	5.87E-03	9.78E-03	5.96E-04	9.93E-05	5.12E-04	1.71E-05	3.24E-04	2.70E-06
311	368854	755441	Residential	1.16E-01	5.26E-06	1.30E-01	6.51E-01	1.08E-01	5.13E-04	8.60E-05	8.60E-07	5.91E-03	9.86E-03	5.92E-04	9.87E-05	5.16E-04	1.72E-05	3.27E-04	2.72E-06
312	368755	755441	Residential	9.64E-02	4.38E-06	1.07E-01	5.35E-01	8.78E-02	4.18E-04	9.21E-05	9.21E-07	6.34E-03	1.06E-02	6.04E-04	1.01E-04	5.53E-04	1.84E-05	3.50E-04	2.92E-06
313	368657	755441	Residential	6.97E-02	3.17E-06	7.55E-02	3.77E-01	6.08E-02	2.90E-04	9.47E-05	9.47E-07	6.51E-03	1.09E-02	6.00E-04	1.00E-04	5.68E-04	1.89E-05	3.60E-04	3.00E-06
314	368558	755440	Residential	8.37E-02	3.80E-06	9.14E-02	4.57E-01	7.42E-02	3.53E-04	1.01E-04	1.01E-06	6.98E-03	1.16E-02	6.16E-04	1.03E-04	6.09E-04	2.03E-05	3.86E-04	3.21E-06
315	368459	755440	Residential	9.66E-02	4.39E-06	1.05E-01	5.26E-01	8.51E-02	4.05E-04	1.24E-04	1.24E-06	8.50E-03	1.42E-02	7.51E-04	1.25E-04	7.41E-04	2.47E-05	4.70E-04	3.91E-06
316	368360	755440	Residential	1.05E-01	4.79E-06	1.14E-01	5.71E-01	9.22E-02	4.39E-04	1.37E-04	1.37E-06	9.41E-03	1.57E-02	8.07E-04	1.34E-04	8.21E-04	2.74E-05	5.20E-04	4.33E-06
317	368262	755439	Residential	1.09E-01	4.94E-06	1.17E-01	5.87E-01	9.45E-02	4.50E-04	1.48E-04	1.48E-06	1.02E-02	1.69E-02	8.52E-04	1.42E-04	8.86E-04	2.95E-05	5.61E-04	4.67E-06
318	368186	755427	Residential	1.00E-01	4.56E-06	1.09E-01	5.47E-01	8.85E-02	4.22E-04	1.23E-04	1.23E-06	8.46E-03	1.41E-02	7.22E-04	1.20E-04	7.38E-04	2.46E-05	4.67E-04	3.89E-06
319	368111	755414	Residential	8.88E-02	4.04E-06	9.87E-02	4.94E-01	8.09E-02	3.85E-04	8.26E-05	8.26E-07	5.69E-03	9.48E-03	5.13E-04	8.55E-05	4.96E-04	1.65E-05	3.14E-04	2.62E-06
46	367504	757948	School	9.98E-02	4.54E-06	1.17E-01	5.84E-01	9.89E-02	4.71E-04	9.78E-06	9.78E-08	6.73E-04	1.12E-03	1.01E-04	1.68E-05	5.87E-05	1.96E-06	3.72E-05	3.10E-07
47	367544	757873	School	1.62E-02	7.34E-07	1.83E-02	9.15E-02	1.52E-02	7.23E-05	1.04E-05	1.04E-07	7.12E-04	1.19E-03	7.11E-05	1.18E-05	6.21E-05	2.07E-06	3.93E-05	3.28E-07
48	367587	757909	School	1.05E-01	4.76E-06	1.23E-01	6.13E-01	1.04E-01	4.94E-04	9.56E-06	9.56E-08	6.58E-04	1.10E-03	1.09E-04	1.82E-05	5.74E-05	1.91E-06	3.63E-05	3.03E-07
49	367623	757866	School	1.05E-01	4.79E-06	1.23E-01	6.16E-01	1.04E-01	4.97E-04	9.76E-06	9.76E-08	6.71E-04	1.12E-03	9.80E-05	1.63E-05	5.85E-05	1.95E-06	3.71E-05	3.09E-07

