City of Arts & Innovation

Draft Mitigated Negative Declaration

AGENDA ITEM NO.:

WARD:

1. **Case Number:** P14-1053 / P14-1054

2. **Project Title:** CT Sycamore Center / TPM 36871

3. **Lead Agency:** City of Riverside
Community Development Department
Planning Division
3900 Main Street, 3rd Floor
Riverside, CA 92522

4. **Contact Person:** Brian Norton, Associate Planner
Phone Number: (951) 826-2308

5. **Project Location:** North of Dan Kipper Drive and west of Sycamore Canyon Boulevard. APNs 263-020-076, 263-020-077 & 0263-020-078

6. **Project Applicant/Project Sponsor's Name and Address:**

Applicant	Architect	Engineer
David Ball	HPA Architecture	DRC Engineering, Inc.
CT Realty Investors	8831 Bardeen Avenue, Suite 100	160 South Old Springs Road
65 Enterprise, Suite 150	Irvine, CA 92613	Anaheim Hills, CA 92808
Aliso Viejo, CA 92656	949.863.1770	714.685.6860
949.330.5773		

7. **General Plan Designation:** B/OP Business/Office Park

8. **Zoning:** BMP – SP, Sycamore Canyon Business Park Specific Plan

9. **Description of Project:**

The applicant is proposing warehouse and office space uses for the CT Sycamore Center development project. This proposed project is located at the northwest corner of Sycamore Canyon Boulevard and Dan Kipper Drive, as shown on Exhibit 2 Vicinity Map. The project consists of five (5) warehouse buildings that include 205,420 square feet of warehouse space and 25,000 square feet of office space for a total building area of 230,420 square feet; with 329 surface parking stalls and 23 loading docks on 13.08 acres, summarized as follows:

Project Summary

Building	Warehouse (SF)	Office (SF)	Total (SF)
Building 1	31,424	5,000	36,424
Building 2	37,514	5,000	42,514
Building 3	43,814	5,000	48,814
Building 4	48,006	5,000	53,006
Building 5	44,564	5,000	49,654
Total	**205,420**	**25,000**	**230,420**

The project is consistent with the City of Riverside's ("City") zoning designation as a Business and Manufacturing Park.

The project site is located near the eastern edge of the City approximately one half mile west of the Interstate 215 and California State Route 60 connection. The site sits within the Sycamore Canyon Business Park / Canyon Springs neighborhood (Sycamore Canyon Springs). Two annexations, one in 1969 and the other in 1984, brought the project site into the City of Riverside. Four specific plans govern the Sycamore Canyon Springs neighborhood ensuring a well-designed eastern edge of the City. The project site is located within the Sycamore Canyon Business Park Specific Plan (SCBPSP), originally adopted in 1984 and amended fourteen times, with the latest amendment adopted in 2006. The Environmental Impact Report prepared for the Specific Plan was originally certified in 1984 and several subsequent California Environmental Quality Act (CEQA) documents have been prepared for various areas within the Specific Plan. Most of the SCBPSP has been developed with industrial and office space with small areas available for new development. The project site has previously been graded into rough pads and silt fencing is in place surrounding the project site.

Surrounding land use zones include Residential (R-1-7000 and R-3-2000) to the north; Commercial General to the east, across Sycamore Canyon Boulevard; and Business and Manufacturing Park to the west and south. It should be noted that there are existing industrial warehouses to the south of Dan Kipper Drive, existing residents to the north, and undeveloped land to the west.

The site plan (Exhibit 2 Site Plan) depicts the locations of the five proposed warehouse buildings. The warehouse/office building are proposed as tilt-up concrete construction with architectural detailing and landscaping consistent with the surrounding land uses. Access to the site is proposed via five (5) driveways along Dan Kipper Drive. Parking stalls are proposed to be located adjacent to the front, rear and sides of each building. A total of 329 parking spaces are proved, with 318 spaces required. Each warehouse will also have a loading dock with a five (5) truck capacity and each building will have a drive through door. The loading docks are located towards the rear of the building screened from the right-of-way by offices and passenger vehicle parking. An eight (8) foot wall is proposed along the northern project boundary and landscaping will be provided along Dan Kipper Drive and throughout the project site. The project, as proposed, meets all of the applicable development standards of the SCBPSP and Zoning Code.

The project site drains towards the east and the difference between the pre-development runoff and post-development runoff will be captured onsite in an underground Cudo Cube infiltration and detention area, with a capacity of 5,000 cubic feet (cf). 70,000 cf of the total 75,000 cf capacity will be infiltrated. The project will also control fugitive dust with the best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property lines of the emission source, per SCAQMD Rule 403.

A Tentative Parcel Map (TMP 36871) and design review are the proposed entitlement actions for the proposed project.

10. **Surrounding land uses and setting: Briefly describe the project's surroundings:**

	Existing Land Use	General Plan Designation	Zoning Designation
Project Site	Vacant	B/OP – Business / Office Park	BMP – SP (Sycamore Canyon Business Park)
North	Multifamily Residential	HDR (High Density Residential) / MDR (Medium Density Residential)	R-1-7,000-SP (Sycamore Highlands) R-3-2000-SP (Sycamore Highlands)
East	Auto Dealerships	C - Commercial	CG-SP- Commercial General
South	Warehouse	B/OP – Business / Office Park	BMP – SP (Sycamore Canyon Business Park)
West	Vacant	B/OP – Business / Office Park	BMP – SP (Sycamore Canyon Business Park)

11. **Other public agencies whose approval is required (e.g., permits, financial approval, or participation agreement.):**

    a. None

12. **Other Planning Documents and Environmental Documents Incorporated by Reference in this Review:**

The following planning and environmental documents provide land use policy and environmental information relevant to the proposed project and the surrounding area. The project specific technical studies are included in Appendix A.

a. General Plan 2025
b. GP 2025 FPEIR
c. Sycamore Canyon Business Park Specific Plan
d. Noise Impact Study prepared by RK Engineering Group, Inc., dated November 17, 2014
e. Air Quality and GHG Impact Study prepared by RK Engineering Group, Inc., dated November 17, 2014
f. Trip Generation and Trip Distribution Study prepared by RK Engineering Group, Inc., dated November 12, 2014
g. Geotechnical Study prepared by Global Geo-Engineering, Inc., dated November 24, 2014
h. General Biological Assessment prepared by Natural Resources Assessment, Inc., dated December 1, 2014

13. **Acronyms**

AICUZ -	Air Installation Compatible Use Zone Study
AQMP -	Air Quality Management Plan
AUSD -	Alvord Unified School District
CEQA -	California Environmental Quality Act
CMP -	Congestion Management Plan
EIR -	Environmental Impact Report
EMWD -	Eastern Municipal Water District
EOP -	Emergency Operations Plan

FEMA -	Federal Emergency Management Agency
FPEIR -	GP 2025 Final Programmatic Environmental Impact Report
GIS -	Geographic Information System
GhG -	Green House Gas
GP 2025 -	General Plan 2025
IS -	Initial Study
LHMP -	Local Hazard Mitigation Plan
MARB/MIP -	March Air Reserve Base/March Inland Port
MJPA-JLUS -	March Joint Powers Authority - Joint Land Use Study
MSHCP -	Multiple-Species Habitat Conservation Plan
MVUSD -	Moreno Valley Unified School District
NCCP -	Natural Communities Conservation Plan
OEM -	Office of Emergency Services
OPR -	Office of Planning & Research, State
PEIR -	Program Environmental Impact Report
PW -	Public Works, Riverside
RCALUC -	Riverside County Airport Land Use Commission
RCALUCP -	Riverside County Airport Land Use Compatibility Plan
RCP -	Regional Comprehensive Plan
RCTC -	Riverside County Transportation Commission
RMC -	Riverside Municipal Code
RPD -	Riverside Police Department
RPU -	Riverside Public Utilities
RTIP -	Regional Transportation Improvement Plan
RTP -	Regional Transportation Plan
RUSD -	Riverside Unified School District
SCAG -	Southern California Association of Governments
SCAQMD -	South Coast Air Quality Management District
SCH -	State Clearinghouse
SKR-HCP -	Stephens' Kangaroo Rat - Habitat Conservation Plan
SWPPP -	Storm Water Pollution Prevention Plan
USGS -	United States Geologic Survey
WMWD -	Western Municipal Water District
WQMP -	Water Quality Management Plan

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

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

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

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation which reflects the independent judgment of the City of Riverside, it is recommended that:

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

Signature ______________________________________ Date ______________________

Printed Name & Title Gabriel Perez, Principal Planner For City of Riverside

EVALUATION OF ENVIRONMENTAL IMPACTS:

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

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

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

4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

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

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

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

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

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

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

8) The explanation of each issue should identify:

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

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

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
1. AESTHETICS. Would the project:				
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐

1a. Response: ***(Source: General Plan 2025 Figure CCM-4 – Master Plan of Roadways, General Plan 2025 FPEIR Figure 5.1-1 – Scenic and Special Boulevards and Parkways, Table 5.1-A – Scenic and Special Boulevards, and Table 5.1-B – Scenic Parkways)***

No defined scenic vista will be impacted as a result of this project. The project site is located on the northwest corner of Sycamore Canyon Boulevard and Dan Kipper Drive and surrounded by industrial warehouse, residential, and vacant land uses. The proposed warehouse development is generally consistent with applicable development standards of the proposed Sycamore Canyon Business Park Specific Plan (SCBPSP) and BMP Zone. The aesthetic view of the proposed built environment will be consistent, or conditioned to be consistent, with the Citywide Design Guidelines, therefore the project will not have an adverse effect on a scenic vista and impacts are less than significant.

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

1b. Response: ***(Source: General Plan 2025 Figure CCM-4 – Master Plan of Roadways, General Plan 2025 FPEIR Figure 5.1-1 – Scenic and Special Boulevards, Parkways, Table 5.1-A – Scenic and Special Boulevards, Table 5.1-B – Scenic Parkways, the City's Urban Forest Tree Policy Manual.)***

The General Plan 2025 designates several roadways as Scenic Boulevards and Parkways in order to protect scenic resources and enhance the visual character of Riverside. Neither Sycamore Canyon Boulevard nor Dan Kipper Drive are designated as a Scenic/Special Boulevard/Parkway within the Circulation and Community Mobility Element of the General Plan 2025, Figure CCM-4- Master Plan of Roadways. The project will not impact any scenic resources, historic buildings or scenic highways. Nonetheless, the project plans have been designed to comply with the design policies contained in the Citywide Design and Sign Guidelines, and are consistent and compatible with the existing development of the surrounding area. The project design is consistent with the surrounding built environment and will be consistent, or conditioned to be consistent, with the *Citywide Design Guidelines,* therefore the project will not have an adverse effect on a scenic vista.

c. Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐

1c. Response: ***(Source: General Plan 2025, General Plan 2025 FPEIR, Zoning Code, Citywide Design and Sign Guidelines.)***

The Project includes Design Review of plot plans and building elevations to ensure the project is consistent with the *Citywide Design and Sign Guidelines.* The project site and surrounding areas are in an urban setting, and there are no unique visual resources. Therefore, it will not degrade the existing visual character of the area There will be a wall along the northern boundary of the property to separate residential uses to the north. Requirements for walls within the *Citywide Design and Sign Guidelines* are "to screen automobiles, loading and storage areas, and utility structures" as well as using landscaping whenever possible. This wall will be constructed of approved block material, painted and have landscaping to ensure visual character and aesthetics are preserved. This property wall will be consistent with the *Citywide Design and Sign Guidelines* and reviewed by the City before final approval. Planned future growth landscaping will screen decks and/or roof equipment for northern residents as well.

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

1d. Response: ***(Source: General Plan 2025, General Plan 2025 FPEIR Figure 5.1-2 – Mount Palomar Lighting Area, Title 19 – Article VIII – Chapter 19.556 – Lighting, Citywide Design and Sign Guidelines.)***

The proposed project will involve the introduction of new lighting typically associated with industrial development. This lighting would be similar to that which exists in the surrounding area and would not be considered significant. The proposed night lighting will meet city design guideline and review standards and will contain shielding to direct

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
the light downward and not onto adjacent property. The proposed wall and landscaping will also shield light or glare on surroundings. Rear lighting can be kept at a minimum during non-operational hours as to not disturb residences to the north. Additionally, the site is not within the Mount Palomar Lighting Area. The impact is less than significant.				
2. AGRICULTURE AND FOREST RESOURCES:				
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information complied by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and the forest carbon measurement methodology provided in the Forest Protocols adopted by the California Air Resources Board. Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
2a. Response: ***(Source: General Plan 2025 – Figure OS-2 – Agricultural Suitability & General Plan 2025 FPEIR – Appendix I – Designated Farmland Table.)*** The Project is located within an urbanized area. A review of Figure OS-2 - Agricultural Suitability of the General Plan 2025 reveals that the project site is designated as Farmland of Local Importance, and is not adjacent to or in proximity to any land classified as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency. However, in the FPEIR – Appendix I – Site 4 all surrounding land to the south, east and west are designated as Farmland of Local Importance. Appendix I is dated 2007, while Figure OS-2 is dated 2010; leading to the conclusion that bordering land previously designated as Farmland of Local Importance has been reclassified as Urban and Built-Up Land. All surrounding areas have been developed with urban land uses and the site has been graded into a large development pad. The impact is less than significant, as there will be no impact to prime, unique, or farmland of statewide importance.				
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
2b. Response: ***(Source: General Plan 2025 – Figure OS-3 - Williamson Act Preserves, General Plan 2025 FPEIR – Figure 5.2-4 – Proposed Zones Permitting Agricultural Uses, and Title 19)*** The site is located within a Business and Manufacturing Park (BMP) zone. Not within any existing zoning for agriculture uses. A review of Figure 5.2-2 - Williamson Act Preserves of the General Plan 2025 FPEIR reveals that the project site is not located within an area that is covered by a Williamson Act Preserve or under a Williamson Act Contract. Therefore, the project will have no impact directly, indirectly or cumulatively.				
c. 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 Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
2c. Response: ***(Source: GIS Map – Forest Data)*** The City of Riverside has no forest land that can support ten percent (10%) native tree cover nor does it have any timberland. Therefore, no impacts will occur from this project directly, indirectly or cumulatively.				
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
2d. Response: ***(Source: GIS Map – Forest Data)*** The City of Riverside has no forest land that can support ten percent (10%) native tree cover nor does it have any timberland, therefore no impacts will occur from this project directly, indirectly or cumulatively.				
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☒	☐
2e. Response: (Source: General Plan – Figure OS-2 – *Agricultural Suitability, Figure OS-3 – Williamson Act Preserves*, General Plan 2025 FPEIR *and GIS Map – Forest Data)* The project is located in an urbanized area of the City. The site is currently designated as Farmland of Local Importance. The project will result in the conversion of this farmland to Urban and Built-Up Land. In addition, there are no agricultural resources or operations, nor forest land within proximity of the subject site. The City of Riverside has no forest land that can support ten percent (10%) native tree cover. Therefore, a **less than significant** impact will occur from this project directly, indirectly or cumulatively to convert of Farmland to Urban and Built-Up Land.				
3. AIR QUALITY.				
Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
3a. Response: ***(Source: South Coast Air Quality Management District's 2007 Air Quality Management Plan (AQMP) and Air Quality Analysis prepared by RK Engineering on November 17, 2014.)*** Projects that are consistent with the projections of employment and population forecasts identified by the Southern California Association of Governments (SCAG) are considered consistent with the ACMP growth projections since these forecast numbers were used by SCAG's modeling section to forecast travel demand and air quality for planning activities such as the Regional Transportation Plan (RTP), the SCAQMD's AQMP, Regional Transportation Improvement Program (RTIP), and the regional housing plan. This project is consistent with the projections of employment and population forecasts identified by SCAG that are consistent with the General Plan 2025 "Typical Growth Scenario." Since the project is consistent with the General Plan 2025, it is also consistent with the AQMP. The project will have a **less than significant** impact directly, indirectly and cumulatively to the implementation of the air quality plan.				
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☒	☐	☐

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

3b. Response: ***(Source: General Plan 2025 FPEIR Table 5.3-B SCAQMD CEQA Regional Significance Thresholds, South Coast Air Quality Management District's 2007 AQMP, CalEEMod, EMFAC 2011 Model and Air Quality Analysis prepared by RK Engineering on November 17, 2014.)***

Per General Plan 2025 FPEIR MM Air 1 and 7, a SCAQMD CalEEMod computer model analyzed both short-term construction related and long term operational impacts. The results of the CalEEMod model determined that the proposed project would result in the following emissions levels:

CalEEMod MODEL RESULTS SHORT-TERM IMPACTS						
Activity	Daily Emissions (lbs/day)					
	VOC	**NOx**	**CO**	**SO2**	**PM-10**	**PM-2.5**
SCAQMD Daily Thresholds Construction	75	100	550	150	150	55
Daily Project Emissions Construction	59.74	79.15	52.10	0.08	21.36	12.83
Exceed Threshold Y/N	**N**	**N**	**N**	**N**	**N**	**N**

CalEEMod MODEL RESULTS LONG -TERM IMPACTS						
Activity	Daily Emissions (lbs/day)					
	VOC	**NOx**	**CO**	**SO2**	**PM-10**	**PM-2.5**
SCAQMD Daily Thresholds Construction	55	55	550	150	150	55
Daily Project Emissions Construction	12.36	25.37	51.53	0.16	9.33	2.80
Exceed Threshold Y/N	**N**	**N**	**N**	**N**	**N**	**N**

The above tables compare the project emissions (short-term and long-term) to the SCAQMD daily thresholds and shows the established thresholds will not be exceeded. To ensure that short term emissions are further reduced the General Plan 2025 program required mitigation measures that will be implemented by this project, MM Air 1-2 as set forth below. Therefore, because the project will not violate any ambient air quality standard, contribute substantially to an existing or proposed air quality violation, and mitigation will be imposed, the project will have less than significant impacts with mitigation on ambient air quality and will not contribute to an existing air quality violation.

MM Air 1: To reduce diesel emissions associated with construction, construction contractors shall provide temporary electricity to eliminate the need for diesel powered generators, or provide evidence that electrical hook-ups at construction sites are not cost effective or feasible.

MM Air 2: To reduce construction related particulate matter air quality impacts of projects, the following measures will be required:

ISSUES (AND SUPPORTING INFORMATION SOURCES):	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**

1. Grading activities shall cease during periods of high winds (greater than 25 MPH)
2. The project shall require that the site preparation and grading contractors limit the daily disturbed area to 5 acres or less.
3. The project shall require that during site preparation, and grading operations all contractors shall comply with all applicable measures listed in SCAQMD Rule 403 to control fugitive dust including the application of water to all exposed surfaces a minimum of three times per day.
4. The proposed project and its contractors shall ensure that, during construction, site preparation and grading phases do not overlap and that all other construction phases occur after these two construction phases so that construction emissions do not exceed those established by SCAQMD.
5. The proposed project and its contractors shall ensure that, during construction, contractors shall turn off all diesel-powered construction when vehicles are not in use and contractors shall prohibit idling of vehicles for longer than three minutes.
6. The contractor shall prepare and maintain a traffic control plan prepared, stamped and signed by either a licensed Traffic Engineer, or a Civil Engineer. The preparation of the plan shall be in accordance with Chapter 5 of the latest edition of the Caltrans Traffic Manual and the State Standard Specifications. The plan shall be submitted for approval, by the engineer, at the pre-construction meeting. Work shall not commence without an approved traffic control plan.

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

3c. Response: ***(Source: General Plan 2025 FPEIR Table 5.3-B SCAQMD CEQA Regional Significance Thresholds, South Coast Air Quality Management District's 2007 Air Quality Management Plan, URBEMIS 2007 Model or CalEEMod 2007 Model, EMFAC 2011 Model and Air Quality Analysis prepared by RK Engineering on November 17, 2014.)***

Per the GP 2025 FPEIR,AQMD thresholds indicate future construction activities under the General Plan are projected to result in significant levels of NO_x and ROG, both ozone precursors, PM-10, PM-2.5and CO. Although long-term emissions are expected to decrease by 2025, all criteria pollutants identified in the GP 2025 remain above the SCAQMD thresholds. The portion of the basin within which the city is located is designated a non-attainment area for ozone, PM-10, PM-2.5under State standards, and as a non-attainment area for ozone, CO, PM-10 and PM 2.5 under Federal Standards.

Because the proposed project is consistent with the General Plan 2025, cumulative impacts related to criteria pollutants as a result of the project were previously evaluated as part of the cumulative analysis of build-out anticipated under the General Plan 2025 program. The project emission levels are below the applicable SCAQMD thresholds of significance and therefore would not result in a cumulatively considerable increase. Therefore, cumulative air quality emissions impacts are **less than significant.**

d. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

3d. Response: ***(Source: General Plan 2025 FPEIR Table 5.3-B SCAQMD CEQA Regional Significance Thresholds, South Coast Air Quality Management District's 2011 Air Quality Management Plan, URBEMIS 2007 or CalEEMod, EMFAC 2007 Model and Air Quality Analysis prepared by RK Engineering on November 17, 2014.)***

Sensitive receptors may include existing residences, business neighbors and passing traffic along Sycamore Canyon Blvd. Short Term impacts associated with construction from General Plan 2025 typical build-out will result in increased air emission from grading, earthmoving and construction activities. Mitigation measures contained in the General Plan 2025 FPEIR require individual development to employ construction approaches that minimize pollutant emissions (General Plan 2025 FPEIR MM AIR1 through MM AIR 5, e.g., watering for dust control, keeping equipment tuned, limiting truck idle times). Please refer to the mitigation measures listed in 3b above. In conformance with the General Plan 2025 FPEIR MM AIR 1 and MM AIR 7, a CalEEMod computer model analyzed short-term construction and long-term operational impacts, and the results concluded that impacts would be below significance thresholds. Therefore, the project will not expose sensitive receptors to substantial pollutant concentrations and a **less than significant impact** will occur directly, indirectly or cumulatively for this project.

e. Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

3e. Response: ***(Source: Air Quality Analysis prepared by RK Engineering on November 17, 2014.)***

While exact quantification of objectionable odors cannot be determined due to the subjective nature of what is considered "objectionable, the nature of the proposed project, associated infrastructure and related offsite improvements present a potential for the generation of objectionable odors associated with construction activities, particularly to the existing residential land uses located north of the project site. The operation of the proposed warehouse use is not typically associated with the generation of objectionable odors. However, the construction activities associated with the expected build-out of the project site will generate airborne odors including diesel exhaust, architectural coatings, and onsite and offsite improvements The objectionable odors that may be produced during the construction process are of short-term in nature and the odor emissions are expected cease upon the drying or hardening of the odor producing materials. Due to the short-term nature and limited amounts of odor producing materials being utilized, no significant impact related to odors would occur during construction of the proposed project. Therefore, they would not cause objectionable odors affecting a substantial number of people and a **less than significant impact** directly, indirectly and cumulatively will occur.

4. BIOLOGICAL RESOURCES. Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☐

4a. Response: ***(Source: General Plan 2025 – Figure OS-6 – Stephen's Kangaroo Rat (SKR) Core Reserve and Other Habitat Conservation Plans (HCP), Figure OS-7 – MSHCP Cores and Linkages, Figure OS-8 – MSHCP Cell Areas, General Plan 2025 FPEIR Figure 5.4-2 – MSHCP Area Plans, Figure 5.4-4 - MSHCP Criteria Cells and Subunit Areas, Figure 5.4-6 – MSHCP Narrow Endemic Plant Species Survey Area, Figure 5.4-7 – MSHCP Criteria Area Species Survey Area, Figure 5.4-8 – MSHCP Burrowing Owl Survey Area and Habitat Assessment & General Biological Assessment prepared by Natural Resources Assessment, Inc., dated December 1, 2014)***

A habitat assessment prepared by a qualified biologist was prepared for the project. The findings of the habitat assessment determined that no candidate, sensitive species of concern, special status species or suitable habitat for such species occurs on site. Additionally, the project is in compliance with the MSHCP. The project site has been previously graded and no vegetation /habitat is present onsite. Therefore, the project will have a less than significant impact with mitigation measures directly, indirectly and cumulatively to these resources.

ISSUES (AND SUPPORTING INFORMATION SOURCES):	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒

4b. Response: ***(Source: General Plan 2025 – Figure OS-6 – Stephen's Kangaroo Rat (SKR) Core Reserve and Other Habitat Conservation Plans (HCP), Figure OS-7 – MSHCP Cores and Linkages, Figure OS-8 – MSHCP Cell Areas, General Plan 2025 FPEIR Figure 5.4-2 – MSHCP Area Plans, Figure 5.4-4 - MSHCP Criteria Cells and Subunit Areas, Figure 5.4-6 – MSHCP Narrow Endemic Plant Species Survey Area, Figure 5.4-7 – MSHCP Criteria Area Species Survey Area, Figure 5.4-8 – MSHCP Burrowing Owl Survey Area, MSHCP Section 6.1.2 - Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools, and Habitat Assessment & General Biological Assessment prepared by Natural Resources Assessment, Inc., dated December 1, 2014)***

A habitat assessment prepared by a qualified biologist was prepared for the project. The habitat assessment found that the proposed project would not affect any riparian habitat or other sensitive natural communities identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service. The project also complies with Section 6.1.2 of the MSHCP, which outlines the requirements and protection of riparian/riverine areas and vernal pools within the plan area. Therefore, the project will have no impacts to any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Services.

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

4c. Response: ***(Source: City of Riverside GIS/CADME USGS Quad Map Layer, and Habitat Assessment & General Biological Assessment prepared by Natural Resources Assessment, Inc., dated December 1, 2014)***

The project site is located within an urban built-up area and has been graded into finished pads, and no wetlands have been identified onsite. As such that the project would not have a any adverse effect, on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption or other means. Therefore, no impact will occur directly, indirectly and cumulatively to federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

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

4d. Response: ***(Source: MSHCP, General Plan 2025 –Figure OS-7 – MSHCP Cores and Linkage and Habitat Assessment & General Biological Assessment prepared by Natural Resources Assessment, Inc., dated December 1, 2014)***

The project site is not located within any MSHCP Criteria Cells, Cores, or Linkages. Further, the project site has previously been graded and does not facilitate the movement of any native resident or migratory fish or wildlife species. The project site is not used as a migratory wildlife corridor, nor does it qualify for use as a native wildlife nursery site. The project will result in no impact directly, indirectly and cumulatively to the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

e. Conflict with any local policies or ordinances protecting	☐	☐	☒	☐

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
biological resources, such as a tree preservation policy or ordinance?				

4e. Response: ***(Source: MSHCP, Title 16 Section 16.72.040 – Establishing the Western Riverside County MSHCP Mitigation Fee, Title 16 Section 16.40.040 – Establishing a Threatened and Endangered Species Fees, City of Riverside Urban Forest Tree Policy Manual, and Habitat Assessment & General Biological Assessment prepared by Natural Resources Assessment, Inc., dated December 1, 2014)***

Implementation of the proposed Project is subject to all applicable Federal, State, and local policies and regulations related to the protection of biological resources and tree preservation. In addition, the project is required to comply with Riverside Municipal Code Section 16.72.040 establishing the MSHCP mitigation fee and Section 16.40.040 establishing the MSHCP Fees. There are no trees located on the project site. Any project within the City of Riverside's boundaries that proposes planting a street tree within a City right-of-way must follow the Urban Forest Policy Manual. The Manual documents guidelines for the planting, pruning, preservation, and removal of all trees in City rights-of-way. The specifications in the Manual are based on national standards for tree care established by the International Society of Arboriculture, the National Arborists Association, and the American National Standards Institute. This project will be in compliance with the Tree Policy Manual, and therefore, impacts will be **less than significant**.

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

4f. Response: ***(Source: MSHCP, General Plan 2025 – Figure OS-6 – Stephen's Kangaroo Rat (SKR) Core Reserve and Other Habitat Conservation Plans (HCP), Stephens' Kangaroo Rat Habitat Conservation Plan, Lake Mathews Multiple Species Habitat Conservation Plan and Natural Community Conservation Plan, and Habitat Assessment & General Biological Assessment prepared by Natural Resources Assessment, Inc., dated December 1, 2014)***

The proposed project will not conflict with any provisions of an adopted habitat conservation plan including the MSHCP and the SKR HCP, as there are no onsite biological resources. The project will pay MSHCP and SKR mitigation fees.

5. CULTURAL RESOURCES. Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5 of the CEQA Guidelines?	☐	☐	☒	☐

5a. Response: ***(Source: GP 2025 FPEIR Table 5.5-A Historical Districts and Neighborhood Conservation Areas and Appendix D, Title 20 of the Riverside Municipal Code.)***

The project site has previously been graded and no cultural resources were identified. The project will be located on a site where no historic resources exist as defined in Section § 15064.5 of the CEQA Guidelines. Therefore, no impacts directly, indirectly and cumulatively to historical resources will occur.

b. Cause a substantial adverse change in the significance of an archeological resource pursuant to § 15064.5 of the CEQA Guidelines?	☐	☐	☒	☐

5b. Response: ***(Source: GP 2025 FPEIR Figure 5.5-1 - Archaeological Sensitivity and Figure 5.5-2 - Prehistoric Cultural Resources Sensitivity, Appendix D – Cultural Resources Study.)***

The project site has been previously graded and minimal grading will be required to prepared the site for development. There are no known archeological resources present on the site. However, consultation with the Native American Heritage Commission and Native American Tribes shall be undertaken by the city in accordance with SB18 to protect any archaeological resources discovered during grading and construction. Impacts to archeological

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
resources directly, indirectly and cumulatively as a result of the project can be reduced to a **less than significant** level.				
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
5c. Response: ***(Source: General Plan 2025 Policy HP-1.3)*** The project site has been previously graded and minimal grading will be required to prepared the site for development. This Project will be located on a site where no paleontological resources exist as defined in Section 15064.5 of the CEQA Guidelines. Standard city requirements shall be followed if any cultural resources are encountered during the grading operations. Therefore, no impacts directly, indirectly and cumulatively to paleontological resources will occur.				
d. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐
5d. Response: ***(Source: GP 2025 FPEIR Figure 5.5-1 - Archaeological Sensitivity and Figure 5.5-2 - Prehistoric Cultural Resources Sensitivity)*** This Project will be located on a site where no human remains exist as defined in Section 15064.5 of the CEQA Guidelines. If any human remains are found during construction, construction will be stopped and appropriate authorities will be notified. Therefore, no impacts directly, indirectly and cumulatively to human remains will occur.				
6. GEOLOGY AND SOILS. Would the project:				
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
6i. Response: ***(Source: General Plan 2025 Figure PS-1 – Regional Fault Zones & General Plan 2025 FPEIR Appendix E – Geotechnical Report)*** Seismic activity is to be expected in Southern California. In the City of Riverside, there are no Alquist-Priolo zones. The project site does not contain any known fault lines and the potential for fault rupture or seismic shaking is low. Compliance with the California Building Code regulations will ensure that no impacts related to strong seismic ground will occur directly, indirectly and cumulatively.				
ii. Strong seismic ground shaking?	☐	☐	☐	☒
6ii. Response: ***(Source: General Plan 2025 FPEIR Appendix E – Geotechnical Report)*** The San Jacinto Fault Zone located in the northeastern portion of the City, or the Elsinore Fault Zone, located in the southern portion of the City's Sphere of Influence, have the potential to cause moderate to large earthquakes that would cause intense ground shaking. Because the proposed project complies with California Building Code regulations, impacts associated with strong seismic ground shaking will have no impact directly, indirectly and cumulatively.				
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
6iii. Response: ***(Source: General Plan 2025 Figure PS-1 – Regional Fault Zones, Figure PS-2 – Liquefaction Zones, General Plan 2025 FPEIR Figure PS-3 – Soils with High Shrink-Swell Potential, and Appendix E –***				

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Geotechnical Report) The project site is typically not located in an area with the potential for liquefaction, except for a small portion of the northeast corner, located in an area designated for low liquefaction. Compliance with the California Building Code regulations will ensure that impacts related to seismic-related ground failure, including liquefaction, are reduced to less than significant impact levels directly, indirectly and cumulatively.				
iv. Landslides?	☐	☐	☒	☐
6iv. Response: ***(Source: General Plan 2025 FPEIR Figure 5.6-1 – Areas Underlain by Steep Slope, Appendix E – Geotechnical Report, Title 18 – Subdivision Code, Title 17 – Grading Code, and the Storm Water Pollution Prevention Plan SWPPP)*** The project site has previously been graded and there are no surrounding hillsides. Erosion and loss of topsoil could occur as a result of the project. State and Federal requirements call for the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) establishing erosion and sediment controls for construction activities. The project must also comply with the National Pollutant Discharge Elimination System (NPDES) regulations. In addition, with the erosion control standards for which all development activity must comply (Title 18), the Grading Code (Title 17) also requires the implementation of measures designed to minimize soil erosion. Compliance with State and Federal requirements as well as with Titles 18 and 17 will ensure that soil erosion or loss of topsoil will be less than significant impact directly, indirectly and cumulatively. It shall be noted that the site has been previously graded.				
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
6b. Response: ***(Source: General Plan 2025 FPEIR Figure 5.6-1 – Areas Underlain by Steep Slope, Figure 5.6-4 – Soils, Table 5.6-B – Soil Types, Title 18 – Subdivision Code, Title 17 – Grading Code, and the SWPPP.)*** Erosion and loss of topsoil could occur as a result of the project. State and Federal requirements call for the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) establishing erosion and sediment controls for construction activities. The project will also comply with the National Pollutant Discharge Elimination System (NPDES) regulations. In addition, with the erosion control standards for which all development activity must comply (Title 18), the Grading Code (Title 17) also requires the implementation of measures designed to minimize soil erosion. The project's compliance with State and Federal requirements as well as with Titles 18 and 17 will ensure that soil erosion or loss of topsoil will be less than significant impact directly, indirectly and cumulatively. It shall be noted that the site has been previously graded.				
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
6c. Response: ***(Source: General Plan 2025 Figure PS-1 – Regional Fault Zones, Figure PS-2 – Liquefaction Zones, General Plan 2025 FPEIR Figure PS-3 – Soils with High Shrink-Swell Potential, Figure 5.6-1 - Areas Underlain by Steep Slope, Figure 5.6-4 – Soils, Table 5.6-B – Soil Types, and Appendix E – Geotechnical Report)*** The general topography of the project site is flat, as the land has previously been graded. Compliance with the City's existing codes and the policies contained in the General Plan 2025 will ensure that impacts related to geologic conditions are reduced to less than significant impacts level directly, indirectly and cumulatively.				
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐
6d. Response: ***(Source: General Plan 2025 FPEIR Figure 5.6-4 – Soils, Figure 5.6-4 – Soils, Table 5.6-B – Soil Types, Figure 5.6-5 – Soils with High Shrink-Swell Potential, Appendix E – Geotechnical Report, and California Building Code as adopted by the City of Riverside and set out in Title 16 of the Riverside Municipal Code)*** Expansive soil is defined under *California Building Code.* Per the General Biological Assessment prepared for this				

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
project, the soil type of the subject site is Cieneba, Hanford, Fallbrook and Maonserate. The project's compliance with the applicable provisions of the City's Subdivision Code- Title 18 and the California Building Code with regard to soil hazards related to the expansive soils will be reduced to a less than significant impact level for this project directly, indirectly and cumulatively.				
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
6e. Response: ***(Source: General Plan 2025 FPEIR Figure 5.6-4 – Soils, Table 5.6-B – Soil Types.)*** The proposed project will be served by sewer infrastructure. Therefore, the project will have no impact.				
7. GREENHOUSE GAS EMISSIONS. Would the project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
7a. Response: ***(Source: Air Quality & GHG Analysis prepared by RK Engineering on November 17, 2014.)*** Projects that are consistent with the projections of employment and population forecasts identified by the Southern California Association of Governments (SCAG) are considered consistent with the ACMP growth projections since these forecast numbers were used by SCAG's modeling section to forecast travel demand and air quality for planning activities such as the Regional Transportation Plan (RTP), the SCAQMD's AQMP, Regional Transportation Improvement Program (RTIP), and the regional housing plan. This project is consistent with the projections of employment and population forecasts identified by SCAG that are consistent with the General Plan 2025 "Typical Growth Scenario." However due to the size and scope of the project, a GHG study was prepared to determine if project related impacts would produce GHG emissions that would have a significant direct, indirect or cumulative impact on the environment. The project will generate a total of 37.2 metric tons of CO_2 from construction activities and 2,384.7 metric tons from operational activities per year. The established SCAQMD industrial land use threshold is 10,000 metric tons per year. The project will have a **less than significant** impact directly, indirectly and cumulatively on GHG emissions and the environment.				
b. Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐
7b. Response: ***(Source: Air Quality & GHG Analysis prepared by RK Engineering on November 17, 2014.)*** The SCAQMD supports State, federal and international policies to reduce the levels of ozone depleting gasses through its Global Warming Policy and rules and has established an interim GHG threshold. The project would comply with the City's General Plan policies and State Building Code provisions designed to reduce GHG emissions. In addition, the project would comply with all SCAQMD applicable rules and regulations during construction of the project and not interfere with the States goals of reducing GHG emissions to 1990 levels by 2020 as stated in AB 32 and an 80% reduction in GHG emissions below 1990 levels by 2050 as stated in Executive Order S-3-05. Based upon the prepared GHG analysis for this project and the above discussion, the project will not conflict with any applicable plan, policy or regulation related to the reduction in the emissions of GHG and thus a less than significant impact will occur directly, indirectly and cumulatively.				
8. HAZARDS & HAZARDOUS MATERIALS. Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
8a. Response: ***(Source: General Plan 2025 Public Safety Element, GP 2025 FPEIR, California Health and Safety***				

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Code, Title 49 of the Code of Federal Regulations, California Building Code, Riverside Fire Department EOP, 2002 and Riverside Operational Area – Multi-Jurisdictional LHMP, 2004 Part 1, OEM's Strategic Plan.) Project construction has the potential to create a hazard to the public or environment through the routine transportation, use and disposal of construction related materials as the project would include the delivery and disposal of hazardous materials such as fuels, oils, solvents, and other materials. These materials are typical of materials delivered to construction sites. The onsite storage of these materials is regulated by the state of California and the local fire department. The future use of the site as warehouse and office space could include the storage and use of hazardous materials such as fuels, oils, solvents, pesticides, electronic waste, and other materials. Oversight by the appropriate Federal, State, and local agencies, and compliance by the new development with applicable regulations related to the handling, storage and disposal of hazardous materials will cause the project to have a **less than significant** impact directly, indirectly and cumulatively.				
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
8b. Response: ***(Source: General Plan 2025 Public Safety Element, GP 2025 FPEIR Tables 5.7 A – D, California Health and Safety Code, Title 49 of the Code of Federal Regulations, California Building Code, City of Riverside's EOP, 2002 and Riverside Operational Area – Multi-Jurisdictional LHMP, 2004 Part 1, OEM's Strategic Plan.)*** The project may involve the use of hazardous materials but shall comply with all applicable Federal, State, and local laws and regulations pertaining to the transport, use, disposal, handling, and storage of hazardous waste, including but not limited to Title 49 of the Code of Federal Regulations implemented by Title 13 of the CCR, which describes strict regulations for the safe transportation of hazardous materials. The onsite storage of these materials is regulated by the state of California and the local fire department. Compliance with all applicable Federal, State and local laws related to the transportation, use and storage of hazardous materials would reduce the likelihood and severity of accidents during transit, use and storage to a less than significant impact directly, indirectly and cumulatively.				
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
8c. Response: ***(Source: General Plan 2025 Public Safety and Education Elements, GP 2025 FPEIR Table 5.7-D - CalARP RMP Facilities in the Project Area, Figure 5.13-2 – RUSD Boundaries, Table 5.13-D RUSD Schools, Figure 5.13-3 AUSD Boundaries, Table 5.13-E AUSD Schools, Figure 5.13-4 – Other School District Boundaries, California Health and Safety Code, Title 49 of the Code of Federal Regulations, California Building Code.)*** The project may involve the use of hazardous materials. However, the project site is not located within one-quarter mile of an existing school. The closest school is located approximately 0.6 miles to the north. Therefore, the project will have no impact regarding emitting hazardous emissions or handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school directly, indirectly or cumulatively.				
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
8d. Response: ***(Source: General Plan 2025 Figure PS-5 – Hazardous Waste Sites, GP 2025 FPEIR Tables 5.7-A – CERCLIS Facility Information, Figure 5.7-B – Regulated Facilities in TRI Information and 5.7-C – DTSC EnviroStor Database Listed Sites)*** A review of hazardous materials site lists compiled pursuant to Government Code Section 65962.5 found that the project site is not included on any such lists. Therefore, the project would have no impact to creating any significant hazard to the public or environment directly, indirectly or cumulatively.				

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☐

8e. Response: ***(Source: General Plan 2025 Figure PS-6 – Airport Safety Zones and Influence Areas, RCALUCP and March Air Reserve Base/March Inland Port Comprehensive Land Use Plan (1999), Air Installation Compatible Use Zone Study for March Air Reserve Base (August 2005).)***

The proposed project is located within Area 1 and Area 2 as depicted on General Plan 2025 Figure PS-6 – Airport Land Use Compatibility Zones and Influence Areas; it is also within Zone D as shown on Map MA-1 – Compatibility Map of the March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan. The project location is about three miles from the March Air Reserve Base. Due to the project location being outside the two mile radius and currently within airport land use plans, the project will have a less than significant impact directly, indirectly and cumulatively.

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

8f. Response: ***(Source: General Plan 2025 Figure PS-6 – Airport Safety Zones and Influence Areas, RCALUCP.)***

The project site is not located within the vicinity of a private airstrip, however the project site is located within Areas 1 and 2 of Figure PS-6 – Airport Land Use Compatibility Zones and Influence Areas. It is also within Compatibility Zone D of Map MA-1 of the March Air Reserve Base/ Inland Port Airport Land Use Compatibility Plan (2013). Zone D is classified as a primary approach/departure zone with a moderate risk level due to low altitude over-flight corridor and a moderate to high noise impact. Therefore the project will result in minimal hazards with a **less than significant** impact for the people working on the site and working in the completed buildings and residing in the surrounding areas.

g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐

8g. Response: ***(Source: GP 2025 FPEIR Chapter 7.5.7 – Hazards and Hazardous Materials, City of Riverside's EOP, 2002 and Riverside Operational Area – Multi-Jurisdictional LHMP, 2004 Part 1, and OEM's Strategic Plan)***

The project will be served by existing, fully improved streets, as well as on-site circulation. All streets have been designed to meet the Public Works and Fire Departments' specifications. Any need for street closing will be of short duration so as not to interfere or impede with any emergency response or evacuation plan. Therefore, the project will have a less than significant impact directly, indirectly and cumulatively to an emergency response or evacuation plan.

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

8h. Response: ***(Source: General Plan 2025 Figure PS-7 – Fire Hazard Areas, GIS Map Layer VHFSZ 2010, City of Riverside's EOP, 2002, Riverside Operational Area – Multi-Jurisdictional LHMP, 2004 Part 1/Part 2 and OEM's Strategic Plan)***

The proposed project is located in an urbanized area adjacent to undeveloped land. This land is within the Hills and Canyons of Sycamore Canyon however, the property is not located within a Fire Severity Zone (FSZ) or adjacent to a FSZ; therefore a less than significant impact regarding wildland fires either directly, indirectly or cumulatively from this project will occur.

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
9. HYDROLOGY AND WATER QUALITY. Would the project:				
a. Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
9a. Response: ***(Source: GP 2025 FPEIR Table 5.8-A – Beneficial Uses Receiving Water and Project Specific Hydrology Study and Water Quality Management Plan prepared by DRC Engineering on November 19, 2014.)*** The project site has been previously graded, and currently drains to Dan Kipper Drive. Once the proposed buildings and parking areas are constructed the project site's impermeable area will increase. A Water Quality Management Plan (WQMP) has been prepared for this project site and includes measures to minimize erosion, sedimentation and construction and operational pollutants, including an underground storm water treatment and detention system. Given compliance with all applicable local, state and federal laws regulating surface water quality, the proposed project as designed will result in a less than significant impact directly, indirectly or cumulatively to any water quality standards or waste discharge with the following mitigation measure:				
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
9b. Response: ***(Source: General Plan 2025 Table PF-1 – RPU Projected Domestic Water Supply (AC-FT/YR), Table PF-2 – RPU Projected Water Demand, Table PF-3 – Western Municipal Water District Projected Domestic Water Supply (AC-FT/YR), RPU Map of Water Supply Basins, RPU Urban Water Management Plan**, **WMWD Urban Water Management Plan and Project Specific Hydrology Study and Water Quality Management Plan prepared by DRC Engineering on November 19, 2014.*** The project site has been previously graded, and currently drains to Dan Kipper Drive, and is not expected to substantially impact any existing wells or groundwater recharge.. Once the proposed buildings and parking areas are constructed the project site's impermeable area will increase. A Water Quality Management Plan (WQMP) has been prepared for this project site and includes measures to minimize erosion, sedimentation and construction and operational pollutants, including an underground storm water treatment and detention system. Given compliance with all applicable local, state and federal laws regulating surface water quality, the proposed project as designed will result in a less than significant impact directly, indirectly or cumulatively to any water quality standards or waste discharge.				
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
9c. Response: ***(Source: Preliminary grading plan, and Project Specific Hydrology Study and Water Quality Management Plan prepared by DRC Engineering on November 19, 2014.)*** The project site has been previously graded, and currently drains to Dan Kipper Drive. The proposed grading plans will not alter the existing drainage pattern onsite. A Water Quality Management Plan (WQMP) has been prepared for this project site and includes measures to minimize erosion, sedimentation and construction and operational pollutants, including an underground storm water treatment and detention system.				
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
9d. Response: ***(Source: Preliminary grading plan, and Project Specific Hydrology Study and Water Quality Management Plan prepared by DRC Engineering on November 19, 2014.)*** The project site has been previously graded, and currently drains to Dan Kipper Drive. The proposed grading plans will not alter the existing drainage pattern onsite and once the proposed buildings and parking areas are constructed the project site's impermeable area will increase. There are no streams or rivers on or adjacent to the project site and the project has been designed with an underground storm water treatment and storage system to eliminate any potential flooding.				
e. Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
9e. Response: ***(Source: Preliminary Grading Plan, and Project Specific Hydrology Study and Water Quality Management Plan prepared by DRC Engineering on November 19, 2014.*** The project site has been previously graded, and currently drains to Dan Kipper Drive. Once the proposed buildings and parking areas are constructed the project site's impermeable area will increase. The difference between existing and post-development drainage will be detained onsite, and post-development peak flows will equal pre-development flows There are no streams or rivers on or adjacent to the project site and the project has been designed with an underground storm water treatment and storage system to eliminate any potential flooding.				
f. Otherwise substantially degrade water quality?	☐	☐	☒	☐
9f. Response: ***(Source: Project Specific Hydrology Study and Water Quality Management Plan prepared by DRC Engineering on November 19, 2014.*** The project site has been previously graded, and currently drains to Dan Kipper Drive. Once the proposed buildings and parking areas are constructed the project site's impermeable area will increase. A Water Quality Management Plan (WQMP) has been prepared for this project site and includes measures to minimize erosion, sedimentation and construction and operational pollutants, including an underground storm water treatment and detention system. Given compliance with all applicable local, state and federal laws regulating surface water quality, the proposed project as designed will result in a less than significant impact directly, indirectly or cumulatively to substantially degrade water quality.				
g. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
9g. Response: ***(Source: General Plan 2025 Figure PS-4 – Flood Hazard Areas, and FEMA Flood Hazard Maps and Project Specific Hydrology Study and Water Quality Management Plan prepared by DRC Engineering on November 19, 2014.)*** The project is not proposing any residential housing.				
h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☒	☐
9h. Response: ***(Source: General Plan 2025 Figure PS-4 – Flood Hazard Areas, and FEMA Flood Hazard Maps Project Specific and Hydrology Study and Water Quality Management Plan prepared by DRC Engineering on November 19, 2014.)*** The project site is not located within a 100-year flood hazard area. No mitigation is required.				
i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐
9i. Response: ***(Source: General Plan 2025 Figure PS-4 – Flood Hazard Areas, and FEMA Flood Hazard Maps and Project Specific Hydrology Study and Water Quality Management Plan prepared by DRC Engineering on***				

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
November 19, 2014.) The project site is not located within a flood plain or dam inundation area, and as a result will not expose people or structure to significant risk of loss, injury or death involving flooding.				
j. Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒
9j. Response: ***(Source: GP 2025 FPEIR Chapter 7.5.8 – Hydrology and Water Quality) and Project Specific Hydrology Study and Water Quality Management Plan prepared by DRC Engineering on November 19, 2014.)*** The project site is not located within a seiche, tsunami or mudflow inundation area. No mitigation measures are required.				
10. LAND USE AND PLANNING: Would the project:				
a. Physically divide an established community?	☐	☐	☐	☒
10a.Response: ***(Source: General Plan 2025 Land Use and Urban Design Element, Project site plan, City of Riverside GIS/CADME map layers)*** The project is within an industrial area currently served by fully improved public streets and does not create streets that could alter the existing surrounding pattern of development or an established community. Therefore, no impact directly, indirectly or cumulatively to an established community will occur.				
b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐
10b. Response: ***(Source: General Plan 2025, General Plan 2025 Figure LU-10 – Land Use Policy Map, Table LU-5 – Zoning/General Plan Consistency Matrix, Figure LU-7 – Redevelopment Areas, Sycamore Canyon Business Park Specific Plan, Title 19 – Zoning Code, Title 18 – Subdivision Code, Title 7 – Noise Code, Title 17 – Grading Code, Title 20 – Cultural Resources Code, Title 16 – Buildings and Construction and Citywide Design and Sign Guidelines)*** The proposed project consists of warehouse and office space, and is currently permitted under the General Plan and Specific Plan land use and zoning designations for this site. This project is also in compliance with the Sycamore Canyon Business Park Specific Plan The project would have a less than significant directly, indirectly or cumulatively with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project.				
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒
10c.Response: ***(Source: General Plan 2025, General Plan 2025 – Figure LU-10 – Land Use Policy Map, Table LU-5 – Zoning/General Plan Consistency Matrix, Figure LU-7 – Redevelopment Areas, Sycamore canyon Business Park Specific Plan, Title 19 – Zoning Code, Title 18 – Subdivision Code, Title 7 – Noise Code, Title 17 – Grading Code, Title 20 – Cultural Resources Code, Title 16 – Buildings and Construction and Citywide Design and Sign Guidelines)*** The project site is located within an urbanized area and will not impact an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan directly, indirectly and cumulatively. Therefore, the project will have no impact on the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan. A habitat assessment prepared by a qualified biologist was prepared for the project. The findings of the habitat assessment determined that no candidate, sensitive species of concern, special status species or suitable habitat for such species occurs on site. Additionally, the project is in compliance with the MSHCP. The project site has been previously graded and no vegetation /habitat is present onsite. Therefore, the project will have a less than significant impact with				

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
mitigation measures directly, indirectly and cumulatively to these resources.				
11. MINERAL RESOURCES. Would the project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
11a. Response: ***(Source: General Plan 2025 Figure – OS-1 – Mineral Resources)*** The formational material that underlies the project site is the MRZ-3 formation. This formation does not contain recoverable mineral resources or economic value. The loss of known mineral resources valuable locally or regionally would not occur because of the project and no further analysis is required. Therefore, the project will have no impact on mineral resources directly, indirectly or cumulatively.				
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒
11b. Response: ***(Source: General Plan 2025 Figure – OS-1 – Mineral Resources)*** The GP 2025 FPEIR determined that there are no specific areas with the City of Sphere Area which have locally-important mineral resource recovery sites and that the implementation of the General Plan 2025 would not significantly preclude the ability to extract state-designated resources. The proposed project is consistent with the General Plan 2025. Therefore, there is no impact.				

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
12. NOISE. Would the project result in:				
a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐

12a. Response: ***(Source: General Plan Figure N-1 – 2003 Roadway Noise, Figure N-2 – 2003 Freeway Noise, Figure N-3 – 2003 Railway Noise, Figure N-5 – 2025 Roadway Noise, Figure N-6 – 2025 Freeway Noise, Figure N-7 – 2025 Railroad Noise, Figure N-9 – March ARB Noise Contours, Figure N-10 – Noise/Land Use Noise Compatibility Criteria, FPEIR Table 5.11-I – Existing and Future Noise Contour Comparison, Table 5.11-E – Interior and Exterior Noise Standards, Appendix G – Noise Existing Conditions Report, Title 7 – Noise Code, and Noise and Vibration Analysis prepared by RK Engineering on November 17, 2014.)***

Traffic Source Noise

The noise contours of the nearby roadways were calculated using the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108) in order to provide estimated future traffic noise levels. The distances to the 55, 60, 65, 70 dBA CNEL noise contours were calculated. In addition, the noise level at 100 feet from the centerline was calculated and is representative of the approximate distance to homes along the study area roadways. Forecast Year 2025 volumes along Sycamore Canyon Boulevard were obtained from the City's General Plan Forecast Roadway Network.

Year 2025 Without and With Project Conditions: The CNEL calculations demonstrate that the proposed project is expected to increase noise levels by approximately 0.2 dBA CNEL along Sycamore Canyon Road. The change in noise levels, as a result of the project, is considered a less than significant impact and no off-site mitigation is required.

Stationary Source Noise

The stationary noise associated with the proposed project would include loading/unloading activities from the loading dock area and condenser unit noise from the rooftop HVAC units. The project must not exceed the City's stationary daytime and nighttime noise standard.

During loading and unloading activities, noise would be generated by the trucks' diesel engines, exhaust systems, and brakes during low gear shifting' braking activities; backing up toward the docks; dropping down the dock ramps; and maneuvering away from the docks. Access to the loading dock areas would occur from the project driveways located along Dan Kipper Drive.

The residential units north of the project site are approximately 110 feet from the loading/unloading area. In order to ensure noise levels remain below the City standards, an 8-foot screening wall is recommended along the northerly portion of the site. With the recommended screening walls, the closet residencies would experience noise levels of approximately 35.9 dBA Leq with a maximum level of 53.6 dBA Lmax from the loading dock area.

The noise levels generated by truck operations would not exceed the City's daytime or nighttime noise standards for the residential land uses.

The proposed project would have rooftop heating, ventilation, and air conditioning (HVAC) or condenser equipment. HVAC equipment will be located approximately 175 feet from the nearest residencies. With the effects of distance divergence, noise generated by HVAC equipment would be reduced to 35.3 dBA Leq at the closest residences. The noise prediction model assumes a 4-foot parapet wall adjacent to the HVAC units.

The noise levels generated by HVAC equipment would be below the City's daytime/nighttime exterior standard for the residential land uses. Therefore, no significant noise impacts would occur to off-site noise sensitive land uses from rooftop HVAC equipment.

Construction Source Noise

Without a temporary construction barrier the maximum noise level will be 77 dBA. The mitigated maximum noise level will

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

be 70 dBA. The mitigated noise level assumes the use of an 8 foot temporary barrier to be placed along the subject property line (in locations where an existing property line wall does not exist).

The project will require a temporary 8 foot barrier along the property line (where existing adjacent residences exist), to shield potential construction noise. With the implementation of the temporary barrier, construction noise levels are anticipated to be below the City's noise standard and therefore would be considered not significant.

MM Noise 1: Construction Impacts: The following measures would reduce short–term construction related noise impacts resulting from the project:

1. Construction cannot take place between the hours of 7:00 PM and 7:00 AM on weekdays and 5:00 PM and 8:00 AM on Saturdays, or at any time on Sunday or a federal holiday.
2. For locations where an existing property wall does not exist, a temporary eight (8) foot noise barrier should be installed along the north property line to shield the residential units from construction noise activity. Construction barrier can be constructed of plywood or equivalent.
3. Stationary construction noise sources such as generators or pumps should be located at least 300 feet from sensitive land uses, as feasible.
4. Construction staging areas should be located as far from noise sensitive land uses as feasible.
5. During construction, the contractor shall ensure all construction equipment is equipped with appropriate noise attenuating devices.
6. Idling equipment shall be turned off when not in use.
7. Equipment shall be maintained so that vehicles and their loads are secured from rattling and banging.

MM Noise 2: To reduce impact from transportation-related noise, the City shall identify and enforce routes where vehicles are limited by weight, enforce speed limits, and commit to identifying roads where speed limit reductions can address noise.

b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

12b. Response: ***(Source: General Plan Figure N-1 – 2003 Roadway Noise, Figure N-2 – 2003 Freeway Noise, Figure N-3 – 2003 Railway Noise, Figure N-5 – 2025 Roadway Noise, Figure N-6 – 2025 Freeway Noise, Figure N-7 – 2025 Railroad Noise, Figure N-9 – March ARB Noise Contours, FPEIR Table 5.11-G – Vibration Source Levels For Construction Equipment, Appendix G – Noise Existing Conditions Report and Noise and Vibration Analysis prepared by RK Engineering on November 17, 2014.)***

Construction activities can produce vibration that may be felt by adjacent land uses. The construction of the proposed project would not require the use of equipment such as pile drivers, which are known to generate substantial construction vibration levels. The primary source vibration during construction may be from a bull dozer. A small dozer has a vibration impact of 0.003 inches per second PPV at 25 feet. The distance of the construction equipment will be further than 25 feet from any existing building. It is anticipated that no significant vibration impact will occur to any adjacent buildings due to the distance of construction equipment from buildings.

The project is not anticipated to have a vibration impact and is considered not significant.

MM Noise 1: Construction Impacts: The following measures would reduce short–term construction related noise impacts resulting from the project:

1. Construction cannot take place between the hours of 7:00 PM and 7:00 AM on weekdays and 5:00 PM and 8:00 AM on Saturdays, or at any time on Sunday or a federal holiday.
2. For locations where an existing property wall does not exist, a temporary eight (8) foot noise barrier should be installed along the north property line to shield the residential units from construction noise activity. Construction barrier can be constructed of plywood or equivalent.
3. Stationary construction noise sources such as generators or pumps should be located at least 300 feet from sensitive land uses, as feasible.
4. Construction staging areas should be located as far from noise sensitive land uses as feasible.
5. During construction, the contractor shall ensure all construction equipment is equipped with appropriate noise attenuating devices.
6. Idling equipment shall be turned off when not in use.
7. Equipment shall be maintained so that vehicles and their loads are secured from rattling and banging.

MM Noise 2: To reduce impact from transportation-related noise, the City shall identify and enforce routes where vehicles are limited by weight, enforce speed limits, and commit to identifying roads where speed limit reductions can address noise.

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

ISSUES (AND SUPPORTING INFORMATION SOURCES):	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**

12c. Response: ***(Source: General Plan Figure N-1 – 2003 Roadway Noise, Figure N-2 – 2003 Freeway Noise, Figure N-3 – 2003 Railway Noise, Figure N-5 – 2025 Roadway Noise, Figure N-6 – 2025 Freeway Noise, Figure N-7 – 2025 Railroad Noise, March ARB Noise Contours, Figure N-10 – Noise/Land Use Noise Compatibility Criteria, FPEIR Table 5.11-I – Existing and Future Noise Contour Comparison, Table 5.11-E – Interior and Exterior Noise Standards, Appendix G – Noise Existing Conditions Report, Title 7 – Noise Code, and Noise and Vibration Analysis prepared by RK Engineering on November 17, 2014.)***

Traffic Source Noise
The noise contours of the nearby roadways were calculated using the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108) in order to provide estimated future traffic noise levels. The distances to the 55, 60, 65, 70 dBA CNEL noise contours were calculated. In addition, the noise level at 100 feet from the centerline was calculated and is representative of the approximate distance to homes along the study area roadways. Forecast Year 2025 volumes along Sycamore Canyon Boulevard were obtained from the City's General Plan Forecast Roadway Network.

Year 2025 Without and With Project Conditions: The CNEL calculations demonstrate that the proposed project is expected to increase noise levels by approximately 0.2 dBA CNEL along Sycamore Canyon Road. The change in noise levels, as a result of the project, is considered a less than significant impact and no off-site mitigation is required.

Stationary Source Noise
The stationary noise associated with the proposed project would include loading/unloading activities from the loading dock area and condenser unit noise from the rooftop HVAC units. The project must not exceed the City's stationary daytime and nighttime noise standard.

During loading and unloading activities, noise would be generated by the trucks' diesel engines, exhaust systems, and brakes during low gear shifting' braking activities; backing up toward the docks; dropping down the dock ramps; and maneuvering away from the docks. Access to the loading dock areas would occur from the project driveways located along Dan Kipper Drive.

The residential units north of the project site are approximately 110 feet from the loading/unloading area. In order to ensure noise levels remain below the City standards, an 8-foot screening wall is recommended along the northerly portion of the site. With the recommended screening walls, the closet residencies would experience noise levels of approximately 35.9 dBA Leq with a maximum level of 53.6 dBA Lmax from the loading dock area.

The noise levels generated by truck operations would not exceed the City's daytime or nighttime noise standards for the residential land uses.

The proposed project would have rooftop heating, ventilation, and air conditioning (HVAC) or condenser equipment. HVAC equipment will be located approximately 175 feet from the nearest residencies. With the effects of distance divergence, noise generated by HVAC equipment would be reduced to 35.3 dBA Leq at the closest residences. The noise prediction model assumes a 4-foot parapet wall adjacent to the HVAC units.

The noise levels generated by HVAC equipment would be below the City's daytime/nighttime exterior standard for the residential land uses. Therefore, no significant noise impacts would occur to off-site noise sensitive land uses from rooftop HVAC equipment.

MM Noise 1: Construction Impacts: The following measures would reduce short–term construction related noise impacts resulting from the project:

1. Construction cannot take place between the hours of 7:00 PM and 7:00 AM on weekdays and 5:00 PM and 8:00 AM on Saturdays, or at any time on Sunday or a federal holiday.
2. For locations where an existing property wall does not exist, a temporary eight (8) foot noise barrier should be installed along the north property line to shield the residential units from construction noise activity. Construction barrier can be constructed of plywood or equivalent.

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

3. Stationary construction noise sources such as generators or pumps should be located at least 300 feet from sensitive land uses, as feasible.
4. Construction staging areas should be located as far from noise sensitive land uses as feasible.
5. During construction, the contractor shall ensure all construction equipment is equipped with appropriate noise attenuating devices.
6. Idling equipment shall be turned off when not in use.
7. Equipment shall be maintained so that vehicles and their loads are secured from rattling and banging.

MM Noise 2: To reduce impact from transportation-related noise, the City shall identify and enforce routes where vehicles are limited by weight, enforce speed limits, and commit to identifying roads where speed limit reductions can address noise.

MM Noise 3: Project design shall incorporate the following to reduce operational noise impacts:

1. Project design shall incorporate a parapet wall positioned in-between any rooftop condenser unit and adjacent sensitive receptors. Wall height should be as tall as or taller than the roof top condenser unit (e.g., 4-ft).
2. To further reduce noise impacts from the project, an eight (8) foot wall is recommended along the northern property line of the site.
3. Project shall limit truck idling to 5 minutes or less.

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

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

12d. Response: ***(Source: FPEIR Table 5.11-J – Construction Equipment Noise Levels, Appendix G – Noise Existing Conditions Report and Noise and Vibration Analysis prepared by RK Engineering on November 17, 2014.)***

MM Noise 1: Construction Impacts: The following measures would reduce short–term construction related noise impacts resulting from the project:

1. Construction cannot take place between the hours of 7:00 PM and 7:00 AM on weekdays and 5:00 PM and 8:00 AM on Saturdays, or at any time on Sunday or a federal holiday.
2. For locations where an existing property wall does not exist, a temporary eight (8) foot noise barrier should be installed along the north property line to shield the residential units from construction noise activity. Construction barrier can be constructed of plywood or equivalent.
3. Stationary construction noise sources such as generators or pumps should be located at least 300 feet from sensitive land uses, as feasible.
4. Construction staging areas should be located as far from noise sensitive land uses as feasible.
5. During construction, the contractor shall ensure all construction equipment is equipped with appropriate noise attenuating devices.
6. Idling equipment shall be turned off when not in use.
7. Equipment shall be maintained so that vehicles and their loads are secured from rattling and banging.

MM Noise 2: To reduce impact from transportation-related noise, the City shall identify and enforce routes where vehicles are limited by weight, enforce speed limits, and commit to identifying roads where speed limit reductions can address noise.

MM Noise 3: Project design shall incorporate the following to reduce operational noise impacts:

1. Project design shall incorporate a parapet wall positioned in-between any rooftop condenser unit and adjacent sensitive receptors. Wall height should be as tall as or taller than the roof top condenser unit (e.g., 4-ft).
2. To further reduce noise impacts from the project, an eight (8) foot wall is recommended along the northern property line of the site.
3. Project shall limit truck idling to 5 minutes or less.