Table 2-3
Summary of Incremental Acute Hazard Concentrations and Hazard Indices

Receptor Number	X	Y	Receptor Type	xylene, total (µg/m^3)	xylene, total Acute Hazard	arsenic (µg/m^3)	arsenic Acute Hazard	chlorine (µg/m^3)	chlorine Acute Hazard	copper (µg/m^3)	copper Acute Hazard	mercury (µg/m^3)	mercury Acute Hazard	nickel (µg/m^3)	nickel Acute Hazard	vanadium (µg/m^3)	vanadium Acute Hazard	sulfates (µg/m^3)	sulfates Acute Hazard
			CalEPA Acute REL		22000		0.2		210		100		0.6		6		30		120
50	367694	757866	School	1.09E-01	4.97E-06	1.28E-01	6.41E-01	1.09E-01	5.17E-04	9.07E-06	9.07E-08	6.24E-04	1.04E-03	1.25E-04	2.08E-05	5.44E-05	1.81E-06	3.44E-05	2.87E-07
51	367716	757927	School	1.03E-01	4.68E-06	1.21E-01	6.03E-01	1.02E-01	4.86E-04	8.76E-06	8.76E-08	6.03E-04	1.00E-03	1.60E-04	2.66E-05	5.26E-05	1.75E-06	3.33E-05	2.77E-07
52	367737	757988	School	8.81E-02	4.01E-06	1.03E-01	5.16E-01	8.73E-02	4.16E-04	8.49E-06	8.49E-08	5.84E-04	9.73E-04	1.79E-04	2.98E-05	5.09E-05	1.70E-06	3.22E-05	2.69E-07
53	367727	758067	School	6.87E-02	3.12E-06	8.03E-02	4.02E-01	6.80E-02	3.24E-04	8.06E-06	8.06E-08	5.55E-04	9.24E-04	1.65E-04	2.75E-05	4.84E-05	1.61E-06	3.06E-05	2.55E-07
54	367716	758146	School	4.75E-02	2.16E-06	5.54E-02	2.77E-01	4.67E-02	2.23E-04	7.67E-06	7.67E-08	5.28E-04	8.79E-04	1.49E-04	2.48E-05	4.60E-05	1.53E-06	2.91E-05	2.43E-07
56	367723	758254	School	-2.67E-02	-1.21E-06	-3.20E-02	-1.60E-01	-2.74E-02	-1.31E-04	7.23E-06	7.23E-08	4.97E-04	8.28E-04	1.17E-04	1.96E-05	4.34E-05	1.45E-06	2.75E-05	2.29E-07
57	367784	758221	School	-3.41E-02	-1.55E-06	-4.07E-02	-2.04E-01	-3.49E-02	-1.66E-04	7.47E-06	7.47E-08	5.14E-04	8.57E-04	1.18E-04	1.96E-05	4.48E-05	1.49E-06	2.84E-05	2.37E-07
58	367845	758189	School	1.59E-02	7.22E-07	1.81E-02	9.07E-02	1.51E-02	7.21E-05	7.72E-06	7.72E-08	5.31E-04	8.85E-04	1.18E-04	1.96E-05	4.63E-05	1.54E-06	2.93E-05	2.44E-07
106	370247	758254	School	1.35E-01	6.16E-06	1.59E-01	7.93E-01	1.34E-01	6.39E-04	1.27E-05	1.27E-07	8.72E-04	1.45E-03	1.48E-04	2.47E-05	7.61E-05	2.54E-06	4.82E-05	4.01E-07
107	370250	758189	School	1.42E-01	6.44E-06	1.66E-01	8.29E-01	1.40E-01	6.69E-04	1.31E-05	1.31E-07	9.03E-04	1.51E-03	1.44E-04	2.40E-05	7.88E-05	2.63E-06	4.99E-05	4.16E-07
108	370308	758196	School	1.43E-01	6.49E-06	1.67E-01	8.35E-01	1.41E-01	6.74E-04	1.29E-05	1.29E-07	8.90E-04	1.48E-03	1.79E-04	2.98E-05	7.76E-05	2.59E-06	4.92E-05	4.10E-07
109	370361	758236	School	1.39E-01	6.30E-06	1.62E-01	8.12E-01	1.37E-01	6.54E-04	1.26E-05	1.26E-07	8.64E-04	1.44E-03	1.57E-04	2.62E-05	7.53E-05	2.51E-06	4.77E-05	3.98E-07
110	370415	758275	School	1.32E-01	6.00E-06	1.55E-01	7.73E-01	1.31E-01	6.23E-04	1.22E-05	1.22E-07	8.38E-04	1.40E-03	1.45E-04	2.42E-05	7.31E-05	2.44E-06	4.63E-05	3.86E-07
202	372807	757781	School	-1.69E-02	-7.70E-07	-2.15E-02	-1.07E-01	-1.90E-02	-9.06E-05	2.09E-05	2.09E-07	1.44E-03	2.39E-03	1.87E-04	3.11E-05	1.25E-04	4.18E-06	7.93E-05	6.61E-07
203	372901	757782	School	-1.08E-02	-4.92E-07	-1.43E-02	-7.16E-02	-1.29E-02	-6.17E-05	2.16E-05	2.16E-07	1.49E-03	2.48E-03	1.90E-04	3.16E-05	1.30E-04	4.32E-06	8.21E-05	6.84E-07
302	369741	755435	School	2.72E-01	1.24E-05	3.18E-01	1.59E+00	2.69E-01	1.28E-03	2.71E-05	2.71E-07	1.86E-03	3.10E-03	3.44E-04	5.73E-05	1.62E-04	5.41E-06	1.03E-04	8.57E-07
303	369643	755434	School	2.56E-01	1.16E-05	2.99E-01	1.50E+00	2.53E-01	1.21E-03	2.76E-05	2.76E-07	1.90E-03	3.16E-03	3.99E-04	6.64E-05	1.65E-04	5.51E-06	1.05E-04	8.73E-07