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

12e. Response: ***(Source: General Plan 2025, Figure N-9 – March ARB Noise Contour, Figure N-10 – Noise/Land Use Noise Compatibility Criteria, RCALUCP, March Air Reserve Base/March inland Port Comprehensive Land Use Plan (1999),Air Installation Compatible Use Zone Study for March Air Reserve Base (August 2005) Noise and Vibration Analysis prepared by RK Engineering on November 17, 2014.)***

The project site is located within Areas 1 and 2 of Figure PS-6 – Airport Land Use Compatibility Zones and Influence Areas. It is also within Compatibility Zone D of Map MA-1 of the March Air Reserve Base/ Inland Port Airport Land Use Compatibility Plan (2013). Zone D is classified as a primary approach/departure zone with a moderate risk level due to low altitude overflight corridor and a moderate to high noise impact. The project falls outside 55 dBA CNEL contours and therefore the impact is less than significant. Therefore the project will result in minimal hazards with a less than significant impact for the people working on the site.

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

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

12f. Response: ***(Source: General Plan 2025 Figure PS-6 – Airport Safety Zones and Influence Areas, RCALUCP, March Air Reserve Base/March Inland Port Comprehensive Land Use Plan (1999)and Air Installation Compatible Use Zone Study for March Air Reserve Base (August 2005) and Noise and Vibration Analysis prepared by RK Engineering on November 17, 2014.)***

The project site is located within Areas 1 and 2 of Figure PS-6 – Airport Land Use Compatibility Zones and Influence Areas. It is also within Compatibility Zone D of Map MA-1 of the March Air Reserve Base/ Inland Port Airport Land Use Compatibility Plan (2013). Zone D is classified as a primary approach/departure zone with a moderate risk level due to low altitude overflight corridor and a moderate to high noise impact. The project falls outside 55 dBA CNEL contours and therefore the impact is less than significant. Therefore the project will result in minimal hazards with a less than significant impact for the people working on the site.

13. POPULATION AND HOUSING. Would the project:				
a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐

13a. Response: ***(Source: General Plan 2025 Table LU-3 – Land Use Designations, FPEIR Table 5.12-A – SCAG Population and Households Forecast, Table 5.12-B – General Plan Population and Employment Projections–2025, Table 5.12-C – 2025 General Plan and SCAG Comparisons, Table 5.12-D - General Plan Housing Projections 2025, Capital Improvement Program and SCAG's RCP and RTP)***

The project involves the construction of an industrial warehouse development that may indirectly induce population growth through job creation. The number of onsite jobs created as a result of the proposed project will vary depending on the operational characteristics of the warehouse tenants, and it is not possible to determine if project employees will reside in the City of Riverside or surrounding areas. The project will be consistent with the General Plan 2025 Program. The General Plan 2025 Final PEIR determined that Citywide, future development anticipated under the General Plan 2025 Typical scenario would not have significant population growth impacts. Because the proposed project is consistent with the General Plan 2025 typical growth scenario and population growth impacts were previously evaluated in the GP 2025 FPEIR the project does not result in new impacts beyond those previously evaluated in the GP 2025 FPEIR; therefore, the impacts will be less than significant both directly and indirectly.

b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

13b. Response: ***(Source: CADME Land Use 2003 Layer)***

The project will not displace existing housing, necessitating the construction of replacement housing elsewhere because the project site is currently vacant and has no existing housing that will be removed by the proposed project. Therefore, there will be no impact on existing housing either directly, indirectly or cumulatively.

c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

13c. Response: ***(Source: CADME Land Use 2003 Layer)***

The project will not displace existing housing, necessitating the construction of replacement housing elsewhere because the project site is currently vacant and has no existing housing that will be removed by the proposed project. Therefore, there will be no impact on existing housing either directly, indirectly or cumulatively.

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
14. PUBLIC SERVICES.				
Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
a. Fire protection?	☐	☐	☒	☐

14a. Response: ***(Source: FPEIR Table 5.13-B – Fire Station Locations, Table 5.13-C – Riverside Fire Department Statistics and Ordinance 5948 § 1)***

The project consists of an industrial warehouse development. Government facilities, including Fire facilities and services are provided by the City of Riverside. Fire Station 13 located at 6490 Sycamore Canyon Boulevard will serve this project. In addition, with implementation of General Plan 2025 policies, compliance with existing codes and standards, and through police and Fire Department practices, there will be less than significant impacts on the demand for additional fire facilities or services either directly, indirectly or cumulatively. In addition, development impact fees will be required conditions of approval and will offset any impacts to government facilities.

b. Police protection?	☐	☐	☒	☐

14b. Response: ***(Source: General Plan 2025 Figure PS-8 – Neighborhood Policing Centers)***

The project consists of an industrial warehouse development. Government facilities, including Police facilities and services are provided by the City of Riverside Adequate police facilities and services are provided by the East Neighborhood Policing Center to serve this project. In addition, with implementation of General Plan 2025 policies, compliance with existing codes and standards, and through Police Department practices, there will be less than significant impacts on the demand for additional police facilities of services either directly, indirectly or cumulatively.

c. Schools?	☐	☐	☐	☒

14c. Response: ***(Source: FPEIR Figure 5.13-2 – RUSD Boundaries, Table 5.13-D – RUSD, Figure 5.13-3 – AUSD Boundaries, Table 5.13-E – AUSD, Table 5.13-G – Student Generation for RUSD and AUSD By Education Level, and Figure 5.13-4 – Other School District Boundaries***

The project is a non-residential use that will not involve the addition of any housing units that would increase numbers of school age children. Project specific job creation may indirectly result in workers residing in the City of Riverside. Therefore, there will be no direct impact on the demand for additional school facilities or services either directly, indirectly or cumulatively. The project will pay school impact fees to offset any indirect impacts.

d. Parks?	☐	☐	☐	☒

14d. Response: ***(Source: General Plan 2025 Figure PR-1 – Parks, Open Spaces and Trails, Table PR-4 – Park and Recreation Facilities, Parks Master Plan 2003, GP 2025 FPEIR Table 5.14-A – Park and Recreation Facility Types, and Table 5.14-C – Park and Recreation Facilities Funded in the Riverside Renaissance Initiative)***

The project is a non-residential use that will not involve the addition of any housing units that would increase the population. Therefore, there will be no direct impact on the demand for additional park facilities or services either directly, indirectly or cumulatively. The project will pay development impact fees to offset any indirect impacts to parks.

e. Other public facilities?	☐	☐	☐	☒

14e. Response: ***(Source: General Plan 2025 Figure LU-8 – Community Facilities, FPEIR Figure 5.13-5 - Library Facilities, Figure 5.13-6 - Community Centers, Table 5.3-F – Riverside Community Centers, Table 5.13-H – Riverside Public Library Service Standards)***

The project consists of a warehouse and office development. Adequate public facilities and services, including

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
libraries and community centers, are provided in the Sycamore Canyon/Sycamore Springs Neighborhood to serve this project. In addition, with implementation of General Plan 2025 policies, compliance with existing codes and standards, and through Park and Recreation and Community Services and Library practices, there will be no impacts on the demand for additional public facilities or services either directly, indirectly or cumulatively.				
15. RECREATION.				
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
15a. Response: (Source: General Plan 2025 Figure PR-1 – Parks, Open Spaces and Trails, Table PR-4 – Park and Recreation Facilities, Figure CCM-6 – Master plan of Trails and Bikeways, Parks Master Plan 2003, FPEIR Table 5.14-A – Park and Recreation Facility Types, and Table 5.14-C – Park and Recreation Facilities Funded in the Riverside Renaissance Initiative, Table 5.14-D – Inventory of Existing Community Centers, Riverside Municipal Code Chapter 16.60 - Local Park Development Fees, Bicycle Master Plan May 2007) The proposed project is industrial in nature and will not generate excessive demand for neighborhood or regional park facilities.				
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒
15b. Response: ***General Plan 2025.*** The project does not propose or require any recreational facilities.				
16. TRANSPORTATION/TRAFFIC. Would the project result in:				
a. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐
16a. Response: ***(Source: General Plan 2025 Figure CCM-4 – Master Plan of Roadways, FPEIR Figure 5.15-4 – Volume to Capacity (V/C) Ratio and Level of Service (LOS) (Typical 2025), Table 5.15-D – Existing and Future Trip Generation Estimates, Table 5.15-H – Existing and Typical Density Scenario Intersection Levels of Service, Table 5.15-I – Conceptual General Plan Intersection Improvement Recommendations, Table 5.15-J – Current Status of Roadways Projected to Operate at LOS E or F in 2025, Table 5.15.-K – Freeway Analysis Proposed General Plan, Appendix H – Circulation Element Traffic Study and Traffic Study Appendix, SCAG's RTP, and a traffic report prepared November 12, 2014 by RK Engineering.*** Existing roadway capacity is adequate to accommodate the traffic volumes associated with the proposed project. Access to the project is provided by Dan Kipper Drive, which is currently constructed and operational. Traffic associated with the project will utilize Dan Kipper Drive and site specific driveways. Traffic will arrive and depart the site heading either north or south on Sycamore Canyon Boulevard. Dan Kipper Drive is stop sign controlled. The proposed project is expected to generate a total of 963 average trips per day (ADT), with 609 ADT associated with cars and 354 ADT associated with trucks for a total of 963. Therefore, the increase in traffic in relation to the existing traffic load and capacity of the street system is				

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
less than significant.				
b. Conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
16b. Response: ***(Source: General Plan 2025 Figure CCM-4 – Master Plan of Roadways, FPEIR Figure 5.15-4 – Volume to Capacity (V/C) Ratio and Level of Service (LOS) (Typical 2025), Table 5.15-D – Existing and Future Trip Generation Estimates, Table 5.15-H – Existing and Typical Density Scenario Intersection Levels of Service, Table 5.15-I – Conceptual General Plan Intersection Improvement Recommendations, Table 5.15-J – Current Status of Roadways Projected to Operate at LOS E or F in 2025, Table 5.15.-K – Freeway Analysis Proposed General Plan, Appendix H – Circulation Element Traffic Study and Traffic Study Appendix, SCAG's RTP, and a traffic report prepared November 12, 2014 by RK Engineering.*** The project site does not include a state highway or principal arterial within Riverside County's Congestion Management Program (CMP) and the project is consistent with the land use assumptions components of the program. Therefore the impact to the CMP is less than significant.				
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
16c. Response: ***(Source: General Plan 2025 Figure PS-6 – Airport Safety Zones and Influence Areas, RCALUCP, March Air Reserve Base/March Inland Port Comprehensive Land Use Plan (1999)and Air Installation Compatible Use Zone Study for March Air Reserve Base (August 2005)*** The proposed project is partially located in land use compatibility Zone D of Map MA-1 of the 2025 General Plan for the March Air Reserve Base/March Inland Port. Implementation of the proposed project will not result in any change to existing air traffic patterns or increase air traffic levels in the vicinity of the project site. Therefore, the project will have a less than significant impact directly, indirectly or cumulatively.				
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
16d. Response: ***(Source: Project Site Plans, Lane Striping and Signing Plans and a traffic report prepared November 12, 2014 by RK Engineering.*** The proposed project will take access off of an existing improved roadway, Dan Kipper Drive. There are no hazardous design features associated with Dan Kipper Drive. Therefore, the project will have a less than significant impact on increasing hazards to the surrounding area or general public directly, indirectly or cumulatively.				
e. Result in inadequate emergency access?	☐	☐	☐	☒
16e. Response: ***(Source: California Department of Transportation Highway Design Manual, Municipal Code, and Fire Code and a traffic report prepared November 12, 2014 by RK Engineering.*** The project has been designed in accordance with Title 18, Section 18.210.030 and the City's Fire Code Section 503 (California Fire Code 2007). Therefore there will be no impact directly, indirectly or cumulatively,				
f. Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities)?	☐	☐	☐	☒
16f. Response: ***(Source: FPEIR, General Plan 2025 Land Use and Urban Design, Circulation and Community Mobility and Education Elements, Bicycle Master Plan, School Safety Program – Walk Safe! – Drive Safe!)*** The project as proposed does not create any conflicts with adopted policies, plans or programs supporting alternative transportation (e.g. bus turnouts or bicycle racks). As such, the project will have no direct, indirect or cumulative impact on				

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
adopted plans, policies or programs supporting alternative transportation.				
17. UTILITIES AND SYSTEM SERVICES. Would the project:				
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐

17a. Response: ***(Source: General Plan 2025 Figure PF-2 – Sewer Facilities Map, FPEIR Figure 5.16-5 – Sewer Service Areas, Table 5.16-K - Estimated Future Wastewater Generation for the City of Riverside's Sewer Service Area, Table 5.16-L - Estimated Future Wastewater Generation for the Planning Area Served by WMWD , Figure 5.8-1 – Watersheds, Wastewater Integrated Master Plan and Certified EIR)***

All new development, including the project, is required to comply with all provisions of the NPDES program and the City's Municipal Separate Sewer Permit (MS4), as enforced by the Regional Water Quality Control Board (RWQCB). Therefore, the proposed project would not exceed applicable wastewater treatment requirements of the RWQCB with respect to discharges to the sewer system or storm water system within the City. Because the proposed project is required to adhere to the above regulations related to wastewater treatment the project will have a less than significant impact.

b. 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?	☐	☐	☐	☒

17b. Response: ***(Source: General Plan 2025 Table PF-1 – RPU Projected Domestic Water Supply (AC-FT/YR), Table PF-2 – RPU Projected Water Demand, Table PF-3 – Western Municipal Water District Projected Domestic Water Supply (AC-FT/YR), RPU, FPEIR Table 5.16-G – General Plan Projected Water Demand for RPU Including Water Reliability for 2025, Table 5.16-I - Current and Projected Water Use WMWD, Table 5.16-J - General Plan Projected Water Demand for WMWD Including Water Reliability 2025, Table 5.16-K - Estimated Future Wastewater Generation for the City of Riverside's Sewer Service Area & Table 5.16-L - Estimated Future Wastewater Generation for the Planning Area Served by WMWD, Figure 5.16-4 – Water Facilities and Figure 5.16-6 – Sewer Infrastructure and Wastewater Integrated Master Plan and Certified EIR.)***

The project will not result in the construction of new or expanded water or wastewater treatment facilities. The project is consistent with the Typical Growth Scenario of the General Plan 2025 where future water and wastewater generation was determined to be adequate (see Tables 5.16-E, 5.16-F, 5.16-G, 5.16-H, 5.16-1, 5.16-J and 5.16-K of the General Plan 2025 Final PEIR). Therefore, the project will have no impact resulting in the construction of new water or wastewater treatment facilities or the expansion of existing facilities directly, indirectly or cumulatively.

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

17c. Response: ***(Source: FPEIR Figure 5.16-2 - Drainage Facilities)***

The increase in impervious surface area resulting from construction of an industrial warehouse development will generate increased storm water flows with potential to impact drainage facilities and require the provision of additional onsite facilities. Onsite storm water is proposed to be detained in an underground system, and slowly released into the existing storm drain system. Subdivision Code (Title 18, Section 18.48.020) requires drainage fees to be paid to the City for new construction. Fees are transferred into a drainage facilities fund that is maintained by Riverside County Flood Control and Water Conservation District. This Section also complies with the California Government Code (section 66483), which provides for the payment of fees for construction of drainage facilities. Fees are required to be paid as part of the conditions of approval waiver for filing of a final map or parcel map.

General Plan 2025 Policies PF 4.1 and PF 4.3 require the City to continue to routinely monitor its storm drain system and to fund and improve those systems as identified in the City's Capital Improvement plan. Implementation of these policies will ensure that the City is adequately served by drainage systems. The General Plan 2025 also includes policies and programs

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
that will minimize the environmental effects of the development of such facilities. This project also includes an underground Cudo Cube infiltration and detention area, with a capacity of 75,000 cubic feet (cf). Therefore, the project will have less than significant on existing storm water drainage facilities that would not require the expansion of existing facilities directly, indirectly or cumulatively.				
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
17d. Response: ***(Source: FPEIR Figure 5.16-3 – Water Service Areas, Figure 5.16-4 – Water Facilities, Table 5.16-E – RPU Projected Domestic Water Supply (AC-FT/YR, Table 5.16-F – Projected Water Demand, Table 5.16-G – General Plan Projected Water Demand for RPU including Water Reliability for 2025, Table 5.16-H – Current and Projected Domestic Water Supply (acre-ft/year) WMWD Table 5.16-I Current and Projected Water Use WMWD, Table 5.16-J – General Plan Projected Water Demand for WMWD Including Water Reliability 2025, RPU Master Plan, EMWD Master Plan, WMWD Master Plan*** Project water demand is estimated to be 8.5 AF/year. The project water demand is minimal and will not exceed existing water supplies. The project is consistent with the General Plan 2025 Typical Growth Scenario where future water supplies were determined to be adequate (see Tables t.l6-E, 5.16-F, 5.16-G, 5.16-H, 5.16-I and 5.16-J of the General Plan 2025 Final PEIR). Therefore, the project will have no impact resulting in the insufficient water supplies either directly, indirectly or cumulatively.				
e. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
17e. Response: ***(Source: FPEIR Figure 5.16-5 - Sewer Service Areas, Figure 5.16-6 -Sewer Infrastructure, Table 5.16-K - Estimated Future Wastewater Generation for the City of Riverside's Sewer Service Area, Table 5.16-L - Estimated Future Wastewater Generation for the Planning Area Served by WMWD , and Wastewater Integrated Master Plan and Certified EIR)*** The City of Riverside provides wastewater treatment for the project area. The project is estimated to generate approximately 0.375 MGD The project is consistent with the General Plan 2025 Typical Growth Scenario where future wastewater generation was determined to be adequate (see Table 5.16-K of the General Plan 2025 Final PEIR). Further, the current Wastewater Treatment Master Plan anticipates and provides for this type of project. Therefore, no impact to wastewater treatment directly, indirectly or cumulatively will occur.				
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
17f. Response: ***(Source: FPEIR Table 5.16-A – Existing Landfills and Table 5.16-M – Estimated Future Solid Waste Generation from the Planning Area)*** The project is consistent with the General Plan 2025 Typical Build-out Project level where future landfill capacity was determined to be adequate (see Tables 5.16-A and 5.16-M of the General Plan 2025 Final PEIR). Therefore, no impact to landfill capacity will occur directly, indirectly or cumulatively.				
g. Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒
17g. Response: ***(Source: California Integrated Waste Management Board 2002 Landfill Facility Compliance Study)*** The California Integrated Waste Management Act under the Public Resource Code requires that local jurisdictions divert at least 50% of all solid waste generated by January l, 2000. The City is currently achieving a 60% diversion rate, well above State requirements. In addition, the California Green Building Code requires all developments to divert 50% of nonhazardous construction and demolition debris for all projects and 100% of excavated soil and land clearing debris for all non-residential projects beginning January 1, 2011. The proposed project must comply with the City's waste disposal requirements as well as the California Green Building Code and as such would not conflict with any Federal, State, or local regulations related to solid waste. Therefore, no impacts related to solid waste statutes will occur directly, indirectly or cumulatively.				

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
18. MANDATORY FINDINGS OF SIGNIFICANCE.				
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or an endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐

18a. Response: ***(Source: General Plan 2025 – Figure OS-6 – Stephen's Kangaroo Rat (SKR) Core Reserve and Other Habitat Conservation Plans (HCP), Figure OS-7 – MSHCP Cores and Linkages, Figure OS-8 – MSHCP Cell Areas, General Plan 2025 FPEIR Figure 5.4-2 – MSHCP Area Plans, Figure 5.4-4 - MSHCP Criteria Cells and Subunit Areas, Figure 5.4-6 – MSHCP Narrow Endemic Plant Species Survey Area, Figure 5.4-7 – MSHCP Criteria Area Species Survey Area, Figure 5.4-8 – MSHCP Burrowing Owl Survey Area, MSHCP Section 6.1.2 - Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools, and Habitat Assessment prepared by Natural Resources Assessment, Inc. on December 1, 2014, FPEIR Table 5.5-A Historical Districts and Neighborhood Conservation Areas, Figure 5.5-1 - Archaeological Sensitivity, Figure 5.5-2 - Prehistoric Cultural Resources Sensitivity, Appendix D, Title 20 of the Riverside Municipal Code.***

The proposed project does not have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or an endangered plant or animal or eliminate important examples of the major periods of California history or prehistory. The project site has been previously graded and there are no biological resources onsite.

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

18b. Response: ***(Source: FPEIR Section 6 – Long-Term Effects/ Cumulative Impacts for the General Plan 2025 Program)***

The project does have impacts that are individually limited, and not cumulatively considerable, as the proposed project is consistent with the City of Riverside General Plan, Adopted Specific Plan and zoning.

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

18c. Response: ***(Source: FPEIR Section 5 – Environmental Impact Analysis for the General Plan 2025 Program)***

The project will not have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly. All proposed construction activities and proposed warehouse operations which have the potential to adversely affect human beings are regulated by local, state and/ or federal agencies, and the project will comply with said regulations.

Note: Authority cited: Sections 21083 and 21087, Public Resources Code. Reference: Sections 21080(c), 21080.1, 21080.3, 21082.1, 21083, 21083.3, 21093, 21094, 21151, Public Resources Code; Sundstrom v. County of Mendocino, 202 Cal.App.3d 296 (1988); Leonoff v. Monterey Board of Supervisors, 222 Cal.App.3d 1337 (1990).

Staff Recommended Mitigation Measures

Impact Category	Mitigation Measures	Implementation Timing	Responsible Monitoring Party[1]	Monitoring/Reporting Method
Noise	**MM Noise 1:** Construction Impacts: The following measures would reduce short–term construction related noise impacts resulting from the project: 1. Construction cannot take place between the hours of 7:00 PM and 7:00 AM on weekdays and 5:00 PM and 8:00 AM on Saturdays, or at any time on Sunday or a federal holiday. 2. For locations where an existing property wall does not exist, a temporary eight (8) foot noise barrier should be installed along the north property line to shield the residential units from construction noise activity. Construction barrier can be constructed of plywood or equivalent. 3. Stationary construction noise sources such as generators or pumps should be located at least 300 feet from sensitive land uses, as feasible. 4. Construction staging areas should be located as far from noise sensitive land uses as feasible. 5. During construction, the contractor shall ensure all construction equipment is equipped with appropriate noise attenuating devices. 6. Idling equipment shall be turned off when not in use. 7. Equipment shall be maintained so that vehicles and their loads are secured from rattling and banging.	During Construction	Project applicant	MMRP
Noise	**MM Noise 2:** To reduce impact from transportation-related noise, the City shall identify and enforce routes where vehicles are limited by weight, enforce speed limits, and commit to identifying roads where speed limit reductions can address noise.	Ongoing	City of Riverside	Annual Reporting

Impact Category	Mitigation Measures	Implementation Timing	Responsible Monitoring Party[1]	Monitoring/Reporting Method
Noise	**MM Noise 3:** Project design shall incorporate the following to reduce operational noise impacts: 1. Project design shall incorporate a parapet wall positioned in-between any rooftop condenser unit and adjacent sensitive receptors. Wall height should be as tall as or taller than the roof top condenser unit (e.g., 4-ft). 2. To further reduce noise impacts from the project, an eight (8) foot wall is recommended along the northern property line of the site. 3. Project shall limit truck idling to 5 minutes or less.	Design and Construction	Project Applicant	MMRP

APPENDIX

- Noise Impact Study, RK Engineering Group, Inc., November 17, 2014
- Air Quality and GHG Impact Study, RK Engineering Group, Inc., November 17, 2014
- Trip Generation and Trip Distribution Study, RK Engineering Group, Inc., November 12, 2014
- Geotechnical Study, Global Geo-Engineering, Inc., November 24, 2014
- General Biological Assessment , Natural Resources Assessment, Inc., December 1, 2014

RK engineering group, inc.

transportation planning • traffic engineering
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LETTER OF TRANSMITTAL

TO:	CT REALTY	DATE:	November 17, 2014
	65 Enterprise	JOB NO.:	1421-2014-09
	Aliso Viejo, CA 92656	SUBJECT:	Dan Kipper Drive and Sycamore Canyon
			Boulevard Warehouse Development
ATTN:	Mr. David Ball		Noise Impact Study, City of Riverside

WE ARE FORWARDING:

	By Messenger	X	By Email
	By Blueprinter		By Fedex

NUMBER OF COPIES	DESCRIPTION
1	Pdf ecopy of report for your use

SENT FOR YOUR		STATUS		PLEASE NOTE	
	Approval		Preliminary		Revisions
	Signature		Revised		Additions
X	Use		Approved		Omissions
	File		Released		Corrections

REMARKS:
Attached is the Dan Kipper Drive and Sycamore Canyon Boulevard Warehouse Development Noise Impact Study, City of Riverside. If you have any questions please call me at (949) 474-0809.

BY: Mike Dickerson

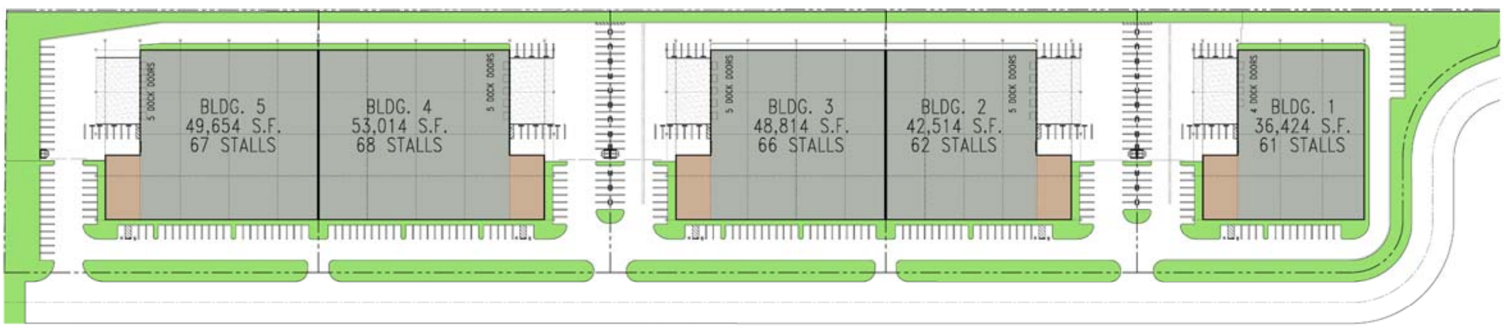
Mike Dickerson, INCE
Air/Noise Specialist

COPIES TO:

i:/rktables/RK10731TB.xls
JN:1421-2014-09

4000 westerly place, suite 280
newport beach, california 92660
tel 949.474.0809 fax 949.474.0902
http://www.rkengineer.com

DAN KIPPER DRIVE & SYCAMORE CANYON BOULEVARD WAREHOUSE DEVELOPMENT NOISE IMPACT STUDY
City of Riverside, California



RK engineering group, inc.

RK engineering group, inc.

November 17, 2014

transportation planning • traffic engineering
acoustical engineering • parking studies

Mr. David Ball
CT REALTY INVESTORS
65 Enterprise, Suite 150
Aliso Viejo, CA 92656

Subject: Dan Kipper Drive and Sycamore Canyon Blvd Warehouse Development Noise Impact Study, City of Riverside

Dear Mr. Ball:

RK ENGINEERING GROUP, INC. (RK) has completed a noise assessment for the proposed Dan Kipper Drive and Sycamore Canyon Boulevard Warehouse Development Project. The proposed project is located north of Dan Kipper Drive and west of Sycamore Canyon Boulevard, in the City of Riverside, as indicated on Exhibit A.

The project consists of developing 13.08 acres with five (5) buildings totaling 17,540 square feet office, 212,880 square feet of warehouse and 324 parking stalls. The site is currently designated for business and manufacturing park and the site plan is illustrated in Exhibit B.

The purpose of this analysis is to review existing and future noise conditions with and without the proposed development. This report provides a summary of the findings, analysis procedures, and evaluation of the proposed project with respect to noise impacts to and from the project site pursuant to the City of Riverside requirements.

RK Engineering Group, Inc. is pleased to assist CT REALTY INVESTORS with the Dan Kipper Warehouse Development Noise Impact Study and looks forward to working with you again in the future. If you have any questions regarding this study, or would like further review, please do not hesitate to call us at (949) 474-0809.

Sincerely,
RK ENGINEERING GROUP, INC.

Mike Dickerson

Michael Dickerson, INCE
Noise/Air Specialist

REGISTERED PROFESSIONAL ENGINEER
ROBERT KAHN
No. 20285
Exp. 09/30/15
CIVIL
STATE OF CALIFORNIA

Robert Kahn

Robert Kahn, P.E.
Principal

Attachments

4000 westerly place, suite 280
newport beach, california 92660
tel 949.474.0809 fax 949.474.0902
http://www.rkengineer.com

DAN KIPPER DRIVE AND SYCAMORE DRIVE WAREHOUSE DEVELOPMENT NOISE IMPACT STUDY
City of Riverside, California

Prepared for:

CT REALTY INVESTORS,
65 Enterprise, Suite 150
Aliso Viejo, CA 92656

Prepared by:

RK ENGINEERING GROUP, INC.
4000 Westerly Place, Suite 280
Newport Beach, CA 92660

Michael Dickerson
Robert Kahn, P.E.

REGISTERED PROFESSIONAL ENGINEER
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STATE OF CALIFORNIA

November 17, 2014

MD:dt/RK10731.doc
JN:1421-2014-09

Table of Contents

List of Attachments

Exhibits

Tables

Appendices

1.0 Introduction

1.1 Purpose of Analysis and Study Objectives

This noise assessment was prepared to evaluate whether the potential noise impacts associated with the project would cause a significant impact to the nearest sensitive receivers. The assessment was conducted and compared to the noise standards set-forth by the Federal, State and Local agencies. Consistent with the California Environmental Quality Act (CEQA) and CEQA Guidelines, a significant impact related to noise would occur if a proposed project is determined to result in:

- Exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or noise ordinance, or applicable agencies.

The following is provided in this report:

- A description of the study area and the proposed project
- Information regarding the fundamentals of noise
- A description of the local noise guidelines and standards
- An exterior/interior analysis of traffic noise impacts to the project study area
- An exterior analysis of stationary noise impacts to the project study area
- Construction noise analysis

1.2 Site Location and Study Area

The project site is located north of Dan Kipper Drive and west of Sycamore Canyon Boulevard in the City of Riverside, California. The project site is bounded by Dan Kipper Drive to the south, Sycamore Canyon Boulevard to the east, existing residential land use to the north and vacant open space to the west, as illustrated in Exhibit A.

The General Plan Land Use Element identifies the project site to be designated for Business/Office Park land uses, and the City's Zoning Map specifies the site is zoned Business/Manufacturing Park (BMP). The project site is currently vacant.

The nearest sensitive receptors to the site include the residential developments north of the project.

1.3 Proposed Project Description

The project consists of five (5) buildings (212,880 square feet of warehouse and 17,540 square feet of office) on approximately 13.08 acres. Building 1 has approximately 32,916 square feet of warehouse space and 3,508 square feet of office space. Building 2 has approximately 39,006 square feet of warehouse space and 3,508 square feet of office space. Building 3 has approximately 43,306 square feet of warehouse space and 3,508 square feet of office space. Building 4 has approximately 49,506 square feet of warehouse space and 3,508 square feet of office space. Building 5 has approximately 46,146 square feet of warehouse space and 3,508 square feet of office space. The project provides a total of 324 parking spaces. The project is consistent with the General Plan Land Use Element and Zoning Code. The proposed project site plan used for this analysis is illustrated in Exhibit B.

2.0 Fundamentals of Noise

This section of the report provides basic information about noise and presents some of the terms used within the report.

2.1 Sound, Noise and Acoustics

Sound is a disturbance created by a moving or vibrating source and is capable of being detected by the hearing organs. Sound may be thought of as mechanical energy of a moving object transmitted by pressure waves through a medium to a human ear. For traffic, or stationary noise, the medium of concern is air. Noise is defined as sound that is loud, unpleasant, unexpected, or unwanted.
#

2.2 Frequency and Hertz

A continuous sound is described by its frequency (pitch) and its amplitude (loudness). Frequency relates to the number of pressure oscillations per second. Low-frequency sounds are low in pitch (bass sounding) and high-frequency sounds are high in pitch (squeak). These oscillations per second (cycles) are commonly referred to as Hertz (Hz). The human ear can hear from the bass pitch starting out at 20 Hz all the way to the high pitch of 20,000 Hz.

2.3 Sound Pressure Levels and Decibels

The amplitude of a sound determines it loudness. The loudness of sound increases or decreases as the amplitude increases or decreases. Sound pressure amplitude is measure in units of micro-Newton per square inch meter (N/m2), also called micro-Pascal (μPa). One μPa is approximately one hundred billionths (0.00000000001) of normal atmospheric pressure. Sound pressure level (SPL or Lp) is used to describe in logarithmic units the ratio of actual sound pressures to a reference pressure squared. These units are called decibels abbreviated dB.

2.4 Addition of Decibels

Because decibels are on a logarithmic scale, sound pressure levels cannot be added or subtracted by simple plus or minus addition. When two sounds or equal SPL are combined, they will produce an SPL 3 dB greater than the original single SPL. In other words, sound energy must be doubled to produce a 3 dB increase. If two sounds differ by approximately 10 dB, the higher sound level is the predominant sound.

2.5 Human Response to Changes in Noise Levels

In general the healthy human ear is most sensitive to sounds between 1,000 Hz and 5,000 Hz, (A-weighted scale) and it perceives a sound within that range as being more intense than a sound with a higher or lower frequency with the same magnitude. For purposes of this report as well as with most environmental documents, the A-scale weighting is typically reported in terms of A-weighted decibel (dBA). Typically the human ear can barely perceive the change in noise level of 3 dB. A change in 5 dB is readily perceptible, and a change in 10 dB is perceived as being twice or half as loud. As previously discussed, a doubling of sound energy results in a 3 dB increase in sound, which means that a doubling of sound energy (e.g. doubling the volume of traffic on a highway) would result in a barely perceptible change in sound level.

2.6 Noise Descriptors

Noise in our daily environment fluctuates over time. Some noise levels occur in regular patterns other are random. Some noise levels are constant while others are sporadic. Noise descriptors were created to describe the different time-varying noise levels. The following indicates the most commonly used noise descriptors and gives a brief definition.

A-Weighted Sound Level

The sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear. A numerical method of rating human judgment of loudness.

Ambient Noise Level

The composite of noise from all sources, near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

Community Noise Equivalent Level (CNEL)

The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of five (5) decibels to sound levels in the evening from 7:00 to 10:00 PM and after addition of ten (10) decibels to sound levels in the night before 7:00 AM and after 10:00 PM.

Decibel (dB)

A unit for measuring the amplitude of a sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micro-pascals.

dB(A)

A-weighted sound level (see definition above).

Equivalent Sound Level (LEQ)

The sound level corresponding to a steady noise level over a given sample period with the same amount of acoustic energy as the actual time varying noise level. The energy average noise level during the sample period.

Habitable Room

Any room meeting the requirements of the Uniform Building Code or other applicable regulations which is intended to be used for sleeping, living, cooking or dining purposes, excluding such enclosed spaces as closets, pantries, bath or toilet rooms, service rooms, connecting corridors, laundries, unfinished attics, foyers, storage spaces, cellars, utility rooms, and similar spaces.

L(n)

The A-weighted sound level exceeded during a certain percentage of the sample time. For example, L10 in the sound level exceeded 10 percent of the sample time. Similarly L50, L90 and L99, etc.

Noise

Any unwanted sound or sound which is undesirable because it interferes with speech and hearing, or is intense enough to damage hearing, or is otherwise annoying. The State Noise Control Act defines noise as "...excessive undesirable sound..."

2.7 Traffic Noise Prediction

Noise levels associated with traffic depends on a variety of factors: (1) volume of traffic, (2) speed of traffic, (3) auto, medium truck (2–3 axle) and heavy truck percentage (4 axle and greater), and sound propagation. The greater the volume of traffic, higher speeds and truck percentages equate to a louder volume in noise. A doubling of the Average Daily Traffic (ADT) along a roadway will increase noise levels by approximately 3 dB; reasons for this are discussed in the sections above.

Outdoor Living Area

Outdoor spaces that are associated with residential land uses typically used for passive recreational activities or other noise-sensitive uses. Such spaces include patio areas, barbecue areas, jacuzzi areas, etc. associated with residential uses; outdoor patient recovery or resting areas associated with hospitals, convalescent hospitals, or rest homes; outdoor areas associated with places of worship which have a significant role in services or other noise-sensitive activities; and outdoor school facilities routinely used for educational purposes which may be adversely impacted by noise. Outdoor areas usually not included in this definition are: front yard areas, driveways, greenbelts, maintenance areas and storage areas associated with residential land uses; exterior areas at hospitals that are not used for patient activities; outdoor areas associated with places of worship and principally used for short-term social gatherings; and, outdoor areas associated with school facilities that are not typically associated with educational uses prone to adverse noise impacts (for example, school play yard areas).

Percent Noise Levels

See L(n).

Sound Level (Noise Level)

The weighted sound pressure level obtained by use of a sound level meter having a standard frequency-filter for attenuating part of the sound spectrum.

Sound Level Meter

An instrument, including a microphone, an amplifier, an output meter, and frequency weighting networks for the measurement and determination of noise and sound levels.

Single Event Noise Exposure Level (SENEL)

The dBA level which, if it lasted for one (1) second, would produce the same A-weighted sound energy as the actual event.

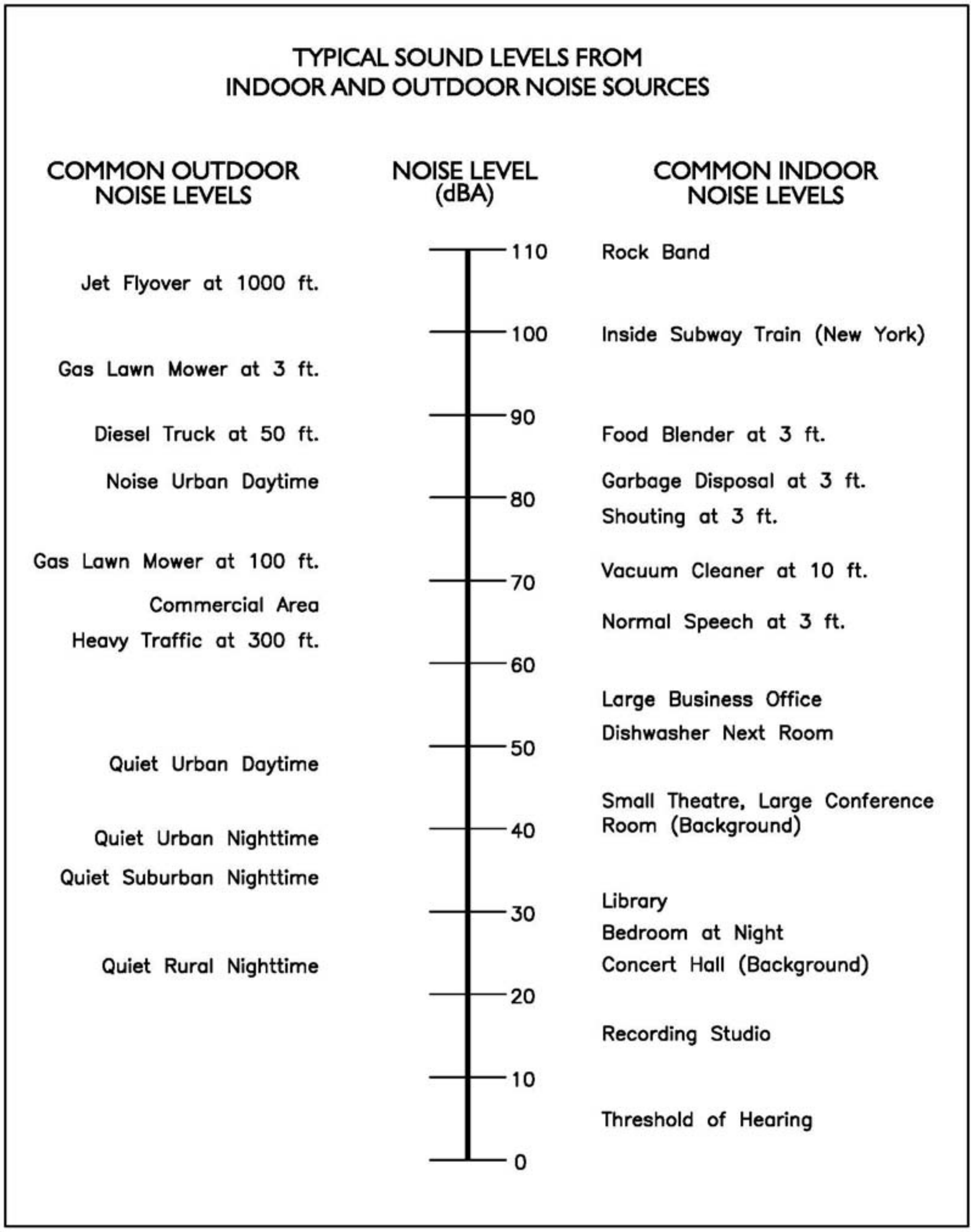
2.8 Sound Propagation

As sound propagates from a source it spreads geometrically. Sound from a small, localized source (i.e., a point source) radiates uniformly outward as it travels away from the source in a spherical pattern. The sound level attenuates at a rate of 6 dB per doubling of distance. The movement of vehicles down a roadway makes the source of the sound appear to propagate from a line (i.e., line source) rather than a point source. This line source results in the noise propagating from a roadway in a cylindrical spreading versus a spherical spreading that results from a point source. The sound level attenuates for a line source at a rate of 3 dB per doubling of distance.

As noise propagates from the source, it is affected by the ground and atmosphere. Noise models use hard site (reflective surfaces) and soft site (absorptive surfaces) to help calculate predicted noise levels. Hard site conditions assume no excessive ground absorption between the noise source and the receiver. Soft site conditions such as grass, soft dirt or landscaping attenuate noise at a rate of 1.5 dB per doubling of distance. When added to the geometric spreading, the excess ground attenuation results in an overall noise attenuation of 4.5 dB per doubling of distance for a line source and 7.5 dB per doubling of distance for a point source.

Research has demonstrated that atmospheric conditions can have a significant effect on noise levels when noise receivers are located 200 feet from a noise source. Wind, temperature, air humidity and turbulence can further impact have far sound can travel.

This noise assessment was prepared to evaluate whether the potential noise impacts associated with the project would cause a significant impact to the nearest sensitive receptor.



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3.0 Ground-Bourne Vibration Fundamentals

Ground-borne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. The effects of ground-borne vibrations typically only cause a nuisance to people, but at extreme vibration levels, damage to buildings may occur. Although ground-borne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Ground-borne noise is an effect of ground-borne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room and may also consist of the rattling of windows or dishes on shelves.

3.1 Vibration Descriptors

Several different methods are used to quantify vibration amplitude.

PPV

Known as the peak particle velocity (PPV) which is the maximum instantaneous peak in vibration velocity, typically given in inches per second.

RMS

Known as root mean squared (RMS) can be used to denote vibration amplitude

VdB

A commonly used abbreviation to describe the vibration level (VdB) for a vibration source.

3.2 Vibration Perception

Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. These continuous vibrations are not noticeable to humans whose threshold of perception is around 65 VdB. Outdoor sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible ground-borne noise or vibration. To counter the effects of ground-borne vibration, the Federal Transit Administration (FTA) has published guidance relative to vibration impacts. According to the FTA, fragile buildings can be exposed to ground-borne vibration levels of 0.3 inches per second without experiencing structural damage.

3.3 Vibration Propagation

There are three main types of vibration propagation: surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse, or side-to-side and perpendicular to the direction of propagation.

As vibration waves propagate from a source, the vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. As stated above, this drop-off rate can vary greatly depending on the soil but has been shown to be effective enough for screening purposes, in order to identify potential vibration impacts that may need to be studied through actual field tests.

3.4 Construction Related Vibration Level Prediction

Operational activities are separated into two different categories. The vibration can be transient or continuous in nature. Each category can result in varying degrees of ground vibration, depending on the equipment used on the site. Operation of equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings in the vicinity of the project area site respond to these vibrations with varying results ranging from no perceptible effects at the low levels to slight damage at the highest levels. The thresholds from Caltrans Transportation and Construction Induced Vibration Guidance Manual in the table below provide general guidelines as to the maximum vibration limits for when vibration becomes potentially annoying.

Guideline Vibration Annoyance Potential Criteria		
Human Response	**Maximum PPV (in/sec)**	
	Transient Sources	**Continuous/Frequent Intermittent Sources**
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.90	0.10
Severe	2.00	0.40

Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

The Caltrans Transportation and Construction Induced Vibration Guidance Manual provide general thresholds and guidelines as to the vibration damage potential from vibratory impacts. The table below provides general vibration damage potential thresholds:

Guideline Vibration Damage Potential Threshold Criteria		
Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins ancient monuments	0.12	0.08
Fragile buildings	0.20	0.10
Historic and some old buildings	0.50	0.25
Older residential structures	0.50	0.30
New residential structures	1.00	0.50
Modern industrial/commercial buildings	2.00	0.50

Soil conditions have an impact on how vibration propagates through the ground. The Caltrans Transportation and Construction Induced Vibration Guidance Manual provides suggested "n" values based on soil class. The table below outlines the manual's suggested values and description.

Suggested "n" Values Based on Soil Classes		
Soil Class	Description of Soil Material	Suggested Value of "n"
I	Weak or soft soils: loose soils, dry or partially saturated peat and muck, mud, loose beach sand, and dune sand.	1.4
II	Most sands, sandy clays, silty clays, gravel, silts, weathered rock.	1.3
III	Hard soils: dense compacted sand, dry consolidated clay, consolidated glacial till, some exposed rock.	1.1
IV	Hard, component rock: bedrock, freshly exposed hard rock.	1.0

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4.0 Regulatory Setting

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The proposed project is located in the City of Riverside and noise regulations are addressed through the efforts of various federal, state and local government agencies. The agencies responsible for regulating noise are discussed below.

4.1 Federal Regulations

The adverse impact of noise was officially recognized by the federal government in the Noise Control Act of 1972, which serves three purposes:

- Publicize noise emission standards for interstate commerce
- Assist state and local abatement efforts
- Promote noise education and research

The Federal Office of Noise Abatement and Control (ONAC) originally was tasked with implementing the Noise Control Act. However, it was eventually eliminated leaving other federal agencies and committees to develop noise policies and programs. Some examples of these agencies are as follows: The Department of Transportation (DOT) assumed a significant role in noise control through its various agencies. The Federal Aviation Agency (FAA) is responsible to regulate noise from aircraft and airports. The Federal Highway Administration (FHWA) is responsible to regulate noise from the interstate highway system. The Occupational Safety and Health Administration (OSHA) is responsible for the prohibition of excessive noise exposure to workers.

The federal government advocates that local jurisdiction use their land use regulatory authority to arrange new development in such a way that "noise sensitive" uses are either prohibited from being constructed adjacent to a highway or, or alternatively that the developments are planned and constructed in such a manner that potential noise impacts are minimized.

Since the federal government has preempted the setting of standards for noise levels that can be emitted by the transportation source, the City is restricted to regulating the noise generated by the transportation system through nuisance abatement ordinances and land use planning.

4.2 State Regulations

Established in 1973, the California Department of Health Services Office of Noise Control (ONC) was instrumental in developing regularity tools to control and abate noise for use by local agencies. One significant model is the "Land Use Compatibility for Community Noise Environments Matrix." The matrix allows the local jurisdiction to clearly delineate compatibility of sensitive uses with various incremental levels of noise.

The State of California has established noise insulation standards as outlined in Title 24 and the Uniform Building Code (UBC) which in some cases requires acoustical analyses to outline exterior noise levels and to ensure interior noise levels do not exceed the interior threshold. The State mandates that the legislative body of each City and city adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines published by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable.

4.3 City of Riverside Noise Regulations

The City of Riverside outlines their noise regulations and standards within the Noise Element from the General Plan and Municipal Code (Appendix A). For purposes of this analysis, the City's General Plan and Noise Ordinance (Chapter 7.05) is used to evaluate the roadway noise and stationary noise impacts to and from the proposed project. The Noise Element outlines Goals and Polices and establishes Noise/Land Use Compatibility Criteria (Figure N-10). This assessment will compare the project noise levels to the residential noise limits since the proposed project is located directly adjacent to existing residential land uses. The project impacts were compared to the City's residential noise standards.

Traffic Noise Regulation

The City specifies outdoor and indoor noise limits for industrial and residential uses, places of worship, educational facilities, hospitals, hotels/motels, commercial and other land uses. Residential land uses are normally acceptable at 60 dBA CNEL and up to 65 dBA CNEL, provided exterior noise levels have been substantially mitigated through a reasonable application of the best available noise reduction technology, and the interior noise level does not exceed 45 dBA (CNEL) with windows and doors closed.

Stationary Noise Regulation

Section 7.25.010 from the Municipal Code discusses the noise standards for stationary noise source and states the following:

A. Unless a variance has been granted as provided in this chapter, it shall be unlawful for any person to cause or allow the creation of any noise which exceeds the following:

    1. The exterior noise standard of the applicable land use category, up to five decibels, for a cumulative period of more than thirty minutes in any hour; or

    2. The exterior noise standard of the applicable land use category, plus five decibels, for a cumulative period of more than fifteen minutes in any hour; or

    3. The exterior noise standard of the applicable land use category, plus ten decibels, for a cumulative period of more than five minutes in any hour; or

4. The exterior noise standard of the applicable land use category, plus fifteen decibels, for the cumulative period of more than one minute in any hour; or

5. The exterior noise standard for the applicable land use category, plus twenty decibels or the maximum measured ambient noise level, for any period of time.

Table 83-2 from the noise ordinance describes the noise standard for emanations from a stationary noise source, as it affects adjacent properties:

Table 83-2: Noise Standards for Stationary Noise Sources		
Affected Land Uses (Receiving Noise)	***7AM - 10PM (Leq)***	***10:00PM - 7AM (Leq)***
Residential	55 dB(A)	45 dB(A)
Industrial	70 dB(A)	70 dB(A)

Construction Noise Regulation

Section 7.35.010(B)(5) of the municipal code regulates the allowable hours of construction activity to 7:00 AM – 7:00 PM on weekdays and to 8:00 AM – 5:00 PM on Saturdays, with no construction activities allowed on Sunday or federal holidays. In addition, the municipal code limits noise levels from construction activities to the maximum permitted exterior noise level for the affected area. In the case of this project, the site is surrounded by existing residential land uses, therefore the project must not exceed the maximum permitted level of 75 dBA.
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5.0 Study Method and Procedure

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To determine the existing noise level environment, RK conducted three (3) short-term noise measurements at the project study area. The following describes the measurement procedures, measurements locations, results, noise modeling methods and assumptions to determine the existing and future noise level impact.

5.1 Measurement Procedure and Criteria

Noise measurements are taken to determine the existing noise levels. A noise receiver or receptor is any location in the noise analysis in which noise might produce an impact. The following criteria are used to select measurement locations and receptors:

- Locations expected to receive the highest noise impacts, such as first row of houses
- Locations that are acoustically representative and equivalent of the area of concern
- Human land usage
- Sites clear of major obstruction and contamination

RK conducted the sound level measurements in accordance to the City of Riverside and CalTrans technical noise specifications. All measurements equipment meets American National Standards Institute (ANSI) specifications for sound level meters (S1.4-1983 identified in Chapter 19.68.020.AA). The following gives a brief description of the Caltrans Technical Noise Supplement procedures for sound level measurements:

- Microphones for sound level meters were placed 5-feet above the ground for all measurements
- Sound level meters were calibrated (Larson Davis CAL 200) before and after each measurement
- Following the calibration of equipment, a wind screen was placed over the microphone
- Frequency weighting was set on “A” and slow response
- Results of the long-term noise measurements were recorded on field data sheets
- During any short-term noise measurements any noise contaminations such as barking dogs, local traffic, lawn mowers, or aircraft fly-overs were noted
- Temperature and sky conditions were observed and documented

5.1.1 Noise Measurements

Noise measurements were conducted November 7, 2014 using a Larson Davis 700 type II sound level meter. The Leq, Lmin, Lmax, L2, L8, L25 and L50 were recorded over a 10-minute interval. The information was utilized to define the noise characteristics for the project.

5.1.2 Noise Measurement Locations

The noise monitoring locations for the Dan Kipper Warehouse site were selected based on the proximity to the location to adjacent sensitive receptors. Short-term noise monitoring locations (ST-1, ST-2 & ST-3) were located along the project site's northern property line near the existing residents, and represents ambient noise levels in the vicinity of the measurement location. Appendix B includes photos, field sheets and measured noise data.

5.1.3 Noise Measurement Timing and Climate

The short-term noise measurements were recorded during daytime hours on November 7, 2014. Noise measurements were conducted in 10-minute intervals during the indicated time schedule.

The climate data was noted during the measurements and is indicated in the field sheets within Appendix B. Measurements were not taken during abnormal weather conditions such as high wind or rain.

5.2 <u>Traffic Noise Modeling</u>

Traffic noise from vehicular traffic was projected using a version of the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108). The FHWA model arrives at the predicted noise level through a series of adjustments to the key input parameters. Traffic data, traffic volumes, and percentages were obtained using the Trip Generation and Trip Distribution Study (prepared by RK Engineering Group, Inc.) and vehicle mix data consistent with City of Riverside parameters. The referenced traffic data utilized for the study is indicated in Appendix C.

The following outlines the key adjustments made to the computer model for the roadway inputs:

- Roadway classification – (e.g. freeway, major arterial, arterial, secondary, collector, etc),
- Roadway Active Width – (distance between the center of the outer most travel lanes on each side of the roadway)
- Average Daily Traffic (ADT) Volumes, Travel Speeds, Percentages of automobiles, medium trucks, and heavy trucks
- Roadway grade and angle of view
- Site Conditions (e.g. soft vs. hard)
- Percentage of total ADT which flows each hour throughout a 24-hour period

Tables 1 and 2 show the roadway parameters, vehicle distribution, and scenarios utilized for this study.

The following outlines key adjustments to the computer model for the project site parameter inputs:

- Vertical and horizontal distances (Sensitive receptor distance from noise source)
- Noise barrier vertical and horizontal distances (Noise barrier distance from sound source and receptor).
- Traffic noise source spectra
- Topography

RK estimated the traffic noise levels at 100 feet from the centerline of the analyzed roadway and the roadway noise contours. The noise model assumes a flat topography condition (which is a worst-case scenario). The project noise calculation worksheet outputs are provided in Appendix D.

5.3 Stationary Noise Modeling

The stationary noise was projected using a computer program that replicates the FHWA Noise Prediction Model (FHWA-RD-77-108). The FHWA model arrives at the predicted noise level through a series of adjustments to the reference energy noise level. For each stationary source, the referenced noise level was applied to the model. The model outputs the projected noise level based on the following key parameters:

- Measured referenced noise level – (e.g. how loud a source is at a specific distance)
- Vertical and horizontal distances (sensitive receptor distance from noise source)
- Noise barrier vertical and horizontal distances (noise barrier distance from sound source and receptor).
- Typical noise source spectra
- Topography

Table 3 indicates the measured referenced and adjusted noise level measurements conducted by RK. The noise measurement data indicates the distance the microphone was placed from the noise source and the statistical data. Measurements were taken over a 10-minute interval.

To estimate the future noise levels during typical conditions, RK adjusted the reference noise levels. Reference noise levels were projected to the nearest property lines where sensitive receptors exist. Table 3 indicates the adjusted noise level measurements.

The adjusted noise levels are based on the distance of the receptor location relative to the noise source, local topography and the project design features, including parapet shielding walls for the equipment. Noise calculation worksheets are located in Appendix E.

The noise levels assume that the stationary sources are operating continuously when in reality all noise sources will operate intermittently throughout the daily operation.

The stationary noise analysis uses a version of the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108). Key parameters and equations from the model require the following input characteristics: Relative source-barrier-receiver horizontal separations, relative source-barrier-receiver vertical separations, typical noise source spectra, and barrier transmission loss. Key inputs also include noise attributed from the typical stationary noise sources (i.e., loading/unloading noise along with specific distances), also known as reference noise level measurements.

6.0 Existing Noise Environment

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Ambient noise measurements were conducted at various locations at the project site. Three (3) short term ambient measurements were conducted at or near the site to evaluate the existing noise conditions. Exhibit C shows the measurement locations. Noise measurement data indicates that traffic noise propagating from Sycamore Canyon Boulevard, Dan Kipper Drive, and the adjacent warehouse operations are the primary sources of noise impacting the project site and the existing residential land use.

6.1 Short-Term Noise Measurement Results

The results of the short-term noise data are presented in Table 4. The noise data indicates the daytime (7AM – 10PM) ambient noise level. RK reduced the daytime noise measurements by 5 dBA to establish the nighttime ambient noise levels. The noise measurement data indicates that the average noise level near the site area ranges from 42.4 to 51.3 dBA Leq. The maximum measured noise level near the existing residential units was 66.2 dBA Lmax.

Short-term noise data indicates the existing ambient noise level is below the City's daytime standard and nighttime standard.

The City's noise code states that noise propagating from an adjacent land use must not exceed the City's daytime and/or nighttime standard. Therefore the project must not increase noise levels beyond the established thresholds.

6.2 Modeled Existing Traffic Noise Levels

The noise contours of the nearby existing roadways were calculated using the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108) in order to provide a baseline of the existing traffic noise levels. The distances to the 55, 60, 65, 70 dBA CNEL noise contours were calculated. In addition, the noise level at 100 feet from the centerline was calculated and is representative of the approximate distance to homes along the study area roadways. Forecast Year 2025 volumes along Sycamore Canyon Boulevard were obtained from the City's General Plan Forecast Roadway Network.

The calculated noise contours in Table 5 show the change in noise levels along Sycamore Canyon Boulevard, north of Dan Kipper Drive, as a result of the project. The CNEL calculations demonstrate that the proposed project is expected to increase noise levels by approximately 0.2 dBA CNEL. **The change in noise level as a result of the project is considered a less than significant impact.**

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7.0 Future Noise Environment Impacts and Mitigation

7.1 Future Exterior Noise

Each future noise source related to the project was analyzed and compared to the City of Riverside standards. The sections below analyze the exterior noise levels and provide mitigation measures that would reduce noise levels. This assessment evaluates the potential noise impacts from the proposed Project to the surrounding land uses and compares the results to the City's Noise Standards.

7.1.1 Traffic Source Noise

The noise contours of the nearby roadways were calculated using the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108) in order to provide estimated future traffic noise levels. The distances to the 55, 60, 65, 70 dBA CNEL noise contours were calculated. In addition, the noise level at 100 feet from the centerline was calculated and is representative of the approximate distance to homes along the study area roadways. Forecast Year 2025 volumes along Sycamore Canyon Boulevard were obtained from the City's General Plan Forecast Roadway Network.

Year 2025 Without and With Project Conditions: The calculated noise contours in Table 5 show the change in noise levels along Sycamore Canyon Boulevard, north of Dan Kipper Drive, as a result of the project. The CNEL calculations demonstrate that the proposed project is expected to increase noise levels by approximately 0.2 dBA CNEL. **The change in noise levels, as a result of the project, is considered a less than significant impact and no off-site mitigation is required.**

7.1.2 Stationary Source Noise

The stationary noise impacts associated with the proposed project would include loading/unloading activities from the loading dock area and condenser unit noise from the rooftop HVAC units. The project must not exceed the City's stationary daytime and nighttime noise standard. Table 6 indicates the daytime and nighttime stationary noise levels associated with operations at the site.

Truck Delivery Loading/Unloading Noise

During loading and unloading activities, noise would be generated by the trucks' diesel engines, exhaust systems, and brakes during low gear shifting' braking activities; backing up toward the docks; dropping down the dock ramps; and maneuvering away from the docks. Access to the loading dock areas would occur from the project driveways located along Dan Kipper Drive.

The residential units north of the project site are approximately 110 feet from the loading/unloading area. In order to ensure noise levels remain below the City standards, an 8-foot screening wall is recommended along the northerly portion of the site. With the recommended screening walls, the closet residencies would experience noise levels of approximately 35.9 dBA Leq with a maximum level of 53.6 dBA Lmax from the loading dock area.

The noise levels generated by truck operations would not exceed the City's daytime or nighttime noise standards for the residential land uses.

Condenser Unit Noise

The proposed project would have rooftop heating, ventilation, and air conditioning (HVAC) or condenser equipment. HVAC equipment will be located approximately 175 feet from the nearest residencies. With the effects of distance divergence, noise generated by HVAC equipment would be reduced to 35.3 dBA Leq at the closest residences. The noise prediction model assumes a 4-foot parapet wall adjacent to the HVAC units.

The noise levels generated by HVAC equipment would be below the City's daytime/nighttime exterior standard for the residential land uses. Therefore, no significant noise impacts would occur to off-site noise sensitive land uses from rooftop HVAC equipment.

Combined Noise Levels

The combined noise level calculation includes the existing ambient noise level plus all stationary noise sources associated with the project. When combining the existing ambient noise level to the stationary noise levels, the project would result in a 43.9 dBA Leq level during daytime and 41.1 dBA Leq level during nighttime. An increase of approximately 0.8 to 1.8 dBA during the daytime and 2.1 to 5.7 dBA during the nighttime as indicated in Table 6.

The result of the combined stationary noise increase results in noise levels that are below the City's stationary standard. The project would not have a significant impact with the incorporation of the recommended screening walls.

7.2 Future Interior Noise

Based on the data provided in the Environmental Protection Agency's (EPA) Protective Noise Levels (EPA 550/9-79-100, Nov 1979), standard homes in Southern California provide at least 12 dBA of noise exterior to interior noise attenuation with windows open and 20 dBA with windows closed.

Therefore, residences would need to be exposed to exterior noise levels exceeding 65 dBA (45 dBA + 20 dBA = 65 dBA) to potentially exceed the interior noise standard of 45 dBA with windows closed. With the windows open, residences would need to be exposed to a worst-case noise level of 57 dBA (45 dBA + 12 dBA = 57 dBA) to exceed the interior noise standard of 45 dBA with windows open. Based on the discussion above, the closest residences would not be exposed to noise levels exceeding 65 dBA with windows closed. Therefore, no significant interior noise impacts would occur to noise-sensitive land uses located adjacent to the project site. No mitigation measures are required.

7.3 Summary of Mitigation Requirements

The mitigation measures for the project are indicated in Exhibit D. In order to comply with the City of Riverside's Noise Element and Municipal Code the project must incorporate the following recommendations into the project design.

Traffic Noise Reduction Measures

No mitigation measures are required

Stationary Noise Reduction Measures

- Project design shall incorporate a parapet wall positioned in-between any rooftop condenser unit and adjacent sensitive receptors. Wall height should be as tall as or taller than the roof top condenser unit (e.g., 4-ft).

- To further reduce noise impacts from the project, an eight (8) foot wall is recommended along the northern property line of the site. The wall should extend along the length of the eastern property line, as indicate in Exhibit D.

- Project shall limit truck idling to 5 minutes or less.

7.3.1 Exterior Area Noise Exposure Control

The residential units (north) adjacent to the project site would experience noise levels that exceed the City's noise standards; therefore, the study recommends exterior noise barriers to shield operational noise levels at the loading docks, any rooftop condensers and along the northern property line. See Exhibit D for location of recommended mitigation.

7.3.1.1 Noise Control Construction Barrier Materials

The designed noise screening will only be accomplished if the barrier's weight is at least 3.5 pounds per square foot of face area without decorative cutouts or line-of-site openings between the shielded areas and the project site. Noise control barrier may be constructed using one, or any combination of the following materials:

- Masonry block;

- Stucco veneer over wood framing (or foam core), or 1-inch thick tongue and groove wood of sufficient weight per square foot;
- Glass (1/4 inch thick), or other transparent material with sufficient weight per square foot;
- Earthen berm

A noise barrier must present a solid face from top to bottom. Preventable openings or decorative cutouts should not be made. All gaps (except for weep holes) should be filled with grout or caulking to avoid flanking.

8.0 Construction Noise Impacts

The degree of construction noise may vary for different areas of the project site and also vary depending on the construction activities. Noise levels associated with the construction will vary with the different phases of construction.

8.1 Construction Noise

The Environmental Protection Agency (EPA) has compiled data regarding the noise generated characteristics of typical construction activities. The data is presented in Table 7. These noise levels would diminish rapidly with distance from the construction site at a rate of 6 dBA per doubling of distance. For example, a noise level of 86 dBA measured 50 feet from the noise source would reduce to 80 dBA at 100 feet. At 200 feet from the noise source the noise level would reduce to 74 dBA. At 400 feet the noise source would reduce by another 6 dBA to 68 dBA. Contractors are required to comply with the City of Riverside's Noise Ordinance during as construction described in Appendix A.

As previously stated, Section 7.35.010(B)(5) of the municipal code regulates the allowable hours of construction activities. The municipal code limits noise levels from construction activities to the maximum permitted exterior noise level for the affected area. In the case of this project, the site is surrounded by existing residential land uses, therefore the project must not exceed the maximum permitted level of 75 dBA at the property line.

To determine the construction noise impact, the referenced construction equipment noise levels were utilized and then extrapolated to the nearest sensitive receptor (north property line). Construction noise modeling assumes that the construction equipment, on average, will be located approximately 170 feet from any sensitive receptor during construction. It is estimated that construction will occur for a 6 month period. Construction noise levels will vary significantly based upon the size and topographical features of the active construction zone, duration of the workday, and types of equipment employed.

RK calculated the worst-case estimated construction noise level during the loudest phase (grading). Table 8 shows the estimated noise levels during grading with and without a temporary 8 foot tall construction barrier placed at the property line. Without a temporary construction barrier the maximum noise level will be 77 dBA. The mitigated maximum noise level will be 70 dBA. The mitigated noise level assumes the use of an 8 foot temporary barrier to be placed along the subject property line (in locations where an existing property line wall does not exist). Construction noise level output calculations are located within Appendix F.

The project will require a temporary 8 foot barrier along the property line (where existing adjacent residences exist), to shield potential construction noise. With the implementation of the temporary barrier, construction noise levels are anticipated to be below the City's noise standard and therefore would be considered not significant.

8.2 Construction Vibration

The effects of vibration on structures have been the subject of extensive research. The Federal Transit Administration has compiled data regarding the vibration levels for various construction equipment and activities and is detailed in Table 9. Much of the work orientated in the mining industry, where vibration from blasting is critical. The Transportation and Construction Induced Vibration Guidance Manuel for the California Department of Transportation has various recommended vibration thresholds for various types of projects and land uses. According to the Konan Vibration Criteria for Historic and Sensitive Buildings, the criteria for transient vibration sources should not exceed 0.3 peak particle velocity (PPV) *(Section 6 – Structures, Table 11)*. 0.035 inches per second is barely perceptive.

Construction activities can produce vibration that may be felt by adjacent land uses. The construction of the proposed project would not require the use of equipment such as pile drivers, which are known to generate substantial construction vibration levels. The primary source vibration during construction may be from a bull dozer. A small dozer has a vibration impact of 0.003 inches per second PPV at 25 feet. The distance of the construction equipment will be further than 25 feet from any existing building. It is anticipated that no significant vibration impact will occur to any adjacent buildings due to the distance of construction equipment from buildings.

The project is not anticipated to have a vibration impact and is considered not significant.

Construction Noise Reduction Measures

Exhibit D illustrates the recommendations. The following mitigation measures are required for the project to ensure construction noise levels remain below the City's noise standard

1. Construction cannot take place between the hours of 7:00 PM and 7:00 AM on weekdays and 5:00 PM and 8:00 AM on Saturdays, or at any time on Sunday or a federal holiday.

2. For locations where an existing property wall does not exist, a temporary eight (8) foot noise barrier should be installed along the north property line to shield the residential units from construction noise activity. Construction barrier can be constructed of plywood or equivalent.

3. Stationary construction noise sources such as generators or pumps should be located at least 300 feet from sensitive land uses, as feasible.

4. Construction staging areas should be located as far from noise sensitive land uses as feasible.

5. During construction, the contractor shall ensure all construction equipment is equipped with appropriate noise attenuating devices.

6. Idling equipment shall be turned off when not in use.

7. Equipment shall be maintained so that vehicles and their loads are secured from rattling and banging.

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9.0 References

State of California General Plan Guidelines: 1998. Governor's Office of Planning and Research

City of Riverside. 2007 City of Riverside 2007 General Plan Noise Element. November 2014.

City of Riverside. City of Riverside Municipal Code, Noise Ordinance. 1996.

Federal Highway Administration, Highway Traffic Noise Prediction Model, FHWA RD-77-108, 1978

RK Engineering Group, *Trip Generation and Trip Distribution Study*, November 2014

Exhibits

Exhibit A

Location Map

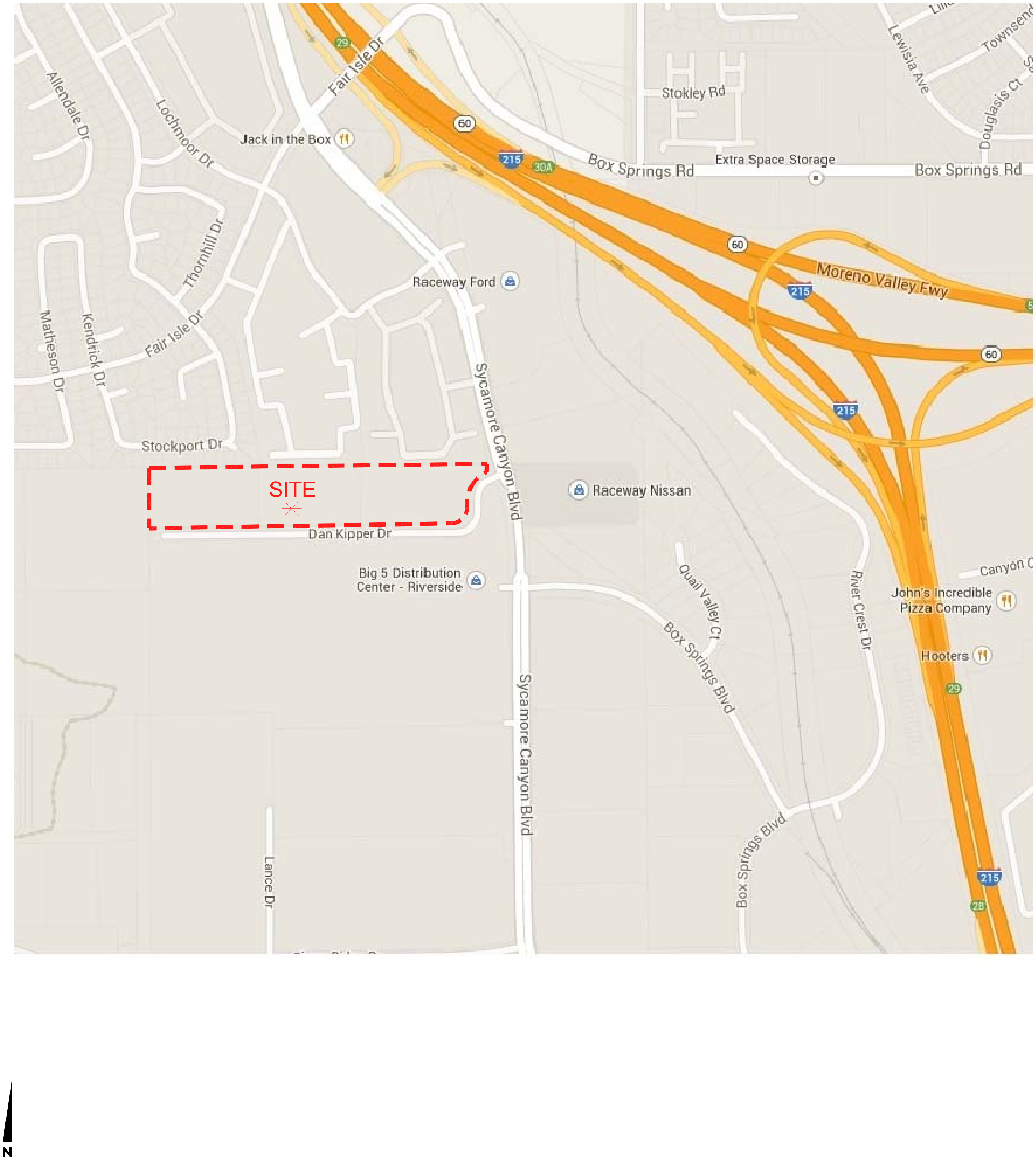


Exhibit B

Site Plan

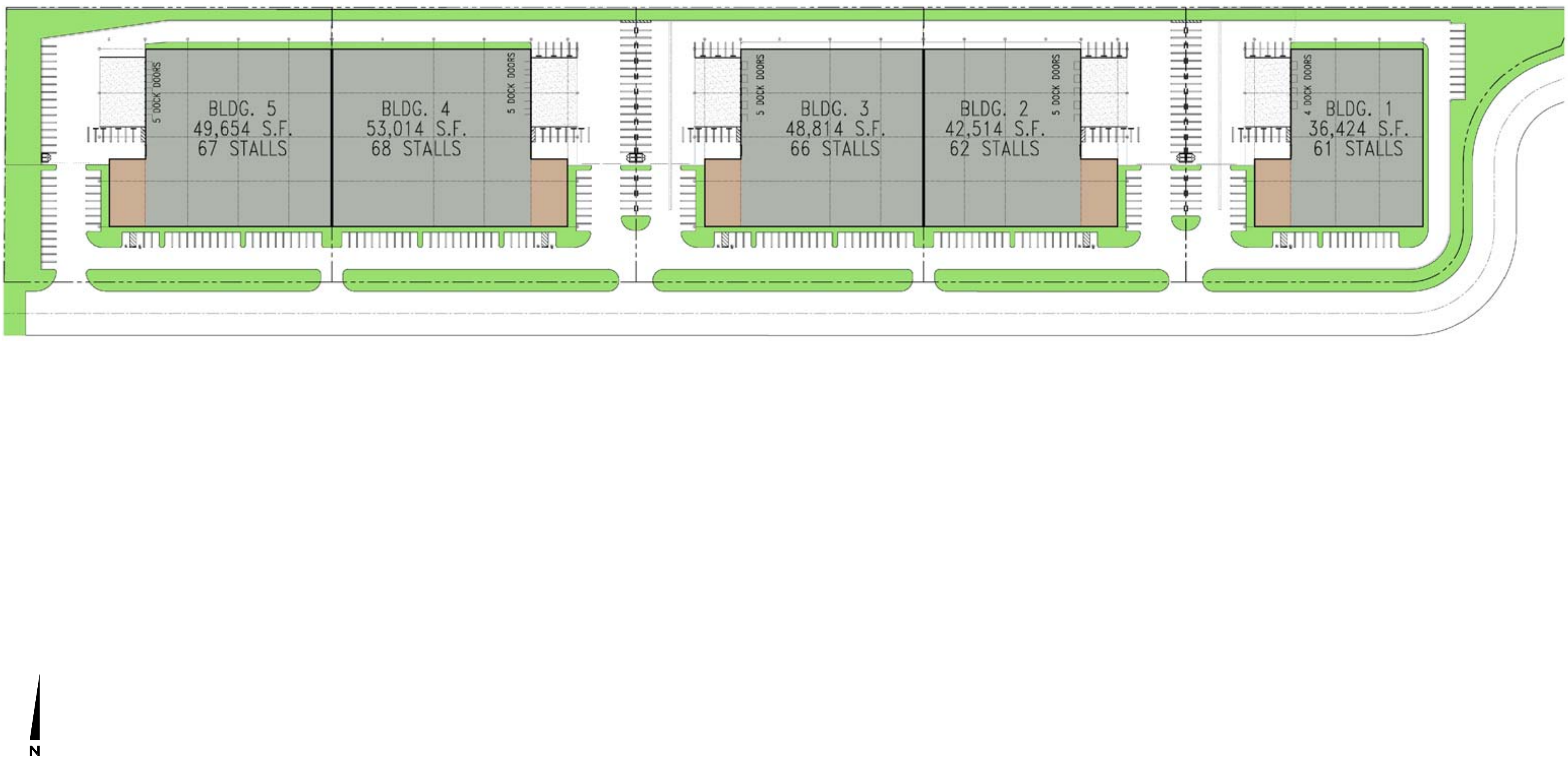
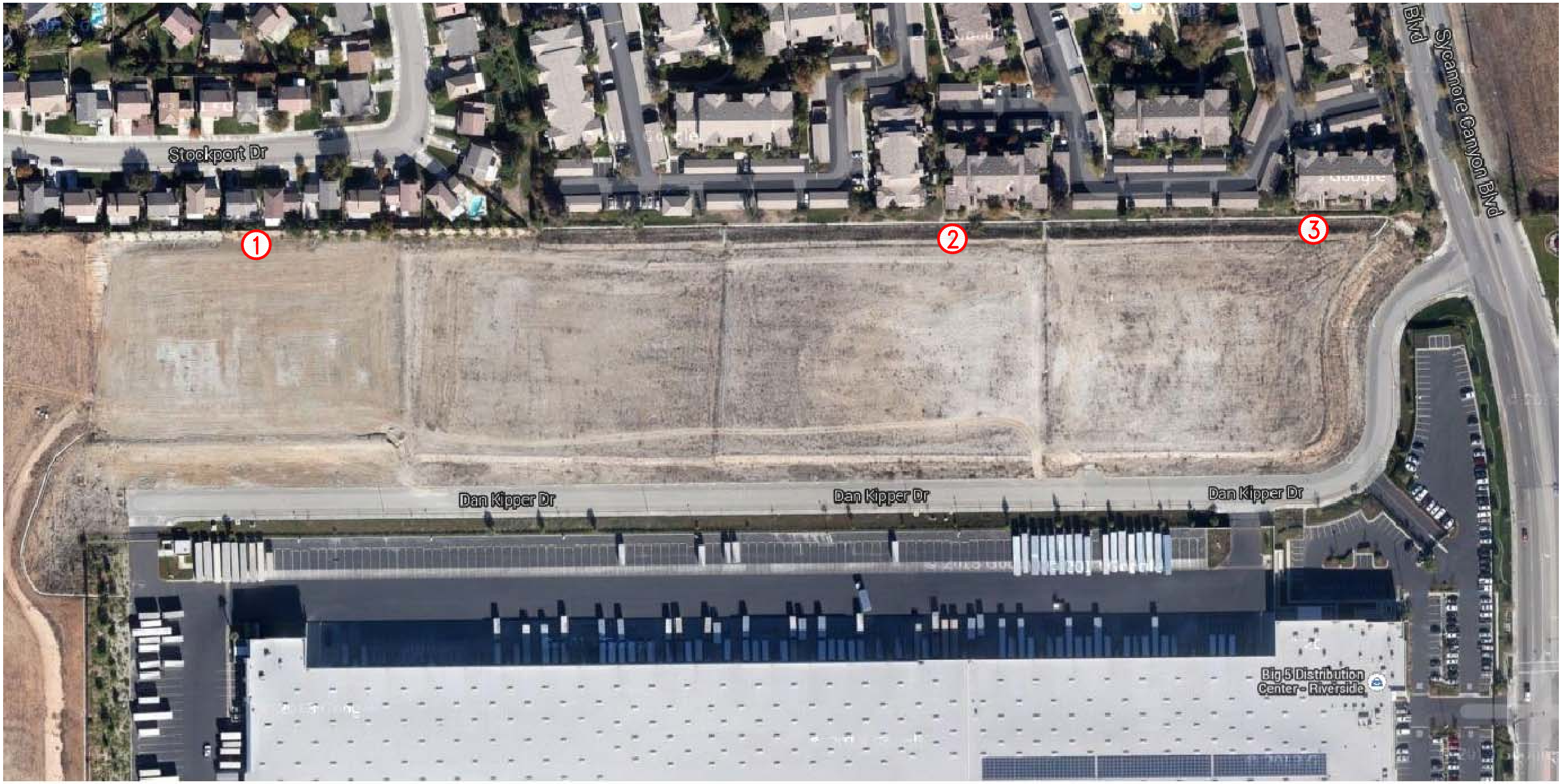


Exhibit C
Noise Monitoring Locations



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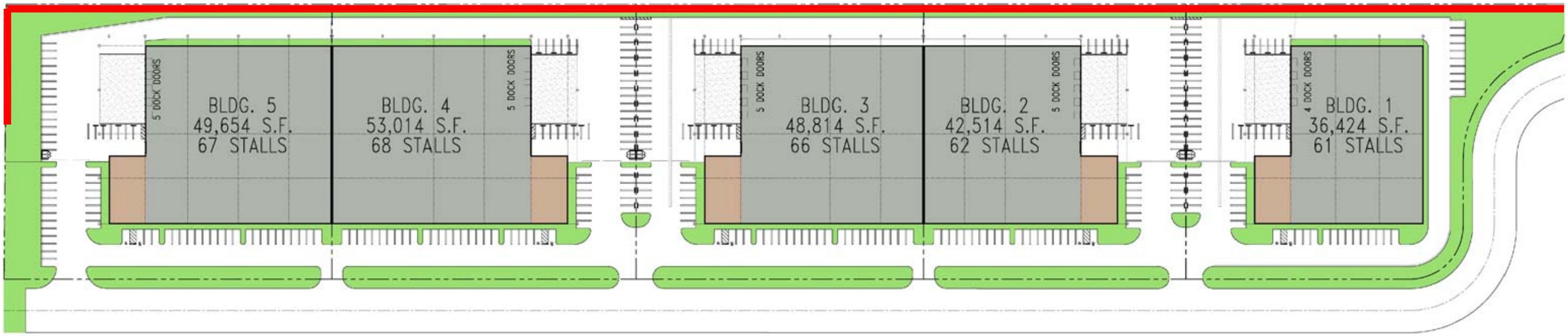
Legend:

1 = Noise Monitoring Locations

RK engineering group, inc.

Exhibit D
Recommendations



Recommendations:

1. Project design shall incorporate a parapet wall positioned in-between any rooftop condenser unit and adjacent sensitive receptors. Wall height should be as tall as or taller than the roof top condenser unit (e.g., 4-ft).
2. To further reduce noise impact from the project, an 8 foot wall is recommended along the northern property line of site. The wall should extend along the length of the eastern property line.
3. Project shall limit truck idling to 5 minutes or less.

Construction Recommendations:

1. Construction cannot take place between the hours of 7:00PM and 7:00 AM on weekdays and 5:00 PM and 8:00 AM on Saturdays, or any time on Sunday or a federal holiday.
2. For locations where an existing property wall does not exist, a temporary 8 foot noise barrier should be installed along the north property line to shield the residential units from construction noise activity. Construction barrier can be constructed of plywood or equivalent.
3. Stationary construction sources as generators or pumps should be located at least 300 feet from sensitive land use, as feasible.
4. Construction staging areas should be located as far from the noise sensitive land uses as feasible.
5. During construction, the contractor shall ensure all construction equipment is equipped with appropriate noise attenuating devices.
6. Idling equipment shall be turned off when not in use.
7. Equipment shall be maintained so that vehicles and their loads are secured from rattling and banging.

N

Legend:

= 8-Foot Minimum Wall

RK engineering group, inc.

Tables

TABLE 1
Arterial Highway Hourly Traffic Flow Distribution[1]

Sycamore Canyon Boulevard

Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	77.5	12.9	9.6	91.20
Medium Trucks	84.8	4.9	10.3	4.40
Heavy Trucks	86.5	2.7	10.8	4.40

[1] Vehicle percentages utilized are typical for an arterial roadway in the City of Riverside area.

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TABLE 2

Project Average Daily Traffic Volumes and Traffic Speeds

Roadway	Segment	Average Daily Traffic[1]			Posted Travel Speeds
		Project	Forecast Year 2025 without Project[2]	Forecast Year 2025 with Project[2]	
Sycamore Canyon Boulevard	North of Dan Kipper Drive	770	22,800	23,570	45

[1] Project ADTs were obtained from the Trip Generation study prepared by RK Engineering Group (Appendix C).

[2] Year 2025 ADTs were obtained from the City of Riverside General Plan Forecast Roadway Network (Appendix C).

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TABLE 3

Reference Stationary Noise Level Measurements

Source[1]	Referenced Measured Noise Levels (dBA)						
	Distance from Reference Source (feet)	L_{eq}	L_{max}	L_2	L_8	L_{25}	L_{50}
Truck Loading/Unloading	6.0	74.1	91.8	86.3	75.8	69.3	66.3
Condenser Unit	3.0	82.5	82.5	82.5	82.5	82.5	82.5

Adjusted Stationary Noise Level Measurements

Source	Northern Property Line - Adjusted Noise Levels (dBA)[2]						
	Distance from Reference Source (feet)	L_{eq}	L_{max}	L_2	L_8	L_{25}	L_{50}
Truck Loading/Unloading[3]	110	35.9	53.6	48.1	37.6	31.1	28.1
Condenser Unit[4]	175	35.3	35.3	35.3	35.3	35.3	35.3

[1] RK conducted stationary noise measurements for the sources above (2010).

[2] Adjusted noise levels (dBA) were calculated based on the distance of the stationary noise sources to the northern property line (existing residences)

[3] Adjusted noise level assumes a 8 foot shielding wall adjacent to the north side of the site.

[4] Adjusted noise level assumes a 4 foot parapet wall on the rooftop, adjacent to the condeser unit

TABLE 4

Noise Level Measurements[1,2]

	Site No.	Time Started[3]	Leq	L_{max}	L_{min}	L_2	L_8	L_{25}	L_{50}	Comments
Daytime	1	2:30 PM	42.4	56.7	37.5	49.0	46.8	42	39.6	Noise meter was placed approximately 25' from the northern property line. Ambient noise was captured from local warehouse operations. An existing 5.5' wall is located along the northern property line.
	2	2:45 PM	46.9	66.2	41.2	54.0	49.8	46.5	44.1	Noise meter was placed approximately 25' from the northern property line. Ambient noise was captured from local warehouse operations. Currently, there is no wall located along the northern property line.
	3	3:00 PM	51.3	61.5	43.2	56.8	54.5	51.9	50.3	Measurement taken along northen property line. Ambient noise from adjacent warehouse activity and traffic along raodways
Nighttime[3]	1	2:30 AM	37.4	51.7	32.5	44.0	41.8	37.0	34.6	Nighttime noise levels were estimated by reducing daytime levels by 5 dB.
	2	2:45 AM	41.9	61.2	36.2	49.0	44.8	41.5	39.1	
	3	3:00 AM	46.3	56.5	38.2	51.8	49.5	46.9	45.3	

[1] Noise measurements were taken for ten minutes.

[2] Noise measurements were taken on November 7, 2014.

[3] Nighttime noise levels were estimated by reducing the daytime levels by 5 dB.

TABLE 5

Forecast (2025) Exterior Noise Levels Along Roadways (dBA CNEL)[1]

Forecast (2025) Without Project Exterior Noise Levels

Roadway[2]	Segment	CNEL at 100 Ft (dBA)	Distance to Contour (Ft)[3]			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Sycamore Canyon Boulevard	North of Dan Kipper Drive	67.9	73	157	339	730

Forecast (2025) With Project Exterior Noise Levels

Roadway[2]	Segment	CNEL at 100 Ft (dBA)	Distance to Contour (Ft)[3]			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Sycamore Canyon Boulevard	North of Dan Kipper Drive	68.1	75	161	346	746

Change in 2035 Noise Levels as a Result of Project (dBA CNEL)

Roadway	Segment	CNEL at 100 Feet dBA			
		Year 2025 Without Project	Year 2025 With Project	Change in Noise Level	Potential Significant Impact[4]
Sycamore Canyon Boulevard	North of Dan Kipper Drive	67.9	68.1	0.2	NO

---

[1] Exterior noise levels calculated at 5 feet above ground level.

[2] Noise levels calculated from centerline of subject roadway.

[3] Refer to Appendix D for projected noise level calculations.

[4] It takes a change of 3 dBA or more to hear a noticiable change in noise level. The projected noise levels at 100' are theoretical and do not take into consideration the effect of topography, noise barriers, structures or other factors which will reduce the actual noise level in the outdoor living areas. These factors can reduce the actual noise levels by 5-10+ dBA from what is shown in the projected noise levels at 100'. Therefore, the levels that are shown

TABLE 6

Projected Exterior Noise Levels at Northern Property Line (dBA)[1,2]

Period	Source	Distance from Reference Source (feet)	L_{eq}	L_{max} (max)	L_2 (1 min)	L_8 (5 min)	L_{25} (15 min)	L_{50} (30 min)
		Adjusted Noise Levels (dBA)						
Daytime (7:00 AM - 10:00 PM)	Truck Loading/Unloading[3]	110	35.9	53.6	48.1	37.6	31.1	28.1
	Condenser Unit[3]	175	35.3	35.3	35.3	35.3	35.3	35.3
	Existing Ambient Measurement[4]	- -	42.4	56.7	49.0	46.8	42.0	39.6
	Total Combined Exterior Noise Impact[5]	- -	43.9	58.5	51.7	47.6	43.1	41.2
	City of Riverside Not-to Exceed Noise Criteria	- -	55.0	75.0	70.0	65.0	60.0	55.0
	Noise Level Exceeds Standard (?)	- -	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**
	Change in Noise Level as a Result of Project	- -	1.5	1.8	2.7	0.8	1.1	1.6

Period	Source	Distance from Reference Source (feet)	L_{eq}	L_{max} (max)	L_2 (1 min)	L_8 (5 min)	L_{25} (15 min)	L_{50} (30 min)
		Adjusted Noise Levels (dBA)						
Nighttime (10:00 PM - 7:00 AM)	Truck Loading/Unloading[3]	110	35.9	53.6	48.1	37.6	31.1	28.1
	Condenser Unit[3]	175	35.3	35.3	35.3	35.3	35.3	35.3
	Existing Ambient Measurement[4]	- -	37.4	51.7	44.0	41.8	37.0	34.6
	Total Combined Exterior Noise Impact[5]	- -	41.1	55.8	49.7	43.9	39.9	38.4
	City of Riverside Not-to Exceed Noise Criteria	- -	45.0	65.0	60.0	55.0	50.0	45.0
	Noise Level Exceeds Standard (?)	- -	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**
	Change in Noise Level as a Result of Project	- -	3.7	4.1	5.7	2.1	2.9	3.8

[1] Exterior noise levels calculated 25 feet from property line.

[2] Noise level calculations represent projected exterior

[3] See Table 3 for adjusted noise level

[4] Ambient measurement taken from Table 4

[5] See Appendix E for dBA calculations

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TABLE 7
Typical Construction Noise Levels[1]

EQUIPMENT POWERED BY INTERNAL COMBUSTION ENGINES

Type	Noise Levels (dBA) at 50 Feet
Earth Moving	
Compactors (Rollers)	73 - 76
Front Loaders	73 - 84
Backhoes	73 - 92
Tractors	75 - 95
Scrapers, Graders	78 - 92
Pavers	85 - 87
Trucks	81 - 94
Materials Handling	
Concrete Mixers	72 - 87
Concrete Pumps	81 - 83
Cranes (Movable)	72 - 86
Cranes (Derrick)	85 - 87
Stationary	
Pumps	68 - 71
Generators	71 - 83
Compressors	75 - 86

IMPACT EQUIPMENT

Type	Noise Levels (dBA) at 50 Feet
Pneumatic Wrenches	82 - 87
Jack Hammers, Rock Drills	80 - 99
Pile Drivers (Peak)	95-105

OTHER

Type	Noise Levels (dBA) at 50 Feet
Vibrators	68 - 82
Saws	71 - 82

[1] Referenced Noise Levels from the Environmental Protection Agency (EPA)

TABLE 8
Estimated Construction Noise Impact (dBA)

Activity	Lmax at 170 feet dBA	Lmax at 170 feet (w/ 8ft barrier) dBA[1]
Grading Construction	77	70
City of Riverside Noise Ordinance	75	70
Exceeds Standard (?)	Yes	NO

[1] Mitigation includes the use of an 8 foot temporary construction barrier along the north property line (where there is no existing P/L barrier.

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Table 9
Vibration Source Levels for Construction Equipment[1]

Equipment	Peak Particle Velocity (inches/second) at 25 feet	Approximate Vibration Level (LV) at 25 feet
Pile driver (impact)	1.518 (upper range)	112
	0.644 (typical)	104
Pile driver (sonic)	0.734 upper range	105
	0.170 typical	93
Clam shovel drop (slurry wall)	0.202	94
Hydromill	0.008 in soil	66
(slurry wall)	0.017 in rock	75
Vibratory Roller	0.210	94
Hoe Ram	0.089	87
Large bulldozer	0.089	87
Caisson drill	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58

[1] Transit Noise and Vibration Impact Assessment, Federal Transit Administration, May 2006.

Appendices

Appendix A

City of Riverside Noise Element &
Noise Ordinance

NOISE ELEMENT

The philosopher Arthur Schopenhauer once remarked: "Noise is the most impertinent of all forms of interruption. It is not only an interruption, but a disruption of thought."[1] While Schopenhauer is known largely for his pessimistic worldview, his comment reflects a common feeling among people accustomed to living in a relatively quiet environment. Noise affects how we think. It affects how we respond to and perceive the quality of the places in which we live, work and play. For these reasons, noise requires careful consideration in the community planning process.

The Noise Element examines noise sources in the City with a view toward identifying and appraising the potential for noise conflicts and problems and identifies ways to reduce existing and potential noise impacts. In particular, the Noise Element contains policies and programs to achieve and maintain noise levels compatible with various types of land uses. The element addresses noise which affects the community at large, rather than noise associated with site-specific conditions.[2] However, the programs in this element do address effective strategies to reduce and limit community exposure to loud noise sources. On the other hand, the City's Noise Control Code (Title 7) prohibits such noise generated within the City and attempts to minimize noise levels and mitigate the effects of noise to provide a safe and healthy living environment.

SCOPE AND CONTENT OF THE NOISE ELEMENT

The State of California, in recognition of the relationship between noise and noise-sensitive uses and the public health concerns associated with noise, has adopted very specific guidelines for Noise Elements in both the Government Code (Section 65302[f]) and the Health and Safety Code (Section 56050.1). These guidelines include a requirement for defining projected future noise conditions in the form of noise exposure contours, which present information in a manner similar to topographic map contours. This noise information serves as the basis for developing guidelines for identifying compatible land uses, identifying the proper distribution of land uses on the General Plan Land Use Policy Map and establishing appropriate development standards.

---

[1] Arthur Schopenhauer. Studies in Pessimism. 1851.

[2] Workplace noise affecting individuals is regulated by State and Federal law and is not covered by the General Plan. Similarly, the Noise Element does not address isolated noise problems, such as barking dogs, leaf blowers or loud stereos.

Toward these ends, this Noise Element includes the following sections:

- Understanding Noise and How It Affects Us
- Sources of Noise in Riverside
- Future Noise Conditions
- Minimizing Noise Impacts

As noted in the Introduction to this General Plan, several Federal, State and local agencies have adopted legislation and plans intended to minimize exposure of people to loud noise sources. These include:

See the Introduction for more information on these agencies and plans.

- Federal Transit Administration
- Federal Aviation Administration
- U.S. Department of Housing and Urban Development
- California Noise Insulation Standards (Title 24 of the Health and Safety Code)
- City of Riverside Noise Control Code (Title 7 of the Municipal Code)
- Riverside Municipal Airport Master Plan
- March Air Reserve Base AICUZ Study
- March Joint Powers Authority General Plan
- Riverside County Airport Land Use Compatibility Plan

RELATIONSHIP TO OTHER PLAN ELEMENTS

As noted above, policies and plans in the Noise Element work in tandem with the other elements to protect existing and planned land uses from significant noise impacts. Most importantly, the Land Use and Urban Design Element establishes land use patterns that respond to noise conditions, particularly noise associated with industrial areas, the freeways, the many rail lines that traverse the community and Riverside Municipal Airport, Flabob Airport and March Air Reserve Base/March Inland Port. The noise contours for year 2025 will reflect planned roadway configurations and anticipated traffic volumes identified in the Circulation and Community Mobility Element, as traffic noise contributes significantly to high noise levels.

UNDERSTANDING NOISE AND HOW IT AFFECTS US

Noise often is defined as annoying or unwanted sound. Health studies have shown that excessive noise can cause adverse psychological or physiological effects on human beings. Defining noise problems and establishing a regulatory scheme to deal with noise that is both fair and effective requires an understanding of some of the basic characteristics of sound and how it affects people and their activities. Some of the most important characteristics are outlined in Table N–1 (Characteristics of Noise). The figure also provides general comments about how these characteristics affect people. Table N–2 (Noise Levels for Common Noise Sources) describes common noise sources for indoor and outdoor peak noise levels.

While sound levels can be easily measured, the variability in subjective and physical responses to sound complicates the analysis of its impact on people. Sound is created when an object vibrates and radiates part of its energy as acoustic pressure waves through a medium such as air, water or a solid. The ear, the hearing mechanism of humans and most animals, receives these sound pressure waves and converts them to neurological impulses which are transmitted to the brain for interpretation. The interpretation by the auditory system and the brain depends on the characteristics of the sound and on the characteristics of the person hearing it.

Scientists and engineers use two parameters to technically describe the sound environment at any instant in time: amplitude (or sound power) and frequency (or pitch). These two characteristics affect the way people respond to sound.

Amplitude of a sound is a measure of the pressure or force that a sound can exert. Subjectively, we say a sound is louder if it has a greater amplitude than another sound. Thus, the amplitude of sounds can be described either in measurable magnitude or in relative terms of loudness.

Physically, sound pressure is measured in units of decibels (dB). The sound pressure scale is based on the ratio of the sound energy to a reference pressure which is approximately the least sound pressure that people can perceive. Zero dB means the lowest level normally audible, but does not mean zero sound pressure.

TABLE N-1
CHARACTERISTICS OF NOISE

Noise Characteristic	What Is Measured and Units of Measurements	Effects on People and Human Activities
Loudness or Sound Pressure	Energy content of sound waves in the air. Unweighted sound pressure level in decibels (dB).	Noise distracts attention from tasks, interferes with verbal communication and prevents or disturbs sleep. At high levels or for long periods, noise causes temporary or permanent hearing loss. At very high levels, noise causes pain. Louder sounds have greater effects, subject to the further considerations below.
Frequency of Pitch	Frequency (cycles per second, or Hertz (Hz) of pressure waves. Frequency distribution by octave or 1/3 octave band. Overall sound pressure level weighted by frequency, such as A-weighting (dB(A)).	The human ear is most sensitive to sounds in the range of human speech, less sensitive to high or low frequencies at the same sound energy.
Tonal content	Pure tones or energy distribution by octave or 1/3 octave frequency band. Special weightings such as Effective Perceived Noise Level in decibels (EPNDB), or simple penalty weightings for pure tones.	High tonal content means identifiable whines or hums, which can be particularly annoying compared to random noise of the same sound energy.
Information content (music, voice, sirens, etc.)	Judgment that sound includes voice, music, etc. No standard measurement scheme or weighting.	Information content draws attention to sounds compared to more random noise of the same sound energy.
Impact noise	Rapid increase in sound pressure or repetitive impacts. Fast response on sound meters used to measure impact noise.	Impact noise (helicopter rotor blade noise, jackhammers, etc.) can be more annoying than other noises of the same sound energy.
Duration of noise events as percentage of 24-hour or other period.	Hourly or other time-averaged energy level (L_{eq}) or statistical sound levels identifying the level exceeded a given percentage of the time (L_{10}, L_{50}).	A noise which lasts longer or is constant has more impact than one of the same sound energy that occurs only occasionally or for a short period of time.
Degree of intrusion of noise events over background noise levels	Difference between peak and ambient noise levels. Statistical sound levels, peak noise levels compared to average or ambient.	Individual distinct noise events such as aircraft overflights or loud vehicle pass-by events of a given noise level are more intrusive if they occur in a quiet environment.
Time of day	24-hour or annual average level with weightings for evening and night noise such as CNEL or L_{dn}.	People and their activities are generally more sensitive to noise during the nighttime hours because (1) background noise is generally lower, making noise of a given noise level more intrusive and (2) sleep is easily interrupted by noise.
Importance of noise source	Judgment of social value of noise source.	People are generally willing to accept more disturbance from noise they consider necessary, such as from trash collection, emergency vehicle sirens, police helicopters, etc.

Source: Noise Existing Conditions Report, Cotton/Bridges/Associates, 2004.

TABLE N–2
REPRESENTATIVE ENVIRONMENTAL NOISE LEVELS

Common Outdoor Activities	Noise Levels (dbA)	Common Indoor Activities
	110	Rock Band
Jet Fly-over at 1000 feet	105	
	100	
Gas Lawnmower at 3 feet	95	
	90	
	85	Food Blender at 3 feet
Diesel Truck going 50 mph at 50 feet	80	Garbage Disposal at 3 feet
Noisy Urban Area during Daytime	75	
Gas Lawnmower at 100 feet	70	Vacuum Cleaner at 10 feet
Commercial Area	65	Normal Speech at 3 feet
Heavy Traffic at 300 feet	60	
	55	Large Business Office
Quiet Urban Area during Daytime	50	Dishwasher in Next Room
	45	
Quiet Urban Area during Nighttime	40	Theater, Large Conference Room (background)
Quiet Suburban Area during Nighttime	35	
	30	Library
Quiet Rural Area during Nighttime	25	Bedroom at Night, Concert Hall (background)
	20	
	15	Broadcast/Recording Studio
	10	
	5	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

Source: California Department of Transportation, Technical Noise Supplement, 1998.

Frequency of a sound is expressed in units of cycles per second or Hertz (Hz), referring to the number of times per second the acoustic pressure wave peaks. Subjectively, a sound that has more cycles per second than another is higher pitched. The human hearing system is not equally sensitive to sound at all frequencies and is most sensitive to sounds in the frequency range of human speech, from four hundred to two thousand cycles per second. The most sensitive people can hear sounds ranging from a little below twenty Hz to somewhat above twenty thousand Hz. As people age, their sensitivity to high frequencies tends to fall. Acoustical energy at frequencies above the range of human hearing is referred to as ultrasonic, or ultrasound. At frequencies below the range of human hearing, acoustical energy is referred to as infrasonic, or infrasound and is experienced as vibration.

Noise-Sensitive Land Uses. The term "noise-sensitive land uses" refers to land uses that are particularly sensitive to noise at levels commonly found in the urban environment. This category includes residential uses, schools, hospitals, churches, outdoor speculative sports facilities, performing arts facilities and hotels and motels.

SOURCES OF NOISE IN RIVERSIDE

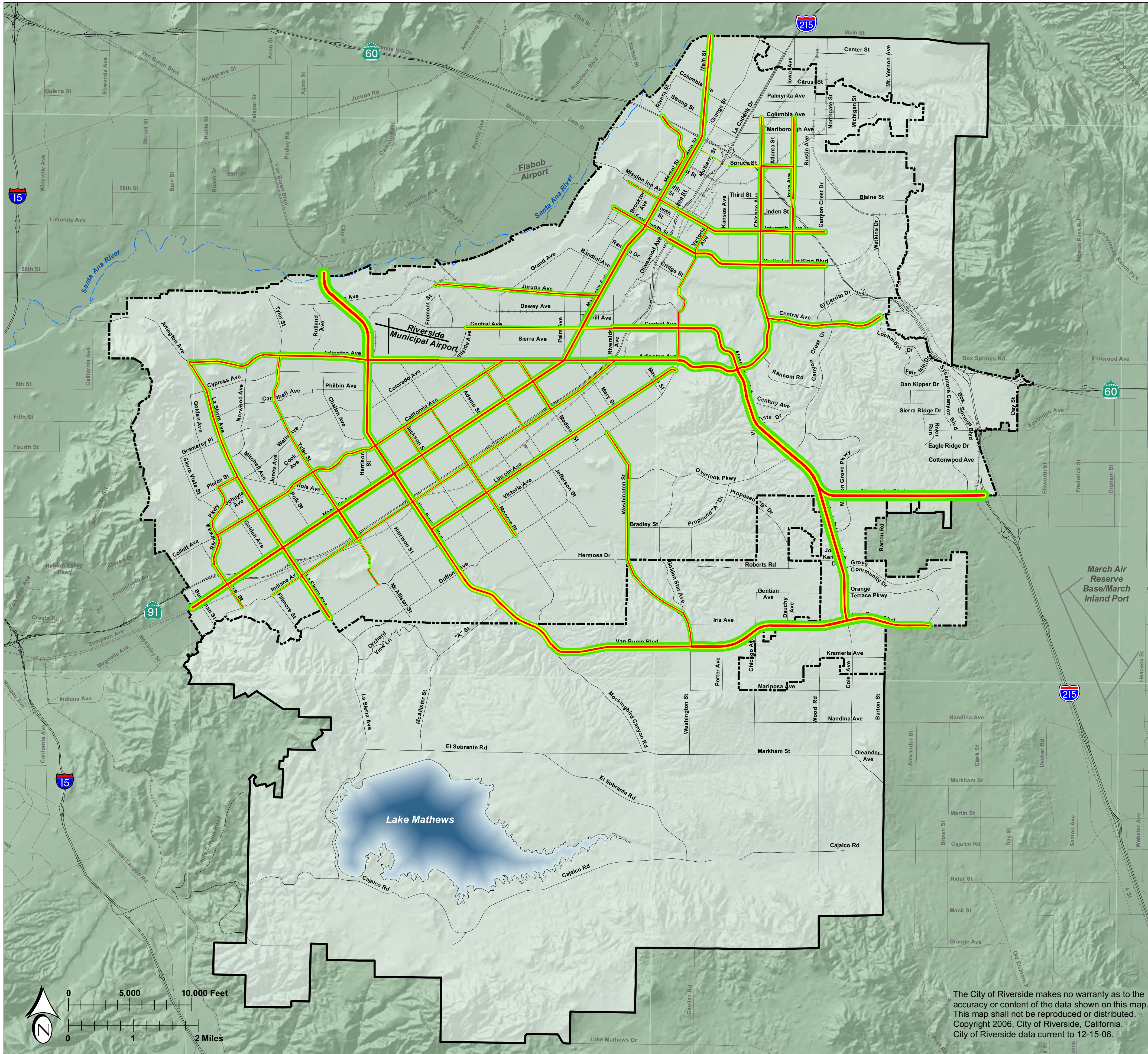
TRANSPORTATION-RELATED NOISE

Transportation activity represents the principal ambient noise source in Riverside. These sources include:

- Traffic on major arterial roadways within the City
- Traffic on the SR-91, SR-60 and I-215 freeways
- Train movement on the railroad lines
- Flight activity associated with Riverside Municipal Airport, Flabob Airport and March Air Reserve Base/March Inland Port

Local Roadway Traffic Noise

During peak travel hours, heavy traffic on Riverside's streets causes higher noise levels compared to noise levels during non-peak hours. The most heavily traveled roadways include Van Buren Boulevard, Alessandro Boulevard, Arlington Avenue, Tyler Street, La Sierra Avenue, Magnolia Avenue, University Avenue, and Martin Luther King Boulevard, among others. These roadways have been designed specifically to carry large volumes, although long-established land use patterns have placed residential uses along some portions of these streets. Other areas where residential neighborhoods are exposed to traffic noise include the Downtown and University of California, Riverside areas, as shown on Figure N–1 (2003 Roadway Noise).



CITY OF RIVERSIDE
GENERAL PLAN 2025

LEGEND

EXISTING NOISE

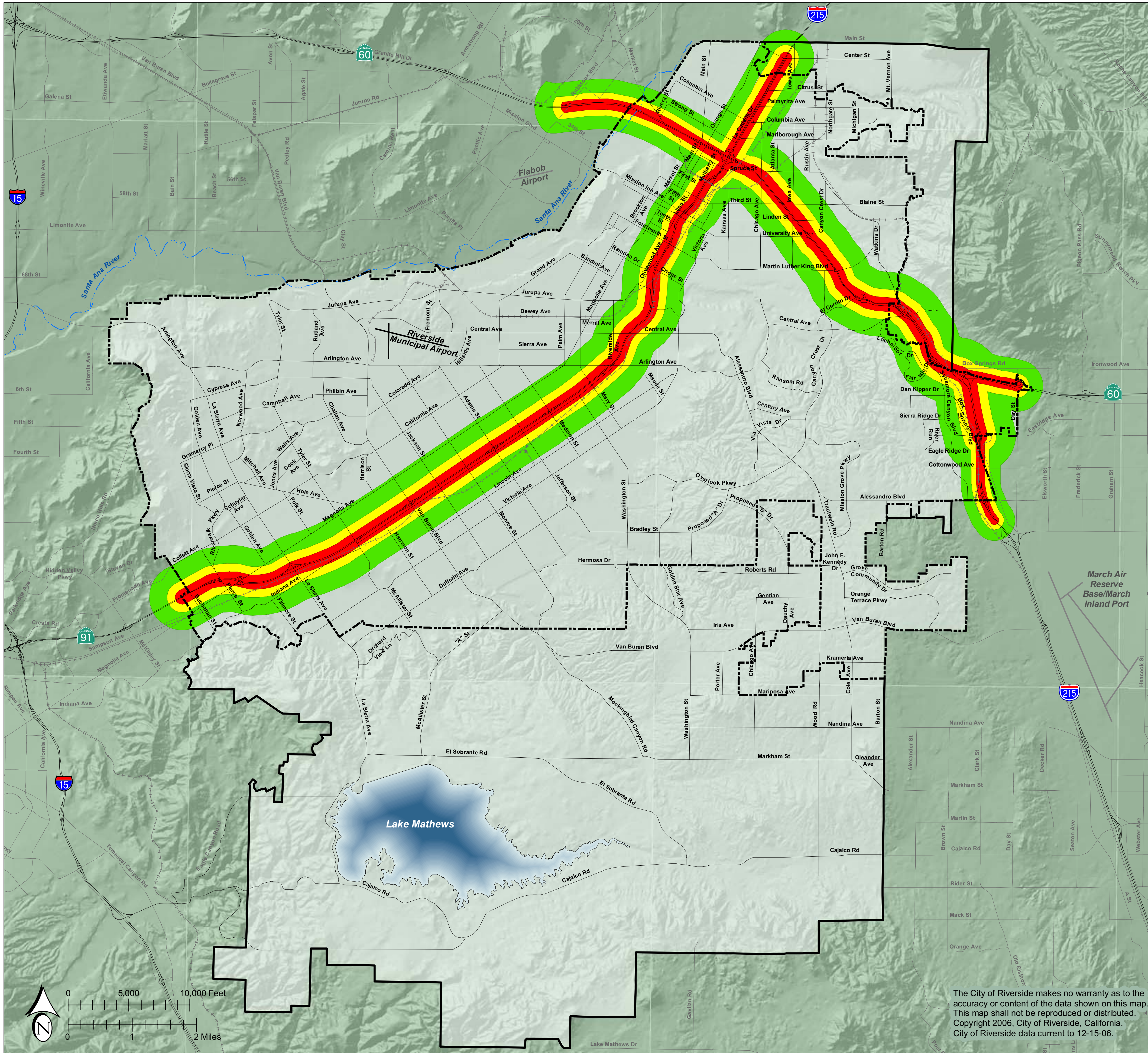
- 70 CNEL
- 65 CNEL
- 60 CNEL
- RIVERSIDE CITY BOUNDARY
- RIVERSIDE PROPOSED SPHERE OF INFLUENCE

NOTE: FOR AN EXPLANATION OF CNEL METHODOLOGY, PLEASE REFER TO THE NOISE ELEMENT TEXT.

SOURCE: CITY OF RIVERSIDE, AND P&D CONSULTANTS, 2005

Figure N-1

2003 ROADWAY NOISE



CITY OF RIVERSIDE
GENERAL PLAN 2025

LEGEND

EXISTING NOISE

- 70 CNEL
- 65 CNEL
- 60 CNEL
- RIVERSIDE CITY BOUNDARY
- RIVERSIDE PROPOSED SPHERE OF INFLUENCE

NOTE: FOR AN EXPLANATION OF CNEL METHODOLOGY, PLEASE REFER TO THE NOISE ELEMENT TEXT.

SOURCE: CITY OF RIVERSIDE, AND P&D CONSULTANTS, 2005

Figure N-2

2003 FREEWAY NOISE

Freeway Noise

Freeways are a major noise source in many jurisdictions. As shown on Figure N–2 (2003 Freeway Noise), noise contours for the 60 CNEL can extend as far as 3,500 feet from the I-215 Freeway east of the SR-91/I-215 interchange. More modern freeway design and construction projects integrate sound walls, such as the significant sound walls and depressed configuration of I-210 through eastern Los Angeles and western San Bernardino counties and the I-5 widening through Orange County. To address freeway noise along long-established routes, the California Department of Transportation (Caltrans) has a priority program and a policy to put sound walls adjacent to residential properties. If a jurisdiction wishes to mitigate freeway noise before scheduled and funded Caltrans improvements are planned, that jurisdiction can fund sound walls or other mitigating elements, with Caltrans later providing reimbursement in accordance with its priority plan.

Riverside is traversed by the SR-91, SR-60 and I-215 freeways. Improvements to SR-91 that began in 1998 resulted in significant new sound walls and some relief from the noise associated with increasing regional traffic volumes.

Although sound walls will reduce noise impacts, freeway noise will remain an issue for noise-sensitive land uses, particularly residential development.

Railroad Noise

Both the Union Pacific Railroad (UPRR) and the Burlington Northern Santa Fe Railroad (BNSF) operate rail lines that traverse Riverside, each carrying freight trains. These lines are also shared by Metrolink Commuter Rail and Amtrak Passenger Rail. Train noise, however intermittent, is a significant source of noise due to its magnitude and the associated vibration effects. Train noise incorporates the sounds of the locomotive engine, wheel-on-rail noise and train whistles near at-grade roadway crossings, as shown in Figure N–3, 2003 Railway Noise.

Riverside residents living near rail lines have cited the loud, long train whistles as particularly irksome. State law and the Federal Railroad Administration's code of operating rules and regulations require locomotive engines to sound the train's horn one-quarter mile in advance of the crossing and to continue to sound the horn until the train arrives at the crossing. If a train horn is to be an effective warning device for motorists, it must provide a sound level capable of initiating a response from the driver as the train approaches the crossing. Unfortunately, the sound level required to achieve that response and

the location of the train relative to the crossing creates a significant, bothersome noise.

An effective alternative to train horns has been developed. The automated horn system is a stationary horn activated by the railroad-highway grade crossing system. It is mounted at the crossing, rather than on the train, to deliver a longer, louder and more consistent audible warning to motorists and pedestrians while eliminating noise pollution in neighborhoods for more than a half a mile along the rail corridor. As of 2004, the City has installed this so-called “horn on a stick” device at six railroad crossings in the City. The streets of these railroad crossings include Streeter Avenue, Palm Avenue, Brockton Avenue, Magnolia Avenue, Riverside Avenue and Panorama Road.

The two noise diagrams in Figure N-4 (Train Horn Comparison) depict the area impacted by the sound of a train horn versus an automated horn system. The comparison shows a dramatic difference between the areas impacted at specific decibel levels. Figure N-4 illustrates that the area impacted by the automated horn system is a fraction of the size of the 80 decibel contour produced by the train horn.

Airport Noise

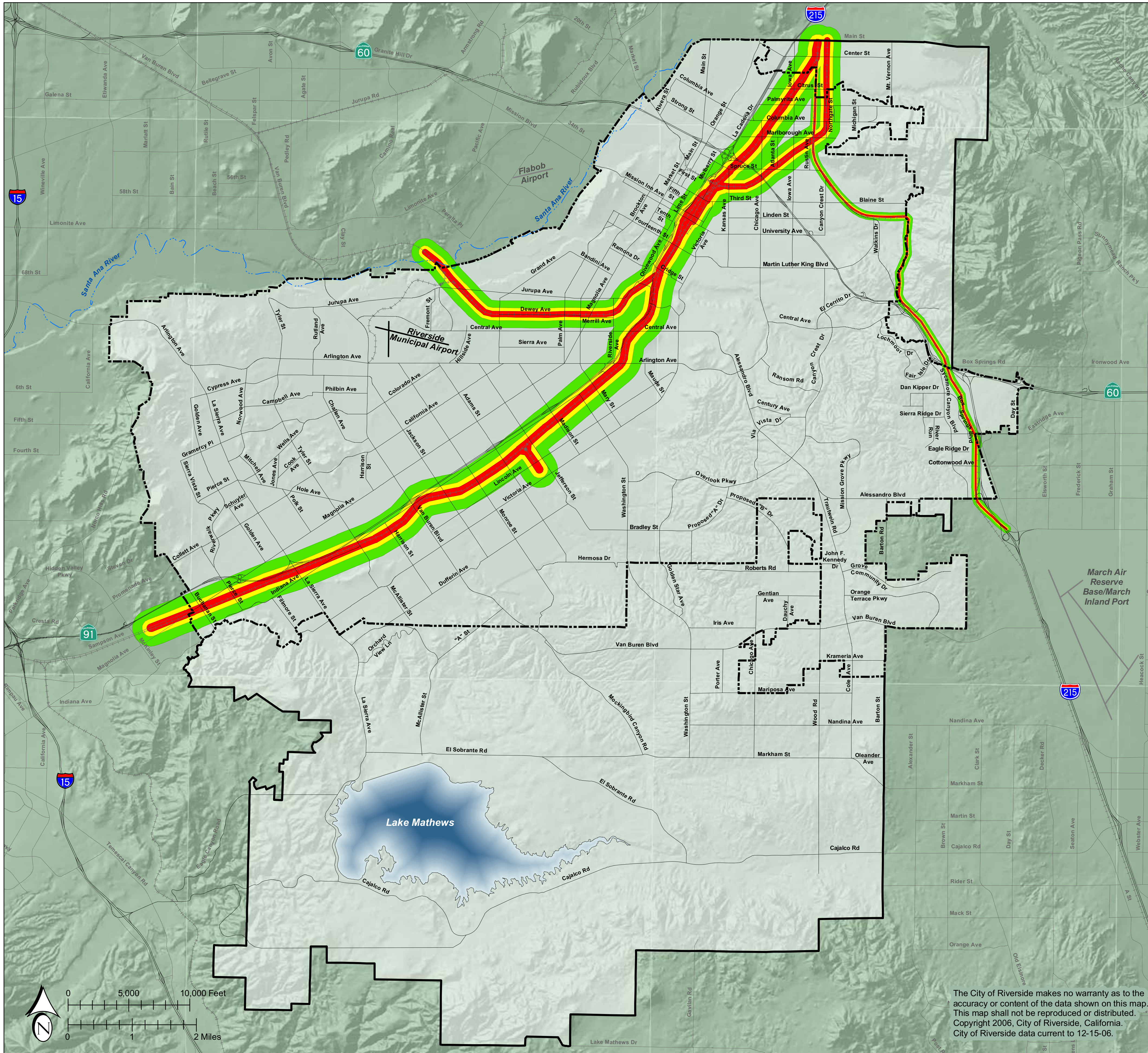
Refer to the Land Use and Urban Design Element for a policy that adds an Airport Protection Overlay Zone to the City’s zoning map.

Only one air facility is located within the Planning Area, but operations at two other air facilities just outside City and Planning Area boundaries have local impacts.

Riverside Municipal Airport, a general aviation airport, supports one hundred thousand annual flight operations, including corporate jet activity. The airport covers a total of four hundred fifty-one acres and includes two runways. This is the only air facility located within the Planning Area.

Flabob Airport, a privately operated, primarily recreation-oriented airport, is located just north of the Planning Area across the Santa Ana River in the unincorporated community of Rubidoux.

March Air Reserve Base/March Inland Port, or MARB/MIP, is home to the 452nd Air Mobility Wing of the U.S. Air Force and will expand operations to include the March Inland Port during the early 21st century. Military and civilian aircraft utilizing MARB/MIP produce substantial levels of noise over the southeastern portion of the City and planning area. Plans call for 33,637 annual operations with military aircraft accounting for 80% of the operations as noted in the Air Installation Compatible Use Zone Study for March Air Reserve Base in August of 2005.



CITY OF RIVERSIDE
GENERAL PLAN 2025

LEGEND

EXISTING NOISE

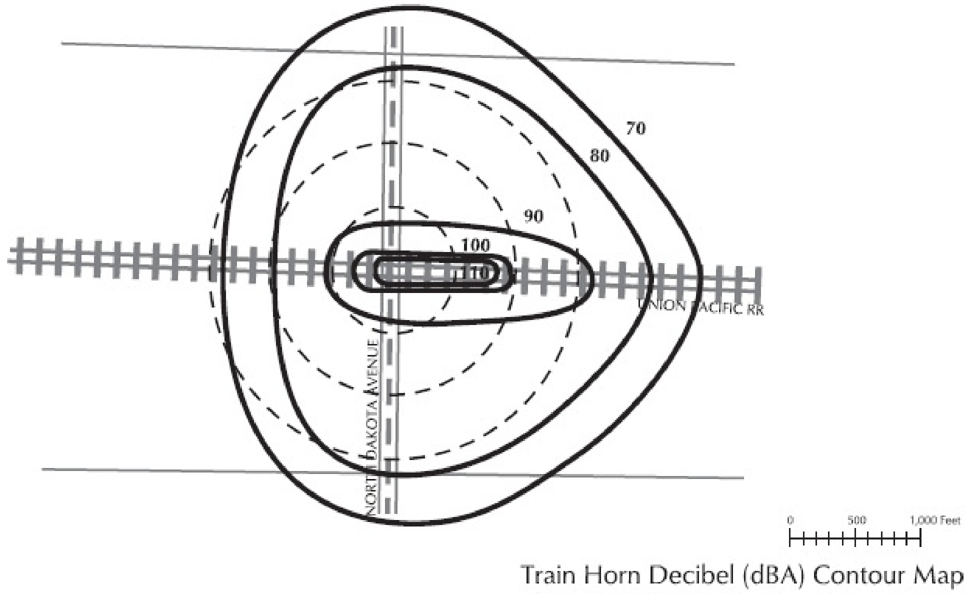
- 70 CNEL
- 65 CNEL
- 60 CNEL
- RIVERSIDE CITY BOUNDARY
- RIVERSIDE PROPOSED SPHERE OF INFLUENCE

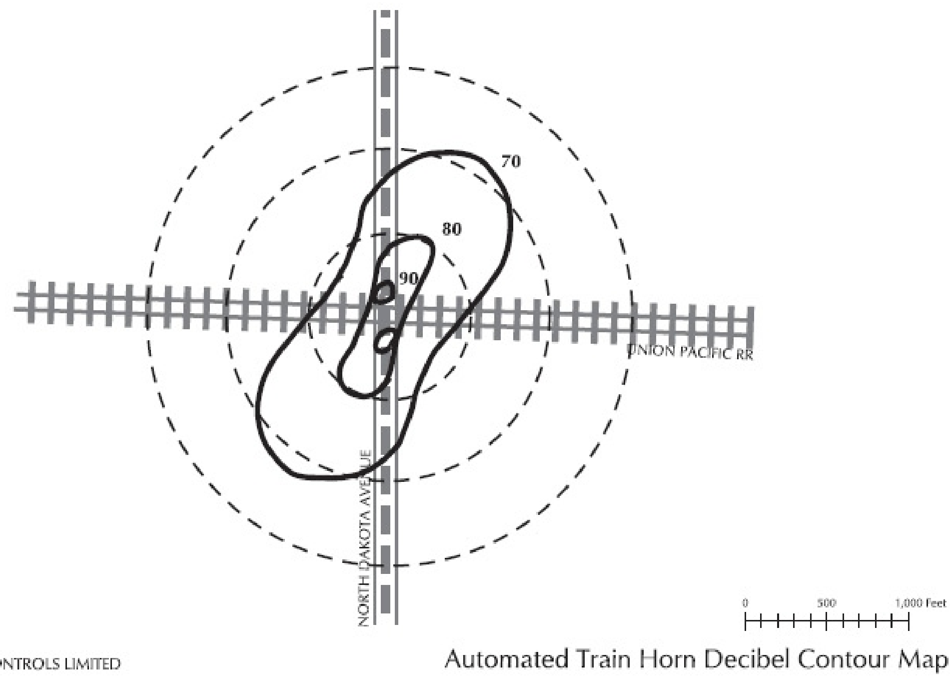
NOTE: FOR AN EXPLANATION OF CNEL METHODOLOGY, PLEASE REFER TO THE NOISE ELEMENT TEXT.

SOURCE: CITY OF RIVERSIDE, AND P&D CONSULTANTS, 2005

Figure N-3

2003 RAILWAY NOISE





SOURCE: RAILROAD CONTROLS LIMITED

FIGURE N-4
TRAIN HORN COMPARISON

Although MARB/MIP is located outside of the City and its sphere of influence, noise from the facility will affect both the City and the sphere.

The Public Safety and Land Use Elements contain additional information on airports in and adjacent to Riverside.

The City has worked as part of the March Joint Powers Authority to adjust air traffic patterns into and out of the MARB/MIP. Efforts have been made to minimize exposure of sensitive land uses to excessive noise in the busy airspace of Ontario and Los Angeles International Airports. Additionally, topographic conditions surrounding MARB/MIP also constrain flight patterns. Established patterns associated with MARB/MIP are anticipated to continue into the future, resulting in ongoing noise levels.

STATIONARY SOURCE NOISE

Industrial Noise

Industrial businesses can have a varying degree of impact on adjacent uses. Industrial operations often involve use of mechanical equipment, generators and vehicles that contribute to noise levels at industrial sites, particularly for outdoor activities. Many of Riverside's neighborhoods have homes in close proximity to industrial uses.

Title 7 of the Riverside Municipal Code establishes noise performance criteria to guard against exposure of residential and other noise-sensitive uses to loud industrial-related noise. The noise/land use compatibility criteria in Table N–1 (Characteristics of Noise) will be used in assessing siting of new industrial uses.

Construction Noise

Construction noise typically involves the loudest common urban noise events associated with building demolition, grading, construction, large diesel engines and truck deliveries and hauling. Construction activity, although temporary at any given location, can be substantially disruptive to adjacent uses during the construction period. Riverside Municipal Code Section 7.35.010(B)(5) regulates the allowable hours of construction activity to 7:00 A.M. to 7:00 P.M. on weekdays and 8:00 A.M. to 5:00 P.M. on Saturdays, with no construction activities allowed on Sunday or Federal holidays. In addition, the Municipal Code limits noise levels from construction activities to the maximum permitted exterior noise level for the affected land use.

Infrastructure improvements such as street widenings can also be a source of noise. Street improvement projects will incorporate the City's acoustical assessment procedure to minimize noise impacts.

Mechanical Equipment Noise

The motors, pumps and fans that cool and heat our buildings produce point-source noise that most directly affects adjacent land uses. Frequently, this equipment includes components of pure tone noise from the rotational frequency of motors. Although noise levels are generally low from these sources, the fact that such sources may operate continuously and may include pure tones that make them audible at a substantial distance creates potential for conflict. The City's Zoning Code and Municipal Code provisions generally address these conflicts.

Portable Power Equipment

Leaf blowers, lawn mowers, portable generators, electric saws and drills and other similar equipment that people use to maintain their properties create frequent noise during daylight hours. Such disruptions to the ambient sound environment are ubiquitous in the modern city and can produce very high noise levels at the location of the work.

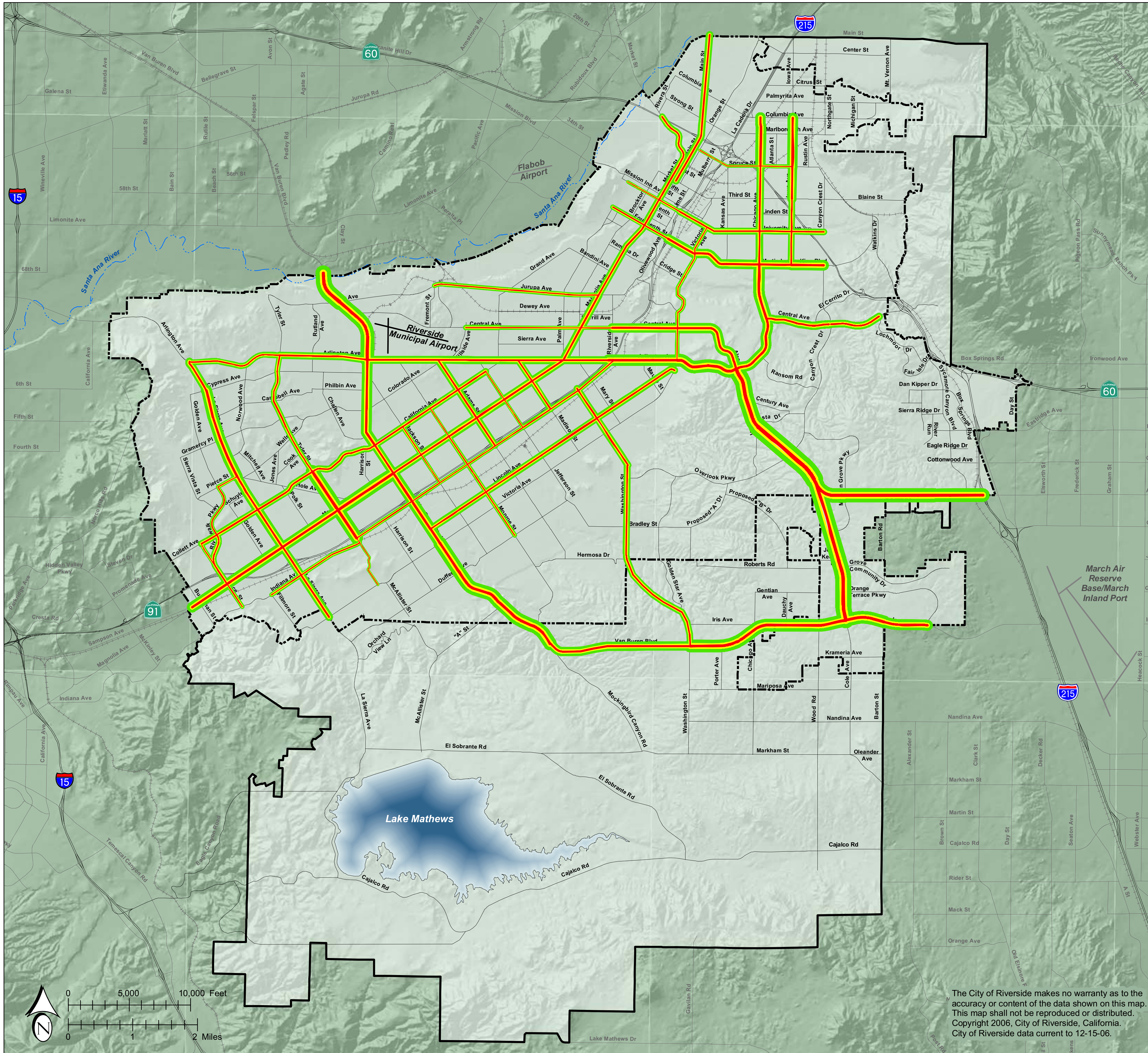
Amplified Sound

Amplified sound includes noise from personal or home audio equipment, automotive audio equipment, outdoor loudspeakers such as those used for paging and amplified sound at music or theatrical performances. Because this sound typically includes music or speech, it is potentially more detectable and more annoying than other sounds of the same noise level. Section 7.35.010 of the Municipal Code establishes limitations on time and magnitude of noise for these sources.