Attachment C.3

Cancer Risk and Chronic Non-Cancer Health Hazard Calculations for Adjusted Construction Emissions (RAGS Part F)

Table 3-1

RAGS F Risk Calculation for LAX Runway 7L/25R RSA Improvements and Associated Projects, 2015 Construction - 2-year Construction Exposure
(Based on Peak Location of Residential Cancer Risks)

Exposure Parameters	**Residential Child**	**School Child**	**Residential Adult**
Exposure Time	24 (hrs/day)	8 (hrs/day)	24 (hrs/day)
Exposure Frequency	350 (days/year)	200 (days/year)	350 (days/year)
Exposure Duration	2 (years)	2 (years)	2 (years)
Averaging Time (non-carcinogenic)	17520 (hrs)	17520 (hrs)	17520 (hrs)
Averaging Time (carcinogenic)	613200 (hrs)	613200 (hrs)	613200 (hrs)

RAGS F Inhalation Equations

EC = (CA x ET x EF x ED) / (AT)

Risk = IUR x EC

Hazard Quotient = EC / RfC

Where:

EC = Exposure Concentratic
CA = Concentration in Air
ET = Exposure Time
EF = Exposure Frequency
ED = Exposure Duration
AT = Averaging Time
IUR = Inhalation Unit Risk
RfC = Reference Concentration