FUTURE NOISE CONDITIONS

Data, including a location map of measurement sites used to create the projected noise contours, can be found in the General Plan EIR.

The most significant noise sources in Riverside — roadways, freeways, railways and air facilities— will continue generating noise into the future. Figure N–5 (2025 Roadway Noise) identifies the projected noise contours for year 2025 largely attributable to roadway traffic; Figure N–6 (2025 Freeway Noise) identifies noise projected from freeway traffic. Projected noise from railroad activity is shown in Figure N–7 (2025 Railway Noise). Noise levels from these surface sources are expected to increase with increased traffic levels anticipated in the Planning Area by 2025.



CITY OF RIVERSIDE
GENERAL PLAN 2025

LEGEND

PROPOSED NOISE

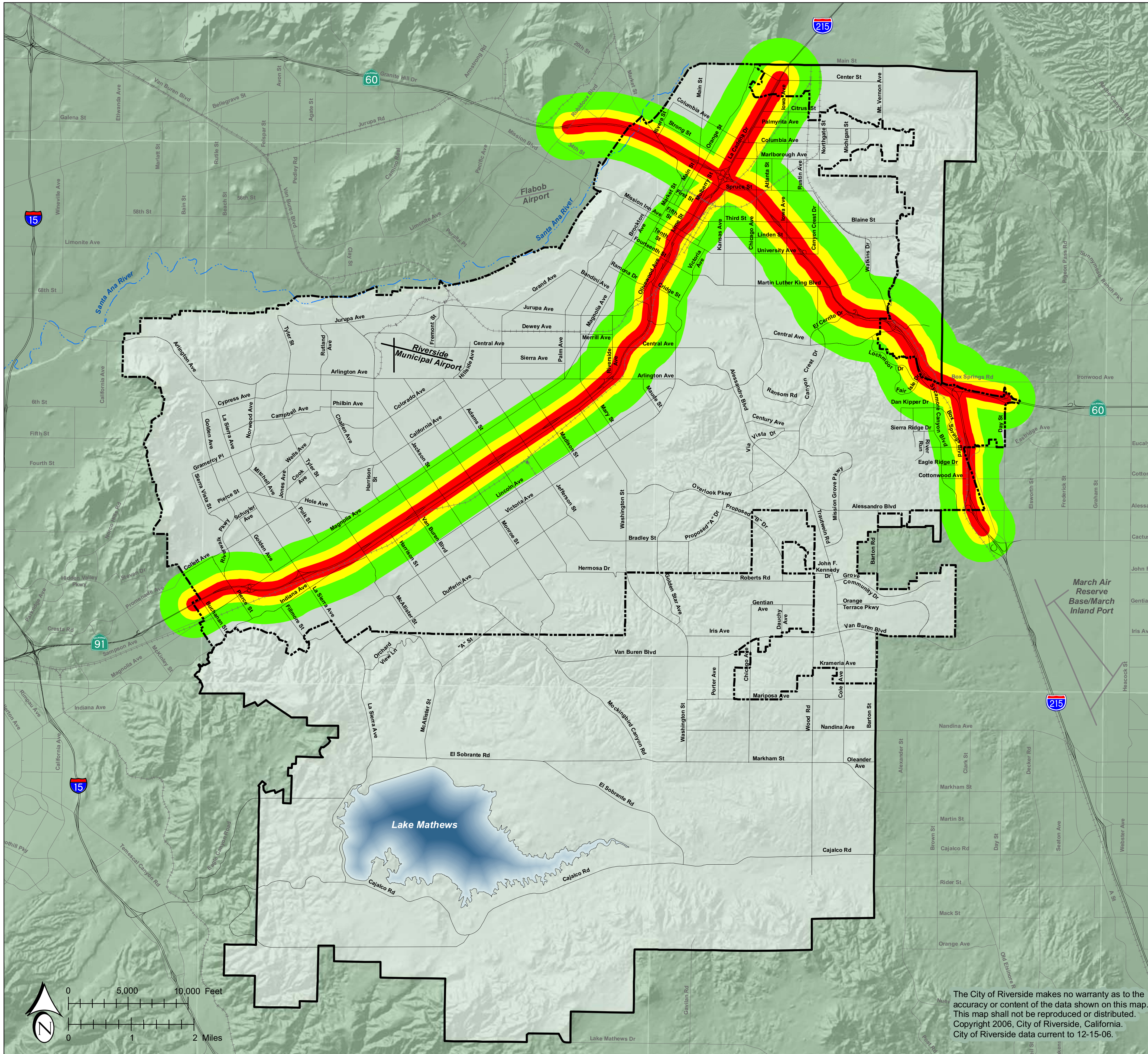
- 70 CNEL
- 65 CNEL
- 60 CNEL
- RIVERSIDE CITY BOUNDARY
- RIVERSIDE PROPOSED SPHERE OF INFLUENCE

NOTE: FOR AN EXPLANATION OF CNEL METHODOLOGY, PLEASE REFER TO THE NOISE ELEMENT TEXT.

SOURCE: CITY OF RIVERSIDE, AND P&D CONSULTANTS, 2005

Figure N-5

2025 ROADWAY NOISE



CITY OF RIVERSIDE
GENERAL PLAN 2025

LEGEND

PROPOSED NOISE

70 CNEL

65 CNEL

60 CNEL

RIVERSIDE CITY BOUNDARY

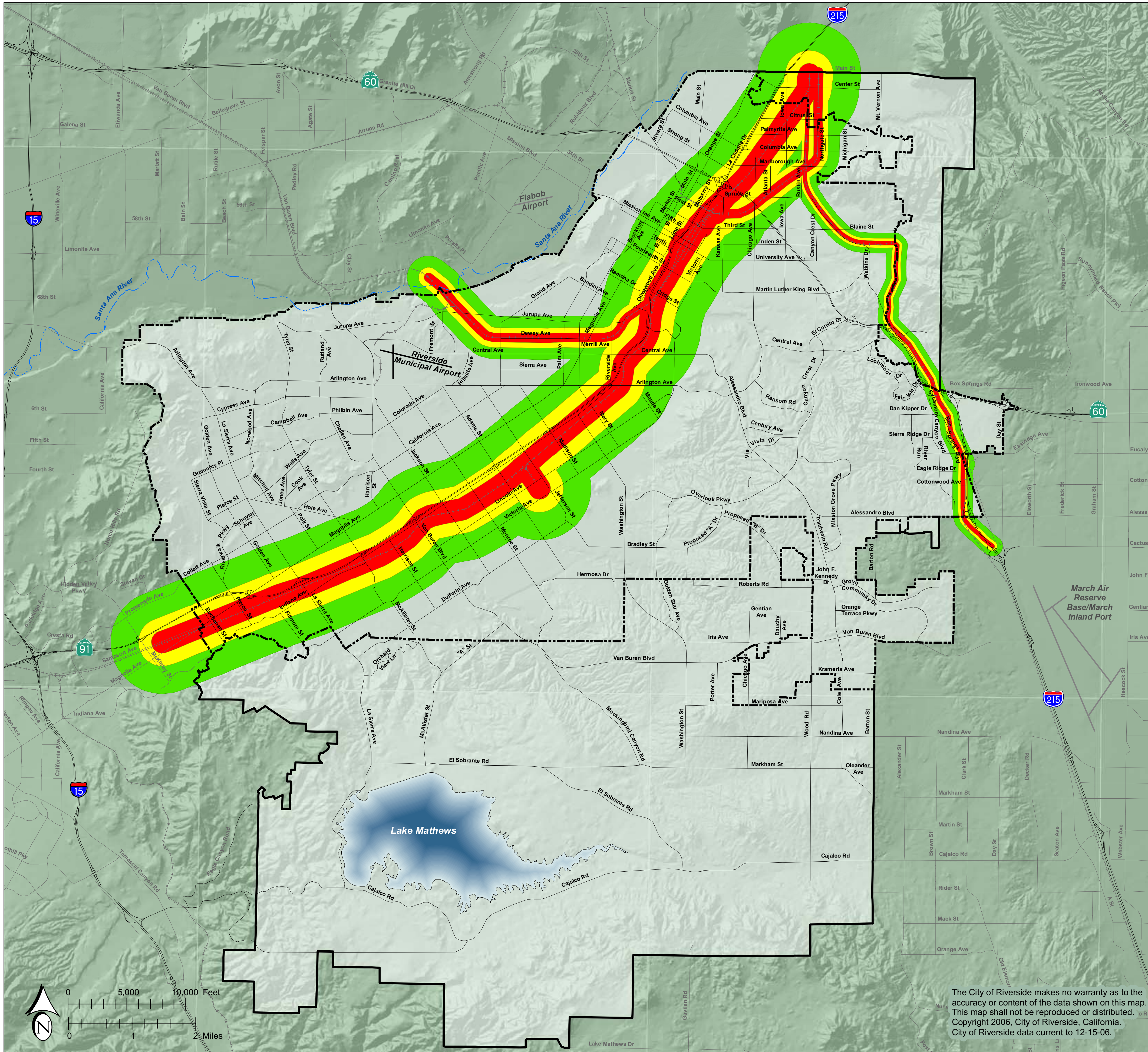
RIVERSIDE PROPOSED SPHERE OF INFLUENCE

NOTE: FOR AN EXPLANATION OF CNEL METHODOLOGY, PLEASE REFER TO THE NOISE ELEMENT TEXT.

SOURCE: CITY OF RIVERSIDE, AND P&D CONSULTANTS, 2005

Figure N-6

2025 FREEWAY NOISE



CITY OF RIVERSIDE GENERAL PLAN 2025

LEGEND

PROPOSED NOISE

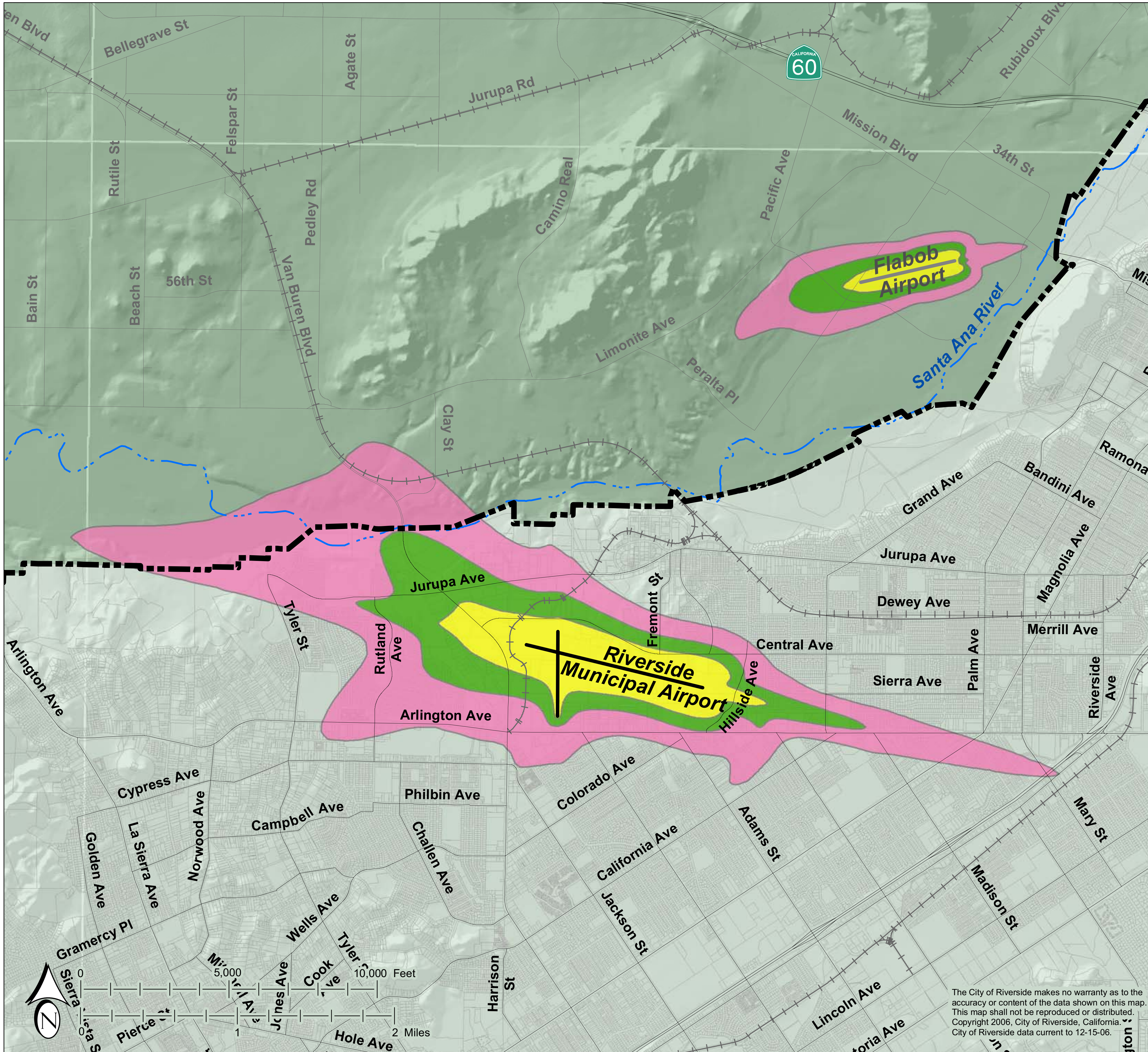
- 70 CNEL
- 65 CNEL
- 60 CNEL
- RIVERSIDE CITY BOUNDARY
- RIVERSIDE PROPOSED SPHERE OF INFLUENCE

NOTE: FOR AN EXPLANATION OF CNEL METHODOLOGY, PLEASE REFER TO THE NOISE ELEMENT TEXT.

SOURCE: CITY OF RIVERSIDE, AND P&D CONSULTANTS, 2005

Figure N-7

2025 RAILROAD NOISE



GENERAL PLAN 2025

LEGEND

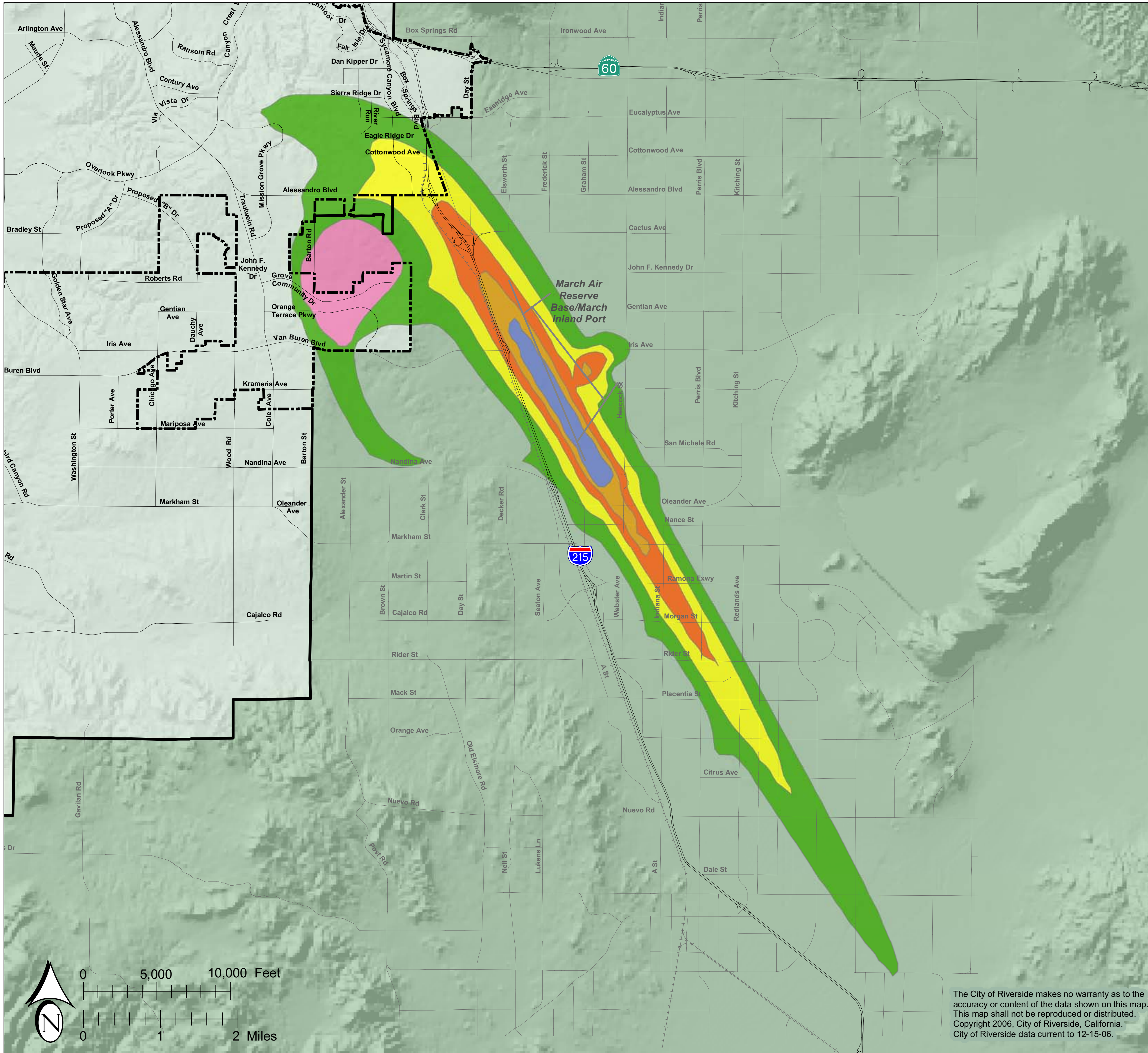
NOISE CONTOURS

- 65 CNEL
- 60 CNEL
- 55 CNEL
- RIVERSIDE CITY BOUNDARY
- RIVERSIDE PROPOSED SPHERE OF INFLUENCE

SOURCE: RIVERSIDE COUNTY AIRPORT LAND USE COMPATIBILITY PLAN, ADOPTED DECEMBER 2004 FOR FLABOB AIRPORT AND MARCH 2005 FOR RIVERSIDE MUNICIPAL AIRPORT.

Figure N-8

RIVERSIDE AND FLABOB AIRPORT NOISE CONTOURS



CITY OF RIVERSIDE
GENERAL PLAN 2025

LEGEND

NOISE CONTOURS

- 80 CNEL
- 75 CNEL
- 70 CNEL
- 65 CNEL
- 60 CNEL
- 55 CNEL
- RIVERSIDE CITY BOUNDARY
- RIVERSIDE PROPOSED SPHERE OF INFLUENCE

SOURCE: 1998 AICUZ. THIS GRAPHIC WILL BE UPDATED TO REFLECT THE 2005 AICUZ AS PART OF THE JLUS PROCESS AND SUBSEQUENT ADOPTION.

Figure N-9

MARCH ARB NOISE CONTOURS

Figure N–8 (2025 Riverside and Flabob Airport Noise) focuses on noise impacts projected for these small facilities by the Riverside County Airport Land Use Commission. Figure N–9 indicates future noise levels associated with March Air Reserve Base/March Inland Port as projected in a 1998 Air Installation Compatible Use Zone Study completed by the Department of the Air Force.

The Land Use Policy Map (Figure LU-10 in the Land Use and Urban Design Element) has been developed to avoid placing intensive new uses with the airport-influenced areas. These policies are carried out through congruent zoning regulations. Development controls include limiting development within areas subject to high noise levels and limiting the intensity and height of development within aircraft hazard zones. The Riverside County Airport Land Use Compatibility Plan (CLUP), adopted in October 2004 by the Riverside County Airport Land Use Commission, designates zones of airport-influenced areas for every airport in Riverside County and proposes a series of policies and compatibility criteria to ensure that both aviation uses and surrounding areas may continue.

In 2004, March JPA initiated the March Joint Land Use Study (JLUS) for the joint use March Air Reserve Base/March Inland Port. Upon completion, the findings and recommendations of this study will be incorporated into the Riverside County Airport Land Use Compatibility Plan (CLUP).

The noise contours in Figures N–5 through N–9 assist in setting policies for establishing new land uses and appropriate mitigation for properties that will continue to be exposed to higher noise levels.

Riverside's primary goal with regard to community noise is to minimize the exposure of new residential development, schools, hospitals and similar noise-sensitive uses to excessive or unhealthy noise levels to the greatest extent possible. Toward this end, this Element establishes the noise/land use compatibility guidelines set forth in Figure N–10 (Noise/Land Use Noise Compatibility Criteria) for outdoor noise.

The compatibility guidelines recognize and respond to the many different noise environments in Riverside: the relative quiet within the greenbelt area, the sounds typical in suburban neighborhoods and the higher activity areas such as Downtown and within mixed-use districts. As a matter of policy, the City supports new residential development within already urbanized areas where ambient noise levels may be higher than those experienced in neighborhoods located on the urban periphery. This is in an effort to promote "smart growth," mixed use development, making more efficient use of land and resources.

Interior noise levels for new residential development, regardless of location within the Planning Area, will be required to comply with standards set forth in Title 24 of the State Health and Safety Code. New construction may need to incorporate special insulation, windows and sealants in order to ensure that interior noise levels meet Title 24 standards.

MINIMIZING NOISE IMPACTS

NOISE AND LAND USE PLANNING

Primary noise sources in the City will not go away. The City will utilize the noise/land use compatibility guidelines outlined in Figure N–10 (Noise/Land Use Compatibility Criteria) in making land use decisions. These compatibility guidelines show a range of noise standards for various land use categories. Depending on the ambient environment of a particular community, these basic guidelines may be tailored to reflect existing noise and land use characteristics. The matrix defines noise in terms of CNEL and expressed in dB that measure sound intensity. Noise levels occurring during nighttime hours are weighted more heavily than during the daytime. Additionally, the City provides levels of acceptable noise exposure based on the sensitivity of specific land uses (Municipal Code Section 7.25.010). The City will pursue proactive measures to limit additional exposure of sensitive uses and to address longstanding noise issues.

Land uses deemed the most noise sensitive include amphitheaters, concert halls, auditoriums and meeting halls. Many jurisdictions consider residential uses particularly noise sensitive because families and individuals expect to use time in the home for rest and relaxation; intrusive noise can interfere with such pursuits. Some variability in standards for noise sensitivity may apply to different densities of residential development, specifically infill and mixed use developments; single family uses are frequently considered the most sensitive. New construction or development should generally not be undertaken, unless it can be demonstrated that noise reduction requirements can be employed to reduce noise impacts to an acceptable level. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and needed noise insulation features included in the design.

Sensitive receptors must also be protected from excessive noise associated with commercial and industrial businesses and agricultural activities. Application and enforcement of the City Noise Control Code will continue to be the primary means of regulating and controlling so-called point-source noise. During the preliminary stages of the development process, potential noise impacts and appropriate mitigation will be identified.

Similarly, enforcement of the Noise Control Code will address nuisance noise such as loud animals or birds, loud audio equipment, domestic power tools, vehicle repair and testing, powered motor vehicles and construction activities.

Objective N–1:	**Minimize noise levels from point sources throughout the community and, wherever possible, mitigate the effects of noise to provide a safe and healthful environment.**

Policy N–1.1: Continue to enforce noise abatement and control measures particularly within residential neighborhoods.

Policy N–1.2: Require the inclusion of noise-reducing design features in development consistent with standards in Figure N–10 (Noise/Land Use Compatibility Criteria), Title 24 California Code of Regulations and Title 7 of the Municipal Code.

Policy N–1.3: Enforce the City of Riverside Noise Control Code to ensure that stationary noise and noise emanating from construction activities, private developments/residences and special events are minimized.

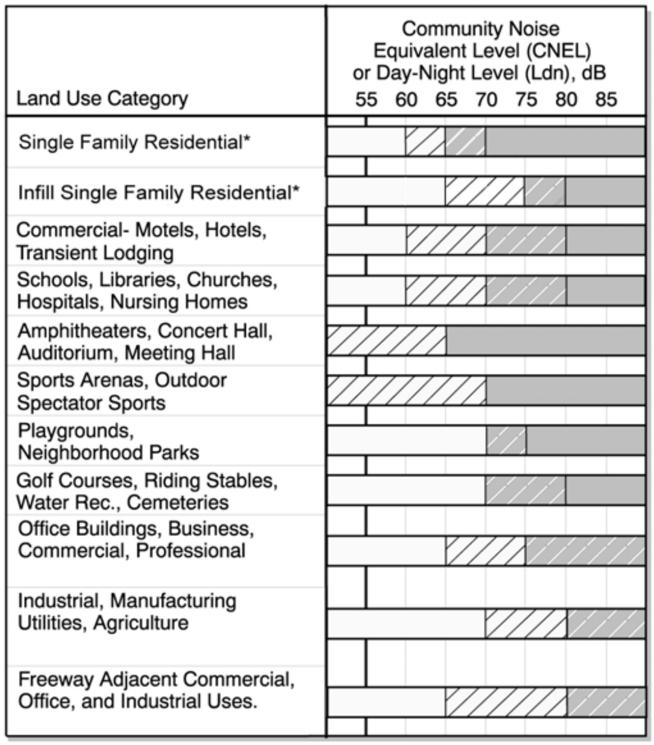
Policy N–1.4: Incorporate noise considerations into the site plan review process, particularly with regard to parking and loading areas, ingress/egress points and refuse collection areas.

Policy N–1-5: Avoid locating noise-sensitive land uses in existing and anticipated noise-impacted areas.

Policy N–1.6: Educate the public about City noise regulations.

Policy N–1.7: Evaluate noise impacts from roadway improvement projects by using the City's Acoustical Assessment Procedure.

Policy N–1.8: Continue to consider noise concerns in evaluating all proposed development decisions and roadway projects.



Nature of the noise environment where the CNEL or Ldn level is:

Below 55 dB
Relatively quiet suburban or urban areas, no arterial streets within 1 block, no freeways within 1/4 mile.

55-65 dB
Most somewhat noisy urban areas, near but not directly adjacent to high volumes of traffic.

65-75 dB
Very noisy urban areas near arterials, freeways or airports.

75+ dB
Extremely noisy urban areas adjacent to freeways or under airport traffic patterns. Hearing damage with constant exposure outdoors.

Normally Acceptable

Specific land use is satifactory, based on the assumption that any building is of normal conventional construction, without any special noise insulation requirements.

Conditionally Acceptable

New construction or development should be undertaken only after a detailed analysis of noise reduction requirements is made and needed noise insulation features included in design. Conventional construction, but with closed windows and fresh air supply systems or air condition-ing, will normally suffice.

Normally Unacceptable

New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and needed noise insulation features included in design.

Conditionally Unacceptable

New construction or develop-ment should generally not be undertaken, unless it can be demonstrated that noise reduction requirements can be employed to reduce noise impacts to an acceptable level. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and needed noise insulation features included in the design.

The Community Noise Equivalent Level (CNEL) and Day-Night Noise Level (Ldn) are measures of the 24-hour noise environment. They represent the constant A-weighted noise level that would be measured if all the sound energy received over the day were averaged. In order to account for the greater sensitivity of people to noise at night, the CNEL weighting includes a 5-decibel penalty on noise between 7:00 p.m. and 10:00 p.m. and a 10-decibel penalty on noise between 10:00 p.m. and 7:00 a.m. of the next day. The Ldn includes only the 10-decibel weighting for late-night noise events. For practical purposes, the two measures are equivalent for typical urban noise environments.

* For properties located within airport influence areas, acceptable noise limits for single family residential uses are established by the Riverside County Airport Land Use Compatibility Plan.

SOURCE: STATE DEPARTMENT OF HEALTH,
AS MODIFIED BY THE CITY OF RIVERSIDE

Figure N–10
Noise/Land Use Noise Compatibility Criteria

Objective N–2: Minimize the adverse effects of airport-related noise through proper land use planning.

Policy N–2.1: Ensure that new development can be made compatible with the noise environment by using noise/land use compatibility standards (Figure N–10 – Noise/Land Use Noise Compatibility Criteria) and the airport noise contour maps (found in the Riverside County Airport Land Use Compatibility Plans) as guides to future planning and development decisions.

See the Land Use and Urban Design, Circulation and Community Mobility and Public Safety Elements for more information on Airports.

In particular, review Objectives LU-21, LU-22, CCM-11 and PS-4.

Policy N–2.2: Avoid placing noise-sensitive land uses (e.g., residential uses, hospitals, assisted living facilities, group homes, schools, day care centers, etc.) within the high noise impact areas (over 60 dB CNEL) for Riverside Municipal Airport and Flabob Airport in accordance with the Riverside County Airport Land Use Compatibility Plan.

Policy N–2.3: Support efforts of the Federal Aviation Administration and other responsible agencies to require the development of quieter aircraft.

Policy N–2.4: Work with the Federal Aviation Administration and neighboring airport authorities to minimize the noise impacts of air routes through residential neighborhoods within the City.

Policy N–2.5: Utilize the Airport Protection Overlay Zone, as appropriate, to advise landowners of special noise considerations associated with their development.

Objective N–3: Ensure the viability of March Air Reserve Base/March Inland Port.

Refer to the Land Use and Urban Design Element for additional objectives and policies related to March Air Reserve Base and Inland Port.

In particular, review Objectives LU-21, LU-22.

Policy N–3.1: Avoid placing noise-sensitive land uses (e.g., residential uses, hospitals, assisted living facilities, group homes, schools, day care centers, etc.) within the high noise impact areas (over 65 dB CNEL) for March Air Reserve Base/March Inland Port in accordance with the Riverside County Airport Land Use Compatibility Plan.

Policy N–3.2: Work with the Riverside County Airport Land Use Commission and the March Joint Powers Authority to develop noise/land use guidelines and City land use plans that are consistent with ALUC policies.

Policy N–3.3: Carefully consider planned future operations of the March Air Reserve Base and March Inland Port in land use decisions for properties located within the airport-influenced area.

Policy N–3.4: Support the noise/land use policies for the area adjacent to the March Air Reserve Base/March Inland Port through the adoption of the March JLUS into the Riverside County Airport Land Use Compatibility Plan.

ADDRESSING TRANSPORTATION NOISE

The most efficient and effective means of controlling noise from transportation systems is to reduce noise at the source. However, the City has no direct control over noise produced by trucks, cars and trains because State and Federal regulations preempt local laws. Given that the City cannot control this noise at the source, City noise programs focus on reducing the impact of transportation noise along freeways, arterial roadways and rail corridors.

Site planning, landscaping, topography and the design and construction of noise barriers are the most common and effective method of alleviating vehicular traffic and train noise impacts. Setbacks and buffers can also be used to achieve noise reduction.

Noise-attenuating barriers can and will be incorporated into new development projects to reduce noise exposure. The effectiveness of the barrier will depend upon: 1) the relative height and materials of the barrier; 2) the noise source; 3) the affected area; and 4) the horizontal distance between the barrier and the affected area.

Freeway noise associated with SR-91 has largely been addressed to greatest extent practicable with recent improvements. The SR-60/I-215 upgrade project includes elements to shield freeway noise, particularly along areas of the freeways adjoining residential areas. The City will continue to pursue mitigation with Caltrans for any remaining areas not addressed by freeway enhancement projects.

Mitigating rail noise represents one of the biggest challenges the City will continue to face. Eliminating all at-grade crossings for existing railways would significantly reduce noise impacts and solve road/rail traffic conflicts, but this solution involves costs beyond the collective resources of the City, Federal agencies and railroad owners/operators. Thus, City efforts will focus on minimizing noise associated with train horns, prioritizing grade separations and implementing noise reduction programs.

Objective N-4: Minimize ground transportation-related noise impacts.

Policy N-4.1: Ensure that noise impacts generated by vehicular sources are minimized through the use of noise reduction features (e.g., earthen berms, landscaped walls, lowered streets, improved technology).

Policy N-4.2: Investigate and pursue innovative approaches to reducing noise from railroad sources.

Policy N-4.3: Identify and aggressively pursue funding sources to provide grade separations and sound walls along train routes as noise reduction measures.

See Policies CCM-12.5 and PS-4.8 for additional information relating to road/rail grade separations..

Policy N-4.4: Prioritize locations for implementing road/rail grade separations.

Policy N-4.5: Use speed limit controls on local streets as appropriate to minimize vehicle traffic noise.

Title 7

NOISE CONTROL

Chapters:

Chapter 7.05

POLICY AND INTENT

Sections:
7.05.010 Policy and intent.

Section 7.05.010 Policy and intent.
It is determined that certain noise levels are detrimental to the public health, safety and welfare and are contrary to the public interest. Therefore, the City Council declares that creating, maintaining, causing or allowing to create, maintain or cause any noise in a manner not in conformity with the provisions of this chapter, is a public nuisance and shall be punishable as such.

In order to control unnecessary, excessive and/or annoying noise in the City, it is declared to be the policy of the City to prohibit such noise generated by the sources specified in this chapter. It shall be the goal of the City to minimize noise levels and mitigate the effects of noise to provide a safe and healthy living environment. (Ord. 6273 § 1 (part), 1996)

Chapter 7.10

DEFINITIONS

Sections:

Section 7.10.010 Definitions generally.

For the purposes of this title, the words and phrases defined in this chapter shall have the meanings respectively ascribed to them by this chapter. (Ord. 6273 § 1 (part), 1996)

Section 7.10.015 A-weighted sound level.

"A-weighted sound level" means the sound pressure level in decibels as measured on a sound level meter using the A-weighing network. The level is designated dB(A) or dBA. (Ord. 6273 § 1 (part), 1996)

Section 7.10.020 Agricultural property.

"Agricultural property" means a parcel of real property which is developed for agricultural and incidental residential purposes which is located within any permitted zone. (Ord. 6273 § 1 (part), 1996)

Section 7.10.025 Ambient noise level.

"Ambient noise level" means the all-encompassing noise level associated with a given environment, being a composite of sounds from all sources, excluding an alleged offensive noise, at the location and approximate time at which the comparison with the offensive noise is to be made. The ambient noise level constitutes the normal or existing level of environmental noise at a given location. (Ord. 6273 § 1 (part), 1996)

Section 7.10.030 Commercial purpose.

"Commercial purpose" means the use, operation or maintenance of any sound amplification equipment for the purpose of advertising any business, goods or services, or for the purposes of attracting the attention of the public, or soliciting patronage of customers to any performance, show, entertainment, exhibition or event, or for the purpose of demonstrating such sound equipment. (Ord. 6273 § 1 (part), 1996)

Section 7.10.035 Construction.

"Construction" means any site preparation including grading, building, fabricating, assembly, substantial repair, alteration, or similar action. (Ord. 6273 § 1 (part), 1996)

Section 7.10.040 Community support land use category.

"Community support land use category" means areas developed with schools, libraries, fire stations, hospitals and similar uses in any zone. (Ord. 6273 § 1 (part), 1996)

Section 7.10.045 Cumulative period.

"Cumulative period" means a total period of time composed of time segments which may be continuous or discontinuous. (Ord. 6273 § 1 (part), 1996)

Section 7.10.050 Decibel (dB).

"Decibel (dB)" means a unit for measuring amplitude of a sound, equal to twenty times the logarithm to the base ten of the ratio of the pressure of the sound measured to the reference pressure, which is twenty micropascals (twenty micronewtons per square meter). (Ord. 6273 § 1 (part), 1996)

Section 7.10.055 Demolition.

"Demolition" means any dismantling, intentional destruction or removal of structures, site improvements, landscaping or utilities. (Ord. 6273 § 1 (part), 1996)

Section 7.10.060 Emergency.

"Emergency" means any occurrence or set of circumstances involving actual or imminent physical trauma or property damage which demands immediate action. (Ord. 6273 § 1 (part), 1996)

Section 7.10.065 Emergency work.

"Emergency work" means work made necessary to restore property to a safe condition following a physical trauma or property damage caused by an emergency or work necessary to prevent or minimize damage from a potential emergency. (Ord. 6273 § 1 (part), 1996)

Section 7.10.070 Fixed noise source.

"Fixed noise source" means a stationary device which creates sounds from a fixed location, including residential, agricultural, industrial and commercial machinery and equipment, pumps fans, compressors, air conditioners and refrigeration devices. (Ord. 6273 § 1 (part), 1996)

Section 7.10.075 Grading.

"Grading" means any excavating and/or filling of earth material to prepare a site for construction or the placement of improvements. (Ord. 6273 § 1 (part), 1996)

Section 7.10.080 Impulsive sound.

"Impulsive sound" means sound of short duration, usually less than one second, with an abrupt onset and rapid decay. Examples include explosions, drum beats, drop-forge impacts, fire crackers, discharge of firearms and one object striking another. (Ord. 6273 § 1 (part), 1996)

Section 7.10.085 Industrial land use category.

"Industrial land use category" means any area occupied by land uses whose primary operation involves warehousing, manufacturing, assembling, distributing, packaging or processing goods in the BMP, I, and AIR zones. (Ord. 6967 § 2, 2007; (Ord. 6273 § 1 (part), 1996)

Section 7.10.090 Intrusive noise.

"Intrusive noise" means a noise which intrudes over and above the existing ambient noise. The relative intrusiveness of the sound depends upon its amplitude, duration, frequency and time of occurrence, tonal or informational content as well as its relationship to the prevailing ambient noise level. (Ord. 6273 § 1 (part), 1996)

Section 7.10.095 Minor maintenance.

"Minor maintenance" means work required to keep property used for residential purposes in an existing state. (Ord. 6273 § 1 (part), 1996)

Section 7.10.100 Mobile noise source.

"Mobile noise source" means any noise source other than a fixed noise source. (Ord. 6273 § 1 (part), 1996)

Section 7.10.105 Motor vehicle.

"Motor vehicle" means any self-propelled vehicle as defined in the California Vehicle Code, including all on-highway types of motor vehicles subject to registration under said code, and all off-highway type motor vehicles subject to identification under said code. (Ord. 6273 § 1 (part), 1996)

Section 7.10.110 Muffler or sound dissapative device.

"Muffler or sound dissapative device" means a device for abating the sound of escaping gases from an internal combustion engine. (Ord. 6273 § 1 (part), 1996)

Section 7.10.115 Noise.

"Noise" means any sound which exceeds the appropriate actual or presumed ambient noise level or which annoys or tends to disturb humans or which causes or tends to cause an adverse psychological or physiological effect on humans. (Ord. 6273 § 1 (part), 1996)

Section 7.10.120 Noise Control Officer.

"Noise Control Officer" means the City official(s) or duly authorized representative(s) with the responsibility to enforce the noise ordinance. (Ord. 6273 § 1 (part), 1996)

Section 7.10.125 Noise disturbance.

"Noise disturbance" means any sound which endangers or injures the safety or health of humans or animals, or annoys or disturbs a reasonable person of normal sensitivities or endangers or injures personal or real property. (Ord. 6273 § 1 (part), 1996)

Section 7.10.130 Noise source.

"Noise source" means a disturbance causing operation which originates from noise generating mechanism. An example of a noise source is the combination of a motor, pump and compressor. (Ord. 6273 § 1 (part), 1996)

Section 7.10.135 Noise zone.

"Noise zone" means defined areas of generally consistent land use where the ambient noise levels are generally similar within a range of five decibels. (Ord. 6273 § 1 (part), 1996)

Section 7.10.140 Nonurban land use category.

"Nonurban land use category" means vacant land or land primarily for agricultural production containing ten acres or more. (Ord. 6273 § 1 (part), 1996)

Section 7.10.145 Office/commercial land use category.

"Office/commercial land use category" means areas developed with office and/or commercial uses in the O, CRC, CR-NC, CR, and CG zones. (Ord. 6967 § 2, 2007; Ord. 6273 § 1 (part), 1996)

Section 7.10.150 Person.

"Person" means any individual, association, partnership or corporation and includes any officer, employee, department, agency or instrumentality of a State or any political subdivision of a State. (Ord. 6273 § 1 (part), 1996)

Section 7.10.155 Powered model vehicle.

"Powered model vehicle" means airborne, waterborne or land-borne vehicles such as model airplanes, model boats, and model vehicles of any type or size which are not designed for carrying persons or property and which can be propelled in any form other than manpower or wind power. (Ord. 6273 § 1 (part), 1996)

Section 7.10.160 Public recreation facility land use category.

"Public recreation facility land use category" means areas developed with public parks and other public recreational facilities. (Ord. 6273 § 1 (part), 1996)

Section 7.10.165 Public right-of-way.

"Public right-of-way" means any street, avenue, boulevard, highway, sidewalk or alley or similar place which is owned or controlled by a government entity. (Ord. 6273 § 1 (part), 1996)

Section 7.10.170 Public space.

"Public space" means any real property or structures which are owned or controlled by a government entity. (Ord. 6273 § 1 (part), 1996)

Section 7.10.175 Residential land use category.

"Residential land use category" means areas primarily used for residential purposes in the RE, RA-5, RR, RC, R-1-1-1/2 acre, R-1-13000, R-1-10500, R-1-8500, R-1-7000, R-3-2500, R-3-4000, R-3-3000, R-3-2000, R-3-1500, and R-4 zones. (Ord. 6967 § 2, 2007; Ord. 6273 § 1 (part), 1996)

Section 7.10.180 Sound.

"Sound" means an oscillation in pressure, particle displacement, particle velocity or other physical parameter, in a medium with internal forces that causes compression and rarefaction of that medium. The description of sound may include any characteristic of such sound, including duration, intensity and frequency. (Ord. 6273 § 1 (part), 1996)

Section 7.10.185 Sound amplifying equipment.

"Sound amplifying equipment" means any device for the amplification of the human voice, or music, or any other sound, excluding devices in motor vehicles when heard only by the occupants of the vehicle, excluding warning devices on authorized emergency vehicles or horns or other warning devices on any vehicle used only for traffic safety purposes. (Ord. 6273 § 1 (part), 1996)

Section 7.10.190 Sound level.

"Sound level" means the weighted sound pressure level obtained by the use of a sound level meter and frequency weighing network, such as A, B or C, as specified in American National Standards Institute specifications for sound level meter ANSI S1.4-1971 or the latest approved revision thereof. If the frequency weighing method used is not stated, the A-weighing shall apply. (Ord. 6273 § 1 (part), 1996)

Section 7.10.195 Sound level meter.

"Sound level meter" means an instrument, including a microphone, an amplifier, an output meter, and frequency weighing networks for the measurement of sound levels which satisfies the requirements for S2A meters in American National Standards Institute specifications for sound level meters, S1.4-1971, or the most recent revision thereof. (Ord. 6273 § 1 (part), 1996)

Section 7.10.200 Sound pressure.

"Sound pressure" means the instantaneous difference between the actual pressure and the average or barometric pressure at a given point in space, as produced by sound energy. (Ord. 6273 § 1 (part), 1996)

Section 7.10.205 Sound pressure level.

"Sound pressure level" in decibels means twenty times the logarithm to the base ten of the ratio of the pressure of this sound to the reference pressure, which reference pressure shall be explicitly stated. (Ord. 6273 § 1 (part), 1996)

Section 7.10.210 Supplementary definitions of technical terms.

Definitions of technical terms not defined herein shall be obtained from the American National Standard, "Acoustical Terminology" S1.1-1961 (R-1971) or the latest revision thereof. (Ord. 6273 § 1 (part), 1996)

Chapter 7.15

ADMINISTRATION AND ENFORCEMENT

Section:
7.15.005 Administration and enforcement.

Section 7.15.005 Administration and enforcement.

A. The noise regulation shall be enforced by the Code Enforcement Division of the Community Development Department and/or the Riverside Police Department.

B. It shall be the responsibility of the Code Enforcement Division and/or the Riverside Police Department to enforce the provisions of this Title and to perform all other functions required by this Title. Such duties shall include, but not be limited to investigating potential violations, issuing warning notices and citations, and providing evidence to the City Attorney for legal action.

C. A violation of these regulations may be prosecuted as a misdemeanor or as an infraction. Each day a violation occurs shall constitute a separate offense and shall be punishable as such. However, nothing in these regulations shall prevent any code compliance officer or his duly authorized representatives from efforts to obtain voluntary compliance by way of warning, notice or education. (Ord. 6959 § 1, 2007; Ord. 6844 § 15, 2006; Ord. 6273 § 1 (part), 1996)

Chapter 7.20

SOUND LEVEL MEASUREMENT

Section:
7.20.010 Sound level measurement.

Section 7.20.010 Sound level measurement.

Except as provided by Chapter 17.35, General Noise Regulations, any sound or noise level measurement made to enforce this title shall be measured with a sound level meter using the A-weighing scale at slow response. The exterior noise level shall be measured at the position or positions along the complainant's property line closest to the noise source or where the noise level is highest. If the complaint concerns an interior source, noise measurements shall be made at a point at least four feet from the wall, ceiling or floor nearest the noise source with windows opened or closed as would be normal for the season. (Ord. 6273 § 1 (part), 1996)

Chapter 7.23

AMBIENT NOISE LEVELS

Sections:

Section 7.23.010 Ambient Sound Levels.

Title 7 - Noise Control of the Riverside Municipal Code shall be consistent with Title 24 of the Health and Safety Code of the State of California as may be amended from time to time. (Ord. 6967 § 3, 2007)

Section 7.23.020 Mixed Use Development.

Where a new development proposal includes a mix of residential and nonresidential uses within the same project, the interior ambient noise standard for the residential component of the project may be increased by 5 decibels. (Ord. 6967 § 3, 2007)

Section 7.23.030 Infill Single-Family Residential Development.

Where a new development proposal includes an infill single-family residential use, the interior ambient noise standard for the proposal may be increased by 5 decibels. (Ord. 6967 § 3, 2007)

Chapter 7.25

NUISANCE EXTERIOR SOUND LEVEL LIMITS

Section:
7.25.010 Exterior sound level limits.

Section 7.25.010 Exterior sound level limits.

A. Unless a variance has been granted as provided in this chapter, it shall be unlawful for any person to cause or allow the creation of any noise which exceeds the following:

1. The exterior noise standard of the applicable land use category, up to five decibels, for a cumulative period of more than thirty minutes in any hour; or
2. The exterior noise standard of the applicable land use category, plus five decibels, for a cumulative period of more than fifteen minutes in any hour; or
3. The exterior noise standard of the applicable land use category, plus ten decibels, for a cumulative period of more than five minutes in any hour; or
4. The exterior noise standard of the applicable land use category, plus fifteen decibels, for the cumulative period of more than one minute in any hour; or
5. The exterior noise standard for the applicable land use category, plus twenty decibels or the maximum measured ambient noise level, for any period of time.

B. If the measured ambient noise level exceeds that permissible within any of the first four noise limit categories, the allowable noise exposure standard shall be increased in five decibel increments in each category as appropriate to encompass the ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.

C. If possible, the ambient noise level shall be measured at the same location along the property line with the alleged offending noise source inoperative. If for any reason the alleged offending noise source cannot be shut down, then the ambient noise must be estimated by performing a measurement in the same general area of the source but at a sufficient distance that the offending noise is inaudible. If the measurement location is on the boundary between two different districts, the noise shall be the arithmetic mean of the two districts.

D. Where the intruding noise source is an air-conditioning unit or refrigeration system which was installed prior to the effective date of this chapter, the exterior noise level when measured at the property line shall not exceed sixty dBA for units installed before 1-1-80 and fifty-five dBA for units installed after 1-1-80.

Table 7.25.010A

Exterior Noise Standards		
Land Use Category	**Time Period**	**Noise Level**
Residential	Night (10 p.m. to 7 a.m.) Day (7 a.m. to 10 p.m.)	45 dBA 55 dBA
Office/commercial	Any time	65 dBA
Industrial	Any time	70 dBA
Community support	Any time	60 dBA
Public recreation facility	Any time	65 dBA
Nonurban	Any time	70 dBA

Table 7.25.010B

Land Use Category/Zoning Matrix	
Land Use Category	**Underlying Zone**
Residential	RE, RA-5, RR, RC, R-1-1/2 acre, R-1-13000, R-1-10500, R-1-8500, R-1-7000, R-3-2500, R-3-4000, R-3-3000, R-3-2000, R-3-1500, R-4
Office/commercial	O, CRC, CR-NC, CR, CG
Industrial	BMP, I, AIR
Community support	Any permitted zone
Nonurban	Any permitted zone

(Ord. 6967 § 5, 2007; Ord. 6273 § 1 (part), 1996)

Chapter 7.30

NUISANCE INTERIOR SOUND LEVEL LIMITS

Section:
7.30.015 Interior sound level limits.

Section 7.30.015 Interior sound level limits.

A. No person shall operate or cause to be operated, any source of sound indoors which causes the noise level, when measured inside another dwelling unit, school or hospital, to exceed:

1. The interior noise standard for the applicable land category area, up to five decibels, for a cumulative period of more than five minutes in any hour;

2. The interior noise standard for the applicable land use category, plus five decibels, for a cumulative period of more than one minute in any hour;

3. The interior noise standard for the applicable land use category, plus ten decibels or the maximum measured ambient noise level, for any period of time.

B. If the measured interior ambient noise level exceeds that permissible within the first two noise limit categories in this section, the allowable noise exposure standard shall be increased in five decibel increments in each category as appropriate to reflect the interior ambient noise level. In the event the interior ambient noise level exceeds the third noise limit category, the maximum allowable interior noise level under said category shall be increased to reflect the maximum interior ambient noise level.

C. The interior noise standard for various land use districts shall apply, unless otherwise specifically indicated, within structures located in designated zones with windows opened or closed as is typical of the season.

Table 7.30.015

Interior Noise Standard		
Land Use Category	**Time Period**	**Noise Level**
Residential	Night (10 p.m. C 7 a.m.) Day (7 a.m. C 10 p.m.)	35 dBA 45 dBA
School	7 a.m. C 10 p.m. (while school is in session)	45 dBA
Hospital	Any time	45 dBA

(Ord. 6273 § 1 (part), 1996)

Chapter 7.35

GENERAL NOISE REGULATIONS

Sections:

Section 7.35.010 General noise regulations.

A. Notwithstanding the sound level meter standards described in this ordinance, it is nonetheless unlawful for any person to make, continue, or cause to be made or continued any disturbing, excessive or offensive noise which causes discomfort or annoyance to reasonable persons of normal sensitivity. The factors which should be considered in determining whether a violation of this section exists, include the following:

1. The sound level of the objectionable noise.

2. The sound level of the ambient noise.

3. The proximity of the noise to residential sleeping facilities.

4. The zoning of the area.

5. The population density of the area.

6. The time of day or night.

7. The duration of the noise.

8. Whether the noise is recurrent, intermittent, or constant.

9. Whether the noise is produced by a commercial or noncommercial activity.

10. Whether the nature of the noise is usual or unusual.

11. Whether the noise is natural or unnatural.

B. It is unlawful for any person to make, continue, or cause to be made or continued any disturbing, excessive or offensive noise which causes discomfort or annoyance to reasonable persons of normal sensitivity. The following acts, among others, are declared to be disturbing, excessive and offensive noises in violation of this section:

1. Radios, Television Sets, Musical Instruments and similar stationary or mobile devices: Operating, playing or permitting the operation or playing of any radio, television set, audio equipment, drum, musical instrument, or similar device which produces or reproduces sound in such a manner as to disturb the peace, quiet and comfort of neighboring residents or

persons of normal sensitivity. The operation of any such set, instrument, audio equipment, television set, machine or similar device between the hours of 10:00 p.m. and 7:00 a.m. in such a manner as to be plainly audible at a distance of 50 feet from the building, structure or vehicle in which it is located, shall be prima facie evidence of a violation of this section.

2. Loud Speakers (Amplified Sound): Using, or operating, or permitting to be used or operated, for any purpose, any loud speaker, loudspeaker system, or similar device between the hours of 10:00 p.m. and 7:00 a.m. such that the sound therefrom creates a noise disturbance across a residential property line, or at any time exceeds the maximum permitted noise level for the underlying land use category, except for any non-commercial public speaking, public assembly or other activity for which a variance has been issued.

3. Animals and Birds: Owning, possessing, or permitting to be harbored any animal or bird which frequently or for a continued duration howls, barks, meows, squawks, or makes other sounds which create a noise disturbance across a residential or commercial property line.

4. Loading and Unloading: Loading, unloading, opening, closing or other handling of boxes, crates, containers, building materials, garbage cans, or similar objects, or permitting these activities between the hours of 10:00 p.m. and 7:00 a.m. in such a manner as to cause a noise disturbance across a residential property line or at any time exceeds the maximum permitted noise level for the underlying land use category.

5. Construction: Operating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration, grading or demolition work between the hours of 7:00 p.m. and 7:00 a.m. on week days and between 5 p.m. and 8 a.m. on Saturdays or at any time on Sunday or federal holidays such that the sound therefrom creates a noise disturbance across a residential or commercial property line or at any time exceeds the maximum permitted noise level for the underlying land use category, except for emergency work or by variance. This section does not apply to the use of domestic power tools.

6. Domestic Power Tools: Operating or permitting the operation of any mechanically powered saw, sander, drill grinder, lawn or garden tool, or similar tool between 10:00 p.m. and 7:00 a.m. so as to create a noise disturbance across a residential or commercial property line. Any motor, machinery, pump, compressor, generator etc., shall be sufficiently muffled and maintained so as not to create a noise disturbance.

7. Powered Model Vehicles: Operating or permitting the operation of powered model vehicles between the hours of 7:00 p.m. and 7:00 a.m. so as to create a noise disturbance across a residential or commercial property line or at any time exceeds the maximum permitted noise level for the underlying land use category.

8. Stationary Non-emergency Signaling Devices: Sounding, or permit-ting the sounding of any signal from any stationary bell, chime, siren, whistle, or similar device intended primarily for non-emergency purposes, from any place, for more than 10 seconds in any hourly period. Houses of worship and the Mission Inn carillons shall be exempt from the operation of this provision. Sound sources covered by this provision and not exempted under this subsection may be exempted by a variance.

9. Emergency Signaling Devices: The intentional sounding or permitting the sounding outdoors of any fire, burglar or civil defense alarm, siren, whistle or similar stationary emergency signaling device, except for emergency purposes or for testing. Testing of a stationary emergency signaling device shall not occur before 7 a.m. or after 7 p.m. Any such testing shall only use the minimum cycle test time. In no case shall the test time exceed 10 seconds or occur more than once each calendar month.

10. Vehicle, Motorcycle, Motorboat or Aircraft Repair and Testing: Repairing, rebuilding, modifying or testing any motor vehicle, motorboat or aircraft, or permitting any these activities, in such a manner as to create a noise disturbance across a residential property line, or at any time exceeds the maximum permitted noise level for the underlying land use category shall not be permitted except where said activities are directly related to officially sanctioned events. underlying land use category.

11. Permitting any noise disturbance that is:

    a. Plainly audible across property boundaries;

    b. Plainly audible through partitions common to two residences within a building;

    c. Plainly audible at a distance of 50 feet in any direction from the source of music or sound between the hours of 7:00 a.m. and 10:00 p.m.; or

    d. Plainly audible at a distance of 25 feet in any direction from the source of music or sound between the hours of 10:00 p.m. and 7:00 a.m. (Ord. 6959 §2, 2007; Ord. 6328 § 1, 1996; Ord. 6273 § 1 (part), 1996)

Section 7.35.020 Exemptions.
The following activities shall be exempt from the provisions of this title:

A. Emergency Work. The provisions of this Title shall not apply to the emission of sound for the purpose of alerting persons to the existence of an emergency or in the performance of emergency work.

B. Entertainment Events. The provisions of this Title shall not apply to those reasonable sounds emanating from authorized school bands, school athletic and school entertainment events and occasional public and private outdoor or indoor gatherings, public dances, shows, bands, sporting and entertainment events conducted between the hours of seven a.m. and ten p.m.

C. Federal or State Preempted Activities. The provisions of this Chapter shall not apply to any other activity the noise level of which is regulated by state or federal law.

D. Minor Maintenance to Residential Property. The provisions of this Title shall not apply to noise sources associated with minor maintenance to property used for residential purposes, provided the activities take place between the hours of seven a.m. and ten p.m.

E. Right-Of-Way Construction. The provisions of this Title shall not apply to any work performed in the City right-of-ways when, in the opinion of the Public Works Director or his designee, such work will create traffic congestion and/or hazardous or unsafe conditions.

F. Public Health, Welfare and Safety Activities. The provisions of this Title shall not apply to construction maintenance and repair operations conducted by public agencies and/or utility companies or their contractors which are deemed necessary to serve the best interests of the public and to protect the public health, welfare and safety, including but not limited to, trash collection, street sweeping, debris and limb removal, removal of downed wires, restoring electrical service, repairing traffic signals, unplugging sewers, vacuuming catch basins, repairing of damaged poles, removal of abandoned vehicles, repairing of water hydrants and mains, gas lines, oil lines, sewers, storm drains, roads, sidewalks, etc. (Ord. 6917 § 1, 1996; Ord. 6328 § 2, 1996; Ord. 6273 § 1 (part), 1996)

Chapter 7.40

VARIANCE PROCEDURE

Sections:

Section 7.40.010 Variance procedure.

A. The Zoning Administrator is authorized to grant variances for exemption from any provision of this title, and may limit area of applicability, noise levels, time limits, and other terms and conditions determined appropriate to protect the public health, safety, and welfare. The provisions of this section shall in no way affect the duty to obtain any permit or license required by law for such activities.

B. Any person seeking a variance pursuant to this section shall file an application with the Zoning Administrator. The application shall be signed by the property owner or owner's representative using forms supplied by the Planning Division. The application shall contain information which demonstrates that bringing the source of the sound or activity into compliance with this title would constitute an unreasonable hardship to the applicant, the community, or other persons. The Zoning Administrator may require additional information if it is necessary to make a determination regarding the variance request. The application shall be accompanied by a fee established by resolution of the City Council.

C. A separate application shall be filed for each noise source; provided, however, several mobile sources under common ownership or several fixed sources on a single property may be combined into one application. Any person who claims to be adversely affected by the allowance of the variance may file a statement with the Zoning Administrator containing any information to support his claim. If the Zoning Administrator determines that a sufficient controversy exists regarding a variance application, the variance may be set for public hearing before the Planning Commission.

D. Public notice of the consideration of a proposed variance from the standards of this chapter shall be provided by the Zoning Administrator by mailing such notice to property owners within three hundred feet of the exterior boundaries of the property under consideration. The notice shall invite interested persons to notify the Planning Department of any concerns or comments within ten days of the date of the notice.

E. In determining whether to grant or deny the application, the Zoning Administrator or the Planning Commission shall consider comments received from property owners within three hundred feet, hardship on the applicant, the community, or other persons affected and property affected and any other adverse impacts. The requested variance may be granted in whole or in part and upon such terms and conditions as it deems necessary if, from the facts presented on the application, the Zoning Administrator or the Planning Commission finds that:

1. The strict application of the provisions of this title would result in practical difficulties or unnecessary hardships inconsistent with the general purpose of this title;

2. There are exceptional circumstances or conditions applicable to the property involved or to the intended use or development of the property that do not apply generally to other property in the same zone or neighborhood;

3. The granting of such variance will not be materially detrimental to the public welfare or injurious to the property or improvements in the zone or neighborhood in which the property is located;

4. The granting of such variance will not be contrary to the objectives of any part of the adopted General Plan.

F. A variance shall be granted by a notice to the applicant containing all the necessary conditions, including any time limits on the permitted activity. The variance shall not become effective until all the conditions are agreed to by the applicant. Noncompliance with any condition of the variance shall terminate the variance and subject the person holding it to those provisions of this chapter for which the variance was granted.

G. A variance shall be valid for a period not exceeding one year after the date on which it was granted. Applications for extensions of the time limits specified in variances or for the modification of other substantial conditions shall be treated like applications for initial variances.

H. In the event the Zoning Administrator does not approve an application for a variance within ten days after the application is filed it shall be placed on the agenda of the next regularly scheduled Planning Commission, unless the Commission refers the matter to the City Council. (Ord. 6967 § 7, 2007; Ord. 6462 § 8-10, 1999; Ord. 6273 § 1 (part), 1996)

Section 7.40.020 Appeals.

Any person aggrieved by the approval or disapproval of a variance, may appeal the decision of the Zoning Administrator or Planning Commission to the City Council within ten days after the date of such approval or disapproval. The City Council shall hold a hearing thereon, upon notice to the applicant, considering the same criteria presented to the Zoning Administrator. (Ord. 6462 § 11, 1999; Ord. 6273 § 1 (part), 1996)

Chapter 7.45

SEVERABILITY

Section:
7.45.010 Severability

Section 7.45.010 Severability

If any section, subsection, sentence, clause or phrase in this title is for any reason held to be invalid or unconstitutional by decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of this title. The City Council hereby declares that it would have passed this title and each section, subsection, clause or phrase thereof irrespective of the fact that any one or more other sections, subsections, clauses or phrases may be declared invalid or unconstitutional. (Ord. 6328 § 3, 1996)

Appendix B

Photographs and
Field Measurements

Field Sheet

Project: Dan Kipper at Sycamore Warehouse Development Noise Impact Study
Engineer: Mario Gutierrez
Date: 11/7/2014
JN: 1421-2014-09

Measurement Address: Dan Kipper Drive
City: Riverside
Site No.: 1-3

Sound Level Meter:
LD-712
Serial # A0520

Calibrator:
LD-250 250
Serial # 1322

Calibration Record:

	Input, dB/	Reading, dB/	Offset, dB/	Time
Before	114.0/	114.0/	26.9/	2:30 PM
After	114.0/	114.0/	26.3/	3:20 PM
Before	/	/	/	
After	/	/	/	

Notes:
Temp: 88°
Windspeed: --
Direction: --
Skies: CLEAR
Camera:
Photo Nos.

Meter Settings:

☒ A-WTD ☐ LINEAR ☒ SLOW ☐ 1/1 OCT ☒ INTERVALS ___10____- MINUTE
☐ C-WTD ☐ IMPULSE ☐ FAST ☐ 1/3 OCT ☒ L_N PERCENTILE VALUES

Notes:

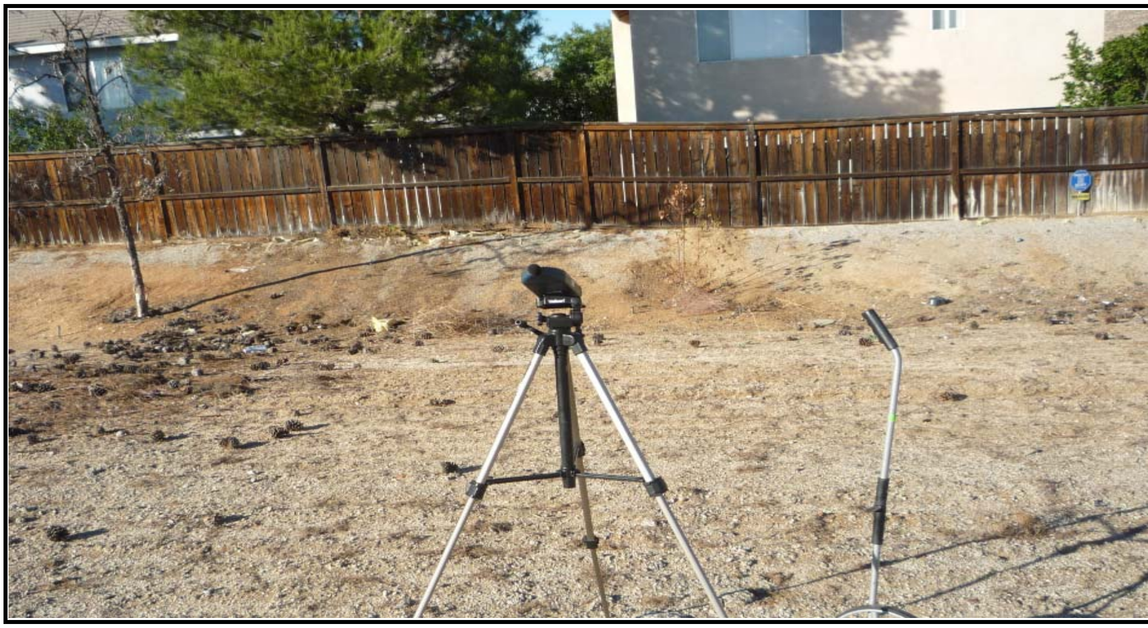
Measurement Type:
Long-term ______
Short-term X

Locations	Start Time	Stop Time	Leq	Lmax	Lmin	L2	L8	L25	L50
1	2:30 PM	2:40 PM	42.4	56.7	37.5	49.0	46.8	42.0	39.6
	Comments: Noise meter was placed approximately 25' from the northern property line. Ambient noise was captured from local warehouse operations. An existing 5.5' wall is located along the northern property line.								
2	2:45 PM	2:55 PM	46.9	66.2	41.2	54.0	49.8	46.5	44.1
	Comments: Noise meter was placed approximately 25' from the northern property line. Ambient noise was captured from local warehouse operations. Currently, there is no wall located along the northern property line.								
3	3:05 PM	3:15 PM	51.3	61.5	43.2	56.8	54.5	51.9	50.3
	Comments: Noise meter was placed approximately 25' from the northern property line. Ambient noise was captured from local traffic. Currently, there is no wall located along the northern property line.								
4									
	Comments:								
5									
	Comments:								

SEE EXHIBIT C

RK engineering group, inc.

Field Sheet - ST1 Location Photos			
Project: Dan Kipper at Sycamore Warehouse Development Noise Impact Study	**Engineer:** Mario Gutierrez	**Date:** 11/7/2014	**JN:** 1421-2014-09
Measurement Address:	**City:** Riverside	**Site No.:** 1	
Noise meter was placed approximately 25' from the northern property line.			



RK engineering group, inc.

Field Sheet - ST2 Location Photos			
Project: Dan Kipper at Sycamore Warehouse Development Noise Impact Study	**Engineer:** Mario Gutierrez	**Date:** 11/7/2014	
		JN: 1421-2014-09	
Measurement Address:	**City:** Riverside	**Site No.:** 2	
Noise meter was placed approximately 25' from the northern property line.			

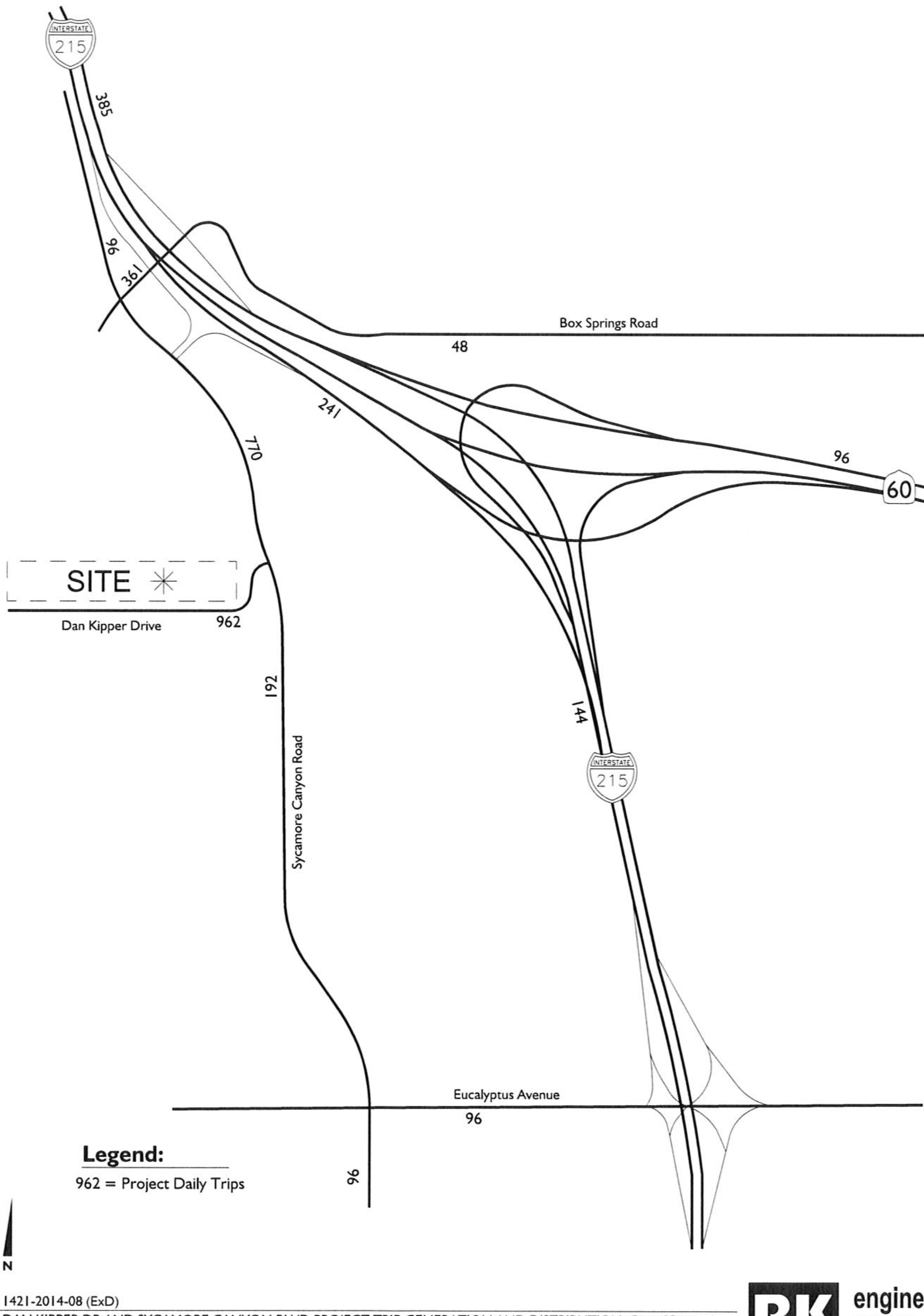
Field Sheet - ST3 Location Photos			
Project: Dan Kipper at Sycamore Warehouse Development Noise Impact Study	**Engineer:** Mario Gutierrez	**Date:** 11/7/2014	**JN:** 1421-2014-09
Measurement Address:	**City:** Riverside	**Site No.:** 3	
Noise meter was placed approximately 25' from the northern property line.			

RK engineering group, inc.

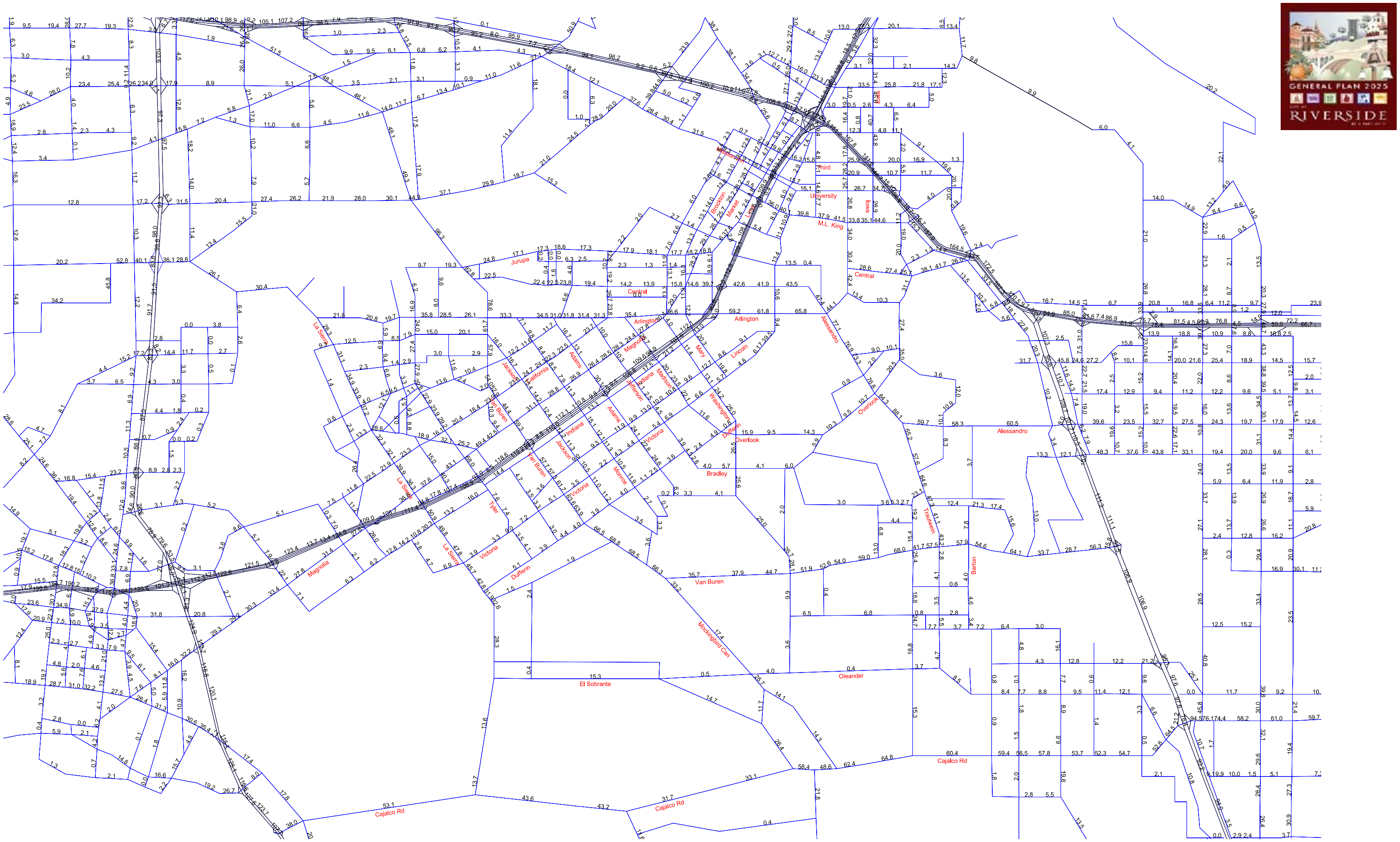
Appendix C

Traffic Data

Exhibit D
Project Daily Trips



Legend:
962 = Project Daily Trips



ADT's in 1000's

Meyer, Mohaddes Associates, Inc.
An Iteris Company

Riverside General Plan

Buildout Typical Density Forecasted ADT's (Proposed 2025 General Plan Roadway Network)

Appendix D

Traffic Noise
Calculation Worksheets

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO)

PROJECT:	DAN KIPPER DRIVE WAREHOUSE DEVELOPMENT	JOB #:	2395-2014-05
ROADWAY:	SYCAMORE CANYON BOULEVARD	DATE:	12-Nov-14
LOCATION:	BUILDOUT YEAR 2025 WITHOUT PROJECT - EXTERIOR FIRST FLOOR	ENGINEER:	M. Dickerson

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	22,800
SPEED =	45
PK HR % =	10
NEAR LANE/FAR LANE DIST	48
ROAD ELEVATION =	0.0
GRADE =	0.1 %
PK HR VOL =	2,280

RECEIVER INPUT DATA

RECEIVER DISTANCE =		100
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5.0
WALL DISTANCE FROM RECEIVER =		100
PAD ELEVATION =		0.0
ROADWAY VIEW:	LF ANGLE=	-90
	RT ANGLE=	90
	DF ANGLE=	180

SITE CONDITIONS

AUTOMOBILES =	15
MEDIUM TRUCKS =	15
HEAVY TRUCKS =	15

(10 = HARD SITE, 15 = SOFT SITE)

WALL INFORMATION

HTH WALL=	0.0
AMBIENT=	0.0
BARRIER =	0 (0 = WALL, 1 = BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY
AUTOMOBILES	0.775	0.129	0.096	0.9120
MEDIUM TRUCKS	0.848	0.049	0.103	0.0440
HEAVY TRUCKS	0.865	0.027	0.108	0.0440

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	2.0	97.12	- -
MEDIUM TRUCKS	4.0	97.08	- -
HEAVY TRUCKS	8.0	97.12	0.00

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	65.1	63.2	61.4	55.3	64.0	64.6
MEDIUM TRUCKS	60.2	58.7	52.3	50.8	59.2	59.5
HEAVY TRUCKS	64.7	63.3	54.2	55.5	63.8	64.0
NOISE LEVELS (dBA)	68.6	66.9	62.6	59.1	67.6	67.9

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	65.1	63.2	61.4	55.3	64.0	64.6
MEDIUM TRUCKS	60.2	58.7	52.3	50.8	59.2	59.5
HEAVY TRUCKS	64.7	63.3	54.2	55.5	63.8	64.0
NOISE LEVELS (dBA)	68.6	66.9	62.6	59.1	67.6	67.9

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	73	157	339	730
LDN	69	149	321	691

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO)

PROJECT:	DAN KIPPER DRIVE WAREHOUSE DEVELOPMENT	JOB #:	2395-2014-05
ROADWAY:	SYCAMORE CANYON BOULEVARD	DATE:	12-Nov-14
LOCATION:	BUILDOUT YEAR 2025 WITH PROJECT- EXTERIOR FIRST FLOOR	ENGINEER:	M. Dickerson

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	23,570
SPEED =	45
PK HR % =	10
NEAR LANE/FAR LANE DIST	48
ROAD ELEVATION =	0.0
GRADE =	0.1 %
PK HR VOL =	2,357

RECEIVER INPUT DATA

RECEIVER DISTANCE =		100
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5.0
WALL DISTANCE FROM RECEIVER =		100
PAD ELEVATION =		0.0
ROADWAY VIEW:	LF ANGLE=	-90
	RT ANGLE=	90
	DF ANGLE=	180

SITE CONDITIONS

AUTOMOBILES =	15	
MEDIUM TRUCKS =	15	(10 = HARD SITE, 15 = SOFT SITE)
HEAVY TRUCKS =	15	

WALL INFORMATION

HTH WALL=	0.0	
AMBIENT=	0.0	
BARRIER =	0	(0 = WALL, 1 = BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY
AUTOMOBILES	0.775	0.129	0.096	0.9120
MEDIUM TRUCKS	0.848	0.049	0.103	0.0440
HEAVY TRUCKS	0.865	0.027	0.108	0.0440

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	2.0	97.12	- -
MEDIUM TRUCKS	4.0	97.08	- -
HEAVY TRUCKS	8.0	97.12	0.00

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	65.2	63.3	61.5	55.5	64.1	64.7
MEDIUM TRUCKS	60.3	58.8	52.4	50.9	59.4	59.6
HEAVY TRUCKS	64.8	63.4	54.4	55.6	64.0	64.1
NOISE LEVELS (dBA)	68.7	67.1	62.7	59.3	67.7	68.1

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	65.2	63.3	61.5	55.5	64.1	64.7
MEDIUM TRUCKS	60.3	58.8	52.4	50.9	59.4	59.6
HEAVY TRUCKS	64.8	63.4	54.4	55.6	64.0	64.1
NOISE LEVELS (dBA)	68.7	67.1	62.7	59.3	67.7	68.1

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	75	161	346	746
LDN	71	152	328	706

Appendix E

Stationary Noise
Calculation Worksheets

Site Distances

N

NOISE BARRIER CALCULATIONS - BASED UPON FHWA - RD-77-108

PROJECT:	DAN KIPPER DRIVE WAREHOUSE	JOB #:	1421-14-09
SOURCE:	LOADING/UNLOADING NOISE	DATE:	12-Nov-14
LOCATION:	RESIDENTIAL UNITS TO THE NORTH	BY:	M. DICKERSON

NOISE INPUT DATA

OBS DIST=	110.0			
DT WALL=	25.0			
DT W/OB=	85.0			
HTH WALL=	8.0	********		
BARRIER =	0.0	(0=WALL,1=BERM)		
OBS HTH=	5.0			
NOISE HTH=	8.0		BARRIER+	
OBS EL =	0.0		TOPO SHIELDING =	-5.09
NOISE EL =	0.0		NOISE HTH EL=	8.0
DROP-OFF=	20.0	(20 = 6 dBA PER DOUBLING OF DISTANCE)		
COFF				

NOISE OUTPUT DATA (dBA)

	DIST (FT)	Leq	Lmax	L2	L8	L25	L50
REF LEVEL	6	66.3	84.0	78.5	68.0	61.5	58.5
PROJ LEVEL	110	41.0	58.7	53.2	42.7	36.2	33.2
SHIELDING	110	-5.1	-5.1	-5.1	-5.1	-5.1	-5.1
ADJ LEVEL	110	***35.9***	***53.6***	***48.1***	***37.6***	***31.1***	***28.1***

NOISE LEVEL REDUCTION DUE TO DISTANCE = -25.2648287

NOISE BARRIER CALCULATIONS - BASED UPON FHWA - RD-77-108

PROJECT:	DAN KIPPER DRIVE WAREHOUSE	JOB #:	1421-14-09
SOURCE:	HVAC EQUIPMENT	DATE:	12-Nov-14
LOCATION:	RESIDENTIAL UNITS TO THE NORTH	BY:	M. DICKERSON

NOISE INPUT DATA

OBS DIST=	175.0			
DT WALL=	5.0			
DT W/OB=	170.0			
HTH WALL=	26.0	********		
BARRIER =	0.0	(0=WALL,1=BERM)		
OBS HTH=	5.0			
NOISE HTH=	22.0		BARRIER+	
OBS EL =	0.0		TOPO SHIELDING =	-11.90
NOISE EL =	0.0		NOISE HTH EL=	22.0
DROP-OFF=	20.0	(20 = 6 dBA PER DOUBLING OF DISTANCE)		
COFF				

NOISE OUTPUT DATA (dBA)

	DIST (FT)	Leq	Lmax	L2	L8	L25	L50
REF LEVEL	3	82.5	82.5	82.5	82.5	82.5	82.5
PROJ LEVEL	175	47.2	47.2	47.2	47.2	47.2	47.2
SHIELDING	175	-11.9	-11.9	-11.9	-11.9	-11.9	-11.9
ADJ LEVEL	175	***35.3***	***35.3***	***35.3***	***35.3***	***35.3***	***35.3***

NOISE LEVEL REDUCTION DUE TO DISTANCE = -35.3183359

NOISE INTERVAL AVERAGER (2.0)

PROJECT: DAN KIPPER DRIVE WAREHOUSE JOB #: 1421-2014-09
LOCATION: NORTH PROPERTY LINE - EXTERIOR FIRST FLOOR DATE: 11/12/2014
SOURCE: ALL NOISE SOURCES (DAYTIME) BY: M. DICKERSON

NOISE LEVEL MEASUREMENTS (dBA)

	NOISE SOURCE	LEQ	L(MAX)	L(2)	L(8)	L(25)	L(50)
	LOADING DOCK	35.9	53.6	48.1	37.6	31.1	28.1
	CONDENSER UNIT	35.3	35.3	35.3	35.3	35.3	35.3
	AMBIENT	42.4	56.7	49.0	46.8	42.0	39.6
TOTAL		43.9	58.5	51.7	47.6	43.1	41.2

NOISE INTERVAL AVERAGER (2.0)

PROJECT:	DAN KIPPER DRIVE WAREHOUSE	JOB #:	1421-2014-09
LOCATION:	NORTH PROPERTY LINE - EXTERIOR FIRST FLOOR	DATE:	11/12/2014
SOURCE:	ALL NOISE SOURCES (NIGHT)	BY:	M. DICKERSON

NOISE LEVEL MEASUREMENTS (dBA)

	NOISE SOURCE	LEQ	L(MAX)	L(2)	L(8)	L(25)	L(50)
	LOADING DOCK	35.9	53.6	48.1	37.6	31.1	28.1
	CONDENSER UNIT	35.3	35.3	35.3	35.3	35.3	35.3
	AMBIENT	37.4	51.7	44.0	41.8	37.0	34.6
TOTAL		41.1	55.8	49.7	43.9	39.9	38.4

Appendix E
Site Distances

RK engineering group, inc.

NOISE BARRIER CALCULATIONS - BASED UPON FHWA - RD-77-108

PROJECT:	DAN KIPPER DRIVE WAREHOUSE	JOB #:	1421-14-09
SOURCE:	LOADING/UNLOADING NOISE	DATE:	12-Nov-14
LOCATION:	RESIDENTIAL UNITS TO THE NORTH	BY:	M. DICKERSON

NOISE INPUT DATA

OBS DIST=	110.0			
DT WALL=	25.0			
DT W/OB=	85.0			
HTH WALL=	8.0	********		
BARRIER =	0.0	(0=WALL,1=BERM)		
OBS HTH=	5.0			
NOISE HTH=	8.0		BARRIER+	
OBS EL =	0.0		TOPO SHIELDING =	-5.09
NOISE EL =	0.0		NOISE HTH EL=	8.0
DROP-OFF=	20.0	(20 = 6 dBA PER DOUBLING OF DISTANCE)		
COFF				

NOISE OUTPUT DATA (dBA)

	DIST (FT)	Leq	Lmax	L2	L8	L25	L50
REF LEVEL	6	66.3	84.0	78.5	68.0	61.5	58.5
PROJ LEVEL	110	41.0	58.7	53.2	42.7	36.2	33.2
SHIELDING	110	-5.1	-5.1	-5.1	-5.1	-5.1	-5.1
ADJ LEVEL	110	***35.9***	***53.6***	***48.1***	***37.6***	***31.1***	***28.1***

NOISE LEVEL REDUCTION DUE TO DISTANCE = -25.2648287

NOISE BARRIER CALCULATIONS - BASED UPON FHWA - RD-77-108

PROJECT:	DAN KIPPER DRIVE WAREHOUSE	JOB #:	1421-14-09
SOURCE:	HVAC EQUIPMENT	DATE:	12-Nov-14
LOCATION:	RESIDENTIAL UNITS TO THE NORTH	BY:	M. DICKERSON

NOISE INPUT DATA

OBS DIST=	175.0			
DT WALL=	5.0			
DT W/OB=	170.0			
HTH WALL=	26.0	********		
BARRIER =	0.0	(0=WALL,1=BERM)		
OBS HTH=	5.0			
NOISE HTH=	22.0		BARRIER+	
OBS EL =	0.0		TOPO SHIELDING =	-11.90
NOISE EL =	0.0		NOISE HTH EL=	22.0
DROP-OFF=	20.0	(20 = 6 dBA PER DOUBLING OF DISTANCE)		
COFF				

NOISE OUTPUT DATA (dBA)

	DIST (FT)	Leq	Lmax	L2	L8	L25	L50
REF LEVEL	3	82.5	82.5	82.5	82.5	82.5	82.5
PROJ LEVEL	175	47.2	47.2	47.2	47.2	47.2	47.2
SHIELDING	175	-11.9	-11.9	-11.9	-11.9	-11.9	-11.9
ADJ LEVEL	175	***35.3***	***35.3***	***35.3***	***35.3***	***35.3***	***35.3***

NOISE LEVEL REDUCTION DUE TO DISTANCE = -35.3183359

NOISE INTERVAL AVERAGER (2.0)

PROJECT:	DAN KIPPER DRIVE WAREHOUSE	JOB #:	1421-2014-09
LOCATION:	NORTH PROPERTY LINE - EXTERIOR FIRST FLOOR	DATE:	11/12/2014
SOURCE:	ALL NOISE SOURCES (DAYTIME)	BY:	M. DICKERSON

NOISE LEVEL MEASUREMENTS (dBA)

NOISE SOURCE	LEQ	L(MAX)	L(2)	L(8)	L(25)	L(50)
LOADING DOCK	35.9	53.6	48.1	37.6	31.1	28.1
CONDENSER UNIT	35.3	35.3	35.3	35.3	35.3	35.3
AMBIENT	42.4	56.7	49.0	46.8	42.0	39.6
TOTAL	43.9	58.5	51.7	47.6	43.1	41.2

NOISE INTERVAL AVERAGER (2.0)

PROJECT:	DAN KIPPER DRIVE WAREHOUSE	JOB #:	1421-2014-09
LOCATION:	NORTH PROPERTY LINE - EXTERIOR FIRST FLOOR	DATE:	11/12/2014
SOURCE:	ALL NOISE SOURCES (NIGHT)	BY:	M. DICKERSON

NOISE LEVEL MEASUREMENTS (dBA)

NOISE SOURCE	LEQ	L(MAX)	L(2)	L(8)	L(25)	L(50)
LOADING DOCK	35.9	53.6	48.1	37.6	31.1	28.1
CONDENSER UNIT	35.3	35.3	35.3	35.3	35.3	35.3
AMBIENT	37.4	51.7	44.0	41.8	37.0	34.6
TOTAL	41.1	55.8	49.7	43.9	39.9	38.4

Appendix F

Construction Noise
Calculation Worksheets

Activity	L_{Max} at 50 feet dBA	L_{Max} at 100 feet dBA	L_{Max} at 170 feet (w/ 8ft barrier) dBA
Grading	90	83	70

Equipment Summary	Reference (dBA) 50 ft Lmax
Scraper	84
Ruber Tired Dozer	82
Cranes	81
Excavator	81
Rubber Tired Dozer	82
Scraper	84
Grader	85
Plate Compactor	83
Scraper	84
Trencher	84
Pavers	77
Paving Equipment	90

Grading

No.	Equipment Description	Reference (dBA) 50 ft Lmax	Quantity	Usage Factor[1]	Distance to Receptor (ft)	Ground Effect	Shielding (dBA)	Calculated (dBA) Lmax	Calculated (dBA) Leq	Energy
	Noise Level Calculation Prior to Implementation of Noise Attenuation Requirements									
1	Cranes	80.6	1	16	50	0.5	0	80.6	72.6	18370457.9
2	Excavator	80.7	1	40	50	0.5	0	80.7	76.7	46995902.2
3	Grader	85	1	40	50	0.5	0	85.0	81.0	126491106
4	Rubber Tired Dozer	81.7	1	40	50	0.5	0	81.7	77.7	59164335.5
5	Scraper	83.6	1	40	50	0.5	0	83.6	79.6	91634706.1
							Lmax*	90	Leq	85
							Lw	122	Lw	117

Source: RK, Nov 2014.

1- Percentage of time that a piece of equipment is operating at full power.

dBA – A-weighted Decibels

Lmax- Maximum Level

Leq- Equivalent Level

Feet	Meters	Ground Effect	No Shielding Lmax dBA	1 dBA Shielding Lmax dBA	2 dBA Shielding Lmax dBA	3 dBA Shielding Lmax dBA	4 dBA Shielding Lmax dBA	5 dBA Shielding Lmax dBA	6 dBA Shielding Lmax dBA	7 dBA Shielding Lmax dBA	8 dBA Shielding Lmax dBA	9 dBA Shielding Lmax dBA	10 dBA Shielding Lmax dBA	11 dBA Shielding Lmax dBA	12 dBA Shielding Lmax dBA	13 dBA Shielding Lmax dBA	14 dBA Shielding Lmax dBA	15 dBA Shielding Lmax dBA
50	15.2	0.5	91	90	89	88	87	86	85	84	83	82	81	80	79	78	77	76
60	18.3	0.5	89	88	87	86	85	84	83	82	81	80	79	78	77	76	75	74
70	21.3	0.5	87	86	85	84	83	82	81	80	79	78	77	76	75	74	73	72
80	24.4	0.5	86	85	84	83	82	81	80	79	78	77	76	75	74	73	72	71
90	27.4	0.5	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69
100	30.5	0.5	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68
110	33.5	0.5	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67
120	36.6	0.5	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66
130	39.6	0.5	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65
140	42.7	0.5	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64
150	45.7	0.5	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64
160	48.8	0.5	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63
170	51.8	0.5	**77**	76	**75**	74	73	72	71	**70**	69	68	67	66	65	64	63	62
180	54.9	0.5	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62
190	57.9	0.5	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61
200	61.0	0.5	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61
210	64.0	0.5	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61	60
220	67.1	0.5	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61	60
230	70.1	0.5	74	73	72	71	70	69	68	67	66	65	64	63	62	61	60	59
240	73.1	0.5	74	73	72	71	70	69	68	67	66	65	64	63	62	61	60	59
250	76.2	0.5	73	72	71	70	69	68	67	66	65	64	63	62	61	60	59	58
260	79.2	0.5	73	72	71	70	69	68	67	66	65	64	63	62	61	60	59	58
270	82.3	0.5	72	71	70	69	68	67	66	65	64	63	62	61	60	59	58	57
280	85.3	0.5	72	71	70	69	68	67	66	65	64	63	62	61	60	59	58	57
290	88.4	0.5	72	71	70	69	68	67	66	65	64	63	62	61	60	59	58	57
300	91.4	0.5	71	70	69	68	67	66	65	64	63	62	61	60	59	58	57	56
310	94.5	0.5	71	70	69	68	67	66	65	64	63	62	61	60	59	58	57	56
320	97.5	0.5	70	69	68	67	66	65	64	63	62	61	60	59	58	57	56	55
330	100.6	0.5	70	69	68	67	66	65	64	63	62	61	60	59	58	57	56	55
340	103.6	0.5	70	69	68	67	66	65	64	63	62	61	60	59	58	57	56	55
350	106.7	0.5	69	68	67	66	65	64	63	62	61	60	59	58	57	56	55	54
360	109.7	0.5	69	68	67	66	65	64	63	62	61	60	59	58	57	56	55	54
370	112.8	0.5	69	68	67	66	65	64	63	62	61	60	59	58	57	56	55	54

RK engineering group, inc.

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LETTER OF TRANSMITTAL

TO:	CT REALTY INVESTORS	DATE:	November 17, 2014
	65 Enterprise, Suite 150	JOB NO.:	1421-2014-10/11
	Aliso Viejo, CA 92656	SUBJECT:	Dan Kipper Drive and Sycamore Canyon Boulevrad Warehouse Development Air Quality, GHG, and HRA Assessment
ATTN:	Mr. David Ball		

WE ARE FORWARDING:

	By Messenger	X	By Email
	By Blueprinter		By Fedex

NUMBER OF COPIES	DESCRIPTION
1	Pdf ecopy of report for your use

SENT FOR YOUR		STATUS		PLEASE NOTE	
	Approval		Preliminary		Revisions
	Signature		Revised		Additions
X	Use		Approved		Omissions
	File		Released		Corrections

REMARKS:
Attached is the Dan Kipper Drive and Sycamore Canyon Boulevard Warehouse Development Air Quality, Greenhouse Gas, and Health Risk Assessment Impact Studies, City of Riverside. If you have any questions please call me at (949) 474-0809.

BY: Mike Dickerson

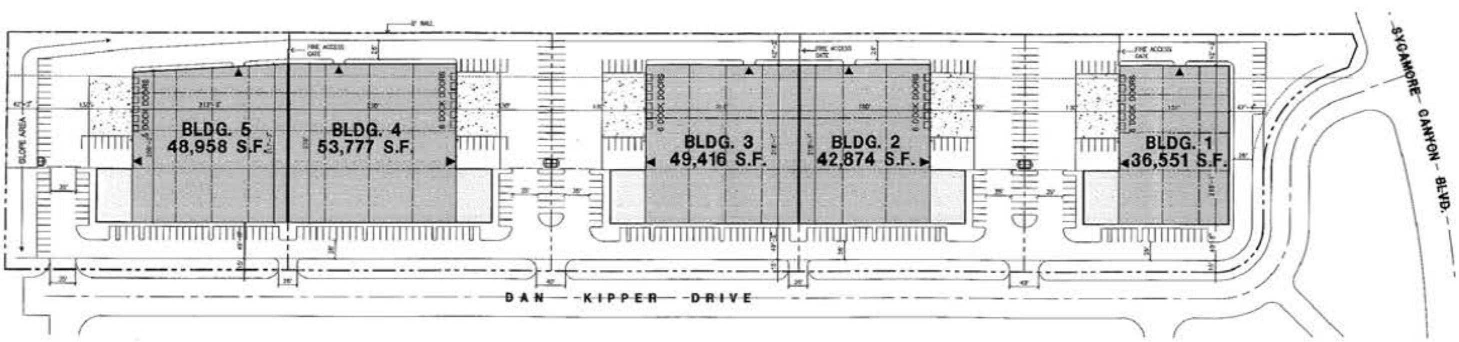
Mike Dickerson, INCE
Air/Noise Specialist

COPIES TO:

4000 westerly place, suite 280
newport beach, california 92660
tel 949.474.0809 fax 949.474.0902
http://www.rkengineer.com

RK10733TB.xls
JN:0995-2014-08

DAN KIPPER DRIVE & SYCAMORE CANYON BOULEVARD WAREHOUSE DEVELOPMENT
AIR QUALITY AND GHG IMPACT STUDY
City of Riverside, California



RK engineering group, inc.

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November 17, 2014

Mr. David Ball
CT REALTY INVESTORS
65 Enterprise, Suite 150
Aliso Viejo, CA 92656

Subject: Dan Kipper Drive and Sycamore Canyon Blvd Warehouse Development Air Quality, Greenhouse Gas, and Health Risk Assessment Impact Study, City of Riverside

Dear Mr. Ball:

RK ENGINEERING GROUP, INC. (RK) has completed an air quality (AQ), greenhouse gas (GHG) and health risk assessment (HRA) for the Dan Kipper Drive and Sycamore Canyon Boulevard Warehouse Development project. The proposed project is located at the southwest corner of Sycamore Canyon Boulevard and Dan Kipper Drive, as indicated on Exhibit A. The City of Riverside has requested that an AQ, GHG, and HRA impact study be performed to evaluate the emissions generated from the Project.

The City's General Plan designates the existing site as Business and Manufacturing Park Land Uses. The project is consistent with the City's designated land use and will consist of five (5) buildings (212,880 square feet of warehouse and 17,540 square feet of office) on approximately 13.08 acres.

This report provides a summary of the findings, analysis procedures, and evaluation for the proposed Project with respect to air quality emissions, greenhouse gases, and health risk assessment from the Project site pursuant to the City of Riverside requirements. The purpose of this analysis is to review the Project design from an Air Quality / GHG /HRA standpoint, review criteria pollutant emissions, and determine the overall impact.

Based upon the analysis of the Air/GHG/HRA emissions, with mitigation, all study areas are anticipated to be below the criteria pollutant standards. Furthermore, it is anticipated that the Project will incorporate design features as effective as the mitigation required in this report, which will reduce the potential GHG impacts.

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JN:1421-2014-10/11

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RK Engineering Group, Inc. is pleased to provide this analysis for the proposed Dan Kipper Drive and Sycamore Canyon Boulevard Warehouse Development project. RK appreciates this opportunity to work with the CT Realty Investors and looks forward to working with you on future projects. If you have any questions regarding this analysis, or would like further review, please do not hesitate to call us at (949) 474-0809.

Sincerely,
RK ENGINEERING GROUP, INC.

REGISTERED PROFESSIONAL ENGINEER
ROBERT KAHN
~~No. 20285~~
Exp. 09/30/15
CIVIL
STATE OF CALIFORNIA

Robert Kahn, PE
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Mike Dickerson
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JN:1421-2014-10/11

DAN KIPPER DRIVE AND SYCAMORE CANYON BOULEVARD WAREHOUSE DEVELOPMENT AIR QUALITY, GREENHOUSE GAS, AND HEALTH RISK ASSESSMENT IMPACT STUDY
City of Riverside, California

Prepared for:

CT REALTY INVESTORS
65 Enterprise. Suite 150
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Prepared by:

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Robert Kahn, PE

November 17, 2014

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Table of Contents

Section **Page**

List of Attachments

Exhibits

Tables

Appendices

1.0 Executive Summary

1.1 Purpose and Methods of Analysis

This air quality (AQ), greenhouse gas (GHG), and health risk assessment (HRA) analyses were prepared to evaluate whether the estimated criteria pollutants and GHG emissions generated from the Project would cause a significant impact to air resources in the project area. This assessment was conducted within the context of the California Environmental Quality Act (CEQA, California Public Resources Code Sections 21000, et seq.). The assessment is consistent with the methodology and emission factors endorsed by South Coast Air Quality Management District (SCAQMD), California Air Resource Board (CARB), and the United States Environmental Protection Agency (US EPA).

1.2 Project Summary

1.2.1 Site Location

The project site is located at the southwest corner of Sycamore Canyon Boulevard and Dan Kipper Drive in the City of Riverside, California. The project site is bounded by residential units to the north, Sycamore Canyon Boulevard to the east, Dan Kipper Drive to the south, and open land use to the west as illustrated in Exhibit A. The project vicinity is characterized by a mix of developed properties. Developed properties in the vicinity include residential properties to the north and industrial properties to the south. The project site is vacant and relatively flat. The site is located approximately 1,551 feet above mean sea level.

1.2.2 Project Description

The project consists of five (5) buildings (212,880 square feet of warehouse and 17,540 square feet of office) on approximately 13.08 acres. Building 1 has approximately 32,916 square feet of warehouse space and 3,508 square feet of office space. Building 2 has approximately 39,006 square feet of warehouse space and 3,508 square feet of office space. Building 3 has approximately 43,306 square feet of warehouse space and 3,508 square feet of office space. Building 4 has approximately 49,506 square feet of warehouse space and 3,508 square feet of office space. Building 5 has approximately 46,146 square feet of warehouse space and 3,508 square feet of office space. The project provides a total of 324 parking spaces. The proposed project site plan used for this analysis, provided by HPA Architecture., is illustrated in Exhibit B. Table 1 summarizes the land use description of the site.

1.2.3 Sensitive Receptors

Sensitive receptors are considered land uses or other types of population groups that are more sensitive to air pollution than others due to their exposure. Sensitive population groups include children, the elderly, the acutely and chronically ill and those with cardio-respiratory diseases. For CEQA purposes, the SCAQMD, in its Localized Significance Threshold Methodology (SCAQMD 2008a, page 3-2), considers a sensitive receptor to be a location where a sensitive individual could remain for 24-hours or longer, such as residencies, hospitals, and schools (etc).

The closest existing sensitive receptors are residential uses located approximately 25 meters to the north of the project site.

1.3 Summary of Analysis Results

The following is a summary of the analysis results, according to impact.

Impact AIR-1: The project would not conflict with or obstruct implementation of the applicable air quality plan. **Less than significant with mitigation.**

Impact AIR-2: The project would not violate an air quality standard or contribute substantially to an existing or projected air quality violation during construction and operation of the project. **Less than significant with mitigation.**

Impact AIR-3: The project would not result in a cumulatively considerable net increase of a 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). **Less than significant.**

Impact AIR-4: The project would not expose sensitive receptors to substantial pollutant concentrations. **Less than significant.**

Impact AIR-5: The project would not create objectionable odors affecting a substantial number of people. **Less than significant.**

The following is a summary of the analysis results, according to impact.

Impact GHG-1: The project would generate direct and indirect greenhouse gas emissions; however, these emissions would not result in a significant impact on the environment. **Less than significant.**

Impact GHG-2: The project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases. **Less than significant.**

The following summarizes the results of the health risk assessment:

- The Proposed Project-generated operational emissions would not exceed the SCAQMD health risk significance thresholds for either cancer or non-cancer risk at surrounding sensitive receptors.

1.4 Mitigations Measures (MM) Applied to Project

Air Quality Impact Construction Measures

MM AQ-1 The project shall require that the site preparation and grading contractors limit the daily disturbed area to 5 acres or less.

MM AQ-2 The project shall require that during site preparation, and grading operations all contractors shall comply with all applicable measures listed in SCAQMD Rule 403 to control fugitive dust including the application of water to all exposed surfaces a minimum of three times per day.

MM AQ-3 The proposed project and its contractors shall ensure that, during construction, site preparation and grading phases do not overlap and that all other construction phases occur after these two construction phases so that construction emissions do not exceed those established by SCAQMD.

MM AQ-4 The proposed project and its contractors shall ensure that, during construction, contractors shall turn off all diesel-powered construction when vehicles are not in use and contractors shall prohibit idling of vehicles for longer than three minutes.

Air Quality Impact Operational Measures

No additional mitigation measures required.

Greenhouse Gas Operational Measures

No additional mitigation measures required.

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2.0 Regulatory Framework and Background

2.1 Air Quality Regulatory Setting

Air pollutants are regulated at the national, state, and air basin level; each agency has a different level of regulatory responsibility. The United States Environmental Protection Agency (EPA) regulates at the national level. The California Air Resources Board (ARB) regulates at the state level. The South Coast Air Quality Management District (SCAQMD) regulates at the air basin level.

2.1.1 National and State

Both the federal government and the State of California have established health-based ambient air quality standards (AAQS) for seven air pollutants. As shown in Table 2, these pollutants include ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), coarse particulate matter with a diameter of 10 microns or less (PM_{10}), fine particulate matter with a diameter of 2.5 microns in diameter ($PM_{2.5}$), and lead. In addition the State has set standards for sulfates, hydrogen sulfides, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

In addition to setting out primary and secondary AAQS, the State has established a set of episode criteria for O_3, CO, NO_2, SO_2, and PM_{10}. These criteria refer to episode levels representing periods of short-term exposure to air pollutants that actually threaten public health. Health effects are progressively more severe as pollutant levels increases from Stage One to Stage Three. An alert level is that concentration of pollutants at which initial stage control actions are to begin. An alert will be declared when any one of the pollutant concentrations ca be expected to remain at these levels for 12 or more hours or to increase or, in the case of oxidants, the situation is likely to recur within the next 24 hours unless control actions are taken.

Pollutant alert levels:

- O_3: 392 micrograms per cubic meter ($\mu g/m^3$) (0.20 parts per million [ppm]), 1-hour average
- CO: 17 milligrams per cubic meter (mg/m^3) (15 ppm), 8-hour average
- NO_2: 1,130 $\mu g/m^3$ (0.6 ppm) 1-hour average; 282 $\mu g/m^3$ (0.15 ppm) 24-hour average

A State Implementation Plan is a document prepared by each state describing existing air quality conditions and measures that will be followed to attain and maintain federal standards. The State Implementation Plan for the State of California is administered by the ARB, which has overall responsibility for statewide air quality maintenance and air pollution prevention. California's State Implementation Plan incorporates individual federal attainment plans for regional air districts—air district prepares their federal attainment plan, which sent to ARB to be approved and incorporated into the California State Implementation Plan. Federal attainment plans include the technical foundation for understanding air quality (e.g., emission inventories and air quality monitoring), control measures and strategies, and enforcement mechanisms.

Several pollutants listed in Table 2 are not addressed in this analysis. Analysis of lead is not included in this report because the project is not anticipated to emit lead. Visibility-reducing particles are not explicitly addressed in this analysis because particulate matter is addressed. The project is not expected to generate or be exposed to vinyl chloride because proposed project uses do not utilize the chemical processes that create this pollutant and there are no such uses in the project vicinity. The proposed project is not expected to cause exposure to hydrogen sulfide because it would not generate hydrogen sulfide in any substantial quantity.

2.1.2 South Coast Air Quality Management District

The agency for air pollution control for the South Coast Air Basin (basin) is the South Coast Air Quality Management District (SCAQMD). SCAQMD is responsible for controlling emissions primarily from stationary sources. SCAQMD maintains air quality monitoring stations throughout the basin. SCAQMD, in coordination with the Southern California Association of Governments, is also responsible for developing, updating, and implementing the Air Quality Management Plan (AQMP) for the basin. An AQMP is a plan prepared and implemented by an air pollution district for a county or region designated as nonattainment of the federal and/or California ambient air quality standards. The term nonattainment area is used to refer to an air basin where one or more ambient air quality standards are exceeded.

Every three years the SCAQMD prepares a new AQMP, updating the previous plan and having a 20 year horizon.

On December 7, 2012, SCAQMD adopted the 2012 AQMP. The 2012 AQMP incorporates the latest scientific and technological information and planning assumptions, including the 2012 Regional Transportation Plan/Sustainable Communities Strategy and updated emission inventory methodologies for various source categories. In addition, the 2012 AQMP includes the new and changing federal requirements, the implementation of new technology measures, and the continued development of economically sound, flexible compliance approaches.

South Coast Air Quality Management District Rules

The AQMP for the basin establishes a program of rules and regulations administered by SCAQMD to obtain attainment of the state and federal standards. The rules and regulations that apply to this project include, but are not limited to, the following:

SCAQMD Rule 402 prohibits a person from discharging from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

SCAQMD Rule 403 governs emissions of fugitive dust during construction and operation activities. Compliance with this rule is achieved through application of standard Best Management Practices, such as application of water or chemical stabilizers to disturbed soils, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 miles per hour, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph, and establishing a permanent ground cover on finished sites.

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

SCAQMD Rule 1143 governs the manufacture, sale, and use of paint thinners and solvents used in thinning of coating materials, cleaning of coating application equipment, and other solvent cleaning operations by limiting their VOC content. This rule regulates the VOC content of solvents used during construction. Solvents used during the construction phase must comply with this rule.

SCAQMD Rule 1186 limits the presence of fugitive dust on paved and unpaved roads and sets certification protocols and requirements for street sweepers that are under contract to provide sweeping services to any federal, state, county, agency or special district such as water, air, sanitation, transit, or school district.

SCAQMD Rule 1303 governs the permitting of re-located or new major emission sources, requiring Best Available Control Measures and setting significance limits for PM10 among other pollutants.

SCAQMD Rule 1401 New Source Review of Toxic Air Contaminants, specifies limits for maximum individual cancer risk, cancer burden, and non-cancer acute and chronic hazard index from new permit units, relocations, or modifications to existing permit units, which emit toxic air contaminants.

2.1.3 City of Riverside

The agency for air pollution control for the South Coast Air Basin (basin) is the South Coast Air Quality Management District. Local jurisdictions, such as the City of Riverside, have the authority and responsibility to reduce air pollution through its police power and decision-making authority. Specifically, the City is responsible for the assessment and mitigation of air emissions resulting from its land use decisions. The City is also responsible for the implementation of transportation control measures as outlined in the 2007 AQMP. Examples of such measures include bus turnouts, energy-efficient streetlights, and synchronized traffic signals. In accordance with CEQA requirements and the CEQA review process, the City assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation.

In accordance with the CEQA requirements, the City does not, however, have the expertise to develop plans, programs, procedures, and methodologies to ensure that air quality within the City and region will meet federal and state standards. Instead, the City relies on the expertise of the SCAQMD and utilizes the SCAQMD CEQA Handbook as the guidance document for the environmental review of plans and development proposals within its jurisdiction. The Air Quality Element of the Riverside General Plan (GP) outlines goals, policies and implementation measures related to improving air quality.

2.2 Greenhouse Gas Regulatory Setting

2.2.1 International

Many countries around the globe have made an effort to reduce GHGs since climate change is a global issue.

Intergovernmental Panel on Climate Change. In 1988, the United Nations and the World Meteorological Organization established the Intergovernmental Panel on Climate Change to assess the scientific, technical and socio-economic 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. The United States participates in the United Nations Framework Convention on Climate Change (UNFCCC) (signed on March 21, 1994). Under the Convention, governments gather and share information on greenhouse gas emissions, national policies, and best practices; launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

Kyoto Protocol. The Kyoto Protocol is a treaty made under the UNFCCC and was the first international agreement to regulate GHG emissions. It has been estimated that if the commitments outlined in the Kyoto Protocol are met, global GHG emissions could be reduced by an estimated 5% from 1990 levels during the first commitment period of 2008 – 2012 (UNFCCC 1997). On December 8, 2012, the Doha Amendment to the Kyoto Protocol was adopted. The amendment includes: New commitments for Annex I Parties to the Kyoto Protocol who agreed to take on commitments in a second commitment period from 2013 – 2020; a revised list of greenhouse gases (GHG) to be reported on by Parties in the second commitment period; and Amendments to several articles of the Kyoto Protocol which specifically referenced issues pertaining to the first commitment period and which needed to be updated for the second commitment period.

2.2.2 National

Greenhouse Gas Endangerment. On December 2, 2009, the EPA announced that GHGs threaten the public heath and welfare of the American people. The EPA also states that GHG emissions from on-road vehicles contribute to that threat. The decision was based on *Massachusetts v. EPA* (Supreme Court Case 05-1120) which argued that GHGs are air pollutants covered by the Clean Air Act and that the EPA has authority to regulate those emissions.

Clean Vehicles. Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the United States. On April 1, 2010, the EPA and the Department of Transportation's National Highway Safety Administration announced a joint final rule establishing a national program that would reduce greenhouse gas emissions and improve fuel economy for new cars and trucks sold in the United States.

The first phase of the national program would apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this carbon dioxide level solely through fuel economy improvements. Together, these standards would cut carbon dioxide emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016). The second phase of the national program involved proposing new fuel economy and greenhouse gas standards for model years 2017 – 2025 on September 1, 2011.

On October 25, 2010, the EPA and the U.S. Department of Transportation proposed the first national standards to reduce greenhouse gas emissions and improve fuel efficiency of heavy-duty trucks and buses. For combination tractors, the agencies are proposing engine and vehicle standards that begin in the 2014 model year and achieve up to a 20 percent reduction in carbon dioxide emissions and fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10 percent reduction for gasoline vehicles and 15 percent reduction for diesel vehicles by 2018 model year (12 and 17 percent, respectively, if accounting for air conditioning leakage). Lastly, for vocational vehicles, the agencies are proposing engine and vehicle standards starting in the 2014 model year which would achieve up to a 10 percent reduction in fuel consumption and carbon dioxide emissions by 2018 model year.

Mandatory Reporting of Greenhouse Gases. On January 1, 2010, the EPA started requiring large emitters of heat-trapping emissions to begin collecting GHG data under a new reporting system. Under the rule, suppliers of fossil fuels or industrial greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of greenhouse gas emissions are required to submit annual reports to the EPA.

New Source Review. On May 13, 2010 the EPA issued a final rule that establishes common sense approach to addressing greenhouse gas emissions from stationary sources under the Clean Air Act (CAA) permitting programs. In the first phase of the Rule (Jan 2011 – Jun 2011), only sources currently subject to the New Source Review Prevention of Significant Deterioration (PSD) permitting program (i.e., those that newly constructed or modified in a way that significantly increase emissions of a pollutant other than GHGs) are subject to permitting requirements for their GHG emissions under PSD. For these projects, only GHG increases of 75,000 tons per year CO_2e or more need to determine the Best Available Control Technology (BACT) for their GHG emissions. Similarly for the operating permit program, only sources currently subject to the program are subject to Title V requirements for GHG. In the second phase of the rule (July 2011 – June 2013) new construction projects that exceed a threshold of 100,000 tons per year and modifications of existing facilities that increase emissions by at least 75,000 tons per year will be subject to permitting requirements. Additionally, operating facilities that emit at least 100,000 tons per year will be subject to Title V permitting requirements (USEPA 2010a). EPA estimates that facilities responsible for nearly 70 percent of the national greenhouse gas emissions from stationary sources will be subject to permitting requirements under this rule. This rule took effect January 2, 2011.

2.2.3 California

Title 24. California Code of Regulations Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted 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. All buildings for which an application for a building permit is submitted on or after January 1, 2011 must follow the 2008 standards.

Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas emissions.

California Green Building Standards. On January 12, 2010, the State Building Standards Commission unanimously adopted updates to the California Green Building Standards Code, which went into effect on January 1, 2011. The Code is a comprehensive and uniform regulatory code for all residential, commercial and school buildings.

The California Green Building Standards Code does not prevent a local jurisdiction from adopting a more stringent code as state law provides methods for local enhancements. The Code recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance provided they provide a minimum 50-percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. State building code provides the minimum standard which buildings need to meet in order to be certified for occupancy. Enforcement is generally through the local building official.

The California Green Building Standards Code (code section in parentheses) requires:

- **Short-term bicycle parking.** If a commercial project is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5 percent of visitor motorized vehicle parking capacity, with a minimum of one two-bike capacity rack (5.106.4.1).
- **Long-term bicycle parking.** For buildings with over 10 tenant-occupants, provide secure bicycle parking for 5 percent of tenant-occupied motorized vehicle parking capacity, with a minimum of one space (5.106.4.2).
- **Designated parking.** Provide designated parking in commercial projects for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles (5.106.5.2).
- **Recycling by Occupants.** Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of nonhazardous materials for recycling.
- **Construction waste.** A minimum 50-percent diversion of construction and demolition waste from landfills, increasing voluntarily to 65 and-75 percent for new homes and 80-percent for commercial projects. All (100 percent) of trees, stumps, rocks and associated vegetation and soils resulting from land clearing shall be reused or recycled.
- **Wastewater reduction.** Each building shall reduce the generation of wastewater by one of the following methods:
  - The installation of water-conserving fixtures or
  - Utilizing nonpotable water systems (5.303.4).

- Water use savings. 20-percent mandatory reduction in indoor water use with voluntary goal standards for 30, 35 and 40-percent reductions.
- Water meters. Separate water meters for buildings in excess of 50,000 square feet or buildings projected to consume more than 1,000 gallons per day.
- Irrigation efficiency. Moisture-sensing irrigation systems for larger landscaped areas.
- Materials pollution control. Low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring and particle board.
- Building commissioning. Mandatory inspections of energy systems (i.e. heat furnace, air conditioner, mechanical equipment) for nonresidential buildings over 10,000 square feet to ensure that all are working at their maximum capacity according to their design efficiencies.

Pavley Regulations. California AB 1493, enacted on July 22, 2002, required the ARB to develop and adopt regulations that reduce greenhouse gases emitted by passenger vehicles and light duty trucks. The regulation was stalled by automaker lawsuits and by the EPA's denial of an implementation waiver. On January 21, 2009, the ARB requested that the EPA reconsider its previous waiver denial. On January 26, 2009, President Obama directed that the EPA assess whether the denial of the waiver was appropriate. On June 30, 2009, the EPA granted the waiver request.

The standards phase in during the 2009 through 2016 model years. When fully phased in, the near term (2009-2012) standards will result in about a 22-percent reduction compared with the 2002 fleet, and the mid-term (2013-2016) standards will result in about a 30-percent reduction. Several technologies stand out as providing significant reductions in emissions at favorable costs. These include discrete variable valve lift or camless valve actuation to optimize valve operation rather than relying on fixed valve timing and lift as has historically been done; turbocharging to boost power and allow for engine downsizing; improved multi-speed transmissions; and improved air conditioning systems that operate optimally, leak less, and/or use an alternative refrigerant.

Executive Order S-3-05. California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following reduction targets for greenhouse gas emissions:

- By 2010, California shall reduce greenhouse gas emissions to 2000 levels;
- By 2020, California shall reduce greenhouse gas emissions to 1990 levels.
- By 2050, California shall reduce greenhouse gas emissions to 80 percent below 1990 levels.

The 2050 reduction goal represents what scientists believe is necessary to reach levels that will stabilize the climate. The 2020 goal was established to be an aggressive, but achievable, mid-term target. The Climate Action Team's Report to the Governor in 2006 contains recommendations and strategies to help ensure the 2020 targets in Executive Order S-3-05 are met.

Low Carbon Fuel Standard - Executive Order S-01-07. The Governor signed Executive Order S¬01-07 on January 18, 2007. The order mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. In particular, the executive order established a Low Carbon Fuel Standard and directed the Secretary for Environmental Protection to coordinate the actions of the California Energy Commission, the ARB, the University of California, and other agencies to develop and propose protocols for measuring the "life-cycle carbon intensity" of transportation fuels. This analysis supporting development of the protocols was included in the State Implementation Plan for alternative fuels (State Alternative Fuels Plan adopted by California Energy Commission on December 24, 2007) and was submitted to ARB for consideration as an "early action" item under AB 32. The ARB adopted the Low Carbon Fuel Standard on April 23, 2009.

SB 1368. In 2006, the State Legislature adopted Senate Bill (SB) 1368, which was subsequently signed into law by the Governor. SB 1368 directs the California Public Utilities Commission to adopt a performance standard for greenhouse gas emissions for the future power purchases of California utilities. SB 1368 seeks to limit carbon emissions associated with electrical energy consumed in California by forbidding procurement arrangements for energy longer than 5 years from resources that exceed the emissions of a relatively clean, combined cycle natural gas power plant. Because of the carbon content of its fuel source, a coal-fired plant cannot meet this standard because such plants emit roughly twice as much carbon as natural gas, combined cycle plants. Accordingly, the new law will effectively prevent California's utilities from investing in, otherwise financially supporting, or purchasing power from new coal plants located in or out of the State. Thus, SB 1368 will lead to dramatically lower greenhouse gas emissions associated with California's energy demand, as SB 1368 will effectively prohibit California utilities from purchasing power from out-of-state producers that cannot satisfy the performance standard for greenhouse gas emissions required by SB 1368. The California Public Utilities Commission adopted the regulations required by SB 1368 on August 29, 2007.

SB 97 and the CEQA Guidelines Update. Passed in August 2007, SB 97 added Section 21083.05 to the Public Resources Code. The code states "(a) On or before July 1, 2009, the Office of Planning and Research shall prepare, develop, and transmit to the Resources Agency guidelines for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions as required by this division, including, but not limited to, effects associated with transportation or energy consumption. (b) On or before January 1, 2010, the Resources Agency shall certify and adopt guidelines prepared and developed by the Office of Planning and Research pursuant to subdivision (a)." Section 21097 was also added to the Public Resources Code. It provided CEQA protection until January 1, 2010 for transportation projects funded by the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006 or projects funded by the Disaster Preparedness and Flood

Prevention Bond Act of 2006, in stating that the failure to adequately analyze the effects of greenhouse gases would not violate CEQA.

On April 13, 2009, the Office of Planning and Research submitted to the Secretary for Natural Resources its recommended amendments to the CEQA Guidelines for addressing greenhouse gas emissions. On July 3, 2009, the Natural Resources Agency commenced the Administrative Procedure Act rulemaking process for certifying and adopting these amendments pursuant to Public Resources Code section 21083.05. Following a 55-day public comment period and two public hearings, the Natural Resources Agency proposed revisions to the text of the proposed Guidelines amendments. The Natural Resources Agency transmitted the adopted amendments and the entire rulemaking file to the Office of Administrative Law on December 31, 2009. On February 16, 2010, the Office of Administrative Law approved the Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The Amendments became effective on March 18, 2010.

The CEQA Amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of greenhouse gas emissions in CEQA documents. The CEQA Amendments fit within the existing CEQA framework by amending existing CEQA Guidelines to reference climate change.

A new section, CEQA Guidelines Section 15064.4, was added to assist agencies in determining the significance of greenhouse gas emissions. The new section allows agencies the discretion to determine whether a quantitative or qualitative analysis is best for a particular project. However, little guidance is offered on the crucial next step in this assessment process—how to determine whether the project's estimated greenhouse gas emissions are significant or cumulatively considerable.

Also amended were CEQA Guidelines Sections 15126.4 and 15130, which address mitigation measures and cumulative impacts respectively. Greenhouse gas mitigation measures are referenced in general terms, but no specific measures are championed. The revision to the cumulative impact discussion requirement (Section 15130) simply directs agencies to analyze greenhouse gas emissions in an EIR when a project's incremental contribution of emissions may be cumulatively considerable, however it does not answer the question of when emissions are cumulatively considerable.

Section 15183.5 permits programmatic greenhouse gas analysis and later project-specific tiering, as well as the preparation of Greenhouse Gas Reduction Plans. Compliance with such plans can support a determination that a project's cumulative effect is not cumulatively considerable, according to proposed Section 15183.5(b). In addition, the amendments revised Appendix F of the CEQA Guidelines, which focuses on Energy Conservation. The sample environmental checklist in Appendix G was amended to include greenhouse gas questions.

AB 32. The California State Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires that greenhouse gases emitted in California be reduced to 1990 levels by the year 2020. "Greenhouse gases" as defined under AB 32 include carbon dioxide, methane, nitrous oxide, hydro fluorocarbons, perfluorocarbons, and sulfur hexafluoride. ARB is the state agency charged with monitoring and regulating sources of greenhouse gases. AB 32 states the following:

Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.

The ARB Board approved the 1990 greenhouse gas emissions level of 427 million metric tons of carbon dioxide equivalent (MMTCO2e) on December 6, 2007 (California Air Resources Board 2007). Therefore, emissions generated in California in 2020 are required to be equal to or less than 427 MMTCO2e. Emissions in 2020 in a "business as usual" scenario are estimated to be 596 MMTCO2e.

Under AB 32, the ARB published its Final Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California. Discrete early action measures are currently underway or are enforceable by January 1, 2010. The ARB has 44 early action measures that apply to the transportation, commercial, forestry, agriculture, cement, oil and gas, fire suppression, fuels, education, energy efficiency, electricity, and waste sectors. Of these early action measures, nine are considered discrete early action measures, as they are regulatory and enforceable by January 1, 2010. The ARB estimates that the 44 recommendations are expected to result in reductions of at least 42 MMTCO2e by 2020, representing approximately 25 percent of the 2020 target.

The ARB's Climate Change Scoping Plan (Scoping Plan) contains measures designed to reduce the State's emissions to 1990 levels by the year 2020 (California Air Resources Board 2008). The Scoping Plan identifies recommended measures for multiple greenhouse gas emission sectors and the associated emission reductions needed to achieve the year 2020 emissions target—each sector has a different emission reduction target. Most of the measures target the transportation and electricity sectors. As stated in the Scoping Plan, the key elements of the strategy for achieving the 2020 greenhouse gas target include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewables energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;

- Establishing targets for transportation-related greenhouse gas emissions for regions throughout California and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, Including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State's long-term commitment to AB 32 implementation.

In addition, the Scoping Plan differentiates between "capped" and "uncapped" strategies. "Capped" strategies are subject to the proposed cap-and-trade program. The Scoping Plan states that the inclusion of these emissions within the cap-and trade program will help ensure that the year 2020 emission targets are met despite some degree of uncertainty in the emission reduction estimates for any individual measure. Implementation of the capped strategies is calculated to achieve a sufficient amount of reductions by 2020 to achieve the emission target contained in AB 32. "Uncapped" strategies that will not be subject to the cap-and-trade emissions caps and requirements are provided as a margin of safety by accounting for additional greenhouse gas emission reductions.[4]

SB 375. Passing the Senate on August 30, 2008, SB 375 was signed by the Governor on September 30, 2008. According to SB 375, the transportation sector is the largest contributor of greenhouse gas emissions, which emits over 40 percent of the total greenhouse gas emissions in California. SB 375 states, "Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32." SB 375 does the following: (1) requires metropolitan planning organizations to include sustainable community strategies in their regional transportation plans for reducing greenhouse gas emissions, (2) aligns planning for transportation and housing, and (3) creates specified incentives for the implementation of the strategies. Concerning CEQA, SB 375, section 21159.28 states that CEQA findings determinations for certain projects are not required to reference, describe, or discuss (1) growth inducing impacts or (2) any project-specific or cumulative impacts from cars and light-duty truck trips generated by the project on global warming or the regional transportation network if the project:

1. Is in an area with an approved sustainable community's strategy or an alternative planning strategy that the ARB accepts as achieving the greenhouse gas emission reduction targets.
2. Is consistent with that strategy (in designation, density, building intensity, and applicable policies).
3. Incorporates the mitigation measures required by an applicable prior environmental document.

Executive Order S-13-08. Executive Order S-13-08 indicates that "climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures, thereby posing a serious threat to California's economy, to the health and welfare of its population and to its natural resources." Pursuant to the requirements in the order, the 2009 California Climate Adaptation Strategy (California Natural Resources Agency 2009) was adopted, which is the " . . . first statewide, multi-sector, region-specific, and information-based climate change adaptation strategy in the United States." Objectives include analyzing risks of climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

Renewable Electricity Standards. On September 12, 2002, Governor Gray Davis signed SB 1078 requiring California to generate 20 percent of its electricity from renewable energy by 2017. SB 107 changed the due date to 2010 instead of 2017. On November 17, 2008, Governor Arnold Schwarzenegger signed Executive Order S-14-08, which established a Renewable Portfolio Standard target for California requiring that all retail sellers of electricity serve 33 percent of their load with renewable energy by 2020. Governor Schwarzenegger also directed the ARB (Executive Order S-21¬09) to adopt a regulation by July 31, 2010, requiring the state's load serving entities to meet a 33 percent renewable energy target by 2020. The ARB Board approved the Renewable Electricity Standard on September 23, 2010 by Resolution 10-23.

2.2.4 South Coast Air Quality Management District

The project is within the South Coast Air Basin, which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). SCAQMD Regulation XXVII currently includes three rules:

- The purpose of Rule 2700 is to define terms and post global warming potentials.
- The purpose of Rule 2701, SoCal Climate Solutions Exchange, is to establish a voluntary program to encourage, quantify, and certify voluntary, high quality certified greenhouse gas emission reductions in the SCAQMD.
- Rule 2702, Greenhouse Gas Reduction Program, was adopted on February 6, 2009. The purpose of this rule is to create a Greenhouse Gas Reduction Program for greenhouse gas emission reductions in the SCAQMD. The SCAQMD will fund projects through contracts in response to requests for proposals or purchase reductions from other parties.

SCAQMD Threshold Development

The SCAQMD has established recommended significance thresholds for greenhouse gases for local lead agency consideration ("SCAQMD draft local agency threshold"). SCAQMD has published a five-tiered draft GHG threshold which includes a 10,000 metric ton of CO_2e per year for stationary/industrial sources and 3,000 metric tons of CO_2e per year significance threshold for residential/commercial projects (South Coast Air Quality Management District 2010c). Tier 3 is anticipated to be the primary tier by which the SCAQMD will determine significance for projects. The Tier 3 screening level for stationary sources is based on an emission capture rate of 90 percent for all new or modified projects. A 90-precent emission capture rate means that 90 percent of total emissions from all new or modified stationary source projects would be subject to CEQA analysis. The 90-percent capture rate GHG significance screening level in Tier 3 for stationary sources was derived using the SCAQMD's annual Emissions Reporting Program.