		Toxicity Criteria				**Cancer Risks**			**Hazard Quotients**		
TAC	**Concentration at Location with Maximum Risk (ug/m3)**	**EPA Inhalation Unit Risk $(ug/m^3)^{-1}$**	**CalEPA Inhalation Unit Risk $(ug/m^3)^{-1}$**	**EPA Chronic Inhalation RfC (ug/m^3)**	**CalEPA Chronic Inhalation RfC (ug/m^3)**	**Cancer Risk to Child Resident**	**Cancer Risk to School Child**	**Cancer Risk to Adult Resident**	**Hazard Quotient Child Resident**	**Hazard Quotient School Child**	**Hazard Quotient Adult Resident**
Acetaldehyde	1.24E-02	2.20E-06	2.70E-06	9.00E+00	1.40E+02	9.17E-10	1.75E-10	9.17E-10	8.49E-05	1.62E-05	8.49E-05
Acrolein	6.95E-03	N/A	N/A	2.00E-02	3.50E-01	NC	NC	NC	1.90E-02	3.63E-03	1.90E-02
Benzene	4.84E-03	7.80E-06	2.90E-05	3.00E+01	6.00E+01	3.85E-09	7.33E-10	3.85E-09	7.74E-05	1.47E-05	7.74E-05
1,3-Butadiene	4.79E-03	3.00E-05	1.70E-04	2.00E+00	2.00E+01	2.23E-08	4.25E-09	2.23E-08	2.30E-04	4.38E-05	2.30E-04
Ethylbenzene	5.05E-04	2.50E-06	2.50E-06	1.00E+03	2.00E+03	3.46E-11	6.59E-12	3.46E-11	2.42E-07	4.61E-08	2.42E-07
Formaldehyde	3.55E-02	1.30E-05	6.00E-06	9.80E+00	9.00E+00	5.83E-09	1.11E-09	5.83E-09	3.78E-03	7.20E-04	3.78E-03
Hexane, n-	5.80E-06	N/A	N/A	7.00E+02	7.00E+03	NC	NC	NC	7.95E-10	1.51E-10	7.95E-10
Methanol	5.12E-03	N/A	N/A	4.00E+03	4.00E+03	NC	NC	NC	1.23E-06	2.34E-07	1.23E-06
Methyl ethyl ketone	5.46E-05	N/A	N/A	5.00E+03	N/A	NC	NC	NC	NC	NC	NC
Naphthalene	1.54E-03	N/A	3.40E-05	3.00E+00	9.00E+00	1.43E-09	2.73E-10	1.43E-09	1.64E-04	3.12E-05	1.64E-04
Propylene	1.30E-02	N/A	N/A	3.00E+03	3.00E+03	NC	NC	NC	4.14E-06	7.89E-07	4.14E-06
Styrene	8.79E-04	N/A	N/A	1.00E+03	9.00E+02	NC	NC	NC	9.36E-07	1.78E-07	9.36E-07
Toluene	1.88E-03	N/A	N/A	5.00E+03	3.00E+02	NC	NC	NC	6.00E-06	1.14E-06	6.00E-06
Xylene (total)	1.31E-03	N/A	N/A	1.00E+02	7.00E+02	NC	NC	NC	1.79E-06	3.42E-07	1.79E-06
Diesel PM	3.90E-04	N/A	3.00E-04	5.00E+00	5.00E+00	3.21E-09	6.11E-10	3.21E-09	7.48E-05	1.42E-05	7.48E-05
Arsenic	1.95E-07	4.30E-03	3.30E-03	1.50E-02	1.50E-02	1.76E-11	3.36E-12	1.76E-11	1.25E-05	2.37E-06	1.25E-05
Cadmium	1.56E-06	1.80E-03	4.20E-03	1.00E-02	2.00E-02	1.80E-10	3.42E-11	1.80E-10	7.48E-05	1.42E-05	7.48E-05
Chlorine	1.34E-05	N/A	N/A	1.50E-01	2.00E-01	NC	NC	NC	6.43E-05	1.23E-05	6.43E-05
Chromium (VI)	2.54E-07	1.20E-02	1.50E-01	1.00E-01	2.00E-01	1.05E-09	1.99E-10	1.05E-09	1.22E-06	2.32E-07	1.22E-06
Copper	1.86E-06	N/A	N/A	N/A	N/A	NC	NC	NC	NC	NC	NC
Lead	3.59E-06	N/A	1.20E-05	N/A	N/A	1.18E-12	2.25E-13	1.18E-12	NC	NC	NC
Manganese	2.63E-06	N/A	N/A	5.00E-02	9.00E-02	NC	NC	NC	2.80E-05	5.33E-06	2.80E-05
Mercury	1.17E-06	N/A	N/A	3.00E-01	3.00E-02	NC	NC	NC	3.74E-05	7.12E-06	3.74E-05
Nickel	7.41E-07	N/A	2.60E-04	9.00E-02	1.40E-02	5.28E-12	1.01E-12	5.28E-12	5.08E-05	9.67E-06	5.08E-05
Selenium	3.90E-07	N/A	N/A	2.00E+01	2.00E+01	NC	NC	NC	1.87E-08	3.56E-09	1.87E-08
Silicon	9.70E-05	N/A	N/A	3.00E+00	3.00E+00	NC	NC	NC	3.10E-05	5.91E-06	3.10E-05
Sulfates	6.80E-04	N/A	N/A	N/A	N/A	NC	NC	NC	NC	NC	NC
Vanadium	1.13E-06	8.30E-03	N/A	1.00E-01	N/A	NC	NC	NC	NC	NC	NC
					TOTAL	3.88E-08	7.40E-09	3.88E-08	0.02	0.00	0.02
					1 in a million cancer risks	0.04	0.01	0.04			

Notes:

[1] Residential Maximum Grid No. Receptor_315

N/A - Not Available

NC = Not Calculated

ug/m^3 = micrograms per cubic meter

Source: Ricondo & Associates, Inc., 2013.