The current draft thresholds consist of the following tiered approach:

- Tier 1 consists of evaluating whether or not the project qualifies for any applicable exemption under CEQA.
- Tier 2 consists of determining whether or not the project is consistent with a greenhouse gas reduction plan. If a project is consistent with a qualifying local greenhouse gas reduction plan, it does not have significant greenhouse gas emissions.
- Tier 3 consists of screening values, which the lead agency can choose but must be consistent. A project's construction emissions are averaged over 30 years and are added to a project's operational emissions. If a project's emissions are under one of the following screening thresholds, then the project is less than significant:
  - All land use types: 3,000 MTCO2e per year
  - Based on land use types: residential is 3,500 MTCO2e per year; commercial is 1,400 MTCO2e per year; and mixed use is 3,000 MTCO2e per year
- Tier 4 has the following options:
  - Option 1: Reduce emissions from business as usual by a certain percentage; this percentage is currently undefined
  - Option 2: Early implementation of applicable AB 32 Scoping Plan measures
  - Option 3: Year 2020 target for service populations (SP), which includes residents and employees: 4.8 MTCO2e/SP/year for projects and 6.6 MTCO2e/SP/year for plans;
  - Option 3, 2035 target: 3.0 MTCO2e/SP/year for projects and 4.1 MTCO2e/SP/year for plans
- Tier 5 involves mitigation offsets to achieve target significance threshold.

The City of Riverside is a member of Western Riverside Council of Governments (WRCOG). In May of 2014, the WRGOG produced a Final Draft of their Subregional Climate Action Plan (CAP)[1]. WRCOG's subregional emissions reduction targets are 15% below 2010 levels by 2020, and 49% below 2010 levels by 2035.

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[1] *http://www.wrcog.cog.ca.us/uploads/media_items/wrcog-climate-action-plan-final-draft-april-2014.original.pdf*

This project will compare project-generated GHG emissions to the SCAQMD screening threshold of 3,000 MTCO2e per year for all land use types. If that emission level is exceeded, the project's GHG emissions will be considered to be less than significant if the project meets the WRCOG reduction targets of 15% below 2010 emissions levels by 2020.

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3.0 Setting

3.1 Existing Physical Setting

The project is located in the City of Riverside in the County of Riverside and is within the South Coast Air Basin (basin). To the west of the basin is the Pacific Ocean. To the north and east of the basin are the San Gabriel, San Bernardino, and San Jacinto mountains, while the southern limit of the basin is the San Diego County line. The basin consists of Orange County, all of Los Angeles County except for the Antelope Valley, the non-desert portion of western San Bernardino County, and the western and Coachella Valley portions of Riverside County. The air quality in the basin is impacted by dominant airflows, topography, atmospheric inversions, location, season, and time of day.

3.1.1 Local Climate and Meteorology

Dominant airflows provide the driving mechanism for transport and dispersion of air pollution. The mountains surrounding the region form natural horizontal barriers to the dispersion of air contaminants. Air pollution created in the coastal areas and around the Los Angeles area is transported inland until it reaches the mountains where the combination of mountains and inversion layers generally prevent further dispersion. This poor ventilation results in a gradual degradation of air quality from the coastal areas to inland areas. Air stagnation may occur during the early evening and early morning periods of transition between day and nighttime flows. The region also experiences periods of hot, dry winds from the desert, known as Santa Ana winds. If the Santa Ana winds are strong, they can surpass the sea breeze, which blows from the ocean to the land, and carry the suspended dust and pollutants out to the ocean. If the winds are weak, they are opposed by the sea breeze and cause stagnation, resulting in high pollution events.

The local dominant wind blows predominantly from the south-southwest with relatively low velocities. The annual average annual wind speed is about 10 mph. Summer wind speeds average slightly higher than winter wind speeds. Low average wind speeds, together with a persistent temperature inversion limit the vertical dispersion of air pollutants throughout the Basin.

The annual average temperature varies little throughout much of the basin, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas where the project site is located.

The climatological station closest to the project site is a National Weather Service Cooperative weather station located at Riverside Fire Station 3. Climatological data from the National Weather Service at this station spanning the period 1893-2013 indicate an annual average temperature of 64.1° Fahrenheit, with January the coldest month (mean minimum daily temperatures of 39.1° Fahrenheit) and August, the warmest month of the year (mean daily maximum temperatures of 94.4° Fahrenheit).

The majority of the annual rainfall in the basin occurs between November and April. Summer rainfall is minimal and is generally limited to scattered thunderstorms in the coastal regions and slightly heavier showers in the eastern portion of the basin along the coastal side of the mountains. The climatological data from the Riverside Fire Station 3 National Weather Service Coop station spanning the period 1893-2013 indicate an annual average precipitation of 10.20 inches. Eighty-nine (89) percent of the annual rainfall occurs during the November to April rain season. The highest monthly average rainfall occurs during February. Year to year patterns in rainfall are unpredictable due to fluctuations in the weather. General meteorological data for the City of Riverside area, as measured at the Riverside Fire Station 3 weather station, are presented in Table 3.

Temperature inversions are another important feature that limits the vertical depth through which pollution can be mixed. During the summer, coastal areas are characterized by a sharp discontinuity between the cool marine air at the surface and the warm, sinking air aloft within the high-pressure cell over the ocean to the west. This marine/subsidence inversion allows for good local mixing, but acts like a giant lid over the Basin. The air remains stagnant, as the average wind speed in downtown Los Angeles becomes less than five mph. A second type of inversion forms on clear winter nights when cold air off the mountains to the south sinks to the valley floor while the air aloft over the valley remains warm. This forms radiation inversions. These inversions, in conjunction with calm winds, trap pollutants such as those from automobile exhaust near their source. They lead to air pollution "hotspots" in heavily developed coastal areas of the Basin, but onshore breezes often push the pollutants along canyons into the inland valleys. Summers are often periods of hazy visibility and occasionally unhealthful air, while winter air quality impacts tend to be highly localized and can consist of elevated levels of nitrogen dioxide and fine particulate matter.

3.1.2 Local Air Quality

The local air quality can be evaluated by reviewing relevant air pollution concentrations near the project area. For evaluation purposes, the South Coast Air Quality Management District (SCAQMD) has divided the basin into 36 Source Receptor Areas (SRA) within the basin operating monitoring stations in most of the areas. These SRAs are designated to provide a general representation of the local meteorological, terrain, and air quality conditions within the particular geographical area. The Project is within SRA 23, Metropolitan Riverside County 1. This station monitors O_3, CO, $PM_{10,}$ $PM_{2.5}$ and NO_2

pollutant levels. The pollutant levels from SRA 23 were used to comprise a "background" for the Project location.

Table 4 summarizes 2011 through 2013 published monitoring data, which is the most recent 3-year period available. The data shows that during the past few years, the project area has exceeded the ozone, PM_{10}, and $PM_{2.5}$ standards.

3.1.3 Attainment Status

The EPA and the ARB designate air basins where ambient air quality standards are exceeded as "nonattainment" areas. If standards are met, the area is designated as an "attainment" area. If there is inadequate or inconclusive data to make a definitive attainment designation, they are considered "unclassified." National nonattainment areas are further designated as marginal, moderate, serious, severe, or extreme as a function of deviation from standards. Each standard has a different definition, or 'form' of what constitutes attainment, based on specific air quality statistics. For example, the Federal 8-hour CO standard is not to be exceeded more than once per year; therefore, an area is in attainment of the CO standard if no more than one 8-hour ambient air monitoring values exceeds the threshold per year. In contrast, the federal annual $PM_{2.5}$ standard is met if the three-year average of the annual average $PM_{2.5}$ concentration is less than or equal to the standard. Table 5 lists the attainment status for the criteria pollutants in the Basin.

3.2 Climate Change Setting

Climate change is a change in the average weather of the earth that is measured by alterations in temperature, wind patterns, storms, and precipitation. These changes are assessed using historical records of temperature changes occurring in the past, such as during previous ice ages. The historical data is utilized to extrapolate a level of statistical significance specifically focusing on temperature records from the last 150 years.

The United Nations Intergovernmental Panel on Climate Change (IPCC) constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. The IPPC concluded that global average temperatures and sea levels are expected to rise under all analytical scenarios (Intergovernmental Panel on Climate Change 2007a). The report also concluded that"[w]arming of the climate system is unequivocal," and that "[m]ost of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations."

Many question the validity of the IPCC's report by claiming the inadequacy of the peer review process. Audits have concluded that 48 percent of the chapters in the Fourth

Assessment Report received a grade of "F" meaning that 59 percent or fewer of the sources were peer reviewed (NoConsensus.org 2010).

Consequences of Climate Change in California

In California, climate change may result in consequences such as the following (from California Climate Change Center 2006 and Moser et al. 2010).

- A rise in sea levels resulting in displacement of costal businesses and residencies. During the past century, sea levels along California's coast have risen about seven inches. If emissions continue unabated and temperatures rise into the higher anticipated warming range, sea level is expected to rise an additional 22 to 55 inches by the end of the century.
- A reduction in the quality and supply of water from the Sierra snowpack. If heat-trapping emissions continue unabated, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. This can lead to challenges in securing adequate water supplies. It can also lead to a potential reduction in hydropower.
- Increased risk of large wildfires. If rain increases as temperatures rise, wildfires in the grasslands and chaparral ecosystems of southern California are estimated to increase by approximately 30 percent toward the end of the 21st century because more winter rain will stimulate the growth of more plant "fuel" available to burn in the fall. In contrast, a hotter, drier climate could promote up to 90 percent more northern California fires by the end of the century by drying out and increasing the flammability of forest vegetation.
- Reductions in the quality and quantity of certain agricultural products. The crops and products likely to be adversely affected include wine grapes, fruit, nuts, and milk.
- Exacerbation of air quality problems. If temperatures rise to the medium warming range, there could be 75 to 85 percent more days with weather conducive to ozone formation in Los Angeles and the San Joaquin Valley, relative to today's conditions. This is more than twice the increase expected if rising temperatures remain in the lower warming range. This increase in air quality problems could result in an increase in asthma and other health-related problems.
- An increase temperature and extreme weather events. Climate change is expected to lead to increases in the frequency, intensity, and duration of extreme heat events and heat waves in California. More heat waves can exacerbate chronic disease or heat-related illness.
- A decrease in the health and productivity of California's forests. Climate change can cause an increase in wildfires, an enhanced insect population, and establishment of non-native species.

3.3 Greenhouse Gases

Gases that trap heat in the atmosphere are commonly referred to as "greenhouse gases" because they function like a greenhouse by letting light in while preventing heat from escaping. Naturally occurring GHGs include water vapor, carbon dioxide (CO_2) methane (CH_4) and nitrogen dioxide/oxides (N_2O and NO_x). The natural accumulation of GHGs in the atmosphere has a warming effect on the Earth's temperature. Without these natural GHGs, the Earth's temperature would be cooler.

In addition to the naturally occurring gases, man-made chemicals also act as GHGs and include the following common compounds: chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), ozone (O_3), and aerosols. It is believed that emissions from human activities, such as electricity production and vehicle use, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations.

Climate change is driven by forcings and feedbacks. Radiative forcing is the difference between the incoming energy and outgoing energy in the climate system. Positive forcing tends to warm the surface while negative forcing tends to cool it. Radiative forcing values are typically expressed in watts per square meter. A feedback is a climate process that can strengthen or weaken a forcing. For example, when ice or snow melts, it reveals darker land underneath which absorbs more radiation and causes more warming. The global warming potential is the potential of a gas or aerosol to trap heat in the atmosphere. The global warming potential of a gas is essentially a measurement of the radiative forcing of a greenhouse gas compared with the reference gas, carbon dioxide.

Individual greenhouse gas compounds have varying global warming potential and atmospheric lifetimes. Carbon dioxide (CO_2), the reference gas for global warming potential, has a global warming potential of one. The global warming potential of a greenhouse gas is a measure of how much a given mass of a greenhouse gas is estimated to contribute to global warming. To describe how much global warming a given type and amount of greenhouse gas may cause, the carbon dioxide equivalent (CO_2 e) is used. The calculation of the carbon dioxide equivalent is a consistent methodology for comparing greenhouse gas emissions since it normalizes various greenhouse gas emissions to a consistent reference gas, carbon dioxide. For example, methane's warming potential of 21 indicates that methane has 21 times greater warming affect than carbon dioxide on a molecule per molecule basis. A carbon dioxide equivalent is the mass emissions of an individual greenhouse gas multiplied by its global warming potential. Greenhouse gases defined by AB 32 include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. They are described in Table 6.

Emissions Inventories

Emissions in California were approximately 450 million tons of carbon dioxide equivalents (MMTCO2e) in 2009 (California Air Resources Board).

3.4 Greenhouse Gas Inventory

This analysis is restricted to greenhouse gases identified by AB 32 and the CEQA Guidelines (section 15364.5), which include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. The project would generate a variety of greenhouse gases during construction and operation, including several defined by AB 32 and the CEQA Guidelines such as carbon dioxide, methane, and nitrous oxide.

The project may also emit greenhouse gases that are not defined by AB 32 and the CEQA Guidelines. For example, the project may generate aerosols. During construction, the diesel fueled vehicles and equipment emit diesel particulate matter, which has black carbon, which is a component of aerosol. During operation, any diesel fueled trucks or vehicles could emit aerosols. Aerosols are short-lived particles, as they remain in the atmosphere for about one week. Studies have indicated that black carbon has a high global warming potential; however, the Intergovernmental Panel on Climate Change states that it has a low level of scientific certainty (Intergovernmental Panel on Climate Change 2007a).

Water vapor could be emitted from evaporated water used for landscaping, but this is not a significant impact, because water vapor concentrations in the upper atmosphere are primarily due to climate feedbacks rather than emissions from project-related activities. The project would emit nitrogen oxides and volatile organic compounds, which are ozone precursors. Ozone is a greenhouse gas; however, unlike the other greenhouse gases, ozone in the troposphere is relatively short-lived and can be reduced in the troposphere on a daily basis. Stratospheric ozone can be reduced through reactions with other pollutants.

Certain greenhouse gases defined by AB 32 would not be emitted by the project. Perfluorocarbons and sulfur hexafluoride are typically used in industrial applications, none of which would be used by the project. Therefore, it is not anticipated that the project would emit perfluorocarbons or sulfur hexafluoride.

An upstream emission source (also known as life cycle emissions) refers to emissions that were generated during the manufacture of products to be used for construction of the project. Upstream emission sources for the project include but are not limited emissions from the manufacture of cement, emissions from the manufacture of steel, and/or emissions from the transportation of building materials to the seller. The upstream emissions were not estimated because they are not within the control of the project and to do so would be speculative at this time. Additionally, the California Air Pollution Control

Officers Association White Paper on CEQA and Climate Change supports this conclusion by stating, "The full life-cycle of GHG [greenhouse gas] emissions from construction activities is not accounted for . . . and the information needed to characterize [life-cycle emissions] would be speculative at the CEQA analysis level" (California Air Pollution Control Officers Association 2008). Therefore, pursuant to CEQA Guidelines Sections 15144 and 15145, upstream / life cycle emissions are speculative and no further discussion is necessary.

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4.0 Modeling Parameters and Assumptions

4.1 Construction

Emissions were estimated using the California Emissions Estimator Model Version 2013.2.2 (CalEEMod), which was released October 2, 2013. The analysis reflects the construction of 212,880 square feet of warehouse space, 17,540 square feet of office space, and 324 parking spaces. Construction would start in 2015 and be complete sometime in 2016. The project is anticipated to be operational in 2016. Please see the CalEEMod output in Appendix A for details.

The construction equipment list is shown in Table 7.

Other parameters which are used to estimate construction emissions such as the worker and vendor trips and trip lengths utilize the CalEEMod defaults. The trips assumptions are also available in Appendix A.

Grading The quantity of fugitive dust estimated by CalEEMod is based on the number of equipment used during grading. Tractors, graders and dozers would impact 5 acres per 8-hour day if all were used simultaneously. Therefore, considering the equipment assumed during grading, there would be a worst-case 5 acres disturbed per day on the site. To avoid a significant impact during construction, the project is confined to a maximum disturbance area of 5 acres. It is assumed for purposes of this analysis that there would be no import or export of soil.

SCAQMD Rule 403 requires fugitive dust generating activities follow best available control measures to reduce emissions of fugitive dust. These measures are accounted for in CalEEMod as “mitigation” because the model categorizes the measures as “mitigation,” even though they are technically not mitigation.

4.2 Operations

Operational or long-term emissions occur over the life of the Project. Both mobile and area sources generate operational emissions. Area source emissions arise from consumer product usage, heaters that consume natural gas, gasoline-powered landscape equipment, gasoline service station, and architectural coatings (painting). Mobile source emissions from motor vehicles are the largest single long-term source of air pollutants from the operation of the Project and consist of emissions from vehicles visiting the project site. Small amounts of emissions would also occur from area sources such as the consumption of natural gas for heating, hearths, from landscaping emissions, and consumer product usage.

The operational emissions were estimated using the California Emissions Estimator Model Version 2013.2.2 (CalEEMod), which was released October 2, 2013.

4.2.1 Motor Vehicle Emissions

Estimates of motor vehicle emissions require information on four parameters: trip generation, mix of vehicles accessing the Project (i.e., car versus type of truck), length of each trip made by each type of vehicle, and emission factor (quantity of emission for each mile traveled or time spent idling by each vehicle). Each of these parameters is discussed below.

Non-Residential Trips

Due to the proposed project's location and proposed warehouse land use, the average commercial-work (C-W) based trip length was increased to 40 miles and adjusted to 20 percent of the trips, while the other trip lengths were based on the default values and ratios. Vehicle trip assumptions are shown in Table 8.

Vehicle trips associated with the project have been analyzed by inputting the project generated vehicular trips from the traffic assessment prepared internally by RK Engineering Group. The trip generation rates incorporated into CalEEMod are from ITE 9th Edition Manual and are outlined in Table 9. The vehicle mix in the CalEEMod model is based on default values and is shown in Table 10.

Emission Factors

The emission factors (from EMFAC2011) required to estimate the mobile source emissions are embedded in the CalEEMod emissions model.

4.2.2 Other Emissions

Natural Gas. Natural gas emissions refer to the emissions that occur when natural gas is combusted on the project site for heating water, space heating, stoves, or other uses. Criteria air pollutant and greenhouse gas emissions were estimated using CalEEMod defaults.

Indirect Electricity. Indirect electricity refers to the greenhouse gas emissions generated by offsite power plants to supply the electricity required for the project. The CalEEMod defaults for energy intensity were used.

Water Transport. There would be greenhouse gas emissions generated from the electricity required to supply and treat the water to be used on the project site. The CalEEMod defaults for water use were used.

Waste. There would be greenhouse gas emissions from the decomposing waste generated by the project. The CalEEMod default estimates the Project would generate 216.42 tons per year.

4.3 Localized Construction Analysis Modeling Parameters

The SCAQMD published its *Final Localized Significance Threshold Methodology* (June 2003, revised July 2008) and *Final – Methodology to Calculate Particulate Matter (PM) 10 and PM 2.5 Significance Thresholds* (October 2006), recommending that all air quality analyses include an assessment of both construction and operational impacts on the air quality of nearby sensitive receptors.

To avoid the need for every air quality analysis to perform air dispersion modeling, the SCAQMD performed air dispersion modeling for a range of construction sites less than or equal to 1, 2, and 5 acre in size and created look-up tables that correlate pollutant emissions rates with project size to screen out projects that are unlikely to generate enough emissions to result in a locally significant concentration of any criteria pollutant. These look-up tables can also be used as screening criteria for larger projects to determine whether or not dispersion modeling may be required.

Sensitive receptors include residences, schools, hospitals, and similar uses that are sensitive to adverse air quality. Nearby development in the project vicinity includes existing single-family residential units within 25 meters of the site.

These look-up tables were utilized to determine localized significance. The construction emissions were compared to the SCAQMD's threshold tables within Source Receptor Area (SRA) 23 for Metropolitan Riverside County 1 and with a disturbance area of 5 acres. The tables for a 5-acre footprint was used as Table 7 shows the maximum disturbance would occur during grading, and would be no more than 5 acres per day. The project will be confined to a 5 acre disturbance area footprint/per day (see mitigation measures MM AQ-1 and AQ-2). A review of the CalEEMod model outputs indicated that the highest emissions generated from onsite construction activities are associated with grading activities of the project site. Therefore, grading emissions during this construction activity were evaluated in the localized assessment.

4.4 Localized Operational Analysis Modeling Parameters

For operational emissions, the screening tables for a disturbance area of 5 acres and a distance of 25 meters were utilized to determine significance. The values within the tables were compared to the project's on-site operational emissions.

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5.0 Thresholds of Significance

5.1 Air Quality Thresholds of Significance

5.1.1 CEQA Guidelines for Air Quality

The CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in the environment." To determine if a project would have a significant impact on air quality, the type, level, and impact of emissions generated by the project must be evaluated.

The following air quality significance thresholds are contained in Appendix G of the CEQA Guidelines. A significant impact would occur if the project would:

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

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

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

d) Expose sensitive receptors to substantial pollutant concentrations; or

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

While the final determination of whether a project is significant is within the purview of the Lead Agency pursuant to Section 15064(b) of the CEQA Guidelines, SCAQMD recommends that its quantitative air pollution thresholds be used to determine the significance of project emissions. If the Lead Agency finds that the project has the potential to exceed these air pollution thresholds, the project should be considered to have significant air quality impacts. There are daily emission thresholds for construction and operation of a proposed project in the Basin.

5.1.2 Regional Significance Thresholds for Construction Emissions

The following CEQA significance thresholds for construction emissions are established for the Basin:

- 75 pounds per day (lbs/day) of ROC
- 100 lbs/day of NO_x
- 550 lbs/day of CO
- 150 lbs/day of PM_{10}

- 55 lbs/day of $PM_{2.5}$
- 150 lbs/day of SO_2

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

5.1.3 Localized Significance Thresholds for Operational Emissions

The daily operational emissions significance thresholds for the Basin are as follows:

- 55 pounds per day (lbs/day) of ROC
- 55 lbs/day of NO_x
- 550 lbs/day of CO
- 150 lbs/day of PM_{10}
- 55 lbs/day of $PM_{2.5}$
- 150 lbs/day of SO_2

Local Microscale Concentration Standards The significance of localized project impacts under CEQA depends on whether ambient CO levels in the vicinity of the project are above or below State and federal CO standards. If ambient levels are below the standards, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a State or federal standard, project emissions are considered significant if they increase 1-hour CO concentrations by 1.0 ppm or more or 8-hour CO concentrations by 0.45 ppm or more. The following are applicable local emission concentration standards for CO:

- California State 1-hour CO standard of 20.0 ppm
- California State 8-hour CO standard of 9.0 ppm

5.1.4 Thresholds for Localized Significance

LSTs represent the maximum emissions from a project site that is not expected to result in an exceedance of the national or state AAQS shown in Table 4. LSTs are based on the ambient concentrations of that pollutant within the project source receptor area (SRA) and the distance to the nearest sensitive receptor. For this project, the appropriate SRA for the LST is the Metropolitan Riverside County 1 area, SRA 23.

In the case of CO and NO_2, if ambient levels are below the standards, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a State or federal standard, then project emissions are considered significant if they increase ambient concentrations by a measurable amount. This would apply to PM_{10} and $PM_{2.5}$, both of which are non-attainment pollutants. For these two, the significance criteria are the pollutant concentration thresholds presented in SCAQMD Rules 403 and 1301. The Rule 403 threshold of 10.4 micrograms per cubic meter applies to construction emissions (and may apply to operational emissions at aggregate handling facilities).

Construction LSTs are assessed with the SCAQMD screening thresholds. Construction thresholds for a 5-acre site in the Metropolitan Riverside County 1 SRA (SRA 23) at 25 meters were utilized:

- 270 lbs/day of NO_X
- 1,577 lbs/day of CO
- 13 lbs/day of PM_{10}
- 8 lbs/day of $PM_{2.5}$

Operational LSTs are assessed with the SCAQMD screening thresholds. Operational thresholds for a 5-acre site in the Perris Valley SRA at 50 meters were utilized:

- 270 lbs/day of NO_X
- 1,577 lbs/day of CO
- 4 lbs/day of PM_{10}
- 2 lbs/day of $PM_{2.5}$

5.1.5 Thresholds for Toxic Air Contaminants

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

- If the Maximum Incremental Cancer Risk is 10 in one million or greater; or

- Toxic air containments from the proposed project would result in a Hazard Index Increase of 1 or greater.

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

5.2 Greenhouse Gas Thresholds of Significance

5.2.1 CEQA Guidelines for Greenhouse Gas

CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in the environment." To determine if a project would have a significant impact on greenhouse gases, the type, level, and impact of emissions generated by the project must be evaluated.

The following greenhouse gas significance thresholds are contained in Appendix G of the CEQA Guidelines, which were amendments adopted into the Guidelines on March 18, 2010, pursuant to SB 97. A significant impact would occur if the project would:

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

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

However, despite this, currently neither the CEQA statutes, OPR guidelines, nor the draft proposed changes to the CEQA Guidelines prescribe thresholds of significance or a particular methodology for performing an impact analysis; as with most environmental topics, significance criteria are left to the judgment and discretion of the Lead Agency. As previously discussed (Section 2.2.4 of this report), SCAQMD has drafted interim thresholds. The screening threshold of 3,000 MTCO2e per year for all land uses was used in this analysis.

In May of 2014, the Western Riverside Council of Governments (WRGOG) produced a Final Draft of their Subregional Climate Action Plan (CAP)[2]. WRCOG's subregional emissions reduction targets are 15% below 2010 levels by 2020, and 49% below 2010 levels by 2035. This plan focuses on feasible actions Western Riverside County communities can and should take between now and 2020, as well as innovative approaches currently beyond our current reach that will be needed to achieve the 2035 target.

The City of Riverside is a member of WRCOG and is participating in the Subregional CAP. Therefore, if the project's emissions exceeds the initial SCAQMD screening threshold of 3,000 MTCO2e per year, then the project's year 2010 business-as-usual (BAU) emissions need to be compared to the project's year 2020 emissions to ascertain whether the project meets the reduction target of 15% below year 2010 BAU emissions by 2020. If the project does not meet this reduction goal, then the project's GHG emissions would be considered to be cumulatively significant.

[2] *http://www.wrcog.cog.ca.us/uploads/media_items/wrcog-climate-action-plan-final-draft-april-2014.original.pdf*

6.0 Air Quality Impact Analysis

6.1 Construction Air Quality Emissions Impact

6.1.1 Regional Construction Emissions

CalEEMod was used to estimate onsite and offsite construction emissions. The without mitigation scenario assumes construction emissions with Rule 402 and 403 mitigation measures. Without mitigation, the Project scenario construction emissions would not exceed the SCAQMD daily emissions thresholds and therefore would be considered less than significant. The Project's construction emissions are shown on Table 11.

It should be noted that the analysis assumes that the construction activities are not expected to overlap, except during paving and painting. Therefore, the maximum emissions represent the largest of each activity alone, except for painting and paving, which are combined.

6.1.2 Localized Construction Emissions

Table 12 illustrates the construction related LSTs for the project area. **The emissions will be below the SCAQMD thresholds of significance for localized construction emissions.** Therefore, the Project will not result in significant localized construction emissions.

6.1.3 Fugitive Dust

Fugitive dust emissions are generally associated with land clearing and exposure of soils to the air and wind, and cut-and-fill grading operations. Dust generated during construction varies substantially on a project-by-project basis, depending on the level of activity, the specific operations, and weather conditions at the time of construction.

Construction emissions can vary greatly depending on the level of activity, the specific operations taking place, the equipment being operated, local soils, weather conditions, and other factors. The proposed Project will be required to comply with SCAQMD Rules 402 and 403 to control fugitive dust. Table 11 illustrates total construction emissions, i.e., fugitive-dust emissions and construction equipment exhausts that have incorporated a number of feasible control measures that can be reasonably implemented to significantly reduce PM_{10} emissions from construction. **Table 11 illustrates that all construction phases, the daily total construction emissions with standard control measures would be below the daily thresholds established by the SCAQMD.** Therefore, the Project will not result in significant Fugitive Dust emissions.

6.1.4 Odors

Heavy-duty equipment in the project area during construction will emit odors; however, the construction activity would cease to occur after individual construction is completed. Potential sources that may emit odors during operations of proposed project would include odors emissions from diesel truck emissions and trash storage areas. **Due to the distance of the nearest receptors from the proposed project site and through compliance to SCAQMD's Rule 402, no significant impact related to odors would occur during operation.**

6.1.5 Naturally Occurring Asbestos

The proposed project is located in Riverside County which is not among the counties that are found to have serpentine and ultramafic rock in their soils. **Therefore, the potential risk for naturally occurring asbestos (NOA) during project construction is small and less than significant.**

6.1.6 Construction-Related Toxic Air Contaminant Impact

The greatest potential for toxic air contaminant emissions would be related to diesel particulate emissions associated with heavy equipment operations during construction of the proposed project. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of "individual cancer risk". "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of toxic air contaminants over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. Given the relatively limited number of heavy- duty construction equipment and the short-term construction schedule, the proposed project would not result in a long-term (i.e., 70 years) substantial source of toxic air contaminant emissions and corresponding individual cancer risk. **Therefore, no significant short-term toxic air contaminant impacts would occur during construction of the proposed project.**

6.2 <u>Operational Air Quality Emissions Impact</u>

6.2.1 Regional Operational Emissions

Long-term air pollutant emission impacts are those associated with stationary sources and mobile sources involving any project-related changes. The stationary source emissions would come from additional natural gas consumption for on-site buildings and electricity for the lighting in the buildings and at the parking area. Based on trip generation factors, long-term operational emissions associated with the proposed Project, calculated with the CalEEMod model, are shown in Table 13. Area sources include architectural coatings, consumer products, and landscaping. Energy sources include natural gas consumption for heating.

Table 13 provides the project's operational emissions, without mitigation. Table 13 shows that without mitigation measures, the Project scenario does not exceed the corresponding SCAQMD daily emission thresholds. **The operational impacts are less than significant.**

6.2.2 Localized Operational Emissions

Table 14 shows the calculated emissions for the proposed operational activities compared with appropriate LSTs. The LST analysis only includes on-site sources; however, the CalEEMod software outputs do not separate on-site and off-site emissions for mobile sources. For a worst-case scenario assessment, the emissions shown in Table 14 include all on-site project-related stationary sources and 10% of the project-related new mobile sources. This percentage is an estimate of the amount of project-related new vehicle traffic that will occur on-site.

Table 14 indicates that the operational emission rates would not exceed the LST thresholds for the nearest sensitive receptors at 25 meters**. Therefore, the Project will not result in significant Localized Operational emissions.**

6.3 CO Hot Spot Emissions

The SCAQMD recommends that a local CO hot spot analysis be conducted if the intersection meets one of the following criteria: 1) the intersection is at level of service (LOS) D or worse and where the project increases the volume to capacity ratio by 2 percent, or 2) the project decrease at an intersection from C to D.

Mirco-scale air quality emissions have traditionally been analyzed in environmental documents where the air basin was a non-attainment area for CO. However, the SCAQMD has demonstrated in the CO attainment re-designation request to EPA that there are no "hot spots" anywhere in the air basin, even at intersections with much higher volumes, much worse congestion, and much higher background CO levels than anywhere in Riverside County. **If the worst-case intersections in the air basin have no "hot spot" potential, any local impacts will be below thresholds.**

6.4 Air Quality Mitigation Measures

Air Quality Reduction Measures

The Project is required to comply with regional rules that assist in reducing short-term air pollutant emissions. SCAQMD Rule 403 requires that fugitive dust be controlled with best-available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, SCAQMD Rule

403 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off site. Applicable suppression techniques are as follows:

- Apply nontoxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas in active for 10 days or more).
- Water active sites at least three times daily.
- Cover all trucks hauling dirt, san, soil, or other loose materials, or maintain at least 2 feet of freeboard in accordance with the requirements of California Vehicle Code (CVC) section 23114.
- Pave construction access roads at least 100 feet onto the site from the main road.
- Reduce traffic speeds on all unpaved roads to 15 mph or less.

Air Quality Impact Construction Mitigation Measures

The following mitigation measures are required to maintain the construction emissions below the SCAQMD daily emissions thresholds:

MM AQ-1 The project shall require that the site preparation and grading contractors limit the daily disturbed area to 5 acres or less.

MM AQ-2 The project shall require that during site preparation, and grading operations all contractors shall comply with all applicable measures listed in SCAQMD Rule 403 to control fugitive dust including the application of water to all exposed surfaces a minimum of three times per day.

MM AQ-3 The proposed project and its contractors shall ensure that, during construction, site preparation and grading phases do not overlap and that all other construction phases occur after these two construction phases so that construction emissions do not exceed those established by SCAQMD.

MM AQ-4 The proposed project and its contractors shall ensure that, during construction, contractors shall turn off all diesel-powered construction when vehicles are not in use and contractors shall prohibit idling of vehicles for longer than three minutes.

Air Quality Impact Operational Measures

No additional measures are required.

6.5 Air Quality Management Plan Consistency

An AQMP describes air pollution control strategies to be taken by a city, county, or region classified as a nonattainment area. The main purpose of an AQMP is to bring the area into compliance with federal and State air quality standards. CEQA requires that certain proposed projects be analyzed for consistency with the AQMP. For a project to be consistent with the AQMP adopted by the SCAQMD, the pollutants emitted from the project should not exceed the SCAQMD daily threshold or cause a significant impact on air quality, or the project must already have been included in the AQMP projection. However, if feasible mitigation measures are implemented and shown to reduce the impact level from significant to less than significant, a project may be deemed consistent with the AQMP. The AQMP uses the assumptions and forecast projections of local planning agencies to determine control strategies for regional compliance status. Since the AQMP is based on the local General Plan, projects that are deemed consistent with the General Plan are found to be consistent with the AQMP.

The City's General Plan designates the existing site as Business and Manufacturing Park Land Uses. The project is consistent with the City's designated land use. Therefore, the emissions associated with the proposed project are already accounted for in the AQMP, and do not exceed SCAQMD regional thresholds for construction or operation, and no significant inconsistency with the AQMP would occur. No further mitigation is required.

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7.0 Greenhouse Gas Impact Analysis

7.1 Construction Greenhouse Gas Emissions Impact

CalEEMod was used to estimate onsite and offsite emissions. For assumptions used in estimating these emissions, please refer to Section 4.1. Greenhouse gas emissions from Project construction equipment and worker vehicle emissions are shown in Table 15. The emissions are from all phases of construction. The total construction emissions amortized over a period of 30 years are estimated at 37.21 metric tons of CO_2e per year. CalEEMod output calculations are provided in Appendix A.

7.2 Operational Greenhouse Gas Emissions Impact

Operational or long-term emissions occur over the life of the project. For assumptions used in estimating the emissions and details regarding the emissions, please refer to Section 4.2. The unmitigated operational emissions for the opening year of the Project (2016) are 2,384.65 metric tons of CO_2e per year as shown in Table 16. These emissions are below the SCAQMD screening threshold for all land uses of 3,000 metric tons of CO_2e per year. In addition, the project's emissions do not exceed the SCAQMD's threshold for their own industrial projects of 10,000 metric tons of CO_2e per year. Therefore the impact is less than significant.

7.2.1 Operational Mitigation Measure Reductions

No additional mitigation measures are required.

7.3 Conflict with an Applicable Plan, Policy or Regulation for the Purpose of Reducing the Emissions of Greenhouse Gases

The proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

The project will also promote the goals of AB 32. The project site location is positioned within the County's and City's planned growth urban footprint. The project incorporates a number of features and mitigation measures in other impact areas that would minimize greenhouse gas emissions. Although the project would generate greenhouse gas emissions, these emissions would not have a significant impact on the environment.

The core mandate of AB 32 is that statewide GHG emissions in Year 2020 be equal to Year 1990 levels. AB 32 is anticipated to secure emission reductions through a variety of mechanisms, such as increasing energy efficiency and introducing more renewable energy sources. As noted earlier, CARB has already begun to adopt strategies to reduce GHG emissions under AB 32. Strategies included in the Climate Change Scoping Plan (CARB 2008b), such as SPM-2 (California Light-Duty Vehicle GHG Standards), SPM-3 (Energy

Efficiency), SPM-4 (Renewables Portfolio Standard), SPM-5 (Low Carbon Fuel Standard), SPM-7 (Vehicle Efficiency Measures), and SPM-10 (Heavy/Medium-Duty Vehicles), while applicable to land use projects, are generally not under the control of local agencies. Nonetheless, emission reductions from these strategies are anticipated to occur as CARB adopts and implements regulations under AB 32. Reductions are already expected to take place in 2012, if not earlier, due to the newly adopted vehicle emission standards and the Low Carbon Fuel Standard.

Other measures contained in the Climate Change Scoping Plan are under development and regulations have not yet been adopted at this time. Therefore, it is difficult to explicitly compare the proposed Project's consistency with the implementing programs and regulations to achieve the statewide GHG emission reduction goals established under AB 32 because many are still under development.

With the implementation of energy efficient programs and state and federal vehicle emission reduction programs, the proposed Project would be consistent with the goals of AB 32, WRCOG, and the City of Riverside.

8.0 Diesel Emissions Health Risk Assessment

The on-going operation of the proposed project would generate toxic air contaminant emissions from diesel truck emissions created by the on-going operations of the proposed project. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of individual cancer risk. "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of toxic air contaminants over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology.

A health risk assessment requires the completion and interaction of four general steps:

1. Quantify project-generated TAC emissions.
2. Identify nearby ground level receptor locations that may be affected by the emissions (including any sensitive receptor locations such as residences, schools, hospitals, etc).
3. Perform air dispersion modeling analyses to estimate ambient pollutant concentrations at each receptor location using project TAC emissions and representative meteorological data to define the transport and dispersion of those emissions in the atmosphere.
4. Characterize and compare the calculated health risks with the applicable health risk significance thresholds.

8.1 Emissions Inventory Development

Important issues that affect the dispersion modeling include the following: 1) Model Selection, 2) Source Treatment, 3) Meteorological Data, and 4) Receptor Grid. Each of these issues is addressed below.

8.1.1 Emission Source Estimates – DPM from Motor Vehicles

DPM emissions from the various sources were calculated using information derived from the project description, and mobile source emission factors from the CARB EMFAC2011 emissions factor model. Truck mix information was obtained from the traffic specific assessment.

Four pieces of information are required to generate the mobile source emissions from the proposed project:

- Number of vehicle trips for each component of the proposed project;
- Type of vehicles that access the proposed project (passenger car vs. heavy-duty truck and gasoline vs. diesel);
- The allocation of the vehicle trips to each building that comprises that proposed project; and
- Estimate of the vehicle emission factors for calculating exhausting and idling emissions.

Estimate of Vehicle Trips and Vehicle Types

The traffic generation study (RK Engineering Group, 2014) showed that the project is expected to generate approximately 962 vehicle trips per day.

For the Proposed Project, passenger vehicles comprise 80.3 percent of the vehicle fleet and trucks 19.7 percent. Of that 19.7 percent, 10.0 percent are heavy-heavy duty (4-axle) trucks, 4.5 percent are medium-heavy duty (3-axle), and 5.2 percent are light-heavy duty (2-axle) trucks. The vehicle fleet mix is defined as the mix of motor vehicle classes active during the operation of the project. Emission factors are assigned to the expected vehicle mix as a function of vehicle class, speed, and fuel use (gasoline and diesel-powered vehicles).

Estimate of Emission Factors

The DPM emission factors for the various vehicle types were derived from the CARB EMFAC2011 mobile source emission model. The 70-year average factors were derived for Riverside for year 2016, the buildout year the proposed project. Emissions factors were estimated to establish the emissions generated while the vehicles travel off- site, along travel links from the entrance to the loading docks, and while idling at the loading dock during loading or unloading materials. All vehicles were assumed to travel on- site at a speed of 10 miles per hour. Off-site, the speeds along the roads were anticipated to average 35 miles per hour. Delivery vehicles were assumed to idle for a maximum of 15 minutes per vehicle per day (5 minutes per location: at the facility entrance, at the loading bay, and at the facility exit, in keeping with the CARB Air Toxic Control Measure (ATCM), which regulates truck idling time (CARB 2005). Table 17 provides the emission factors used in this assessment. It should be noted that the DPM emissions on both the gram per mile and gram per idle hour bases decline beyond 2014 for all vehicle classes and in particular the heavy-heavy-duty truck class (the 4+ axle "big rig" trucks). This is due to the CARB emissions' requirements on heavy-duty trucks that call for either the replacement of older trucks with cleaner trucks or the installation of diesel particulate matter filters on the truck fleet.

Emission Source Characterization

Each of the emission source types described above also requires geometrical and emission release specifications for use in the air dispersion model. Table 18 provides a summary of the assumptions used to configure the various emission sources. The following definitions are used to characterize the emission source geometrical configurations referred to in Table 19.

Point source: A single, identifiable, local source of emissions; it is approximated in the AERMOD air dispersion model as a mathematical point in the modeling region with a location and emission characteristics such as height of release, temperature, etc., for example, a truck idle location.

Line source: A series of volume sources along a path, for example, vehicular traffic along a roadway.

Exhibit C provides the location of the project buildings, emission source locations, and the locations of the adjacent sensitive receptors (located to the north). Receptors 1 through 10 were modeled as residential (sensitive) uses.

8.2 Receptor Network

The assessment requires that a network of receptors be specified where the impacts can be computed at the various locations surrounding the project. Receptors were located at existing residences surrounding the proposed project (as detailed above). In addition, the identified sensitive receptors locations were supplemented by the specification of a modeling grid that extended around the proposed project to identify other potential locations of impact. The locations of the receptors are shown as orange triangles on Exhibit C.

8.3 Dispersion Modeling

The next step in the assessment process utilizes the emissions inventory along with a mathematical air dispersion model and representative meteorological data to calculate impacts at the various receptor locations. The dispersion model used in this assessment is described below.

8.3.1 Model Selection

The assessment of air quality and health risk impacts from pollutant emissions from this project applied the USEPA AERMOD Model, which is the air dispersion model accepted by the SCAQMD for performing air quality impact analyses. AERMOD predicts pollutant concentrations from point, area, volume, line, and flare sources with variable emissions in terrain from flat to complex with the inclusion of building downwash effects from buildings on pollutant dispersion. It captures the essential atmospheric physical processes and provides reasonable estimates over a wide range of meteorological conditions and modeling scenarios.

8.3.2 General Model Assumptions

The basic options used in the dispersion modeling are summarized in Table 19. As indicated in Table 19, the analysis takes into account the effects of building downwash on the dispersion of emissions from the various sources located on the project's property. Building downwash occurs when the aerodynamic turbulence, induced by nearby buildings, causes pollutants emitted from an elevated source to be mixed rapidly toward the ground (downwash), resulting in potentially higher ground- level concentrations than if the buildings were not present. The AERMOD dispersion model contains algorithms to account for building downwash effects. The required information includes the location of the emission source; the location of adjacent buildings; and the building geometry in terms of length, width, and height. For purposes of this analysis, the emission source and building locations were taken from the project site plan. The building geometries were derived from the project plan, assuming a building height of 35 feet for the buildings.

8.3.3 Meteorological Data

Meteorological data from the Air District's Metropolitan Riverside County 1 monitoring site was selected for this modeling application. Data for the years 2008 to 2012 from SCAQMD's Riverside County air monitoring station (as that station is the closest to the site) was used in the assessment. Exhibit D shows a wind rose for the project area (Perris).

8.4 Estimation of Health Risks

Health risks from diesel particulate matter twofold: First, diesel particulate matter is a carcinogen according to the State of California. Second, long-term chronic exposure to diesel particulate matter can cause health effects to the respiratory system.

Cancer Risk

According to the in *Health Risk Assessment for Proposed Land Use Projects*, prepared by CAPCOA, July 2009, the cancer risk should be calculated using the following formula:

[Dose-inh (mg/(Kg-day)] * [Oral Slope Factor (kg-day)/mg]*[1x106] = Potential Cancer Risk

Where:

Oral Slope Factor = 1.1
Dose-inh = (C¬air * DBR * A * EF * ED * 10-6) / AT

Where:

Cair	[Concentration in air ($\mu g/m^3$)] = (Calculated by AERMOD Model)
DBR	[Daily breathing rate (L/kg body weight – day)] = 302 for residential, 149 for off-site worker
A	[Inhalation absorption factor] = 1
EF	[Exposure frequency (days/year)] = 350 ED [Exposure duration (years)] = 70
10^6	[Micrograms to milligrams conversion]
AT	[Average time period over which exposure is averaged in days] = 25,550

According to the OEHHA formula the residential receptors equates to Cair * 318.91 = Potential Cancer Risk. The Year 2016 model run results are shown on Exhibit E and in Appendix B. Table 20 provides a summary of the calculated diesel emission concentrations at the nearest sensitive receptors. Table 20 shows that the point of maximum impact (PMI) of off-site DPM emissions would occur along Dan Kipper Drive, with concentrations of

0.00864 $\mu g/m^3$ The project diesel emissions at the PMI would result in a cancer risk increase of 0.5 per million people, however there are no sensitive receptors located in the proximity of the PMI. Sensitive Receptor 7, which is located north of Building 1, north of Dan Kipper Drive, would experience the highest level of project-related diesel emissions that would result in a cancer risk increase of 1.4 per million people. **All off-site diesel emissions concentrations were found to be below the 10.0 in a million cancer risk threshold that has been discussed above in Section 5.1.5. Therefore, no significant long-term health impacts would occur from the operation of diesel trucks on the project site**.

Non-Cancer Risks

The relationship for non-cancer health effects is given by the equation:

HIDPM = CDPM/RELDPM

Where:

HIDPM = Hazard Index; an expression of the potential for non-cancer health effects.

CDPM = Annual average diesel particulate matter concentration in $\mu g/m^3$.

RELDPM = Reference Exposure Level (REL) for diesel particulate matter; the diesel particulate matter concentration at which no adverse health effects are anticipated.

The RELDPM is 5 $\mu g/m^3$. The Office of Environmental Health Hazard Assessment as protective for the respiratory system has established this concentration. The resulting Hazard Index is

HIDPM = 0.00864/5 = 0.0017

The criterion for significance is a Hazard Index increase of 1.0 or greater. **Therefore, the on-going operations of the proposed project would result in a less than significant impact due to the non-cancer risk from diesel emissions created by the proposed project.**

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The following references were used in the preparing this analysis.

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Exhibits

Exhibit A
Location Map

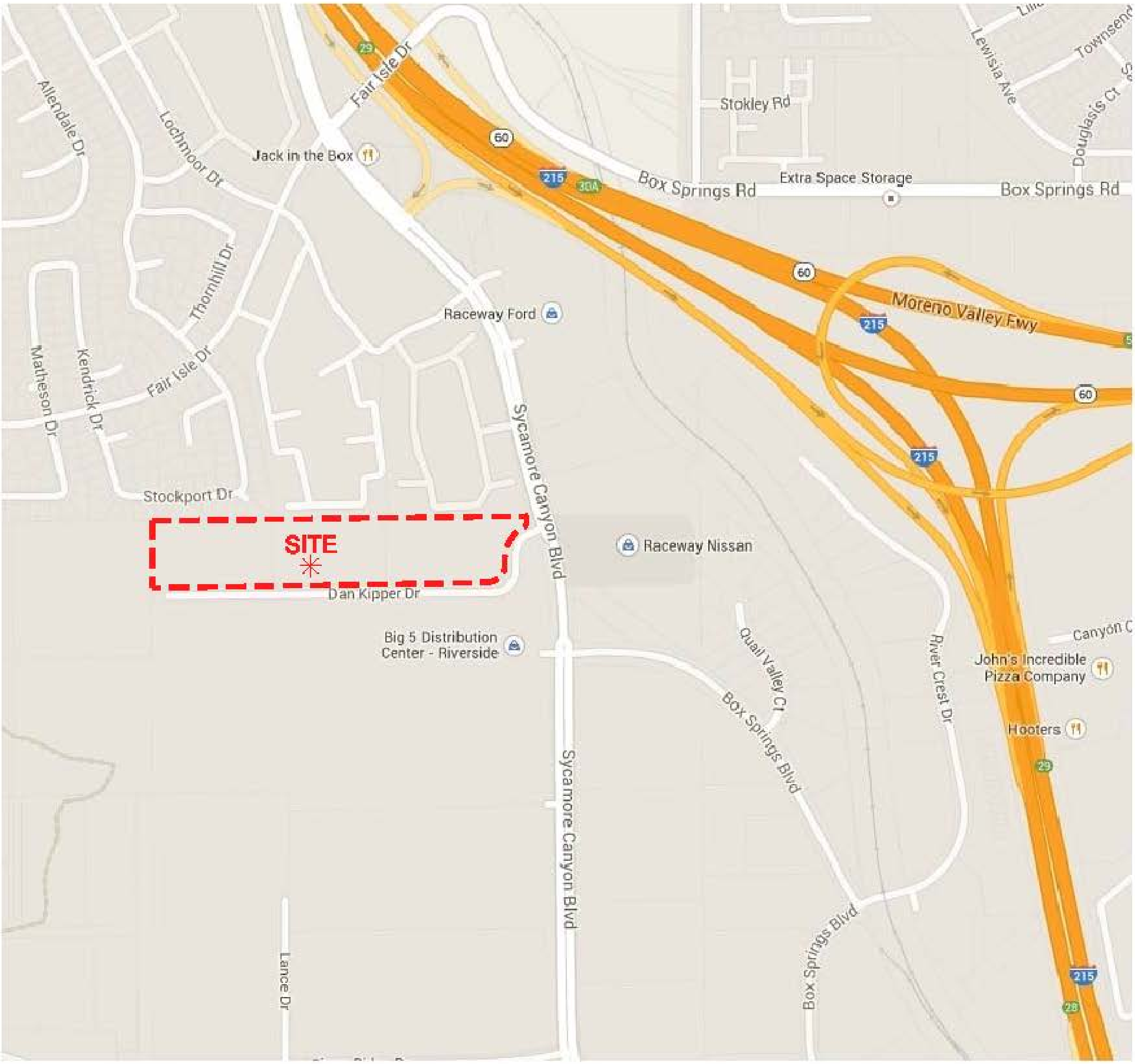

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Exhibit B
Site Plan

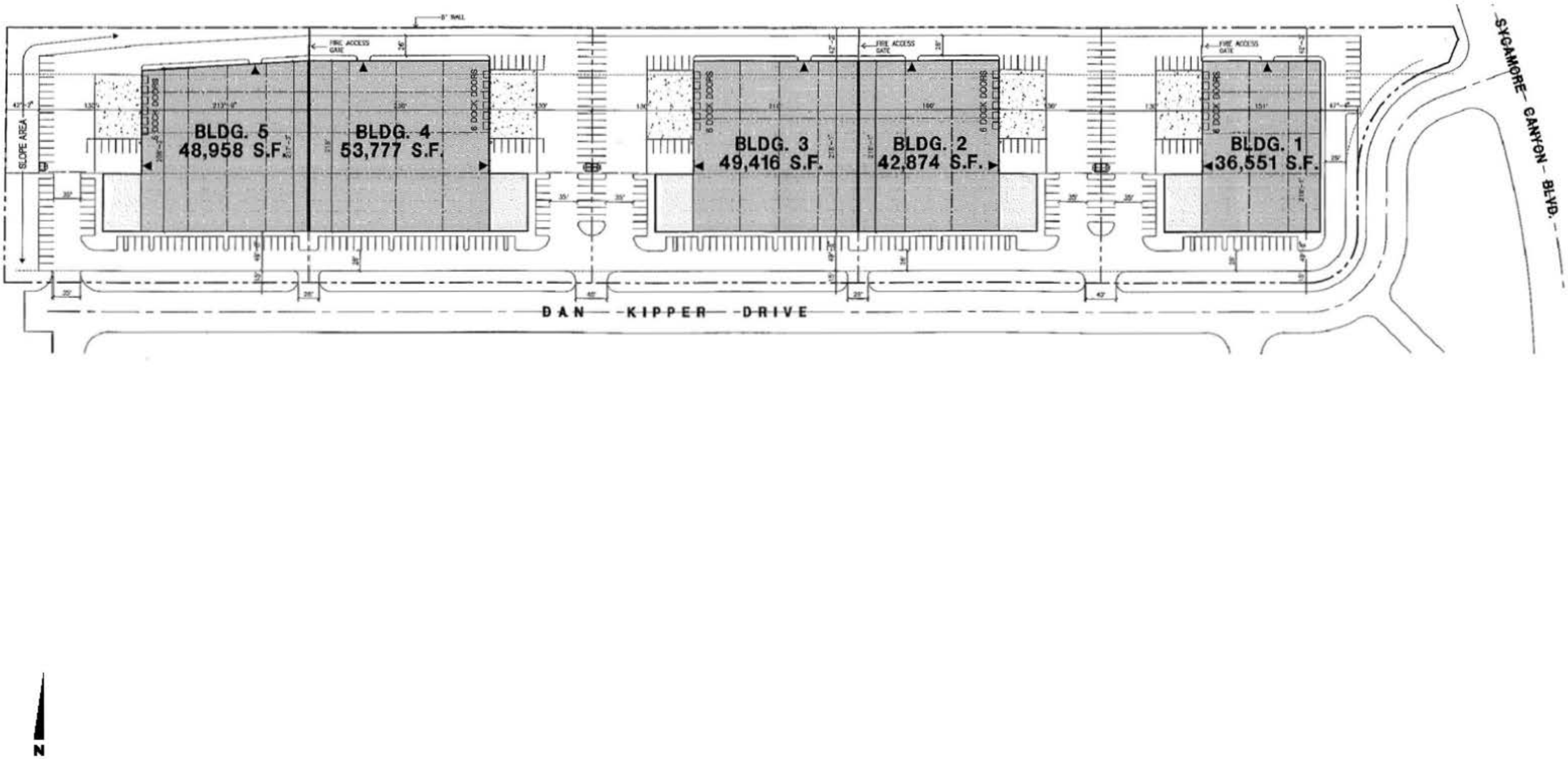

Exhibit C
Location of Operational Emissions Sources and Receptors

PROJECT TITLE: Dan Kipper Source and Receptor locations	COMMENTS: Blue lines = path of truck travel red dots = idling locations blue squares = buildings orange triangles = sensitive receptor locations
	SOURCES: 13
	RECEPTORS: 451
	DATE: 11/10/2014
	SCALE: 1:10,000 0 0.3 km
	PROJECT NO.:

AERMOD View - Lakes Environmental Software

C:\Lakes\AERMOD View\Dan Kipper\Dan Kipper.isc

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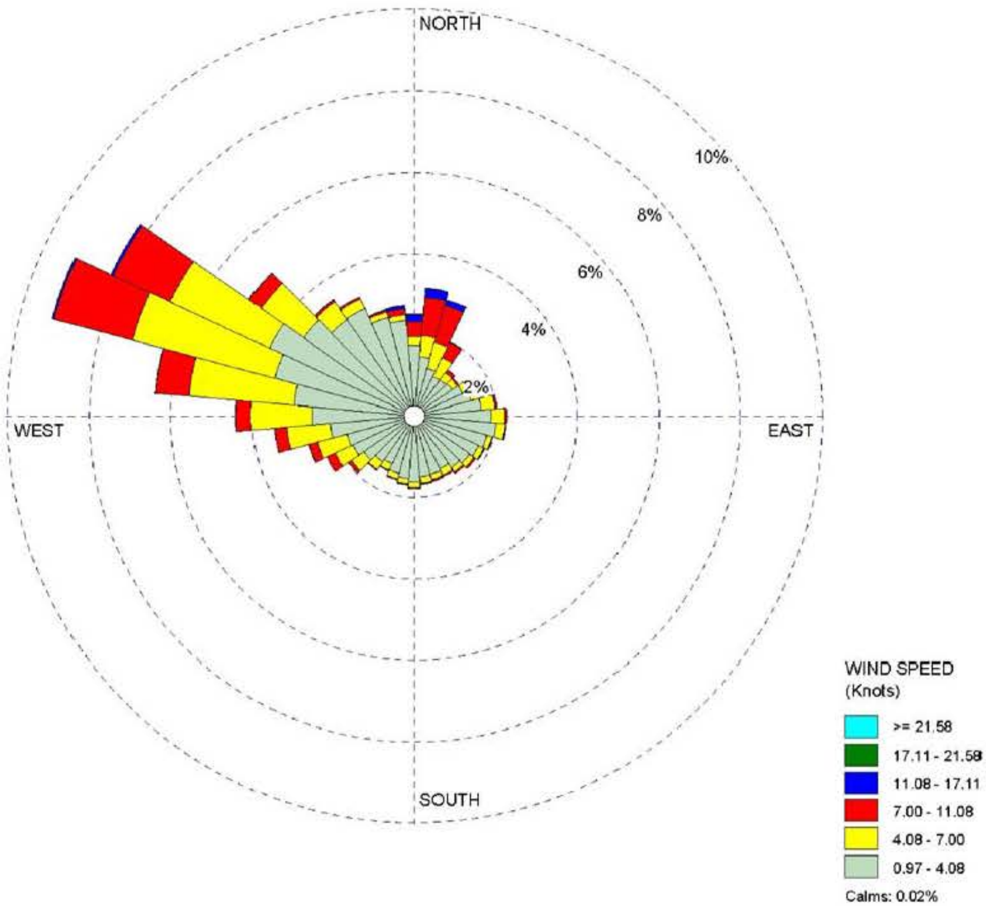
Wind Rose for the SCAQMD Riverside Monitoring Station

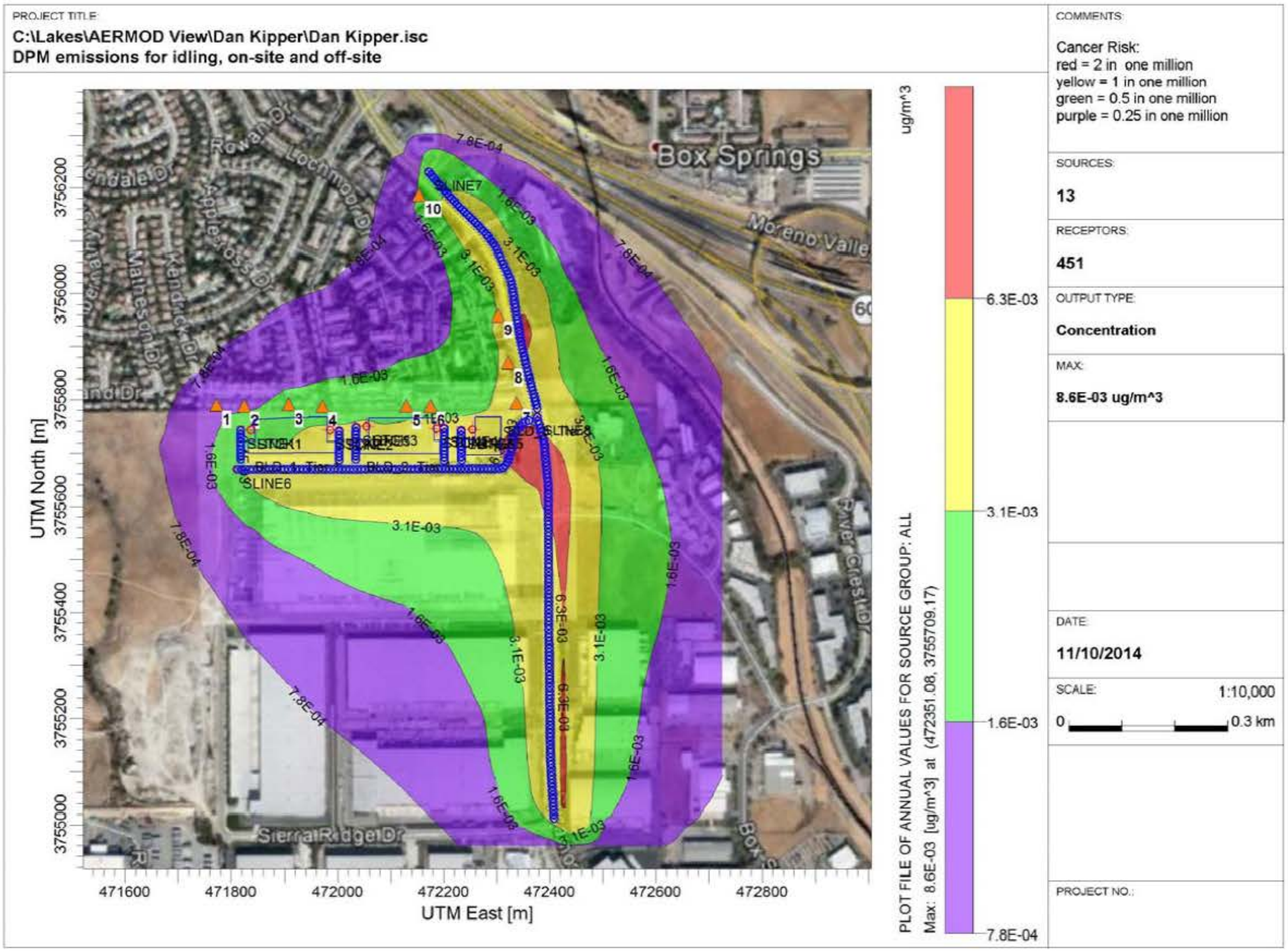
WIND ROSE PLOT:	DISPLAY:
Windrose Riverside	**Wind Speed** **Direction (blowing from)**



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
	Start Date: 1/1/2008 - 00:00 **End Date: 12/31/2012 - 23:00**	MODELER:	
	CALM WINDS: **0.02%**	TOTAL COUNT: **43514 hrs.**	
	AVG. WIND SPEED: **3.35 Knots**	DATE: **11/12/2014**	PROJECT NO.:

N

Exhibit E
DPM Emissions Contours and Associated Risk



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Tables

TABLE 1
Land Use Summary

Land Use	Unit Amount	Size Metric
Single Tenant Office	17.40	1,000 Square Feet
Warehouse	212.88	1,000 Square Feet
Parking Lot	324.0	Spaces

TABLE 2
Description of Air Pollutants

Air Pollutant	Averaging Time	California Standard	Federal Standard[1]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
Ozone	1 Hour	0.09 ppm	--	(a) Decrease of pulmonary function and localized lung edema in humans and animals; (b) risk to public health implied by alterations in pulmonary morphology and host defense in animals; (c) increased mortality risk; (d) altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (e) vegetation damage; (f) property damage.	Ozone is a photochemical pollutant as it is not emitted directly into the atmosphere, but is formed by a complex series of chemical reactions between volatile organic compounds (VOC), NOX, and sunlight. Ozone is a regional pollutant that is generated over a large area and is transported and spread by the wind.	Ozone is a secondary pollutant; thus, it is not emitted directly into the lower level of the atmosphere. The primary sources of ozone precursors (VOC and NOX) are mobile sources (on-road and off-road vehicle exhaust).
	8 Hour	0.070 ppm	0.075 ppm[4]			
Carbon Monoxide (CO)	1 Hour	20 ppm	35 ppm	(a) Aggravation of angina pectoris (chest pain) and there aspects of coronary heart disease; (b) decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) impairment of central nervous system functions; (d) possible increased risk to fetuses.	CO is a colorless, odorless, toxic gas. CO is somewhat soluble in water; therefore, rainfall and fog can suppress CO conditions. CO enters the body through the lungs, dissolves in the blood, replaces oxygen as an attachment to hemoglobin, and reduces available oxygen in the blood.	CO is produced by incomplete combustion of carbon-containing fuels (e.g., gasoline, diesel fuel, and biomass). Sources include motor vehicle exhaust, industrial processes (metals processing and chemical manufacturing), residential wood burning, and natural sources.
	8 Hour	9 ppm	9 ppm			
Nitrogen Dioxide (NO_2)[2]	1 Hour	0.18 ppm	0.100 ppm	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; (c) contribution to atmospheric discoloration.	During combustion of fossil fuels, oxygen reacts with nitrogen to produce nitrogen oxides - NOX (NO, NO_2, NO_3, N_2O, N_2O_3, N_2O_4,and N_2O_5). NOX is a precursor to ozone, PM_{10}, and $PM_{2.5}$ formation. NOX can react with compounds to form nitric acid and related particles.	NOX is produced in motor vehicle internal combustion engines and fossil fuel-fired electric utility and industrial boilers. NO_2 concentrations near major roads can be 30 to 100 percent higher than those at monitoring stations.
	Annual	0.030 ppm	0.053 ppm			
Sulfur Dioxide (SO_2)	1 Hour	0.25 ppm	0.075 ppm	Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma. Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient sulfur dioxide levels. It is not clear whether the two pollutant alone is the predominant factor.	Sulfur dioxide is a colorless, pungent gas. At levels greater than 0.5 ppm, the gas has a strong odor, similar to rotten eggs. Sulfur oxides (SOX) include sulfur dioxide and sulfur trioxide. Sulfuric acid is formed from sulfur dioxide, which can lead to acid deposition and can harm natural resources and materials. Although sulfur dioxide concentrations have been reduced to levels well below state and federal standards, further reductions are desirable because sulfur dioxide is a precursor to sulfate and PM_{10}.	Human caused sources include fossil-fuel combustion, mineral ore processing, and chemical manufacturing. Volcanic emissions are a natural source of sulfur dioxide. The gas can also be produced in the air by dimethylsulfide and hydrogen sulfide. Sulfur dioxide is removed from the air by dissolution in water, chemical reactions, and transfer to soils and ice caps. The sulfur dioxide levels in the State are well below the maximum standards.
	3 Hour	--	0.5 ppm			
	24 Hour	0.04 ppm	--			
Particulate Matter (PM_{10})	24 Hour	50 $\mu g/m^3$	150 $\mu g/m^3$	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) declines in pulmonary function growth in children; (c) increased risk of premature death from heart or lung diseases in the elderly. Daily fluctuations in PM2.5 levels have been related to hospital admissions for acute respiratory conditions, school absences, and increased medication use in children and adults with asthma.	Suspended particulate matter is a mixture of small particles that consist of dry solid fragments, droplets of water, or solid cores with liquid coatings. The particles vary in shape, size, and composition. PM_{10} refers to particulate matter that is between 2.5 and 10 microns in diameter, (1 micron is one-millionth of a meter). $PM_{2.5}$ refers to particulate matter that is 2.5 microns or less in diameter.	Stationary sources include fuel combustion for electrical utilities, residential space heating, and industrial processes; construction and demolition; metals, minerals, and petrochemicals; wood products processing; mills and elevators used in agriculture; erosion from tilled lands; waste disposal, and recycling. Mobile or transportation-related sources are from vehicle exhaust and road dust.
	Mean	20 $\mu g/m^3$	--			
Particulate Matter (PM2.5)	24 Hour	--	35 $\mu g/m^3$			
	Annual	12 $\mu g/m^3$	15 $\mu g/m^3$			
Visibility reducing particles	8 Hour	Extinction coefficient of 0.23 per kilometer; visibility of ten miles or more (0.07 - 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent.				
Sulfates	24 Hour	25 $\mu g/m^3$	--	(a) Decrease in ventilatory function; (b) aggravation of asthmatic symptoms; (c) aggravation of cardiopulmonary disease; (d) vegetation damage; (e) degradation of visibility; (f) property damage.	The sulfate ion is a polyatomic anion with the empirical formula SO4 2−. Sulfates occur in combination with metal and/or hydrogen ions. Many sulfates are soluble in water.	Sulfates are particulates formed through the photochemical oxidation of sulfur dioxide. In California, the main source of sulfur compounds is combustion of gasoline and diesel fuel.
Lead[3]	30-day	1.5 $\mu g/m^3$	--	Lead accumulates in bones, soft tissue, and blood and can affect the kidneys, liver, and nervous system. It can cause impairment of blood formation and nerve conduction, behavior disorders, mental retardation, neurological impairment, learning deficiencies, and low IQs.	Lead is a solid heavy metal that can exist in air pollution as an aerosol particle component. Leaded gasoline was used in motor vehicles until around 1970. Lead concentrations have not exceeded state or federal standards at any monitoring station since 1982.	Lead ore crushing, lead-ore smelting, and battery manufacturing are currently the largest sources of lead in the atmosphere in the United States. Other sources include dust from soils contaminated with lead-based paint, solid waste disposal, and crustal physical weathering.
	Quarter	--	1.5 $\mu g/m^3$			
	Rolling 3-month average	--	0.15 $\mu g/m^3$			
Vinyl chloride[3]	24 Hour	0.01 ppm	--	Short-term exposure to high levels of vinyl chloride in the air causes central nervous system effects, such as dizziness, drowsiness, and headaches. pidemiological studies of occupationally exposed workers have linked vinyl chloride exposure to development of a rare cancer, liver angiosarcoma, and have suggested a relationship between exposure and lung and brain cancers.	Vinyl chloride, or chloroethene, is a chlorinated hydrocarbon and a colorless gas with a mild, sweet odor. In 1990, ARB identified vinyl chloride as a toxic air contaminant and estimated a cancer unit risk factor.	Most vinyl chloride is used to make polyvinyl chloride plastic and vinyl products, including pipes, wire and cable coatings, and packaging materials. It can be formed when plastics containing these substances are left to decompose in solid waste landfills, sewage plants, and hazardous waste sites.
Hydrogen sulfide	24 Hour	0.03 ppm	--	High levels of hydrogen sulfide can cause immediate respiratory arrest. It can irritate the eyes and respiratory tract and cause headache, nausea, vomiting, and cough. Long exposure can cause pulmonary edema.	Hydrogen sulfide (H2S) is a flammable, colorless, poisonous gas that smells like rotten eggs.	Manure, storage tanks, ponds, anaerobic lagoons, and land application sites are the primary sources of hydrogen sulfide. Anthropogenic sources include the combustion of sulfur containing fuels (oil and coal).
Volatile organic compounds (VOC)		There are no State or federal standards for VOCs because they are not classified as criteria pollutants.		Although health-based standards have not been established for VOCs, health effects can occur from exposures to high concentrations because of interference with oxygen uptake. In general, concentrations of VOCs are suspected to cause eye, nose, and throat irritation; headaches; loss of coordination; nausea; and damage to the liver, the kidneys, and the central nervous system. Many VOCs have been classified as toxic air contaminants.	Reactive organic gases (ROGs), or VOCs, are defined as any compound of carbon—excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate—that participates in atmospheric photochemical reactions. Although there are slight differences in the definition of ROGs and VOCs, the two terms are often used interchangeably.	Indoor sources of VOCs include paints, solvents, aerosol sprays, cleansers, tobacco smoke, etc. Outdoor sources of VOCs are from combustion and fuel evaporation. A reduction in VOC emissions reduces certain chemical reactions that contribute to the formulation of ozone. VOCs are transformed into organic aerosols in the atmosphere, which contribute to higher PM10 and lower visibility.
Benzene		There are no ambient air quality standards for benzene.		Short-term (acute) exposure of high doses from inhalation of benzene may cause dizziness, drowsiness, headaches, eye irritation, skin irritation, and respiratory tract irritation, and at higher levels, loss of consciousness can occur. Long-term (chronic) occupational exposure of high doses has caused blood disorders, leukemia, and lymphatic cancer.	Benzene is a VOC. It is a clear or colorless light-yellow, volatile, highly flammable liquid with a gasoline-like odor. The EPA has classified benzene as a "Group A" carcinogen.	Benzene is emitted into the air from fuel evaporation, motor vehicle exhaust, tobacco smoke, and from burning oil and coal. Benzene is used as a solvent for paints, inks, oils, waxes, plastic, and rubber. It is used in the extraction of oils from seeds and nuts and in the manufacture of detergents, explosives, and pharmaceuticals.
Diesel particulate matter (DPM)		There are no ambient air quality standards for DPM.		Some short-term (acute) effects of DPM exposure include eye, nose, throat, and lung irritation, coughs, headaches, light-headedness, and nausea. Studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems. Human studies on the carcinogenicity of DPM demonstrate an increased risk of lung cancer, although the increased risk cannot be clearly attributed to diesel exhaust exposure.	DPM is a source of PM2.5—diesel particles are typically 2.5 microns and smaller. Diesel exhaust is a complex mixture of thousands of particles and gases that is produced when an engine burns diesel fuel. Organic compounds account for 80 percent of the total particulate matter mass, which consists of compounds such as hydrocarbons and their derivatives, and polycyclic aromatic hydrocarbons and their derivatives. Fifteen polycyclic aromatic hydrocarbons are confirmed carcinogens, a number of which are found in diesel exhaust.	Diesel exhaust is a major source of ambient particulate matter pollution in urban environments. Typically, the main source of DPM is from combustion of diesel fuel in diesel-powered engines. Such engines are in on-road vehicles such as diesel trucks, off-road construction vehicles, diesel electrical generators, and various pieces of stationary construction equipment.

Notes:
ppm = parts per million (concentration) µg/m3 = micrograms per cubic meter Annual = Annual Arithmetic Mean 30-day = 30-day average Quarter = Calendar quarter
[1.] Federal standard refers to the primary national ambient air quality standard, or the levels of air quality necessary, with an adequate margin of safety to protect the public health. All standards listed are primary standards except for 3 Hour SO2, which is a secondary standard. A secondary standard is the level of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
[2.] Effective April 12, 2010; the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 100 ppb, or 188µg/m3
[3.] The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
[4.] To attain this standard, the 3-year average of the 99th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 75 ppb.
Source of effects: South Coast Air Quality Management District 2007b; California Environmental Protection Agency 2002; California Air Resources Board 2009; U.S. Environmental Protection Agency 2010; U.S. Environmental Protection Agency 2000; National Toxicology Program 2005a.
Source of standards: California Air Resources Board 2010a.
Source of properties and sources: U.S. Environmental Protection Agency 1999; U.S. Environmental Protection Agency 2003; U.S. Environmental Protection Agency 2011b; U.S. Environmental Protection Agency 2009a; National Toxicology Program 2005b.

TABLE 3
Meteorological Summary[1]

Month	Temperature (˚F)		Average Precipitation (inches)
	Average High	Average Low	
January	66.8	39.1	2.01
February	68.3	41.1	2.20
March	71.3	43.2	1.84
April	75.6	46.7	0.77
May	80.0	51.1	0.23
June	87.0	54.8	0.05
July	94.2	59.5	0.04
August	94.4	59.6	0.13
September	90.9	56.2	0.19
October	82.9	50.0	0.44
November	74.5	42.8	0.84
December	67.8	39.2	1.46
Annual Average	**79.5**	**48.6**	**10.20**

[1] Averages derived from measurements recorded between 1893 and 2013.
Source: Western Regional Climate Center 2014.

TABLE 4
Air Quality Monitoring Summary

Air Pollutant Location	Averaging Time	Item	2011	2012	2013
Carbon Monoxide from Metropolitan Riverside County 1 Station	1 Hour	Max 1-Hour (ppm)	0.0	0.0	0.0
		Days > State Standard (20 ppm)	0	0	0
		Days >National Standard (35 ppm)	0	0	0
	8 Hour	Max 8 Hour (ppm)	1.4	1.6	2
		Days > State Standard (9 ppm)	0	0.0	0
		Days >National Standard (9 ppm)	0	0	0
Ozone from Metropolitan Riverside County 1 Station	1 Hour	Max 1-Hour (ppm)	0.128	0.126	0.123
		Days > State Standard (0.09 ppm)	52	27	13
	8 Hour	Max 8 Hour (ppm)	0.115	0.102	0.103
		Days > State Standard (0.07 ppm)	92	70	38
		Days >National Standard (0.075 ppm)	67	47	26
Coarse Particles (PM10) from Metropolitan Riverside County 1 Station	24 Hour	Max 24-Hour ($\mu g/m^3$)	60.0	67.0	135.0
		Days > State Standard (50 $\mu g/m^3$)	2	19	10
		Days >National Standard (150 $\mu g/m^3$)	0	0	0
	Annual	Annual Average ($\mu g/m^3$)	27.6	34.5	33.8
		Exceeded >State Standard (20 $\mu g/m^3$)	YES	YES	YES
Fine Particulates (PM2.5) from Metropolitan Riverside County 1 Station	24 Hour	Max 24-Hour ($\mu g/m^3$)	60.8	38.1	60.3
		Days >National Standard (35 $\mu g/m^3$)	4	7	0
	Annual	Annual Average ($\mu g/m^3$)	13.6	13.5	12.5
		Exceeded >State Standard (12 $\mu g/m^3$)	YES	YES	YES
		Exceeded >National Standard (15 $\mu g/m^3$)	NO	NO	NO
Nitrogen Dioxide from Metropolitan Riverside County 1 Station	1 Hour	Max 1-Hour (ppm)	0.0633	0.0617	0.0596
		Days > State Standard (0.18 ppm)	0	0.0	0
	Annual	Annual Average (ppm)	0.0166	0.0155	0.0173
		Exceeded >State Standard (0.030 ppm)	NO	NO	NO
		Exceeded >National Standard (0.053 ppm)	NO	NO	NO
Sulfur Dioxide from Metropolitan Riverside County 1 Station	1 Hour	Max 1 Hour (ppm)	0.0513	0.0043	0.0081
		Days > State Standard (0.04 ppm)	0	0	0
		Days >National Standard (0.14 ppm)	0	0	0
	Annual	Annual Average (ppm)	- -	- -	- -
		Exceeded >National Standard (0.030 ppm)	- -	- -	NO

Source: EPA and ARB websites www.epa.gov/air/data.index.html and www.arb.ca.gov/adam/welcome.html

$\mu g/m^3$ = micrograms per cubic meter

ARB = California Air Resource Board

EPA= Environmental Protection Agency

ppm = part per million

TABLE 5
South Coast Air Basin Attainment Status

Pollutant	State Status	National Status
Ozone	Nonattainment	Nonattainment
Carbon monoxide	Attainment	Attainment
Nitrogen dioxide (annual)	Nonattainment	Attainment
Nitrogen dioxide (1-hour)	Attainment	Unclassified[1]
Sulfur dioxide	Attainment	Attainment
PM_{10}	Nonattainment	Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment

[1] EPA set a new one-hour standard for nitrogen dioxide at a level of 100 parts per billion on January 25, 2010, which became effective April 12, 2010. The EPA expects to identify or designate areas not meeting the new standard, based on the existing community-wide monitoring network, by January 2012.

Source: State status from California Air Resources Board 2010b; national status from U.S. Environmental Protection Agency 2011a.

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JN:1421-2014-10

TABLE 6
Description of Greenhouse Gases

Greenhouse Gas	Description and Physical Properties	Sources
Nitrous oxide	Nitrous oxide (N_20),also known as laughing gas is a colorless gas. It has a lifetime of 114 years. Its global warming potential is 310.	Microbial processes in soil and water, fuel combustion, and industrial processes. In addition to agricultural sources, some industrial processes (nylon production, nitric acid production) also emit N_20.
Methane	Methane (CH_4) is a flammable gas and is the main component of natural gas. It has a lifetime of 12 years. Its global warming potential is 21.	A natural source of CH_4 is from the decay of organic matter. Methane is extracted from geological deposits (natural gas fields). Other sources are from the decay of organic material in landfills, fermentation of manure, and cattle farming.
Carbon dioxide	Carbon dioxide (CO_2) is an odorless, colorless, natural greenhouse gas. Carbon dioxide's global warming potential is 1. The concentration in 2005 was 379 parts per million (ppm), which is an increase of about 1.4 ppm per year since 1960.	Natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources are from burning coal, oil, natural gas, and wood.
Chlorofluorocarbons	CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). They are gases formed synthetically by replacing all hydrogen atoms in methane or methane with chlorine and/or fluorine atoms. Global warming potentials range from 3,800 to 8,100.	Chlorofluorocarbons were synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. They destroy stratospheric ozone, therefore their production was stopped as required by the Montreal Protocol.
Hydrofluorocarbons	Hydrofluorocarbons (HFCs) are a group of greenhouse gases containing carbon, chlorine, and at least one hydrogen atom. Global warming potentials range from 140 to 11,700.	Hydrofluorocarbons are synthetic manmade chemicals used as a substitute for chlorofluorocarbons in applications such as automobile air conditioners and refrigerants.
Perfluorocarbons	Perfluorocarbons (PFCs) have stable molecular structures and only break down by ultraviolet rays about 60 kilometers above the Earth's surface. They have a lifetime 10,000 to 50,000 years. They have a global warming potential range of 6,200 to 9,500.	Two main sources of perfluorocarbons are primary aluminum production and semiconductor manufacturing.
Sulfur hexafluoride	Sulfur hexafluoride (SF_6) is an inorganic, odorless, colorless, and nontoxic, nonflammable gas. It has a lifetime of 3,200 years. It has a high global warming potential, 23,900.	This gas is manmade and used for insulation in electric power transmission equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

Sources: Intergovernmental Panel on Climate Change 2007a and Intergovernmental Panel on Climate Change 2007b

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JN:1421-2014-10

TABLE 7
Construction Equipment Assumptions[1]

Phase	Equipment	Number	Hours per day	Horsepower	Load Factor	Daily Disturbance Footprint (Arces)[2]
Site Preparation	Rubber Tired Dozers	3	8	255	0.4	3.5
	Tractors/Loaders/Backhoes	4	8	97	0.37	
Grading of main site	Excavators	2	8	162	0.38	5
	Graders	1	8	174	0.41	
	Rubber Tired Dozers	1	8	255	0.4	
	Scrapers	2	8	361	0.48	
	Tractors/Loaders/Backhoes	2	8	97	0.37	
Building construction	Cranes	1	7	226	0.29	- -
	Forklifts	3	8	89	0.2	
	Generator Sets	1	8	84	0.74	
	Tractors/Loaders/Backhoes	3	7	97	0.37	
	Welders	1	8	46	0.45	
Paving of parking lots and roads, road striping	Pavers	2	8	125	0.42	- -
	Paving Equipment	2	8	130	0.36	
	Rollers	2	8	80	0.38	
Architectural Coating	Air Compressors	1	6	78	0.48	- -

[1] Source: CalEEMod defaults
[2] Source: Calculation details for CalEEMod Appendix B

TABLE 8

Operational Vehicle Trip Assumptions[1]

Land Use	Trip Length (miles) Non-Residential			Percent of Trips (%) Non-Residential		
	C-C	C-W	C-NW	C-C	C-W	C-NW
Single Tenant Office	8.4	16.6	6.9	48.0	33.0	19.0
Warehouse	8.4	40.0	6.9	0.0	20.0	80.0
Parking Lot	0.0	0.0	0.0	0.0	0.0	0.0

[1] C-W increased to 40 miles per SCAQMD recommendations. Trip mix changed to 20% C-W and 80% C-NW.

TABLE 9
Trip Generation Rates[1]

Land Use	Quantity	Units[2]	Trip Generation Rate (trips/unit/day)		
			Weekday	Saturday	Sunday
Single Tenant Office	17.40	TSF	11.65	2.37	0.98
Warehouse	212.88	TSF	3.56	3.56	3.56
Parking Lot	324.0	Spaces	0.00	0.00	0.00

[1] Trip Generation per traffic assessment.

[2] TSF = thousand square feet

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JN:1421-2014-10

TABLE 10
Vehicle Mix for Trips[1]

Vehicle Class	Vehicle Mix (%)
Light Duty Automobile (LDA)	46.24%
Light Duty Truck (LDTI)	6.99%
Light Duty Truck (LDT2)	17.66%
Medium Duty Truck (MDV)	17.08%
Light Heavy Truck (LHD1)	4.51%
Light Heavy Truck (LHD2)	0.74%
Medium Heavy Truck (MHD)	1.27%
Heavy Heavy Truck (HHD)	4.25%
Other Bus (OBUS)	0.19%
Urban Bus (UBUS)	0.25%
Motorcycle (MCY)	0.44%
School Bus (SBUS)	0.06%
Motor Home (MH)	0.32%
Total	**100.0%**

[1] CalEEMod Defaults

TABLE 11
Regional Significance - Construction Emissions[1]

Unmitigated (lbs/day)						
Activity	**VOC**	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Site Preparation	5.34	56.98	43.76	0.04	21.36	12.83
Grading	6.86	79.15	52.10	0.06	10.51	6.92
Building Construction	5.48	40.10	42.42	0.08	5.54	3.04
Architectural Coating	56.6	2.58	4.55	0.00	0.72	0.34
Paving	3.16	22.45	15.67	0.02	1.43	1.21
Maximum[1]	59.74	79.15	52.10	0.08	21.36	12.83
SCAQMD Threshold	75	100	550	150	150	55
Exceeds Threshold (?)	**No**	**No**	**No**	**No**	**No**	**No**

[1] Construction activities are not expected to overlap except during paving and painting; therefore, the maximum emissions represent the largest of each activity alone except for painting and paving which are combined.

TABLE 12
Construction Localized Significance

LST Pollutants[1]	CO (lbs/day)	NOx (lbs/day)	PM_{10} (lbs/day)	$PM_{2.5}$ (lbs/day)
On-site Emissions	50.84	79.05	6.32	4.81
SCAQMD Construction Threshold[2]	1,577	270	13	8
Exceeds Threshold (?)	**No**	**No**	**No**	**No**

[1] Reference LST thresholds are from 2006-2008 SCAQMD Mass rate Localized Significant Thresholds for construction and operation Tables C-1 through C-6 for a disturbance area of 5 acres and at a receptor distance of 25 meters.

[2] Reference: Source Receptor Area 23 Thresholds for 5 acres at 25 meters.

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JN:1421-2014-10

TABLE 13
Regional Significance - Operational Emissions[1]

Unmitigated (lbs/day)						
Activity	**VOC**	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Area Sources	8.32	0.01	0.06	0.00	0.00	0.00
Energy Sources	0.02	0.14	0.12	0.01	0.01	0.01
Mobile Sources	4.03	14.40	50.39	0.13	8.98	2.53
Total: Area Sources + Energy + Mobile	12.37	14.55	50.57	0.14	8.99	2.55
SCAQMD Threshold	55	55	550	150	150	55
Exceeds Threshold (?)	**No**	**No**	**No**	**No**	**No**	**No**

1. Emissions levels do not exceed the significance thresholds, therefore any additional air quality reduction measures will further reduce emissions. Section 5.0 of the report indicates additional emission reduction measures.

TABLE 14
Localized Significance - Operational Emissions

LST Pollutants[1]	CO (lbs/day)	NOx (lbs/day)	PM_{10} (lbs/day)	$PM_{2.5}$ (lbs/day)
On-site Emissions[2]	5.21	1.59	0.9	0.27
SCAQMD Operation Threshold[3]	1,577	270	4	2
Exceeds Threshold (?)	**No**	**No**	**No**	**No**

[1] Reference LST thresholds are from 2006-2008 SCAQMD Mass rate Localized Significant Thresholds for construction and operation Table C-1 for a disturbance area of 5 acres and at a receptor distance of 25 meters.

[2] Per LST methodology, mobile source emissions do not need to be included except for land use emissions and on-site vehicle emissions. It is estimated that approximately 10% of mobile emissions will occur on the project site.

[3] Reference: Source Receptor Area 23 Thresholds

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JN:1421-2014-10

TABLE 15
Construction Greenhouse Gas Emissions

Activity	Emissions ($MTC0_2e$)[1]		
	Onsite	**Offsite**	**Total**
Site Preparation	18.76	0.87	19.63
Grading	88.82	2.91	91.72
Building Construction	367.18	608.40	975.58
Paving	21.15	1.40	22.55
Coating	2.56	4.39	6.95
Total	498.47	617.96	1,116.43
Averaged over 30 years[2]	16.62	20.60	37.21

[1] $MTCO_2e$=metric tons of carbon dioxide equivalents (includes carbon dioxide, methane, nitrous oxide, and/or hydroflurocarbons).

[2] The emissions are averaged over 30 years because the average is added to the operational emissions, pursuant to SCAQMD recommendations.

* CalEEMod output (Appendix A)

TABLE 16

Opening Year (2016) Unmitigated Greenhouse Gas Emissions During Operation

Emission Source	Emissions ($MTCO_2e$) with Regulation[1]
Area Source	0.01
Energy Source	299.22
Mobile Source	1,682.92
Waste	98.45
Water	266.82
Subtotal (Operation)	2,347.43
Subtotal Construction (averaged over 30 years)	37.21
Total Annual Emissions	**2,384.65**
CAP Screening Threshold	3,000
Exceeds Screening Threshold (?)	No
SCAQMD Industrial Use Threshold	10,000
Exceeds Screening Threshold (?)	No

[1] $MTCO_2e$ = metric tons of carbon dioxide equivalents

TABLE 17
2016 DPM Emissions Factors for the Proposed Project (70-year average)[1]

Vehicle Class	Idling (g/hr)	On-site Travel (g/mi)	Off-Site Travel (g/mi)
Light Heavy Duty Truck 2	0.0994	0.0519	0.0204
Medium Heavy Duty Truck	0.098	0.0421	0.0311
Heavy Heavy Duty Truck	0.11	0.0761	0.0594

[1.] Per EMFAC2011

j:\rktables\RK10733TB.xls
JN:1421-2014-10

TABLE 18
Summary of Emissions Configuration

Emission Source Type	Geometric Configuration	Relevant Assumptions
Off-site Diesel Truck Traffic	Line Sources	- Stack realease height: 12 feet
		- Vehicle Speed: 35 mph
		- Length of the line source (along Dan Kipper Drive and Sycamore Canyon Boulevard)
		- Vehicle types: heavy-heavy-duty, medium-heavy-duty, and light-heavy duty diesel delievery trucks
		- Emission factor: CARB EMFAC2011
On-site Diesel Truck Traffic	Line Sources	- Stack realease height: 12 feet
		- Plume width: 12 feet
		- Vehicle Speed: 10 mph
		- Length of the line source (distance from facility entrance to the loading docks)
		- Vehicle types: heavy-heavy-duty, medium-heavy-duty, and light-heavy duty diesel delievery trucks
		- Emission factor: CARB EMFAC2011
On-site Diesel Truck Idling	Line Sources	- Stack realease height: 12 feet
		- Stack realease characteristics
		> Stack diameter:0.1 meter (0.3 feet)
		> Stack velocity:51.9 mps (170 feet/sec)
		> Stack temperature:366 °K (200° F)
		- Idle time: 15 minutes per truck per day
		- Vehicle types: heavy-heavy-duty, medium-heavy-duty, and light-heavy duty diesel delievery trucks
		- Emission factor: CARB EMFAC2011

TABLE 19
General Model Assumptions

Feature	Assumption
Terrain Processsing	AERMAP processing
Emission source configuration	Seet Table 18
Regulatory dispersion options	Default Assumptions Used
Land Use	Urban
Building downwash	Included in calculations
Receptor height	0 meters, as recommended by SCAQMD methodology
Meterological data	SCAQMD Riverside Meterological Data

TABLE 20

Diesel Particulate Emission Levels and Cancer Risk at Closest Sensitive Receptors[1]

Sensitive Receptor No.	Land Use	Annual Concentration	Cancer Risk Per Million People[2]	Significant Impact (?)
1	Residential	0.00107	0.3	No
2	Residential	0.00140	0.4	No
3	Residential	0.00182	0.6	No
4	Residential	0.00209	0.7	No
5	Residential	0.00236	0.8	No
6	Residential	0.00243	0.8	No
7	Residential	0.00446	1.4	No
8	Residential	0.00370	1.2	No
9	Residential	0.00319	1.0	No
10	Residential	0.00170	0.5	No
PMI[3]	Roadway	0.00864	0.5	No

1. Source: Calculated from ISC-AEROMOD View
2. Except for PMI, residential = 318.91 x Cair which has been averaged over 70 years;
3. PMI = Point of Maximum Impact, based on commercial risk factors.

Appendices

Appendix A

Emission Calculations Output
(CalEEMod)

Dan Kipper Warehouse Project

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	212.88	1000sqft	4.89	212,880.00	0
General Office Building	17.54	1000sqft	0.40	17,540.00	0
Parking Lot	324.00	Space	7.79	129,600.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.4 **Precipitation Freq (Days)** 28

Climate Zone 10 **Operational Year** 2016

Utility Company Southern California Edison

CO2 Intensity (lb/MWhr) 630.89 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 212,880 SF or warehouse, 17,540 SF of office space, and 324 parking spaces on 13.08 acres. General Office Building default was used to represent Single Tenant Office.

Construction Phase - -Construction buildout year 2016

Architectural Coating - SCAQMD Rule 1113 limits paint to 50 g/L

Area Coating - SCAQMD Rule 1113 limits paint to 50g/L.

Construction Off-road Equipment Mitigation - Per SCAQMD Rule 403 Fugitive Dust

Area Mitigation - SCAQMD Rule 1113 50g/L paint

Grading - Total acres = 13.08

Vehicle Trips - Trip rates adjusted to reflect traffic assessment. C-W increased to 40 miles per SCAQMD recommendations. Trip mix changed to 20% C-W and 80% C-NW for warehouse.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	50
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	50
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	15
tblGrading	AcresOfGrading	75.00	13.08
tblLandUse	LotAcreage	2.92	7.79
tblProjectCharacteristics	OperationalYear	2014	2016
tblVehicleTrips	CNW_TTP	41.00	80.00
tblVehicleTrips	CW_TL	16.60	40.00
tblVehicleTrips	CW_TTP	59.00	20.00
tblVehicleTrips	ST_TR	2.59	3.56
tblVehicleTrips	SU_TR	2.59	3.56
tblVehicleTrips	WD_TR	11.01	11.65
tblVehicleTrips	WD_TR	2.59	3.56

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	6.8603	79.1477	52.1022	0.0644	18.2675	3.8036	21.3571	9.9840	3.4993	12.8265	0.0000	6,716.5496	6,716.5496	1.9469	0.0000	6,757.4343
2016	54.7843	34.1315	32.1410	0.0592	2.0367	2.0739	4.1106	0.5477	1.9464	2.4941	0.0000	5,569.1161	5,569.1161	0.7415	0.0000	5,584.6865
Total	**61.6446**	**113.2792**	**84.2432**	**0.1237**	**20.3041**	**5.8775**	**25.4676**	**10.5318**	**5.4457**	**15.3206**	**0.0000**	**12,285.6656**	**12,285.6656**	**2.6883**	**0.0000**	**12,342.1208**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	6.8603	79.1477	52.1022	0.0644	1.7791	3.8036	4.5653	0.7619	3.4993	3.7934	0.0000	6,716.5496	6,716.5496	1.9469	0.0000	6,757.4343
2016	54.7843	34.1315	32.1410	0.0592	1.7791	2.0739	3.8530	0.4845	1.9464	2.4309	0.0000	5,569.1161	5,569.1161	0.7415	0.0000	5,584.6865
Total	**61.6446**	**113.2792**	**84.2432**	**0.1237**	**3.5582**	**5.8775**	**8.4183**	**1.2464**	**5.4457**	**6.2243**	**0.0000**	**12,285.6656**	**12,285.6656**	**2.6883**	**0.0000**	**12,342.1208**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	82.48	0.00	66.94	88.17	0.00	59.37	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	8.3242	5.6000e-004	0.0581	0.0000		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004		0.1213	0.1213	3.4000e-004		0.1286
Energy	0.0154	0.1396	0.1172	8.4000e-004		0.0106	0.0106		0.0106	0.0106		167.4728	167.4728	3.2100e-003	3.0700e-003	168.4920
Mobile	4.0343	14.3998	50.3903	0.1282	8.7648	0.2130	8.9778	2.3390	0.1959	2.5349		11,228.9807	11,228.9807	0.3596		11,236.5321
Total	**12.3739**	**14.5399**	**50.5656**	**0.1291**	**8.7648**	**0.2238**	**8.9886**	**2.3390**	**0.2067**	**2.5457**		**11,396.5748**	**11,396.5748**	**0.3631**	**3.0700e-003**	**11,405.1526**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	7.4316	5.6000e-004	0.0581	0.0000		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004		0.1213	0.1213	3.4000e-004		0.1286
Energy	0.0154	0.1396	0.1172	8.4000e-004		0.0106	0.0106		0.0106	0.0106		167.4728	167.4728	3.2100e-003	3.0700e-003	168.4920
Mobile	4.0343	14.3998	50.3903	0.1282	8.7648	0.2130	8.9778	2.3390	0.1959	2.5349		11,228.9807	11,228.9807	0.3596		11,236.5321
Total	**11.4813**	**14.5399**	**50.5656**	**0.1291**	**8.7648**	**0.2238**	**8.9886**	**2.3390**	**0.2067**	**2.5457**		**11,396.5748**	**11,396.5748**	**0.3631**	**3.0700e-003**	**11,405.1526**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	7.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2015	1/14/2015	5	10	
2	Grading	Grading	1/15/2015	2/25/2015	5	30	
3	Building Construction	Building Construction	2/26/2015	4/20/2016	5	300	
4	Paving	Paving	4/21/2016	5/18/2016	5	20	
5	Architectural Coating	Architectural Coating	5/19/2016	6/15/2016	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 13.08

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 351,462; Non-Residential Outdoor: 117,154 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Excavators	2	8.00	162	0.38
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	125	0.42
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	174	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	130	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Grading	Scrapers	2	8.00	361	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	149.00	59.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	30.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	5.2609	56.8897	42.6318	0.0391		3.0883	3.0883		2.8412	2.8412		4,111.744 4	4,111.744 4	1.2275		4,137.522 5
Total	**5.2609**	**56.8897**	**42.6318**	**0.0391**	**18.0663**	**3.0883**	**21.1545**	**9.9307**	**2.8412**	**12.7719**		**4,111.744 4**	**4,111.744 4**	**1.2275**		**4,137.522 5**

3.2 Site Preparation - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0767	0.0909	1.1360	2.4100e-003	0.2012	1.3100e-003	0.2025	0.0534	1.2000e-003	0.0546		207.2757	207.2757	9.4300e-003		207.4737
Total	**0.0767**	**0.0909**	**1.1360**	**2.4100e-003**	**0.2012**	**1.3100e-003**	**0.2025**	**0.0534**	**1.2000e-003**	**0.0546**		**207.2757**	**207.2757**	**9.4300e-003**		**207.4737**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.3008	0.0000	1.3008	0.7150	0.0000	0.7150			0.0000			0.0000
Off-Road	5.2609	56.8897	42.6318	0.0391		3.0883	3.0883		2.8412	2.8412	0.0000	4,111.7444	4,111.7444	1.2275		4,137.5224
Total	**5.2609**	**56.8897**	**42.6318**	**0.0391**	**1.3008**	**3.0883**	**4.3891**	**0.7150**	**2.8412**	**3.5562**	**0.0000**	**4,111.7444**	**4,111.7444**	**1.2275**		**4,137.5224**

3.2 Site Preparation - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0767	0.0909	1.1360	2.4100e-003	0.1750	1.3100e-003	0.1763	0.0469	1.2000e-003	0.0481		207.2757	207.2757	9.4300e-003		207.4737
Total	**0.0767**	**0.0909**	**1.1360**	**2.4100e-003**	**0.1750**	**1.3100e-003**	**0.1763**	**0.0469**	**1.2000e-003**	**0.0481**		**207.2757**	**207.2757**	**9.4300e-003**		**207.4737**

3.3 Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.4845	0.0000	6.4845	3.3602	0.0000	3.3602			0.0000			0.0000
Off-Road	6.7751	79.0467	50.8400	0.0618		3.8022	3.8022		3.4980	3.4980		6,486.2433	6,486.2433	1.9364		6,526.9080
Total	**6.7751**	**79.0467**	**50.8400**	**0.0618**	**6.4845**	**3.8022**	**10.2866**	**3.3602**	**3.4980**	**6.8582**		**6,486.2433**	**6,486.2433**	**1.9364**		**6,526.9080**

3.3 Grading - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0852	0.1010	1.2622	2.6800e-003	0.2236	1.4600e-003	0.2250	0.0593	1.3400e-003	0.0606		230.3063	230.3063	0.0105		230.5263
Total	**0.0852**	**0.1010**	**1.2622**	**2.6800e-003**	**0.2236**	**1.4600e-003**	**0.2250**	**0.0593**	**1.3400e-003**	**0.0606**		**230.3063**	**230.3063**	**0.0105**		**230.5263**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4669	0.0000	0.4669	0.2419	0.0000	0.2419			0.0000			0.0000
Off-Road	6.7751	79.0467	50.8400	0.0618		3.8022	3.8022		3.4980	3.4980	0.0000	6,486.2433	6,486.2433	1.9364		6,526.9080
Total	**6.7751**	**79.0467**	**50.8400**	**0.0618**	**0.4669**	**3.8022**	**4.2691**	**0.2419**	**3.4980**	**3.7399**	**0.0000**	**6,486.2433**	**6,486.2433**	**1.9364**		**6,526.9080**

3.3 Grading - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0852	0.1010	1.2622	2.6800e-003	0.1944	1.4600e-003	0.1959	0.0521	1.3400e-003	0.0535		230.3063	230.3063	0.0105		230.5263
Total	**0.0852**	**0.1010**	**1.2622**	**2.6800e-003**	**0.1944**	**1.4600e-003**	**0.1959**	**0.0521**	**1.3400e-003**	**0.0535**		**230.3063**	**230.3063**	**0.0105**		**230.5263**

3.4 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6591	30.0299	18.7446	0.0268		2.1167	2.1167		1.9904	1.9904		2,689.5771	2,689.5771	0.6748		2,703.7483
Total	**3.6591**	**30.0299**	**18.7446**	**0.0268**		**2.1167**	**2.1167**		**1.9904**	**1.9904**		**2,689.5771**	**2,689.5771**	**0.6748**		**2,703.7483**

3.4 Building Construction - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5178	5.6317	5.5709	0.0124	0.3712	0.1138	0.4850	0.1060	0.1046	0.2106		1,261.234 9	1,261.234 9	9.0700e-003		1,261.425 4
Worker	0.6346	0.7525	9.4035	0.0200	1.6655	0.0109	1.6763	0.4417	9.9500e-003	0.4516		1,715.781 8	1,715.781 8	0.0781		1,717.420 8
Total	**1.1524**	**6.3842**	**14.9744**	**0.0324**	**2.0367**	**0.1246**	**2.1613**	**0.5477**	**0.1146**	**0.6623**		**2,977.016 7**	**2,977.016 7**	**0.0871**		**2,978.846 2**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6591	30.0299	18.7446	0.0268		2.1167	2.1167		1.9904	1.9904	0.0000	2,689.577 1	2,689.577 1	0.6748		2,703.748 3
Total	**3.6591**	**30.0299**	**18.7446**	**0.0268**		**2.1167**	**2.1167**		**1.9904**	**1.9904**	**0.0000**	**2,689.577 1**	**2,689.577 1**	**0.6748**		**2,703.748 3**

3.4 Building Construction - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5178	5.6317	5.5709	0.0124	0.3308	0.1138	0.4446	0.0961	0.1046	0.2007		1,261.2349	1,261.2349	9.0700e-003		1,261.4254
Worker	0.6346	0.7525	9.4035	0.0200	1.4483	0.0109	1.4591	0.3884	9.9500e-003	0.3983		1,715.7818	1,715.7818	0.0781		1,717.4208
Total	**1.1524**	**6.3842**	**14.9744**	**0.0324**	**1.7791**	**0.1246**	**1.9037**	**0.4845**	**0.1146**	**0.5991**		**2,977.0167**	**2,977.0167**	**0.0871**		**2,978.8462**

3.4 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.4062	28.5063	18.5066	0.0268		1.9674	1.9674		1.8485	1.8485		2,669.2864	2,669.2864	0.6620		2,683.1890
Total	**3.4062**	**28.5063**	**18.5066**	**0.0268**		**1.9674**	**1.9674**		**1.8485**	**1.8485**		**2,669.2864**	**2,669.2864**	**0.6620**		**2,683.1890**

3.4 Building Construction - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4588	4.9510	5.1845	0.0124	0.3712	0.0961	0.4673	0.1060	0.0884	0.1944		1,246.553 1	1,246.553 1	8.1100e-003		1,246.723 4
Worker	0.5709	0.6742	8.4499	0.0200	1.6655	0.0104	1.6759	0.4417	9.5700e-003	0.4513		1,653.276 6	1,653.276 6	0.0713		1,654.774 1
Total	**1.0298**	**5.6252**	**13.6344**	**0.0324**	**2.0367**	**0.1065**	**2.1432**	**0.5477**	**0.0979**	**0.6457**		**2,899.829 7**	**2,899.829 7**	**0.0794**		**2,901.497 5**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.4062	28.5063	18.5066	0.0268		1.9674	1.9674		1.8485	1.8485	0.0000	2,669.286 4	2,669.286 4	0.6620		2,683.189 0
Total	**3.4062**	**28.5063**	**18.5066**	**0.0268**		**1.9674**	**1.9674**		**1.8485**	**1.8485**	**0.0000**	**2,669.286 4**	**2,669.286 4**	**0.6620**		**2,683.189 0**

3.4 Building Construction - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4588	4.9510	5.1845	0.0124	0.3308	0.0961	0.4269	0.0961	0.0884	0.1845		1,246.553 1	1,246.553 1	8.1100e-003		1,246.723 4
Worker	0.5709	0.6742	8.4499	0.0200	1.4483	0.0104	1.4587	0.3884	9.5700e-003	0.3980		1,653.276 6	1,653.276 6	0.0713		1,654.774 1
Total	**1.0298**	**5.6252**	**13.6344**	**0.0324**	**1.7791**	**0.1065**	**1.8856**	**0.4845**	**0.0979**	**0.5824**		**2,899.829 7**	**2,899.829 7**	**0.0794**		**2,901.497 5**

3.5 Paving - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0898	22.3859	14.8176	0.0223		1.2610	1.2610		1.1601	1.1601		2,316.376 7	2,316.376 7	0.6987		2,331.049 5
Paving	1.0205					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.1103**	**22.3859**	**14.8176**	**0.0223**		**1.2610**	**1.2610**		**1.1601**	**1.1601**		**2,316.376 7**	**2,316.376 7**	**0.6987**		**2,331.049 5**

3.5 Paving - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0575	0.0679	0.8507	2.0100e-003	0.1677	1.0500e-003	0.1687	0.0445	9.6000e-004	0.0454		166.4372	166.4372	7.1800e-003		166.5880
Total	**0.0575**	**0.0679**	**0.8507**	**2.0100e-003**	**0.1677**	**1.0500e-003**	**0.1687**	**0.0445**	**9.6000e-004**	**0.0454**		**166.4372**	**166.4372**	**7.1800e-003**		**166.5880**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0898	22.3859	14.8176	0.0223		1.2610	1.2610		1.1601	1.1601	0.0000	2,316.3767	2,316.3767	0.6987		2,331.0495
Paving	1.0205					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.1103**	**22.3859**	**14.8176**	**0.0223**		**1.2610**	**1.2610**		**1.1601**	**1.1601**	**0.0000**	**2,316.3767**	**2,316.3767**	**0.6987**		**2,331.0495**

3.5 Paving - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0575	0.0679	0.8507	2.0100e-003	0.1458	1.0500e-003	0.1469	0.0391	9.6000e-004	0.0401		166.4372	166.4372	7.1800e-003		166.5880
Total	**0.0575**	**0.0679**	**0.8507**	**2.0100e-003**	**0.1458**	**1.0500e-003**	**0.1469**	**0.0391**	**9.6000e-004**	**0.0401**		**166.4372**	**166.4372**	**7.1800e-003**		**166.5880**

3.6 Architectural Coating - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	54.3009					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3685	2.3722	1.8839	2.9700e-003		0.1966	0.1966		0.1966	0.1966		281.4481	281.4481	0.0332		282.1449
Total	**54.6693**	**2.3722**	**1.8839**	**2.9700e-003**		**0.1966**	**0.1966**		**0.1966**	**0.1966**		**281.4481**	**281.4481**	**0.0332**		**282.1449**

3.6 Architectural Coating - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1150	0.1357	1.7013	4.0200e-003	0.3353	2.1000e-003	0.3374	0.0889	1.9300e-003	0.0909		332.8745	332.8745	0.0144		333.1760
Total	**0.1150**	**0.1357**	**1.7013**	**4.0200e-003**	**0.3353**	**2.1000e-003**	**0.3374**	**0.0889**	**1.9300e-003**	**0.0909**		**332.8745**	**332.8745**	**0.0144**		**333.1760**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	54.3009					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3685	2.3722	1.8839	2.9700e-003		0.1966	0.1966		0.1966	0.1966	0.0000	281.4481	281.4481	0.0332		282.1449
Total	**54.6693**	**2.3722**	**1.8839**	**2.9700e-003**		**0.1966**	**0.1966**		**0.1966**	**0.1966**	**0.0000**	**281.4481**	**281.4481**	**0.0332**		**282.1449**

3.6 Architectural Coating - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1150	0.1357	1.7013	4.0200e-003	0.2916	2.1000e-003	0.2937	0.0782	1.9300e-003	0.0801		332.8745	332.8745	0.0144		333.1760
Total	**0.1150**	**0.1357**	**1.7013**	**4.0200e-003**	**0.2916**	**2.1000e-003**	**0.2937**	**0.0782**	**1.9300e-003**	**0.0801**		**332.8745**	**332.8745**	**0.0144**		**333.1760**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	4.0343	14.3998	50.3903	0.1282	8.7648	0.2130	8.9778	2.3390	0.1959	2.5349		11,228.9807	11,228.9807	0.3596		11,236.5321
Unmitigated	4.0343	14.3998	50.3903	0.1282	8.7648	0.2130	8.9778	2.3390	0.1959	2.5349		11,228.9807	11,228.9807	0.3596		11,236.5321

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	204.34	41.57	17.19	497,239	497,239
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	757.85	757.85	757.85	3,478,685	3,478,685
Total	962.19	799.42	775.04	3,975,924	3,975,924

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	40.00	8.40	6.90	20.00	0.00	80.00	92	5	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.462438	0.069856	0.176572	0.170752	0.045136	0.007399	0.012745	0.042494	0.000970	0.001060	0.006446	0.000893	0.003237

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0154	0.1396	0.1172	8.4000e-004		0.0106	0.0106		0.0106	0.0106		167.4728	167.4728	3.2100e-003	3.0700e-003	168.4920
NaturalGas Unmitigated	0.0154	0.1396	0.1172	8.4000e-004		0.0106	0.0106		0.0106	0.0106		167.4728	167.4728	3.2100e-003	3.0700e-003	168.4920

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Unrefrigerated Warehouse-No Rail	1248.12	0.0135	0.1224	0.1028	7.3000e-004		9.3000e-003	9.3000e-003		9.3000e-003	9.3000e-003		146.8375	146.8375	2.8100e-003	2.6900e-003	147.7311
General Office Building	175.4	1.8900e-003	0.0172	0.0144	1.0000e-004		1.3100e-003	1.3100e-003		1.3100e-003	1.3100e-003		20.6353	20.6353	4.0000e-004	3.8000e-004	20.7609
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0154**	**0.1396**	**0.1172**	**8.3000e-004**		**0.0106**	**0.0106**		**0.0106**	**0.0106**		**167.4727**	**167.4727**	**3.2100e-003**	**3.0700e-003**	**168.4920**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Unrefrigerated Warehouse-No Rail	1.24812	0.0135	0.1224	0.1028	7.3000e-004		9.3000e-003	9.3000e-003		9.3000e-003	9.3000e-003		146.8375	146.8375	2.8100e-003	2.6900e-003	147.7311
General Office Building	0.1754	1.8900e-003	0.0172	0.0144	1.0000e-004		1.3100e-003	1.3100e-003		1.3100e-003	1.3100e-003		20.6353	20.6353	4.0000e-004	3.8000e-004	20.7609
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0154**	**0.1396**	**0.1172**	**8.3000e-004**		**0.0106**	**0.0106**		**0.0106**	**0.0106**		**167.4727**	**167.4727**	**3.2100e-003**	**3.0700e-003**	**168.4920**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	7.4316	5.6000e-004	0.0581	0.0000		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004		0.1213	0.1213	3.4000e-004		0.1286
Unmitigated	8.3242	5.6000e-004	0.0581	0.0000		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004		0.1213	0.1213	3.4000e-004		0.1286

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.1902					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.1284					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.6600e-003	5.6000e-004	0.0581	0.0000		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004		0.1213	0.1213	3.4000e-004		0.1286
Total	**8.3242**	**5.6000e-004**	**0.0581**	**0.0000**		**2.1000e-004**	**2.1000e-004**		**2.1000e-004**	**2.1000e-004**		**0.1213**	**0.1213**	**3.4000e-004**		**0.1286**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2975					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.1284					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.6600e-003	5.6000e-004	0.0581	0.0000		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004		0.1213	0.1213	3.4000e-004		0.1286
Total	**7.4316**	**5.6000e-004**	**0.0581**	**0.0000**		**2.1000e-004**	**2.1000e-004**		**2.1000e-004**	**2.1000e-004**		**0.1213**	**0.1213**	**3.4000e-004**		**0.1286**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Dan Kipper Warehouse Project

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	212.88	1000sqft	4.89	212,880.00	0
General Office Building	17.54	1000sqft	0.40	17,540.00	0
Parking Lot	324.00	Space	7.79	129,600.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.4 **Precipitation Freq (Days)** 28

Climate Zone 10 **Operational Year** 2016

Utility Company Southern California Edison

CO2 Intensity (lb/MWhr) 630.89 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 212,880 SF or warehouse, 17,540 SF of office space, and 324 parking spaces on 13.08 acres. General Office Building default was used to represent Single Tenant Office.

Construction Phase - -Construction buildout year 2016

Architectural Coating - SCAQMD Rule 1113 limits paint to 50 g/L

Area Coating - SCAQMD Rule 1113 limits paint to 50g/L.

Construction Off-road Equipment Mitigation - Per SCAQMD Rule 403 Fugitive Dust

Area Mitigation - SCAQMD Rule 1113 50g/L paint

Grading - Total acres = 13.08

Vehicle Trips - Trip rates adjusted to reflect traffic assessment. C-W increased to 40 miles per SCAQMD recommendations. Trip mix changed to 20% C-W and 80% C-NW for warehouse.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	50
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	50
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	15
tblGrading	AcresOfGrading	75.00	13.08
tblLandUse	LotAcreage	2.92	7.79
tblProjectCharacteristics	OperationalYear	2014	2016
tblVehicleTrips	CNW_TTP	41.00	80.00
tblVehicleTrips	CW_TL	16.60	40.00
tblVehicleTrips	CW_TTP	59.00	20.00
tblVehicleTrips	ST_TR	2.59	3.56
tblVehicleTrips	SU_TR	2.59	3.56
tblVehicleTrips	WD_TR	11.01	11.65
tblVehicleTrips	WD_TR	2.59	3.56

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	6.8566	79.1544	51.9304	0.0642	18.2675	3.8036	21.3571	9.9840	3.4993	12.8265	0.0000	6,696.7302	6,696.7302	1.9469	0.0000	6,737.6149
2016	54.7790	34.2998	31.6823	0.0574	2.0367	2.0748	4.1114	0.5477	1.9472	2.4949	0.0000	5,415.8918	5,415.8918	0.7417	0.0000	5,431.4679
Total	**61.6356**	**113.4542**	**83.6127**	**0.1216**	**20.3041**	**5.8784**	**25.4685**	**10.5318**	**5.4465**	**15.3214**	**0.0000**	**12,112.6220**	**12,112.6220**	**2.6886**	**0.0000**	**12,169.0829**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	6.8566	79.1544	51.9304	0.0642	1.7791	3.8036	4.5653	0.7619	3.4993	3.7934	0.0000	6,696.7302	6,696.7302	1.9469	0.0000	6,737.6149
2016	54.7790	34.2998	31.6823	0.0574	1.7791	2.0748	3.8539	0.4845	1.9472	2.4317	0.0000	5,415.8918	5,415.8918	0.7417	0.0000	5,431.4679
Total	**61.6356**	**113.4542**	**83.6127**	**0.1216**	**3.5582**	**5.8784**	**8.4192**	**1.2464**	**5.4465**	**6.2251**	**0.0000**	**12,112.6220**	**12,112.6220**	**2.6886**	**0.0000**	**12,169.0829**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	82.48	0.00	66.94	88.17	0.00	59.37	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	8.3242	5.6000e-004	0.0581	0.0000		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004		0.1213	0.1213	3.4000e-004		0.1286
Energy	0.0154	0.1396	0.1172	8.4000e-004		0.0106	0.0106		0.0106	0.0106		167.4728	167.4728	3.2100e-003	3.0700e-003	168.4920
Mobile	3.9330	15.0339	46.1764	0.1195	8.7648	0.2136	8.9784	2.3390	0.1965	2.5355		10,504.8659	10,504.8659	0.3599		10,512.4240
Total	**12.2726**	**15.1740**	**46.3517**	**0.1204**	**8.7648**	**0.2245**	**8.9893**	**2.3390**	**0.2073**	**2.5463**		**10,672.4600**	**10,672.4600**	**0.3635**	**3.0700e-003**	**10,681.0445**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	7.4316	5.6000e-004	0.0581	0.0000		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004		0.1213	0.1213	3.4000e-004		0.1286
Energy	0.0154	0.1396	0.1172	8.4000e-004		0.0106	0.0106		0.0106	0.0106		167.4728	167.4728	3.2100e-003	3.0700e-003	168.4920
Mobile	3.9330	15.0339	46.1764	0.1195	8.7648	0.2136	8.9784	2.3390	0.1965	2.5355		10,504.8659	10,504.8659	0.3599		10,512.4240
Total	**11.3800**	**15.1740**	**46.3517**	**0.1204**	**8.7648**	**0.2245**	**8.9893**	**2.3390**	**0.2073**	**2.5463**		**10,672.4600**	**10,672.4600**	**0.3635**	**3.0700e-003**	**10,681.0445**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**7.27**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2015	1/14/2015	5	10	
2	Grading	Grading	1/15/2015	2/25/2015	5	30	
3	Building Construction	Building Construction	2/26/2015	4/20/2016	5	300	
4	Paving	Paving	4/21/2016	5/18/2016	5	20	
5	Architectural Coating	Architectural Coating	5/19/2016	6/15/2016	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 13.08

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 351,462; Non-Residential Outdoor: 117,154 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Excavators	2	8.00	162	0.38
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	125	0.42
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	174	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	130	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Grading	Scrapers	2	8.00	361	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	149.00	59.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	30.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	5.2609	56.8897	42.6318	0.0391		3.0883	3.0883		2.8412	2.8412		4,111.7444	4,111.7444	1.2275		4,137.5225
Total	**5.2609**	**56.8897**	**42.6318**	**0.0391**	**18.0663**	**3.0883**	**21.1545**	**9.9307**	**2.8412**	**12.7719**		**4,111.7444**	**4,111.7444**	**1.2275**		**4,137.5225**

3.2 Site Preparation - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0969	0.9814	2.2000e-003	0.2012	1.3100e-003	0.2025	0.0534	1.2000e-003	0.0546		189.4382	189.4382	9.4300e-003		189.6362
Total	**0.0733**	**0.0969**	**0.9814**	**2.2000e-003**	**0.2012**	**1.3100e-003**	**0.2025**	**0.0534**	**1.2000e-003**	**0.0546**		**189.4382**	**189.4382**	**9.4300e-003**		**189.6362**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.3008	0.0000	1.3008	0.7150	0.0000	0.7150			0.0000			0.0000
Off-Road	5.2609	56.8897	42.6318	0.0391		3.0883	3.0883		2.8412	2.8412	0.0000	4,111.7444	4,111.7444	1.2275		4,137.5224
Total	**5.2609**	**56.8897**	**42.6318**	**0.0391**	**1.3008**	**3.0883**	**4.3891**	**0.7150**	**2.8412**	**3.5562**	**0.0000**	**4,111.7444**	**4,111.7444**	**1.2275**		**4,137.5224**

3.2 Site Preparation - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0969	0.9814	2.2000e-003	0.1750	1.3100e-003	0.1763	0.0469	1.2000e-003	0.0481		189.4382	189.4382	9.4300e-003		189.6362
Total	**0.0733**	**0.0969**	**0.9814**	**2.2000e-003**	**0.1750**	**1.3100e-003**	**0.1763**	**0.0469**	**1.2000e-003**	**0.0481**		**189.4382**	**189.4382**	**9.4300e-003**		**189.6362**

3.3 Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.4845	0.0000	6.4845	3.3602	0.0000	3.3602			0.0000			0.0000
Off-Road	6.7751	79.0467	50.8400	0.0618		3.8022	3.8022		3.4980	3.4980		6,486.2433	6,486.2433	1.9364		6,526.9080
Total	**6.7751**	**79.0467**	**50.8400**	**0.0618**	**6.4845**	**3.8022**	**10.2866**	**3.3602**	**3.4980**	**6.8582**		**6,486.2433**	**6,486.2433**	**1.9364**		**6,526.9080**

3.3 Grading - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0814	0.1077	1.0905	2.4500e-003	0.2236	1.4600e-003	0.2250	0.0593	1.3400e-003	0.0606		210.4869	210.4869	0.0105		210.7069
Total	**0.0814**	**0.1077**	**1.0905**	**2.4500e-003**	**0.2236**	**1.4600e-003**	**0.2250**	**0.0593**	**1.3400e-003**	**0.0606**		**210.4869**	**210.4869**	**0.0105**		**210.7069**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4669	0.0000	0.4669	0.2419	0.0000	0.2419			0.0000			0.0000
Off-Road	6.7751	79.0467	50.8400	0.0618		3.8022	3.8022		3.4980	3.4980	0.0000	6,486.2433	6,486.2433	1.9364		6,526.9080
Total	**6.7751**	**79.0467**	**50.8400**	**0.0618**	**0.4669**	**3.8022**	**4.2691**	**0.2419**	**3.4980**	**3.7399**	**0.0000**	**6,486.2433**	**6,486.2433**	**1.9364**		**6,526.9080**

3.3 Grading - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0814	0.1077	1.0905	2.4500e-003	0.1944	1.4600e-003	0.1959	0.0521	1.3400e-003	0.0535		210.4869	210.4869	0.0105		210.7069
Total	**0.0814**	**0.1077**	**1.0905**	**2.4500e-003**	**0.1944**	**1.4600e-003**	**0.1959**	**0.0521**	**1.3400e-003**	**0.0535**		**210.4869**	**210.4869**	**0.0105**		**210.7069**

3.4 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6591	30.0299	18.7446	0.0268		2.1167	2.1167		1.9904	1.9904		2,689.5771	2,689.5771	0.6748		2,703.7483
Total	**3.6591**	**30.0299**	**18.7446**	**0.0268**		**2.1167**	**2.1167**		**1.9904**	**1.9904**		**2,689.5771**	**2,689.5771**	**0.6748**		**2,703.7483**

3.4 Building Construction - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5518	5.7786	6.2738	0.0123	0.3712	0.1150	0.4862	0.1060	0.1057	0.2118		1,250.3769	1,250.3769	9.3600e-003		1,250.5735
Worker	0.6067	0.8023	8.1239	0.0183	1.6655	0.0109	1.6763	0.4417	9.9500e-003	0.4516		1,568.1277	1,568.1277	0.0781		1,569.7666
Total	**1.1586**	**6.5809**	**14.3977**	**0.0306**	**2.0367**	**0.1258**	**2.1625**	**0.5477**	**0.1157**	**0.6634**		**2,818.5045**	**2,818.5045**	**0.0874**		**2,820.3401**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6591	30.0299	18.7446	0.0268		2.1167	2.1167		1.9904	1.9904	0.0000	2,689.5771	2,689.5771	0.6748		2,703.7483
Total	**3.6591**	**30.0299**	**18.7446**	**0.0268**		**2.1167**	**2.1167**		**1.9904**	**1.9904**	**0.0000**	**2,689.5771**	**2,689.5771**	**0.6748**		**2,703.7483**

3.4 Building Construction - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5518	5.7786	6.2738	0.0123	0.3308	0.1150	0.4458	0.0961	0.1057	0.2019		1,250.3769	1,250.3769	9.3600e-003		1,250.5735
Worker	0.6067	0.8023	8.1239	0.0183	1.4483	0.0109	1.4591	0.3884	9.9500e-003	0.3983		1,568.1277	1,568.1277	0.0781		1,569.7666
Total	**1.1586**	**6.5809**	**14.3977**	**0.0306**	**1.7791**	**0.1258**	**1.9050**	**0.4845**	**0.1157**	**0.6002**		**2,818.5045**	**2,818.5045**	**0.0874**		**2,820.3401**

3.4 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.4062	28.5063	18.5066	0.0268		1.9674	1.9674		1.8485	1.8485		2,669.2864	2,669.2864	0.6620		2,683.1890
Total	**3.4062**	**28.5063**	**18.5066**	**0.0268**		**1.9674**	**1.9674**		**1.8485**	**1.8485**		**2,669.2864**	**2,669.2864**	**0.6620**		**2,683.1890**

3.4 Building Construction - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4890	5.0754	5.8948	0.0123	0.3712	0.0970	0.4682	0.1060	0.0892	0.1952		1,235.764 9	1,235.764 9	8.3800e-003		1,235.941 0
Worker	0.5446	0.7182	7.2809	0.0182	1.6655	0.0104	1.6759	0.4417	9.5700e-003	0.4513		1,510.840 5	1,510.840 5	0.0713		1,512.338 0
Total	**1.0337**	**5.7935**	**13.1756**	**0.0306**	**2.0367**	**0.1074**	**2.1440**	**0.5477**	**0.0987**	**0.6465**		**2,746.605 4**	**2,746.605 4**	**0.0797**		**2,748.278 9**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.4062	28.5063	18.5066	0.0268		1.9674	1.9674		1.8485	1.8485	0.0000	2,669.286 4	2,669.286 4	0.6620		2,683.189 0
Total	**3.4062**	**28.5063**	**18.5066**	**0.0268**		**1.9674**	**1.9674**		**1.8485**	**1.8485**	**0.0000**	**2,669.286 4**	**2,669.286 4**	**0.6620**		**2,683.189 0**

3.4 Building Construction - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4890	5.0754	5.8948	0.0123	0.3308	0.0970	0.4278	0.0961	0.0892	0.1853		1,235.764 9	1,235.764 9	8.3800e-003		1,235.941 0
Worker	0.5446	0.7182	7.2809	0.0182	1.4483	0.0104	1.4587	0.3884	9.5700e-003	0.3980		1,510.840 5	1,510.840 5	0.0713		1,512.338 0
Total	**1.0337**	**5.7935**	**13.1756**	**0.0306**	**1.7791**	**0.1074**	**1.8865**	**0.4845**	**0.0987**	**0.5832**		**2,746.605 4**	**2,746.605 4**	**0.0797**		**2,748.278 9**

3.5 Paving - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0898	22.3859	14.8176	0.0223		1.2610	1.2610		1.1601	1.1601		2,316.376 7	2,316.376 7	0.6987		2,331.049 5
Paving	1.0205					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.1103**	**22.3859**	**14.8176**	**0.0223**		**1.2610**	**1.2610**		**1.1601**	**1.1601**		**2,316.376 7**	**2,316.376 7**	**0.6987**		**2,331.049 5**

3.5 Paving - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0548	0.0723	0.7330	1.8400e-003	0.1677	1.0500e-003	0.1687	0.0445	9.6000e-004	0.0454		152.0980	152.0980	7.1800e-003		152.2488
Total	**0.0548**	**0.0723**	**0.7330**	**1.8400e-003**	**0.1677**	**1.0500e-003**	**0.1687**	**0.0445**	**9.6000e-004**	**0.0454**		**152.0980**	**152.0980**	**7.1800e-003**		**152.2488**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0898	22.3859	14.8176	0.0223		1.2610	1.2610		1.1601	1.1601	0.0000	2,316.3767	2,316.3767	0.6987		2,331.0495
Paving	1.0205					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.1103**	**22.3859**	**14.8176**	**0.0223**		**1.2610**	**1.2610**		**1.1601**	**1.1601**	**0.0000**	**2,316.3767**	**2,316.3767**	**0.6987**		**2,331.0495**

3.5 Paving - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0548	0.0723	0.7330	1.8400e-003	0.1458	1.0500e-003	0.1469	0.0391	9.6000e-004	0.0401		152.0980	152.0980	7.1800e-003		152.2488
Total	**0.0548**	**0.0723**	**0.7330**	**1.8400e-003**	**0.1458**	**1.0500e-003**	**0.1469**	**0.0391**	**9.6000e-004**	**0.0401**		**152.0980**	**152.0980**	**7.1800e-003**		**152.2488**

3.6 Architectural Coating - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	54.3009					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3685	2.3722	1.8839	2.9700e-003		0.1966	0.1966		0.1966	0.1966		281.4481	281.4481	0.0332		282.1449
Total	**54.6693**	**2.3722**	**1.8839**	**2.9700e-003**		**0.1966**	**0.1966**		**0.1966**	**0.1966**		**281.4481**	**281.4481**	**0.0332**		**282.1449**

3.6 Architectural Coating - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1097	0.1446	1.4659	3.6700e-003	0.3353	2.1000e-003	0.3374	0.0889	1.9300e-003	0.0909		304.1961	304.1961	0.0144		304.4976
Total	**0.1097**	**0.1446**	**1.4659**	**3.6700e-003**	**0.3353**	**2.1000e-003**	**0.3374**	**0.0889**	**1.9300e-003**	**0.0909**		**304.1961**	**304.1961**	**0.0144**		**304.4976**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	54.3009					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3685	2.3722	1.8839	2.9700e-003		0.1966	0.1966		0.1966	0.1966	0.0000	281.4481	281.4481	0.0332		282.1449
Total	**54.6693**	**2.3722**	**1.8839**	**2.9700e-003**		**0.1966**	**0.1966**		**0.1966**	**0.1966**	**0.0000**	**281.4481**	**281.4481**	**0.0332**		**282.1449**

3.6 Architectural Coating - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1097	0.1446	1.4659	3.6700e-003	0.2916	2.1000e-003	0.2937	0.0782	1.9300e-003	0.0801		304.1961	304.1961	0.0144		304.4976
Total	**0.1097**	**0.1446**	**1.4659**	**3.6700e-003**	**0.2916**	**2.1000e-003**	**0.2937**	**0.0782**	**1.9300e-003**	**0.0801**		**304.1961**	**304.1961**	**0.0144**		**304.4976**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.9330	15.0339	46.1764	0.1195	8.7648	0.2136	8.9784	2.3390	0.1965	2.5355		10,504.8659	10,504.8659	0.3599		10,512.4240
Unmitigated	3.9330	15.0339	46.1764	0.1195	8.7648	0.2136	8.9784	2.3390	0.1965	2.5355		10,504.8659	10,504.8659	0.3599		10,512.4240

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	204.34	41.57	17.19	497,239	497,239
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	757.85	757.85	757.85	3,478,685	3,478,685
Total	962.19	799.42	775.04	3,975,924	3,975,924

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	40.00	8.40	6.90	20.00	0.00	80.00	92	5	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.462438	0.069856	0.176572	0.170752	0.045136	0.007399	0.012745	0.042494	0.000970	0.001060	0.006446	0.000893	0.003237

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0154	0.1396	0.1172	8.4000e-004		0.0106	0.0106		0.0106	0.0106		167.4728	167.4728	3.2100e-003	3.0700e-003	168.4920
NaturalGas Unmitigated	0.0154	0.1396	0.1172	8.4000e-004		0.0106	0.0106		0.0106	0.0106		167.4728	167.4728	3.2100e-003	3.0700e-003	168.4920

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Unrefrigerated Warehouse-No Rail	1248.12	0.0135	0.1224	0.1028	7.3000e-004		9.3000e-003	9.3000e-003		9.3000e-003	9.3000e-003		146.8375	146.8375	2.8100e-003	2.6900e-003	147.7311
General Office Building	175.4	1.8900e-003	0.0172	0.0144	1.0000e-004		1.3100e-003	1.3100e-003		1.3100e-003	1.3100e-003		20.6353	20.6353	4.0000e-004	3.8000e-004	20.7609
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0154**	**0.1396**	**0.1172**	**8.3000e-004**		**0.0106**	**0.0106**		**0.0106**	**0.0106**		**167.4727**	**167.4727**	**3.2100e-003**	**3.0700e-003**	**168.4920**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Unrefrigerated Warehouse-No Rail	1.24812	0.0135	0.1224	0.1028	7.3000e-004		9.3000e-003	9.3000e-003		9.3000e-003	9.3000e-003		146.8375	146.8375	2.8100e-003	2.6900e-003	147.7311
General Office Building	0.1754	1.8900e-003	0.0172	0.0144	1.0000e-004		1.3100e-003	1.3100e-003		1.3100e-003	1.3100e-003		20.6353	20.6353	4.0000e-004	3.8000e-004	20.7609
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0154**	**0.1396**	**0.1172**	**8.3000e-004**		**0.0106**	**0.0106**		**0.0106**	**0.0106**		**167.4727**	**167.4727**	**3.2100e-003**	**3.0700e-003**	**168.4920**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	7.4316	5.6000e-004	0.0581	0.0000		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004		0.1213	0.1213	3.4000e-004		0.1286
Unmitigated	8.3242	5.6000e-004	0.0581	0.0000		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004		0.1213	0.1213	3.4000e-004		0.1286

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.1902					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.1284					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.6600e-003	5.6000e-004	0.0581	0.0000		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004		0.1213	0.1213	3.4000e-004		0.1286
Total	**8.3242**	**5.6000e-004**	**0.0581**	**0.0000**		**2.1000e-004**	**2.1000e-004**		**2.1000e-004**	**2.1000e-004**		**0.1213**	**0.1213**	**3.4000e-004**		**0.1286**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2975					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.1284					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.6600e-003	5.6000e-004	0.0581	0.0000		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004		0.1213	0.1213	3.4000e-004		0.1286
Total	**7.4316**	**5.6000e-004**	**0.0581**	**0.0000**		**2.1000e-004**	**2.1000e-004**		**2.1000e-004**	**2.1000e-004**		**0.1213**	**0.1213**	**3.4000e-004**		**0.1286**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Dan Kipper Warehouse Project

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	212.88	1000sqft	4.89	212,880.00	0
General Office Building	17.54	1000sqft	0.40	17,540.00	0
Parking Lot	324.00	Space	7.79	129,600.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2016
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 212,880 SF or warehouse, 17,540 SF of office space, and 324 parking spaces on 13.08 acres. General Office Building default was used to represent Single Tenant Office.