Table 3-2

RAGS F Risk Calculation for LAX Runway 7L/25R RSA Improvements and Associated Projects, 2015 Construction - 2-year Construction Exposure
(Based on Peak Location of Residential Hazards)

Exposure Parameters	**Residential Child**	**School Child**	**Residential Adult**
Exposure Time	24 (hrs/day)	8 (hrs/day)	24 (hrs/day)
Exposure Frequency	350 (days/year)	200 (days/year)	350 (days/year)
Exposure Duration	2 (years)	2 (years)	2 (years)
Averaging Time (non-carcinogenic)	17520 (hrs)	17520 (hrs)	17520 (hrs)
Averaging Time (carcinogenic)	613200 (hrs)	613200 (hrs)	613200 (hrs)

RAGS F Inhalation Equations

EC = (CA x ET x EF x ED) / (AT)

Risk = IUR x EC

Hazard Quotient = EC / RfC

Where:

EC = Exposure Concentratic	ED = Exposure Duration
CA = Concentration in Air	AT = Averaging Time
ET = Exposure Time	IUR = Inhalation Unit Risk
EF = Exposure Frequency	RfC = Reference Concentration

	Toxicity Criteria					**Cancer Risks**			**Hazard Quotients**		
TAC	**Concentration at Location with Maximum Risk (ug/m3)**	**EPA Inhalation Unit Risk $(ug/m^3)^{-1}$**	**CalEPA Inhalation Unit Risk $(ug/m^3)^{-1}$**	**EPA Chronic Inhalation RfC (ug/m^3)**	**CalEPA Chronic Inhalation RfC (ug/m^3)**	**Cancer Risk to Child Resident**	**Cancer Risk to School Child**	**Cancer Risk to Adult Resident**	**Hazard Quotient Child Resident**	**Hazard Quotient School Child**	**Hazard Quotient Adult Resident**
Acetaldehyde	2.90E-02	2.20E-06	2.70E-06	9.00E+00	1.40E+02	2.14E-09	4.09E-10	2.14E-09	1.99E-04	3.78E-05	1.99E-04
Acrolein	1.63E-02	N/A	N/A	2.00E-02	3.50E-01	NC	NC	NC	4.47E-02	8.51E-03	4.47E-02
Benzene	1.13E-02	7.80E-06	2.90E-05	3.00E+01	6.00E+01	9.01E-09	1.72E-09	9.01E-09	1.81E-04	3.45E-05	1.81E-04
1,3-Butadiene	1.12E-02	3.00E-05	1.70E-04	2.00E+00	2.00E+01	5.24E-08	9.97E-09	5.24E-08	5.39E-04	1.03E-04	5.39E-04
Ethylbenzene	1.18E-03	2.50E-06	2.50E-06	1.00E+03	2.00E+03	8.09E-11	1.54E-11	8.09E-11	5.66E-07	1.08E-07	5.66E-07
Formaldehyde	8.31E-02	1.30E-05	6.00E-06	9.80E+00	9.00E+00	1.37E-08	2.60E-09	1.37E-08	8.85E-03	1.69E-03	8.85E-03
Hexane, n-	1.20E-05	N/A	N/A	7.00E+02	7.00E+03	NC	NC	NC	1.65E-09	3.14E-10	1.65E-09
Methanol	1.20E-02	N/A	N/A	4.00E+03	4.00E+03	NC	NC	NC	2.88E-06	5.49E-07	2.88E-06
Methyl ethyl ketone	1.13E-04	N/A	N/A	5.00E+03	N/A	NC	NC	NC	NC	NC	NC
Naphthalene	3.61E-03	N/A	3.40E-05	3.00E+00	9.00E+00	3.36E-09	6.40E-10	3.36E-09	3.84E-04	7.32E-05	3.84E-04
Propylene	3.04E-02	N/A	N/A	3.00E+03	3.00E+03	NC	NC	NC	9.71E-06	1.85E-06	9.71E-06
Styrene	2.06E-03	N/A	N/A	1.00E+03	9.00E+02	NC	NC	NC	2.20E-06	4.18E-07	2.20E-06
Toluene	4.39E-03	N/A	N/A	5.00E+03	3.00E+02	NC	NC	NC	1.40E-05	2.67E-06	1.40E-05
Xylene (total)	3.06E-03	N/A	N/A	1.00E+02	7.00E+02	NC	NC	NC	4.19E-06	7.99E-07	4.19E-06
Diesel PM	8.25E-04	N/A	3.00E-04	5.00E+00	5.00E+00	6.78E-09	1.29E-09	6.78E-09	1.58E-04	3.01E-05	1.58E-04
Arsenic	4.13E-07	4.30E-03	3.30E-03	1.50E-02	1.50E-02	3.73E-11	7.10E-12	3.73E-11	2.64E-05	5.02E-06	2.64E-05
Cadmium	3.30E-06	1.80E-03	4.20E-03	1.00E-02	2.00E-02	3.80E-10	7.23E-11	3.80E-10	1.58E-04	3.01E-05	1.58E-04
Chlorine	2.84E-05	N/A	N/A	1.50E-01	2.00E-01	NC	NC	NC	1.36E-04	2.59E-05	1.36E-04
Chromium (VI)	4.84E-07	1.20E-02	1.50E-01	1.00E-01	2.00E-01	1.99E-09	3.79E-10	1.99E-09	2.32E-06	4.42E-07	2.32E-06
Copper	3.73E-06	N/A	N/A	N/A	N/A	NC	NC	NC	NC	NC	NC
Lead	7.14E-06	N/A	1.20E-05	N/A	N/A	2.35E-12	4.47E-13	2.35E-12	NC	NC	NC
Manganese	5.31E-06	N/A	N/A	5.00E-02	9.00E-02	NC	NC	NC	5.65E-05	1.08E-05	5.65E-05
Mercury	2.48E-06	N/A	N/A	3.00E-01	3.00E-02	NC	NC	NC	7.91E-05	1.51E-05	7.91E-05
Nickel	1.57E-06	N/A	2.60E-04	9.00E-02	1.40E-02	1.12E-11	2.13E-12	1.12E-11	1.07E-04	2.05E-05	1.07E-04
Selenium	8.25E-07	N/A	N/A	2.00E+01	2.00E+01	NC	NC	NC	3.96E-08	7.53E-09	3.96E-08
Silicon	2.05E-04	N/A	N/A	3.00E+00	3.00E+00	NC	NC	NC	6.56E-05	1.25E-05	6.56E-05
Sulfates	1.44E-03	N/A	N/A	N/A	N/A	NC	NC	NC	NC	NC	NC
Vanadium	2.39E-06	8.30E-03	N/A	1.00E-01	N/A	NC	NC	NC	NC	NC	NC
					TOTAL	8.98E-08	1.71E-08	8.98E-08	0.06	0.01	0.06
					1 in a million cancer risks	0.09	0.02	0.09			

Notes:

[1] Residential Maximum Grid No. Receptor_306

N/A - Not Available

NC = Not Calculated

ug/m^3 = micrograms per cubic meter

Source: Ricondo & Associates, Inc., 2013.

Table 3-3

RAGS F Risk Calculation for LAX Runway 7L/25R RSA Improvements and Associated Projects, 2015 Construction - 2-year Construction Exposure
(Based on Peak Location of Commercial Cancer Risks)

Exposure Parameters	Adult Worker
Exposure Time	24 (hrs/day)
Exposure Frequency	350 (days/year)
Exposure Duration	2 (years)
Averaging Time (non-carcinogenic)	17520 (hrs)
Averaging Time (carcinogenic)	613200 (hrs)

RAGS F Inhalation Equations

EC = (CA x ET x EF x ED) / (AT)
Risk = IUR x EC
Hazard Quotient = EC / RfC
Where:

EC = Exposure Concentration	ED = Exposure Duration
CA = Concentration in Air	AT = Averaging Time
ET = Exposure Time	IUR = Inhalation Unit Risk
EF = Exposure Frequency	RfC = Reference Concentration

	Toxicity Criteria					Cancer Risks	Hazard Quotients
TAC	**Concentration at Location with Maximum Risk (ug/m3)**	**EPA Inhalation Unit Risk (ug/m^3)$^{-1}$**	**CalEPA Inhalation Unit Risk (ug/m^3)$^{-1}$**	**EPA Chronic Inhalation RfC (ug/m^3)**	**CalEPA Chronic Inhalation RfC (ug/m^3)**	**Cancer Risk to Adult Worker**	**Hazard Quotient Adult Worker**
Acetaldehyde	1.13E-01	2.20E-06	2.70E-06	9.00E+00	1.40E+02	8.38E-09	7.76E-04
Acrolein	6.45E-02	N/A	N/A	2.00E-02	3.50E-01	NC	1.77E-01
Benzene	4.45E-02	7.80E-06	2.90E-05	3.00E+01	6.00E+01	3.53E-08	7.11E-04
1,3-Butadiene	4.45E-02	3.00E-05	1.70E-04	2.00E+00	2.00E+01	2.07E-07	2.13E-03
Ethylbenzene	4.61E-03	2.50E-06	2.50E-06	1.00E+03	2.00E+03	3.16E-10	2.21E-06
Formaldehyde	3.26E-01	1.30E-05	6.00E-06	9.80E+00	9.00E+00	5.35E-08	3.47E-02
Hexane, n-	1.52E-05	N/A	N/A	7.00E+02	7.00E+03	NC	2.08E-09
Methanol	4.76E-02	N/A	N/A	4.00E+03	4.00E+03	NC	1.14E-05
Methyl ethyl ketone	1.43E-04	N/A	N/A	5.00E+03	N/A	NC	NC
Naphthalene	1.43E-02	N/A	3.40E-05	3.00E+00	9.00E+00	1.33E-08	1.52E-03
Propylene	1.20E-01	N/A	N/A	3.00E+03	3.00E+03	NC	3.83E-05
Styrene	8.15E-03	N/A	N/A	1.00E+03	9.00E+02	NC	8.68E-06
Toluene	1.71E-02	N/A	N/A	5.00E+03	3.00E+02	NC	5.45E-05
Xylene (total)	1.19E-02	N/A	N/A	1.00E+02	7.00E+02	NC	1.63E-05
Diesel PM	9.05E-04	N/A	3.00E-04	5.00E+00	5.00E+00	7.44E-09	1.74E-04
Arsenic	4.53E-07	4.30E-03	3.30E-03	1.50E-02	1.50E-02	4.09E-11	2.89E-05
Cadmium	3.62E-06	1.80E-03	4.20E-03	1.00E-02	2.00E-02	4.17E-10	1.74E-04
Chlorine	3.11E-05	N/A	N/A	1.50E-01	2.00E-01	NC	1.49E-04
Chromium (VI)	1.35E-06	1.20E-02	1.50E-01	1.00E-01	2.00E-01	5.54E-09	6.46E-06
Copper	7.24E-06	N/A	N/A	N/A	N/A	NC	NC
Lead	1.47E-05	N/A	1.20E-05	N/A	N/A	4.85E-12	NC
Manganese	9.59E-06	N/A	N/A	5.00E-02	9.00E-02	NC	1.02E-04
Mercury	2.72E-06	N/A	N/A	3.00E-01	3.00E-02	NC	8.68E-05
Nickel	1.72E-06	N/A	2.60E-04	9.00E-02	1.40E-02	1.22E-11	1.18E-04
Selenium	9.05E-07	N/A	N/A	2.00E+01	2.00E+01	NC	4.34E-08
Silicon	2.25E-04	N/A	N/A	3.00E+00	3.00E+00	NC	7.20E-05
Sulfates	1.58E-03	N/A	N/A	N/A	N/A	NC	NC
Vanadium	2.62E-06	8.30E-03	N/A	1.00E-01	N/A	NC	NC
					TOTAL	3.31E-07	0.22
					1 in a million cancer risks	0.33	

Notes:

[1] Commercial Maximum Grid No. Receptor_328

N/A - Not Available

NC = Not Calculated

ug/m^3 = micrograms per cubic meter

Source: Ricondo & Associates, Inc., 2013.