Construction Phase - -Construction buildout year 2016

Architectural Coating - SCAQMD Rule 1113 limits paint to 50 g/L

Area Coating - SCAQMD Rule 1113 limits paint to 50g/L.

Construction Off-road Equipment Mitigation - Per SCAQMD Rule 403 Fugitive Dust

Area Mitigation - SCAQMD Rule 1113 50g/L paint

Grading - Total acres = 13.08

Vehicle Trips - Trip rates adjusted to reflect traffic assessment. C-W increased to 40 miles per SCAQMD recommendations. Trip mix changed to 20% C-W and 80% C-NW for warehouse.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	50
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	50
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	15
tblGrading	AcresOfGrading	75.00	13.08
tblLandUse	LotAcreage	2.92	7.79
tblProjectCharacteristics	OperationalYear	2014	2016
tblVehicleTrips	CNW_TTP	41.00	80.00
tblVehicleTrips	CW_TL	16.60	40.00
tblVehicleTrips	CW_TTP	59.00	20.00
tblVehicleTrips	ST_TR	2.59	3.56
tblVehicleTrips	SU_TR	2.59	3.56
tblVehicleTrips	WD_TR	11.01	11.65
tblVehicleTrips	WD_TR	2.59	3.56

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	0.6572	5.5340	4.7121	7.5500e-003	0.4133	0.3202	0.7335	0.1608	0.2994	0.4602	0.0000	665.6118	665.6118	0.1085	0.0000	667.8902
2016	0.7532	1.6098	1.4582	2.5900e-003	0.0841	0.0965	0.1806	0.0226	0.0905	0.1131	0.0000	222.7973	222.7973	0.0334	0.0000	223.4989
Total	**1.4105**	**7.1438**	**6.1702**	**0.0101**	**0.4974**	**0.4168**	**0.9142**	**0.1835**	**0.3898**	**0.5733**	**0.0000**	**888.4091**	**888.4091**	**0.1419**	**0.0000**	**891.3891**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	0.6572	5.5339	4.7121	7.5500e-003	0.2107	0.3202	0.5310	0.0610	0.2994	0.3603	0.0000	665.6113	665.6113	0.1085	0.0000	667.8897
2016	0.7532	1.6098	1.4582	2.5900e-003	0.0735	0.0965	0.1700	0.0200	0.0905	0.1105	0.0000	222.7972	222.7972	0.0334	0.0000	223.4987
Total	**1.4105**	**7.1438**	**6.1702**	**0.0101**	**0.2842**	**0.4168**	**0.7010**	**0.0810**	**0.3898**	**0.4708**	**0.0000**	**888.4085**	**888.4085**	**0.1419**	**0.0000**	**891.3885**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**42.86**	**0.00**	**23.32**	**55.85**	**0.00**	**17.87**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.5188	7.0000e-005	7.2600e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0138	0.0138	4.0000e-005	0.0000	0.0146
Energy	2.8000e-003	0.0255	0.0214	1.5000e-004		1.9400e-003	1.9400e-003		1.9400e-003	1.9400e-003	0.0000	297.9968	297.9968	0.0130	3.0800e-003	299.2232
Mobile	0.6555	2.6834	8.3123	0.0211	1.5079	0.0372	1.5451	0.4029	0.0342	0.4372	0.0000	1,681.7225	1,681.7225	0.0570	0.0000	1,682.9185
Waste						0.0000	0.0000		0.0000	0.0000	43.9313	0.0000	43.9313	2.5963	0.0000	98.4529
Water						0.0000	0.0000		0.0000	0.0000	16.6070	201.1251	217.7320	1.7149	0.0422	266.8240
Total	**2.1771**	**2.7089**	**8.3410**	**0.0213**	**1.5079**	**0.0392**	**1.5471**	**0.4029**	**0.0362**	**0.4392**	**60.5383**	**2,180.8581**	**2,241.3964**	**4.3812**	**0.0453**	**2,347.4332**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.3559	7.0000e-005	7.2600e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0138	0.0138	4.0000e-005	0.0000	0.0146
Energy	2.8000e-003	0.0255	0.0214	1.5000e-004		1.9400e-003	1.9400e-003		1.9400e-003	1.9400e-003	0.0000	297.9968	297.9968	0.0130	3.0800e-003	299.2232
Mobile	0.6555	2.6834	8.3123	0.0211	1.5079	0.0372	1.5451	0.4029	0.0342	0.4372	0.0000	1,681.7225	1,681.7225	0.0570	0.0000	1,682.9185
Waste						0.0000	0.0000		0.0000	0.0000	43.9313	0.0000	43.9313	2.5963	0.0000	98.4529
Water						0.0000	0.0000		0.0000	0.0000	16.6070	201.1251	217.7320	1.7146	0.0421	266.7975
Total	**2.0142**	**2.7089**	**8.3410**	**0.0213**	**1.5079**	**0.0392**	**1.5471**	**0.4029**	**0.0362**	**0.4392**	**60.5383**	**2,180.8581**	**2,241.3964**	**4.3808**	**0.0452**	**2,347.4067**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**7.48**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.15**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2015	1/14/2015	5	10	
2	Grading	Grading	1/15/2015	2/25/2015	5	30	
3	Building Construction	Building Construction	2/26/2015	4/20/2016	5	300	
4	Paving	Paving	4/21/2016	5/18/2016	5	20	
5	Architectural Coating	Architectural Coating	5/19/2016	6/15/2016	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 13.08

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 351,462; Non-Residential Outdoor: 117,154 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Excavators	2	8.00	162	0.38
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	125	0.42
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	174	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	130	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Grading	Scrapers	2	8.00	361	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	149.00	59.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	30.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0263	0.2845	0.2132	2.0000e-004		0.0154	0.0154		0.0142	0.0142	0.0000	18.6506	18.6506	5.5700e-003	0.0000	18.7675
Total	**0.0263**	**0.2845**	**0.2132**	**2.0000e-004**	**0.0903**	**0.0154**	**0.1058**	**0.0497**	**0.0142**	**0.0639**	**0.0000**	**18.6506**	**18.6506**	**5.5700e-003**	**0.0000**	**18.7675**

3.2 Site Preparation - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.5000e-004	5.1000e-004	5.0900e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8710	0.8710	4.0000e-005	0.0000	0.8719
Total	**3.5000e-004**	**5.1000e-004**	**5.0900e-003**	**1.0000e-005**	**9.9000e-004**	**1.0000e-005**	**1.0000e-003**	**2.6000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.8710**	**0.8710**	**4.0000e-005**	**0.0000**	**0.8719**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.5000e-003	0.0000	6.5000e-003	3.5800e-003	0.0000	3.5800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0263	0.2845	0.2132	2.0000e-004		0.0154	0.0154		0.0142	0.0142	0.0000	18.6505	18.6505	5.5700e-003	0.0000	18.7675
Total	**0.0263**	**0.2845**	**0.2132**	**2.0000e-004**	**6.5000e-003**	**0.0154**	**0.0219**	**3.5800e-003**	**0.0142**	**0.0178**	**0.0000**	**18.6505**	**18.6505**	**5.5700e-003**	**0.0000**	**18.7675**

3.2 Site Preparation - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.5000e-004	5.1000e-004	5.0900e-003	1.0000e-005	8.6000e-004	1.0000e-005	8.7000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	0.8710	0.8710	4.0000e-005	0.0000	0.8719
Total	**3.5000e-004**	**5.1000e-004**	**5.0900e-003**	**1.0000e-005**	**8.6000e-004**	**1.0000e-005**	**8.7000e-004**	**2.3000e-004**	**1.0000e-005**	**2.4000e-004**	**0.0000**	**0.8710**	**0.8710**	**4.0000e-005**	**0.0000**	**0.8719**

3.3 Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0973	0.0000	0.0973	0.0504	0.0000	0.0504	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1016	1.1857	0.7626	9.3000e-004		0.0570	0.0570		0.0525	0.0525	0.0000	88.2633	88.2633	0.0264	0.0000	88.8167
Total	**0.1016**	**1.1857**	**0.7626**	**9.3000e-004**	**0.0973**	**0.0570**	**0.1543**	**0.0504**	**0.0525**	**0.1029**	**0.0000**	**88.2633**	**88.2633**	**0.0264**	**0.0000**	**88.8167**

3.3 Grading - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1500e-003	1.6800e-003	0.0170	4.0000e-005	3.3000e-003	2.0000e-005	3.3200e-003	8.8000e-004	2.0000e-005	9.0000e-004	0.0000	2.9033	2.9033	1.4000e-004	0.0000	2.9063
Total	**1.1500e-003**	**1.6800e-003**	**0.0170**	**4.0000e-005**	**3.3000e-003**	**2.0000e-005**	**3.3200e-003**	**8.8000e-004**	**2.0000e-005**	**9.0000e-004**	**0.0000**	**2.9033**	**2.9033**	**1.4000e-004**	**0.0000**	**2.9063**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.0000e-003	0.0000	7.0000e-003	3.6300e-003	0.0000	3.6300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1016	1.1857	0.7626	9.3000e-004		0.0570	0.0570		0.0525	0.0525	0.0000	88.2632	88.2632	0.0264	0.0000	88.8166
Total	**0.1016**	**1.1857**	**0.7626**	**9.3000e-004**	**7.0000e-003**	**0.0570**	**0.0640**	**3.6300e-003**	**0.0525**	**0.0561**	**0.0000**	**88.2632**	**88.2632**	**0.0264**	**0.0000**	**88.8166**

3.3 Grading - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1500e-003	1.6800e-003	0.0170	4.0000e-005	2.8700e-003	2.0000e-005	2.8900e-003	7.7000e-004	2.0000e-005	7.9000e-004	0.0000	2.9033	2.9033	1.4000e-004	0.0000	2.9063
Total	**1.1500e-003**	**1.6800e-003**	**0.0170**	**4.0000e-005**	**2.8700e-003**	**2.0000e-005**	**2.8900e-003**	**7.7000e-004**	**2.0000e-005**	**7.9000e-004**	**0.0000**	**2.9033**	**2.9033**	**1.4000e-004**	**0.0000**	**2.9063**

3.4 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.4043	3.3183	2.0713	2.9600e-003		0.2339	0.2339		0.2199	0.2199	0.0000	269.6137	269.6137	0.0677	0.0000	271.0343
Total	**0.4043**	**3.3183**	**2.0713**	**2.9600e-003**		**0.2339**	**0.2339**		**0.2199**	**0.2199**	**0.0000**	**269.6137**	**269.6137**	**0.0677**	**0.0000**	**271.0343**

3.4 Building Construction - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0604	0.6509	0.7122	1.3700e-003	0.0405	0.0126	0.0531	0.0116	0.0116	0.0232	0.0000	125.9740	125.9740	9.2000e-004	0.0000	125.9933
Worker	0.0631	0.0924	0.9308	2.0400e-003	0.1810	1.2000e-003	0.1822	0.0481	1.1000e-003	0.0492	0.0000	159.3360	159.3360	7.8200e-003	0.0000	159.5003
Total	**0.1235**	**0.7433**	**1.6430**	**3.4100e-003**	**0.2214**	**0.0138**	**0.2352**	**0.0596**	**0.0127**	**0.0723**	**0.0000**	**285.3099**	**285.3099**	**8.7400e-003**	**0.0000**	**285.4936**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.4043	3.3183	2.0713	2.9600e-003		0.2339	0.2339		0.2199	0.2199	0.0000	269.6134	269.6134	0.0677	0.0000	271.0340
Total	**0.4043**	**3.3183**	**2.0713**	**2.9600e-003**		**0.2339**	**0.2339**		**0.2199**	**0.2199**	**0.0000**	**269.6134**	**269.6134**	**0.0677**	**0.0000**	**271.0340**

3.4 Building Construction - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0604	0.6509	0.7122	1.3700e-003	0.0361	0.0126	0.0487	0.0105	0.0116	0.0221	0.0000	125.9740	125.9740	9.2000e-004	0.0000	125.9933
Worker	0.0631	0.0924	0.9308	2.0400e-003	0.1574	1.2000e-003	0.1586	0.0423	1.1000e-003	0.0434	0.0000	159.3360	159.3360	7.8200e-003	0.0000	159.5003
Total	**0.1235**	**0.7433**	**1.6430**	**3.4100e-003**	**0.1935**	**0.0138**	**0.2073**	**0.0528**	**0.0127**	**0.0655**	**0.0000**	**285.3099**	**285.3099**	**8.7400e-003**	**0.0000**	**285.4936**

3.4 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1346	1.1260	0.7310	1.0600e-003		0.0777	0.0777		0.0730	0.0730	0.0000	95.6507	95.6507	0.0237	0.0000	96.1489
Total	**0.1346**	**1.1260**	**0.7310**	**1.0600e-003**		**0.0777**	**0.0777**		**0.0730**	**0.0730**	**0.0000**	**95.6507**	**95.6507**	**0.0237**	**0.0000**	**96.1489**

3.4 Building Construction - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0191	0.2044	0.2392	4.9000e-004	0.0145	3.8100e-003	0.0183	4.1400e-003	3.5000e-003	7.6400e-003	0.0000	44.5064	44.5064	2.9000e-004	0.0000	44.5126
Worker	0.0202	0.0296	0.2981	7.3000e-004	0.0647	4.1000e-004	0.0651	0.0172	3.8000e-004	0.0176	0.0000	54.8773	54.8773	2.5600e-003	0.0000	54.9310
Total	**0.0394**	**0.2340**	**0.5373**	**1.2200e-003**	**0.0792**	**4.2200e-003**	**0.0834**	**0.0213**	**3.8800e-003**	**0.0252**	**0.0000**	**99.3837**	**99.3837**	**2.8500e-003**	**0.0000**	**99.4436**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1346	1.1260	0.7310	1.0600e-003		0.0777	0.0777		0.0730	0.0730	0.0000	95.6506	95.6506	0.0237	0.0000	96.1487
Total	**0.1346**	**1.1260**	**0.7310**	**1.0600e-003**		**0.0777**	**0.0777**		**0.0730**	**0.0730**	**0.0000**	**95.6506**	**95.6506**	**0.0237**	**0.0000**	**96.1487**

3.4 Building Construction - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0191	0.2044	0.2392	4.9000e-004	0.0129	3.8100e-003	0.0167	3.7500e-003	3.5000e-003	7.2600e-003	0.0000	44.5064	44.5064	2.9000e-004	0.0000	44.5126
Worker	0.0202	0.0296	0.2981	7.3000e-004	0.0563	4.1000e-004	0.0567	0.0151	3.8000e-004	0.0155	0.0000	54.8773	54.8773	2.5600e-003	0.0000	54.9310
Total	**0.0394**	**0.2340**	**0.5373**	**1.2200e-003**	**0.0692**	**4.2200e-003**	**0.0734**	**0.0189**	**3.8800e-003**	**0.0228**	**0.0000**	**99.3837**	**99.3837**	**2.8500e-003**	**0.0000**	**99.4436**

3.5 Paving - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0209	0.2239	0.1482	2.2000e-004		0.0126	0.0126		0.0116	0.0116	0.0000	21.0138	21.0138	6.3400e-003	0.0000	21.1469
Paving	0.0102					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0311**	**0.2239**	**0.1482**	**2.2000e-004**		**0.0126**	**0.0126**		**0.0116**	**0.0116**	**0.0000**	**21.0138**	**21.0138**	**6.3400e-003**	**0.0000**	**21.1469**

3.5 Paving - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.2000e-004	7.5000e-004	7.6000e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3986	1.3986	7.0000e-005	0.0000	1.4000
Total	**5.2000e-004**	**7.5000e-004**	**7.6000e-003**	**2.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.3986**	**1.3986**	**7.0000e-005**	**0.0000**	**1.4000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0209	0.2239	0.1482	2.2000e-004		0.0126	0.0126		0.0116	0.0116	0.0000	21.0138	21.0138	6.3400e-003	0.0000	21.1469
Paving	0.0102					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0311**	**0.2239**	**0.1482**	**2.2000e-004**		**0.0126**	**0.0126**		**0.0116**	**0.0116**	**0.0000**	**21.0138**	**21.0138**	**6.3400e-003**	**0.0000**	**21.1469**

3.5 Paving - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.2000e-004	7.5000e-004	7.6000e-003	2.0000e-005	1.4300e-003	1.0000e-005	1.4400e-003	3.9000e-004	1.0000e-005	3.9000e-004	0.0000	1.3986	1.3986	7.0000e-005	0.0000	1.4000
Total	**5.2000e-004**	**7.5000e-004**	**7.6000e-003**	**2.0000e-005**	**1.4300e-003**	**1.0000e-005**	**1.4400e-003**	**3.9000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.3986**	**1.3986**	**7.0000e-005**	**0.0000**	**1.4000**

3.6 Architectural Coating - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5430					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.6800e-003	0.0237	0.0188	3.0000e-005		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003	0.0000	2.5533	2.5533	3.0000e-004	0.0000	2.5596
Total	**0.5467**	**0.0237**	**0.0188**	**3.0000e-005**		**1.9700e-003**	**1.9700e-003**		**1.9700e-003**	**1.9700e-003**	**0.0000**	**2.5533**	**2.5533**	**3.0000e-004**	**0.0000**	**2.5596**

3.6 Architectural Coating - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0300e-003	1.5100e-003	0.0152	4.0000e-005	3.3000e-003	2.0000e-005	3.3200e-003	8.8000e-004	2.0000e-005	8.9000e-004	0.0000	2.7973	2.7973	1.3000e-004	0.0000	2.8000
Total	**1.0300e-003**	**1.5100e-003**	**0.0152**	**4.0000e-005**	**3.3000e-003**	**2.0000e-005**	**3.3200e-003**	**8.8000e-004**	**2.0000e-005**	**8.9000e-004**	**0.0000**	**2.7973**	**2.7973**	**1.3000e-004**	**0.0000**	**2.8000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5430					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.6800e-003	0.0237	0.0188	3.0000e-005		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003	0.0000	2.5533	2.5533	3.0000e-004	0.0000	2.5596
Total	**0.5467**	**0.0237**	**0.0188**	**3.0000e-005**		**1.9700e-003**	**1.9700e-003**		**1.9700e-003**	**1.9700e-003**	**0.0000**	**2.5533**	**2.5533**	**3.0000e-004**	**0.0000**	**2.5596**

3.6 Architectural Coating - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0300e-003	1.5100e-003	0.0152	4.0000e-005	2.8700e-003	2.0000e-005	2.8900e-003	7.7000e-004	2.0000e-005	7.9000e-004	0.0000	2.7973	2.7973	1.3000e-004	0.0000	2.8000
Total	**1.0300e-003**	**1.5100e-003**	**0.0152**	**4.0000e-005**	**2.8700e-003**	**2.0000e-005**	**2.8900e-003**	**7.7000e-004**	**2.0000e-005**	**7.9000e-004**	**0.0000**	**2.7973**	**2.7973**	**1.3000e-004**	**0.0000**	**2.8000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.6555	2.6834	8.3123	0.0211	1.5079	0.0372	1.5451	0.4029	0.0342	0.4372	0.0000	1,681.7225	1,681.7225	0.0570	0.0000	1,682.9185
Unmitigated	0.6555	2.6834	8.3123	0.0211	1.5079	0.0372	1.5451	0.4029	0.0342	0.4372	0.0000	1,681.7225	1,681.7225	0.0570	0.0000	1,682.9185

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	204.34	41.57	17.19	497,239	497,239
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	757.85	757.85	757.85	3,478,685	3,478,685
Total	962.19	799.42	775.04	3,975,924	3,975,924

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No Rail	40.00	8.40	6.90	20.00	0.00	80.00	92	5	3

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.462438	0.069856	0.176572	0.170752	0.045136	0.007399	0.012745	0.042494	0.000970	0.001060	0.006446	0.000893	0.003237

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	270.2698	270.2698	0.0124	2.5700e-003	271.3275
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	270.2698	270.2698	0.0124	2.5700e-003	271.3275
NaturalGas Mitigated	2.8000e-003	0.0255	0.0214	1.5000e-004		1.9400e-003	1.9400e-003		1.9400e-003	1.9400e-003	0.0000	27.7270	27.7270	5.3000e-004	5.1000e-004	27.8957
NaturalGas Unmitigated	2.8000e-003	0.0255	0.0214	1.5000e-004		1.9400e-003	1.9400e-003		1.9400e-003	1.9400e-003	0.0000	27.7270	27.7270	5.3000e-004	5.1000e-004	27.8957

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Unrefrigerated Warehouse-No Rail	455563	2.4600e-003	0.0223	0.0188	1.3000e-004		1.7000e-003	1.7000e-003		1.7000e-003	1.7000e-003	0.0000	24.3106	24.3106	4.7000e-004	4.5000e-004	24.4585
General Office Building	64021	3.5000e-004	3.1400e-003	2.6400e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	3.4164	3.4164	7.0000e-005	6.0000e-005	3.4372
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**2.8100e-003**	**0.0255**	**0.0214**	**1.5000e-004**		**1.9400e-003**	**1.9400e-003**		**1.9400e-003**	**1.9400e-003**	**0.0000**	**27.7270**	**27.7270**	**5.4000e-004**	**5.1000e-004**	**27.8957**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Unrefrigerated Warehouse-No Rail	455563	2.4600e-003	0.0223	0.0188	1.3000e-004		1.7000e-003	1.7000e-003		1.7000e-003	1.7000e-003	0.0000	24.3106	24.3106	4.7000e-004	4.5000e-004	24.4585
General Office Building	64021	3.5000e-004	3.1400e-003	2.6400e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	3.4164	3.4164	7.0000e-005	6.0000e-005	3.4372
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**2.8100e-003**	**0.0255**	**0.0214**	**1.5000e-004**		**1.9400e-003**	**1.9400e-003**		**1.9400e-003**	**1.9400e-003**	**0.0000**	**27.7270**	**27.7270**	**5.4000e-004**	**5.1000e-004**	**27.8957**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	187503	53.6570	2.4700e-003	5.1000e-004	53.8670
Parking Lot	114048	32.6368	1.5000e-003	3.1000e-004	32.7645
Unrefrigerated Warehouse-No Rail	642898	183.9760	8.4600e-003	1.7500e-003	184.6960
Total		**270.2698**	**0.0124**	**2.5700e-003**	**271.3275**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	187503	53.6570	2.4700e-003	5.1000e-004	53.8670
Parking Lot	114048	32.6368	1.5000e-003	3.1000e-004	32.7645
Unrefrigerated Warehouse-No Rail	642898	183.9760	8.4600e-003	1.7500e-003	184.6960
Total		**270.2698**	**0.0124**	**2.5700e-003**	**271.3275**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.3559	7.0000e-005	7.2600e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0138	0.0138	4.0000e-005	0.0000	0.0146
Unmitigated	1.5188	7.0000e-005	7.2600e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0138	0.0138	4.0000e-005	0.0000	0.0146

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2172					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.3009					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	7.1000e-004	7.0000e-005	7.2600e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0138	0.0138	4.0000e-005	0.0000	0.0146
Total	**1.5188**	**7.0000e-005**	**7.2600e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.0138**	**0.0138**	**4.0000e-005**	**0.0000**	**0.0146**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0543					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.3009					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	7.1000e-004	7.0000e-005	7.2600e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0138	0.0138	4.0000e-005	0.0000	0.0146
Total	**1.3559**	**7.0000e-005**	**7.2600e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.0138**	**0.0138**	**4.0000e-005**	**0.0000**	**0.0146**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	217.7320	1.7146	0.0421	266.7975
Unmitigated	217.7320	1.7149	0.0422	266.8240

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	3.11745 / 1.9107	18.6799	0.1024	2.5700e-003	21.6259
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	49.2285 / 0	199.0521	1.6125	0.0396	245.1981
Total		**217.7320**	**1.7149**	**0.0422**	**266.8240**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	3.11745 / 1.9107	18.6799	0.1024	2.5600e-003	21.6243
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	49.2285 / 0	199.0521	1.6123	0.0396	245.1732
Total		**217.7320**	**1.7146**	**0.0421**	**266.7975**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	43.9313	2.5963	0.0000	98.4529
Unmitigated	43.9313	2.5963	0.0000	98.4529

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	16.31	3.3108	0.1957	0.0000	7.4197
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	200.11	40.6205	2.4006	0.0000	91.0332
Total		**43.9313**	**2.5963**	**0.0000**	**98.4529**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	16.31	3.3108	0.1957	0.0000	7.4197
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	200.11	40.6205	2.4006	0.0000	91.0332
Total		**43.9313**	**2.5963**	**0.0000**	**98.4529**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Appendix B

Diesel Health Risk Assessment

Emission Assumptions **DPM** Emissions
Warehouse

Facility Operations

Buildout year: 2016

Emission Factors

1) Onsite Vehicle Emissions

a) Truck
(1) EMFAC2011
(a) Annual Meteorology
Temperature: 64 degF
Relative Humidity: 50%
(b) Calculations for Riverside County
(c) Truck Mix
4+ axle heavy-heavy duty diesel trucks (HHDT)
4 axle diesel trucks (MHDT)
2 axle diesel trucks (LHDT2)
(d) Onsite Truck Travel Speed: 10 mph
(e) Off-site Truck Travel Speed: 35 mph
(f) Idle speed: 0 mph
(g) Truck Idle time: 15 minutes per truck per day

2) Other Parameters

(a) Width of Plume: 12 feet
(b) Truck Operational Schedule 24 hours/day

Warehouse		**Emission:**	**DPM**
Processes Modeled		**Build-out:**	**2016**
Onsite delivery traffic			
Truck idling			
Offsite delivery traffic			

Facilities in Operation

Location	Truck type	Daily trucks
Site	HHDT	76
Site	MHDT	34
Site	LHDT	39
Total		**149**
Delivery Schedule:		
Site	24	**hrs/day, 52weeks/year**

Emission Factors

Vehicle Class	**Onsite Exhaust (g/mi)**	**Offsite Exhaust (g/mi)**	**Idle (g/hr)**
HHDT	0.07606	0.05941	0.11
MHDT	0.04209	0.03114	0.098
LHDT	0.05194	0.02039	0.0994

Onsite Roadway Links Modeled

Link	Truck Type	Emission Factor (g/mi)	Trips per day (in and out)	Length (m)	Length (mi)	Daily Emissions Over the Link (g/day)	Emissions Over the Link (g/sec)	Max Hourly Emissions Over Link (lb/hr)	Daily Emissions (lbs/day)	Annual Avg Emissions Over Link (tons/yr)	Total Daily Emissions for all Vehicles (g/sec)
Blg 5 and 4	HHDT	0.07606	76	58.4	0.04	2.10E-01	2.43E-06	1.66E+00	4.62E-04	8.43E-05	
Blg 5 and 4	MHDT	0.04209	34	58.4	0.04	5.19E-02	6.01E-07	4.12E-01	1.14E-04	2.09E-05	3.88E-06
Blg 5 and 4	LHDT	0.05194	39	58.4	0.04	7.35E-02	8.51E-07	5.83E-01	1.62E-04	2.95E-05	1.75E-06
											8.73E-07
Blg 3 and 2	HHDT	0.07606	76	64.2	0.04	2.31E-01	2.67E-06	1.83E+00	5.08E-04	9.27E-05	
Blg 3 and 2	MHDT	0.04209	34	64.2	0.04	5.71E-02	6.61E-07	4.53E-01	1.26E-04	2.29E-05	4.26E-06
Blg 3 and 2	LHDT	0.05194	39	64.2	0.04	8.08E-02	9.35E-07	6.41E-01	1.78E-04	3.25E-05	1.70E-06
											8.49E-07
Blg 1	HHDT	0.07606	76	58.9	0.04	2.12E-01	2.45E-06	1.68E+00	4.66E-04	8.50E-05	
Blg 1	MHDT	0.04209	34	58.9	0.04	5.24E-02	6.06E-07	4.15E-01	1.15E-04	2.10E-05	3.91E-06
Blg 1	LHDT	0.05194	39	58.9	0.04	7.41E-02	8.58E-07	5.88E-01	1.63E-04	2.98E-05	**5.95E-07**

Truck Idling

Idle time 15 minutes

Building/Location	Truck Type	Emission Factor (g/idle-hour)	Idling Time (min)	Daily Trucks	Total Emissions (g/day)	Max Hourly Emissions (g/sec)	Max Hourly Emissions (lb/hr)	Total Daily Emissions (lbs/day)	Total Emissions (tons/yr)		
Blg 5 and 4	HHDT	0.11	15	76	2.09	2.42E-05	1.92E-04	4.60E-03	8.40E-04		
Blg 5 and 4	MHDT	0.098	15	34	0.83	9.64E-06	7.65E-05	1.83E-03	3.35E-04		4.50E-05
Blg 5 and 4	LHDT	0.0994	15	39	0.97	1.12E-05	8.89E-05	2.13E-03	3.90E-04	45.0% of trucks	2.03E-05
										each side	**1.01E-05**
Blg 3 and 2	HHDT	0.11	15	76	2.09	2.42E-05	1.92E-04	4.60E-03	8.40E-04		
Blg 3 and 2	MHDT	0.098	15	34	0.83	9.64E-06	7.65E-05	1.83E-03	3.35E-04		4.50E-05
Blg 3 and 2	LHDT	0.0994	15	39	0.97	1.12E-05	8.89E-05	2.13E-03	3.90E-04	39.8% of trucks	1.79E-05
										each side	**8.96E-06**
Blg 1	HHDT	0.11	15	76	2.09	2.42E-05	1.92E-04	4.60E-03	8.40E-04		
Blg 1	MHDT	0.098	15	34	0.83	9.64E-06	7.65E-05	1.83E-03	3.35E-04		4.50E-05
Blg 1	LHDT	0.0994	15	39	0.97	1.12E-05	8.89E-05	2.13E-03	3.90E-04	15.2% of trucks	6.85E-06
											3.42E-06

Offsite Roadway Links Modeled

Link	Truck Type	Emission Factor (g/mi)	Trips per day	Length (m)	Length (mi)	Daily Emissions Over the Link (g/day)	Emissions Over the Link (g/sec)	Max Hourly Emissions Over Link (lb/hr)	Daily Emissions (lbs/day)	Annual Avg Emissions Over Link (tons/yr)	
Dan Kipper	HHDT	0.05941	76	508.9	0.32	1.43E+00	1.65E-05	1.13E+01	3.14E-03	5.74E-04	
Dan Kipper	MHDT	0.03114	34	508.9	0.32	3.35E-01	3.87E-06	2.65E+00	7.37E-04	1.35E-04	2.33E-05
Dan Kipper	LHDT	0.02039	39	508.9	0.32	2.51E-01	2.91E-06	1.99E+00	5.54E-04	1.01E-04	**2.33E-05**
											100% of truck traffic
NB on Sycamore Canyon Blvd	HHDT	0.05941	76	554.7	0.34	1.56E+00	1.80E-05	1.23E+01	3.43E-03	6.25E-04	
NB on Sycamore Canyon Blvd	MHDT	0.03114	34	554.7	0.34	3.65E-01	4.22E-06	2.89E+00	8.04E-04	1.47E-04	2.54E-05
NB on Sycamore Canyon Blvd	LHDT	0.02039	39	554.7	0.34	2.74E-01	3.17E-06	2.17E+00	6.04E-04	1.10E-04	**2.03E-05**
											80% of truck traffic
SB on Sycamore Canyon Blvd	HHDT	0.05941	76	760.8	0.47	2.13E+00	2.47E-05	1.69E+01	4.70E-03	8.58E-04	
SB on Sycamore Canyon Blvd	MHDT	0.03114	34	760.8	0.47	5.00E-01	5.79E-06	3.97E+00	1.10E-03	2.01E-04	3.48E-05
SB on Sycamore Canyon Blvd	LHDT	0.02039	39	760.8	0.47	3.76E-01	4.35E-06	2.98E+00	8.28E-04	1.51E-04	**4.18E-05**
											20% of truck traffic

MICR Calculations

Receptor	DPM* Conc (µg/m3)	DBR** (Daily Breathing rate)	EVF*** (Exposure Value Factor)		CP**** (Cancer Potency Factor)	MICR (Maximum Individual Cancer Risk)	Cancer risk per million
1	0.00107	302	0.96	1.00E-06	1.1	3.41E-07	0.3
2	0.00140	302	0.96	1.00E-06	1.1	4.46E-07	0.4
3	0.00182	302	0.96	1.00E-06	1.1	5.80E-07	0.6
4	0.00209	302	0.96	1.00E-06	1.1	6.67E-07	0.7
5	0.00236	302	0.96	1.00E-06	1.1	7.53E-07	0.8
6	0.00243	302	0.96	1.00E-06	1.1	7.75E-07	0.8
7	0.00446	302	0.96	1.00E-06	1.1	1.42E-06	1.4
8	0.00370	302	0.96	1.00E-06	1.1	1.18E-06	1.2
9	0.00319	302	0.96	1.00E-06	1.1	1.02E-06	1.0
10	0.00170	302	0.96	1.00E-06	1.1	5.42E-07	0.5
Max	0.00864	149	0.38	1.00E-06	1.1	5.38E-07	0.5

* DPM concentration calculated by AERMOD

** DBR fromTable 9A of 2012 "AQMD Risk Assessment Procedures for Rules 1401 and 212"

*** EVF from Table 9B of 2012 "AQMD Risk Assessment Procedures for Rules 1401 and 212"

**** CP for DPM value from 2013 "Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values"

```
** Lakes Environmental AERMOD MPI
**
****************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 8.8.0
** Lakes Environmental Software Inc.
** Date: 11/10/2014
** File: C:\Lakes\AERMOD View\Dan Kipper\Dan Kipper.ADI
**
****************************************
**
**
****************************************
** AERMOD Control Pathway
****************************************
**
**
CO STARTING
   TITLEONE C:\Lakes\AERMOD View\Dan Kipper\Dan Kipper.isc
   TITLETWO DPM emissions for idling, on-site and off-site
   MODELOPT CONC  FASTALL
   AVERTIME ANNUAL
   URBANOPT 313673 City_of_Riverside
   POLLUTID DPM
   RUNORNOT RUN
   ERRORFIL "Dan Kipper.err"
CO FINISHED
**
****************************************
** AERMOD Source Pathway
****************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION STCK1        POINT      471836.950  3755743.170      482.680
** DESCRSRC Blg 5 side idling
   LOCATION STCK2        POINT      471985.569  3755743.165      475.110
** DESCRSRC Blg 4 side idling
   LOCATION STCK3        POINT      472054.571  3755750.596      471.310
** DESCRSRC Blg 3 side idling
   LOCATION STCK4        POINT      472186.205  3755746.350      467.020
** DESCRSRC Blg 2 side idling
   LOCATION STCK5        POINT      472254.145  3755744.227      466.670
** DESCRSRC Blg 1 idling
** --------------------------------------------------------------------
** Line Source Represented by Separated Volume Sources
** LINE VOLUME Source ID = SLINE1
** DESCRSRC Blg 5 on-site
```

```
** PREFIX
** Length of Side = 3.66
** Configuration = Separated
** Emission Rate = 8.73E-07
** Elevated
** Building Height = 13.72
** SZINIT = 6.38
** Nodes = 2
** 471817.841, 3755744.227, 483.90, 0.00, 3.18
** 471817.841, 3755685.840, 480.99, 0.00, 3.18
** --------------------------------------------------------------------
   LOCATION L0000327     VOLUME   471817.841 3755742.398 483.67
   LOCATION L0000328     VOLUME   471817.841 3755735.557 483.23
   LOCATION L0000329     VOLUME   471817.841 3755728.716 482.78
   LOCATION L0000330     VOLUME   471817.841 3755721.875 482.34
   LOCATION L0000331     VOLUME   471817.841 3755715.034 481.95
   LOCATION L0000332     VOLUME   471817.841 3755708.192 481.72
   LOCATION L0000333     VOLUME   471817.841 3755701.351 481.49
   LOCATION L0000334     VOLUME   471817.841 3755694.510 481.26
   LOCATION L0000335     VOLUME   471817.841 3755687.669 481.04
** End of LINE VOLUME Source ID = SLINE1
** --------------------------------------------------------------------
** Line Source Represented by Separated Volume Sources
** LINE VOLUME Source ID = SLINE2
** DESCRSRC Blg 4 onsite
** PREFIX
** Length of Side = 3.66
** Configuration = Separated
** Emission Rate = 8.73E-07
** Elevated
** Building Height = 13.72
** SZINIT = 6.38
** Nodes = 2
** 472003.230, 3755742.654, 474.97, 0.00, 3.18
** 472002.603, 3755684.340, 476.00, 0.00, 3.18
** --------------------------------------------------------------------
   LOCATION L0000336     VOLUME   472003.210 3755740.825 474.95
   LOCATION L0000337     VOLUME   472003.136 3755733.993 475.18
   LOCATION L0000338     VOLUME   472003.063 3755727.161 475.42
   LOCATION L0000339     VOLUME   472002.990 3755720.329 475.65
   LOCATION L0000340     VOLUME   472002.916 3755713.497 475.80
   LOCATION L0000341     VOLUME   472002.843 3755706.665 475.86
   LOCATION L0000342     VOLUME   472002.769 3755699.833 475.91
   LOCATION L0000343     VOLUME   472002.696 3755693.001 475.96
   LOCATION L0000344     VOLUME   472002.622 3755686.169 476.00
** End of LINE VOLUME Source ID = SLINE2
** --------------------------------------------------------------------
** Line Source Represented by Separated Volume Sources
** LINE VOLUME Source ID = SLINE3
** DESCRSRC Blg 3 onsite
** PREFIX
```

```
** Length of Side = 3.66
** Configuration = Separated
** Emission Rate = 8.49E-07
** Elevated
** Building Height = 13.72
** SZINIT = 6.38
** Nodes = 2
** 472034.581, 3755749.760, 472.99, 0.00, 3.13
** 472034.372, 3755685.594, 475.94, 0.00, 3.13
** ------------------------------------------------------------------------
   LOCATION L0000345     VOLUME   472034.575 3755747.932 472.63
   LOCATION L0000346     VOLUME   472034.553 3755741.209 472.97
   LOCATION L0000347     VOLUME   472034.531 3755734.485 473.34
   LOCATION L0000348     VOLUME   472034.509 3755727.762 473.71
   LOCATION L0000349     VOLUME   472034.488 3755721.039 474.08
   LOCATION L0000350     VOLUME   472034.466 3755714.316 474.44
   LOCATION L0000351     VOLUME   472034.444 3755707.593 474.78
   LOCATION L0000352     VOLUME   472034.422 3755700.869 475.12
   LOCATION L0000353     VOLUME   472034.400 3755694.146 475.46
   LOCATION L0000354     VOLUME   472034.378 3755687.423 475.80
** End of LINE VOLUME Source ID = SLINE3
** ------------------------------------------------------------------------
** Line Source Represented by Separated Volume Sources
** LINE VOLUME Source ID = SLINE4
** DESCRSRC Blg 2 onsite
** PREFIX
** Length of Side = 3.66
** Configuration = Separated
** Emission Rate = 8.49E-07
** Elevated
** Building Height = 13.72
** SZINIT = 6.38
** Nodes = 2
** 472200.744, 3755747.670, 467.20, 0.00, 3.13
** 472200.744, 3755683.504, 471.81, 0.00, 3.13
** ------------------------------------------------------------------------
   LOCATION L0000355     VOLUME   472200.744 3755745.842 467.07
   LOCATION L0000356     VOLUME   472200.744 3755739.118 467.67
   LOCATION L0000357     VOLUME   472200.744 3755732.395 468.28
   LOCATION L0000358     VOLUME   472200.744 3755725.672 468.89
   LOCATION L0000359     VOLUME   472200.744 3755718.949 469.49
   LOCATION L0000360     VOLUME   472200.744 3755712.226 469.95
   LOCATION L0000361     VOLUME   472200.744 3755705.503 470.33
   LOCATION L0000362     VOLUME   472200.744 3755698.779 470.72
   LOCATION L0000363     VOLUME   472200.744 3755692.056 471.10
   LOCATION L0000364     VOLUME   472200.744 3755685.333 471.45
** End of LINE VOLUME Source ID = SLINE4
** ------------------------------------------------------------------------
** Line Source Represented by Separated Volume Sources
** LINE VOLUME Source ID = SLINE5
** DESCRSRC blg 1 onsite
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```
** PREFIX
** Length of Side = 3.66
** Configuration = Separated
** Emission Rate = 5.95E-07
** Elevated
** Building Height = 13.72
** SZINIT = 6.38
** Nodes = 2
** 472232.932, 3755743.281, 467.12, 0.00, 3.21
** 472233.559, 3755684.340, 472.78, 0.00, 3.21
** ----------------------------------------------------------------------
   LOCATION L0000365     VOLUME   472232.951 3755741.452 467.38
   LOCATION L0000366     VOLUME   472233.025 3755734.542 467.89
   LOCATION L0000367     VOLUME   472233.098 3755727.632 468.40
   LOCATION L0000368     VOLUME   472233.172 3755720.721 468.91
   LOCATION L0000369     VOLUME   472233.245 3755713.811 469.54
   LOCATION L0000370     VOLUME   472233.319 3755706.900 470.37
   LOCATION L0000371     VOLUME   472233.392 3755699.990 471.19
   LOCATION L0000372     VOLUME   472233.466 3755693.079 472.02
   LOCATION L0000373     VOLUME   472233.539 3755686.169 472.80
** End of LINE VOLUME Source ID = SLINE5
** ----------------------------------------------------------------------
** Line Source Represented by Separated Volume Sources
** LINE VOLUME Source ID = SLINE6
** DESCRSRC Off-site along Dan Kipper
** PREFIX
** Length of Side = 3.66
** Configuration = Separated
** Emission Rate = 0.0000233
** Vertical Dimension = 3.66
** SZINIT = 1.70
** Nodes = 7
** 471810.917, 3755668.674, 483.23, 0.00, 3.37
** 472310.247, 3755669.783, 469.48, 0.00, 3.37
** 472320.222, 3755681.975, 467.64, 0.00, 3.37
** 472327.981, 3755706.914, 466.29, 0.00, 3.37
** 472331.860, 3755733.515, 465.91, 0.00, 3.37
** 472349.594, 3755756.791, 465.37, 0.00, 3.37
** 472362.895, 3755762.333, 464.51, 0.00, 3.37
** ----------------------------------------------------------------------
   LOCATION L0000374     VOLUME   471812.746 3755668.678 482.33
   LOCATION L0000375     VOLUME   471819.985 3755668.694 482.16
   LOCATION L0000376     VOLUME   471827.224 3755668.711 481.63
   LOCATION L0000377     VOLUME   471834.464 3755668.727 481.09
   LOCATION L0000378     VOLUME   471841.703 3755668.743 480.56
   LOCATION L0000379     VOLUME   471848.942 3755668.759 480.02
   LOCATION L0000380     VOLUME   471856.181 3755668.775 479.40
   LOCATION L0000381     VOLUME   471863.421 3755668.791 478.77
   LOCATION L0000382     VOLUME   471870.660 3755668.807 478.14
   LOCATION L0000383     VOLUME   471877.899 3755668.823 477.52
   LOCATION L0000384     VOLUME   471885.138 3755668.839 477.22
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LOCATION L0000385     VOLUME   471892.378 3755668.855 477.04
LOCATION L0000386     VOLUME   471899.617 3755668.871 476.85
LOCATION L0000387     VOLUME   471906.856 3755668.887 476.66
LOCATION L0000388     VOLUME   471914.095 3755668.903 476.50
LOCATION L0000389     VOLUME   471921.335 3755668.919 476.36
LOCATION L0000390     VOLUME   471928.574 3755668.935 476.22
LOCATION L0000391     VOLUME   471935.813 3755668.952 476.07
LOCATION L0000392     VOLUME   471943.052 3755668.968 476.00
LOCATION L0000393     VOLUME   471950.292 3755668.984 476.00
LOCATION L0000394     VOLUME   471957.531 3755669.000 476.00
LOCATION L0000395     VOLUME   471964.770 3755669.016 476.00
LOCATION L0000396     VOLUME   471972.009 3755669.032 476.00
LOCATION L0000397     VOLUME   471979.249 3755669.048 476.00
LOCATION L0000398     VOLUME   471986.488 3755669.064 476.00
LOCATION L0000399     VOLUME   471993.727 3755669.080 476.00
LOCATION L0000400     VOLUME   472000.966 3755669.096 475.97
LOCATION L0000401     VOLUME   472008.206 3755669.112 475.83
LOCATION L0000402     VOLUME   472015.445 3755669.128 475.69
LOCATION L0000403     VOLUME   472022.684 3755669.144 475.55
LOCATION L0000404     VOLUME   472029.923 3755669.160 475.41
LOCATION L0000405     VOLUME   472037.163 3755669.177 475.17
LOCATION L0000406     VOLUME   472044.402 3755669.193 474.93
LOCATION L0000407     VOLUME   472051.641 3755669.209 474.69
LOCATION L0000408     VOLUME   472058.880 3755669.225 474.45
LOCATION L0000409     VOLUME   472066.120 3755669.241 473.86
LOCATION L0000410     VOLUME   472073.359 3755669.257 473.24
LOCATION L0000411     VOLUME   472080.598 3755669.273 472.62
LOCATION L0000412     VOLUME   472087.837 3755669.289 472.00
LOCATION L0000413     VOLUME   472095.076 3755669.305 471.41
LOCATION L0000414     VOLUME   472102.316 3755669.321 470.82
LOCATION L0000415     VOLUME   472109.555 3755669.337 470.24
LOCATION L0000416     VOLUME   472116.794 3755669.353 469.65
LOCATION L0000417     VOLUME   472124.033 3755669.369 469.45
LOCATION L0000418     VOLUME   472131.273 3755669.385 469.48
LOCATION L0000419     VOLUME   472138.512 3755669.401 469.52
LOCATION L0000420     VOLUME   472145.751 3755669.418 469.55
LOCATION L0000421     VOLUME   472152.990 3755669.434 469.68
LOCATION L0000422     VOLUME   472160.230 3755669.450 469.93
LOCATION L0000423     VOLUME   472167.469 3755669.466 470.17
LOCATION L0000424     VOLUME   472174.708 3755669.482 470.41
LOCATION L0000425     VOLUME   472181.947 3755669.498 470.73
LOCATION L0000426     VOLUME   472189.187 3755669.514 471.21
LOCATION L0000427     VOLUME   472196.426 3755669.530 471.69
LOCATION L0000428     VOLUME   472203.665 3755669.546 472.17
LOCATION L0000429     VOLUME   472210.904 3755669.562 472.59
LOCATION L0000430     VOLUME   472218.144 3755669.578 472.69
LOCATION L0000431     VOLUME   472225.383 3755669.594 472.79
LOCATION L0000432     VOLUME   472232.622 3755669.610 472.90
LOCATION L0000433     VOLUME   472239.861 3755669.626 472.98
LOCATION L0000434     VOLUME   472247.101 3755669.643 472.28
LOCATION L0000435     VOLUME   472254.340 3755669.659 471.59
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   LOCATION L0000436     VOLUME   472261.579 3755669.675 470.90
   LOCATION L0000437     VOLUME   472268.818 3755669.691 470.20
   LOCATION L0000438     VOLUME   472276.058 3755669.707 470.10
   LOCATION L0000439     VOLUME   472283.297 3755669.723 470.07
   LOCATION L0000440     VOLUME   472290.536 3755669.739 470.04
   LOCATION L0000441     VOLUME   472297.775 3755669.755 470.01
   LOCATION L0000442     VOLUME   472305.015 3755669.771 469.56
   LOCATION L0000443     VOLUME   472311.518 3755671.336 469.01
   LOCATION L0000444     VOLUME   472316.102 3755676.939 468.53
   LOCATION L0000445     VOLUME   472320.440 3755682.675 468.01
   LOCATION L0000446     VOLUME   472322.590 3755689.587 467.56
   LOCATION L0000447     VOLUME   472324.741 3755696.500 467.05
   LOCATION L0000448     VOLUME   472326.891 3755703.412 466.61
   LOCATION L0000449     VOLUME   472328.496 3755710.448 466.26
   LOCATION L0000450     VOLUME   472329.541 3755717.612 466.00
   LOCATION L0000451     VOLUME   472330.586 3755724.775 465.99
   LOCATION L0000452     VOLUME   472331.630 3755731.939 465.97
   LOCATION L0000453     VOLUME   472335.282 3755738.006 465.87
   LOCATION L0000454     VOLUME   472339.669 3755743.765 465.70
   LOCATION L0000455     VOLUME   472344.057 3755749.523 465.42
   LOCATION L0000456     VOLUME   472348.444 3755755.281 465.08
   LOCATION L0000457     VOLUME   472354.525 3755758.846 464.76
   LOCATION L0000458     VOLUME   472361.207 3755761.630 464.47
** End of LINE VOLUME Source ID = SLINE6
** ----------------------------------------------------------------------
** Line Source Represented by Separated Volume Sources
** LINE VOLUME Source ID = SLINE7
** DESCRSRC NB on Sycamore Cyn Blvd to fwy
** PREFIX
** Length of Side = 3.66
** Configuration = Separated
** Emission Rate = 0.0000203
** Vertical Dimension = 3.66
** SZINIT = 1.70
** Nodes = 9
** 472171.043, 3756230.452, 463.11, 0.00, 3.36
** 472226.094, 3756168.181, 463.00, 0.00, 3.36
** 472282.949, 3756110.423, 464.00, 0.00, 3.36
** 472298.291, 3756088.764, 464.87, 0.00, 3.36
** 472327.170, 3756023.786, 465.08, 0.00, 3.36
** 472340.707, 3755940.759, 463.50, 0.00, 3.36
** 472346.122, 3755905.563, 463.55, 0.00, 3.36
** 472362.366, 3755838.780, 463.99, 0.00, 3.36
** 472376.806, 3755781.925, 464.12, 0.00, 3.36
** ----------------------------------------------------------------------
   LOCATION L0000459     VOLUME   472172.254 3756229.082 463.25
   LOCATION L0000460     VOLUME   472177.035 3756223.674 463.10
   LOCATION L0000461     VOLUME   472181.816 3756218.266 462.93
   LOCATION L0000462     VOLUME   472186.597 3756212.858 462.77
   LOCATION L0000463     VOLUME   472191.378 3756207.450 462.61
   LOCATION L0000464     VOLUME   472196.159 3756202.042 462.45
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LOCATION	L0000465	VOLUME	472200.940	3756196.634	462.29
LOCATION	L0000466	VOLUME	472205.721	3756191.226	462.29
LOCATION	L0000467	VOLUME	472210.502	3756185.818	462.36
LOCATION	L0000468	VOLUME	472215.283	3756180.410	462.54
LOCATION	L0000469	VOLUME	472220.064	3756175.002	462.72
LOCATION	L0000470	VOLUME	472224.845	3756169.594	462.90
LOCATION	L0000471	VOLUME	472229.834	3756164.381	463.00
LOCATION	L0000472	VOLUME	472234.898	3756159.237	463.00
LOCATION	L0000473	VOLUME	472239.962	3756154.093	463.00
LOCATION	L0000474	VOLUME	472245.026	3756148.949	463.00
LOCATION	L0000475	VOLUME	472250.089	3756143.805	463.00
LOCATION	L0000476	VOLUME	472255.153	3756138.661	463.00
LOCATION	L0000477	VOLUME	472260.217	3756133.517	463.10
LOCATION	L0000478	VOLUME	472265.280	3756128.373	463.27
LOCATION	L0000479	VOLUME	472270.344	3756123.229	463.44
LOCATION	L0000480	VOLUME	472275.408	3756118.084	463.62
LOCATION	L0000481	VOLUME	472280.472	3756112.940	463.79
LOCATION	L0000482	VOLUME	472285.080	3756107.415	463.97
LOCATION	L0000483	VOLUME	472289.252	3756101.525	464.11
LOCATION	L0000484	VOLUME	472293.425	3756095.635	464.29
LOCATION	L0000485	VOLUME	472297.597	3756089.744	464.52
LOCATION	L0000486	VOLUME	472300.735	3756083.266	464.75
LOCATION	L0000487	VOLUME	472303.667	3756076.670	464.86
LOCATION	L0000488	VOLUME	472306.598	3756070.073	464.98
LOCATION	L0000489	VOLUME	472309.530	3756063.477	465.11
LOCATION	L0000490	VOLUME	472312.461	3756056.881	465.23
LOCATION	L0000491	VOLUME	472315.393	3756050.285	465.35
LOCATION	L0000492	VOLUME	472318.325	3756043.689	465.38
LOCATION	L0000493	VOLUME	472321.256	3756037.093	465.28
LOCATION	L0000494	VOLUME	472324.188	3756030.497	465.18
LOCATION	L0000495	VOLUME	472327.119	3756023.901	465.08
LOCATION	L0000496	VOLUME	472328.312	3756016.785	465.04
LOCATION	L0000497	VOLUME	472329.473	3756009.661	465.23
LOCATION	L0000498	VOLUME	472330.635	3756002.537	465.45
LOCATION	L0000499	VOLUME	472331.796	3755995.413	465.65
LOCATION	L0000500	VOLUME	472332.958	3755988.289	465.84
LOCATION	L0000501	VOLUME	472334.119	3755981.165	465.49
LOCATION	L0000502	VOLUME	472335.281	3755974.040	464.98
LOCATION	L0000503	VOLUME	472336.442	3755966.916	464.46
LOCATION	L0000504	VOLUME	472337.604	3755959.792	463.95
LOCATION	L0000505	VOLUME	472338.766	3755952.668	463.60
LOCATION	L0000506	VOLUME	472339.927	3755945.544	463.41
LOCATION	L0000507	VOLUME	472341.068	3755938.416	463.24
LOCATION	L0000508	VOLUME	472342.165	3755931.282	463.09
LOCATION	L0000509	VOLUME	472343.263	3755924.148	463.04
LOCATION	L0000510	VOLUME	472344.360	3755917.013	463.16
LOCATION	L0000511	VOLUME	472345.458	3755909.879	463.29
LOCATION	L0000512	VOLUME	472346.796	3755902.792	463.45
LOCATION	L0000513	VOLUME	472348.502	3755895.778	463.64
LOCATION	L0000514	VOLUME	472350.208	3755888.765	463.77
LOCATION	L0000515	VOLUME	472351.914	3755881.751	463.87

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   LOCATION L0000516     VOLUME   472353.620 3755874.737 463.95
   LOCATION L0000517     VOLUME   472355.326 3755867.724 463.99
   LOCATION L0000518     VOLUME   472357.032 3755860.710 464.00
   LOCATION L0000519     VOLUME   472358.738 3755853.696 464.00
   LOCATION L0000520     VOLUME   472360.444 3755846.682 463.97
   LOCATION L0000521     VOLUME   472362.150 3755839.669 463.92
   LOCATION L0000522     VOLUME   472363.918 3755832.670 463.88
   LOCATION L0000523     VOLUME   472365.695 3755825.674 463.87
   LOCATION L0000524     VOLUME   472367.472 3755818.678 463.89
   LOCATION L0000525     VOLUME   472369.249 3755811.682 463.95
   LOCATION L0000526     VOLUME   472371.025 3755804.686 464.00
   LOCATION L0000527     VOLUME   472372.802 3755797.689 464.00
   LOCATION L0000528     VOLUME   472374.579 3755790.693 464.00
   LOCATION L0000529     VOLUME   472376.356 3755783.697 464.00
** End of LINE VOLUME Source ID = SLINE7
** ------------------------------------------------------------------
** Line Source Represented by Separated Volume Sources
** LINE VOLUME Source ID = SLINE8
** DESCRSRC SB along Sycamore Cyn Blvd
** PREFIX
** Length of Side = 3.66
** Configuration = Separated
** Emission Rate = 0.0000418
** Vertical Dimension = 3.66
** SZINIT = 1.70
** Nodes = 7
** 472375.904, 3755769.290, 464.22, 0.00, 3.39
** 472389.441, 3755718.752, 466.00, 0.00, 3.39
** 472397.563, 3755636.627, 468.96, 0.00, 3.39
** 472397.563, 3755566.234, 470.96, 0.00, 3.39
** 472398.465, 3755365.886, 469.70, 0.00, 3.39
** 472401.406, 3755130.226, 466.00, 0.00, 3.39
** 472408.322, 3755010.934, 466.00, 0.00, 3.39
** ------------------------------------------------------------------
   LOCATION L0000530     VOLUME   472376.377 3755767.524 464.13
   LOCATION L0000531     VOLUME   472378.260 3755760.492 464.20
   LOCATION L0000532     VOLUME   472380.144 3755753.460 464.24
   LOCATION L0000533     VOLUME   472382.027 3755746.428 464.26
   LOCATION L0000534     VOLUME   472383.911 3755739.396 464.62
   LOCATION L0000535     VOLUME   472385.794 3755732.364 465.01
   LOCATION L0000536     VOLUME   472387.678 3755725.332 465.44
   LOCATION L0000537     VOLUME   472389.487 3755718.286 465.89
   LOCATION L0000538     VOLUME   472390.203 3755711.042 465.98
   LOCATION L0000539     VOLUME   472390.920 3755703.797 465.98
   LOCATION L0000540     VOLUME   472391.636 3755696.553 465.98
   LOCATION L0000541     VOLUME   472392.353 3755689.308 465.99
   LOCATION L0000542     VOLUME   472393.069 3755682.064 466.13
   LOCATION L0000543     VOLUME   472393.786 3755674.820 466.34
   LOCATION L0000544     VOLUME   472394.502 3755667.575 466.53
   LOCATION L0000545     VOLUME   472395.218 3755660.331 466.71
   LOCATION L0000546     VOLUME   472395.935 3755653.086 467.02
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LOCATION L0000547     VOLUME   472396.651 3755645.842 467.48
LOCATION L0000548     VOLUME   472397.368 3755638.597 467.94
LOCATION L0000549     VOLUME   472397.563 3755631.327 468.42
LOCATION L0000550     VOLUME   472397.563 3755624.047 468.82
LOCATION L0000551     VOLUME   472397.563 3755616.767 469.06
LOCATION L0000552     VOLUME   472397.563 3755609.487 469.31
LOCATION L0000553     VOLUME   472397.563 3755602.208 469.55
LOCATION L0000554     VOLUME   472397.563 3755594.928 469.79
LOCATION L0000555     VOLUME   472397.563 3755587.648 470.03
LOCATION L0000556     VOLUME   472397.563 3755580.368 470.28
LOCATION L0000557     VOLUME   472397.563 3755573.088 470.52
LOCATION L0000558     VOLUME   472397.565 3755565.809 470.76
LOCATION L0000559     VOLUME   472397.597 3755558.529 471.00
LOCATION L0000560     VOLUME   472397.630 3755551.249 471.24
LOCATION L0000561     VOLUME   472397.663 3755543.969 471.49
LOCATION L0000562     VOLUME   472397.696 3755536.690 471.73
LOCATION L0000563     VOLUME   472397.729 3755529.410 471.97
LOCATION L0000564     VOLUME   472397.761 3755522.130 472.21
LOCATION L0000565     VOLUME   472397.794 3755514.850 472.45
LOCATION L0000566     VOLUME   472397.827 3755507.571 472.69
LOCATION L0000567     VOLUME   472397.860 3755500.291 472.67
LOCATION L0000568     VOLUME   472397.893 3755493.011 472.60
LOCATION L0000569     VOLUME   472397.925 3755485.731 472.53
LOCATION L0000570     VOLUME   472397.958 3755478.452 472.46
LOCATION L0000571     VOLUME   472397.991 3755471.172 472.26
LOCATION L0000572     VOLUME   472398.024 3755463.892 472.02
LOCATION L0000573     VOLUME   472398.057 3755456.612 471.77
LOCATION L0000574     VOLUME   472398.089 3755449.333 471.53
LOCATION L0000575     VOLUME   472398.122 3755442.053 471.28
LOCATION L0000576     VOLUME   472398.155 3755434.773 471.04
LOCATION L0000577     VOLUME   472398.188 3755427.493 470.79
LOCATION L0000578     VOLUME   472398.221 3755420.214 470.55
LOCATION L0000579     VOLUME   472398.253 3755412.934 470.42
LOCATION L0000580     VOLUME   472398.286 3755405.654 470.42
LOCATION L0000581     VOLUME   472398.319 3755398.374 470.42
LOCATION L0000582     VOLUME   472398.352 3755391.095 470.42
LOCATION L0000583     VOLUME   472398.384 3755383.815 470.32
LOCATION L0000584     VOLUME   472398.417 3755376.535 470.08
LOCATION L0000585     VOLUME   472398.450 3755369.255 469.83
LOCATION L0000586     VOLUME   472398.514 3755361.976 469.59
LOCATION L0000587     VOLUME   472398.605 3755354.697 469.34
LOCATION L0000588     VOLUME   472398.696 3755347.417 469.09
LOCATION L0000589     VOLUME   472398.787 3755340.138 468.84
LOCATION L0000590     VOLUME   472398.877 3755332.859 468.59
LOCATION L0000591     VOLUME   472398.968 3755325.580 468.34
LOCATION L0000592     VOLUME   472399.059 3755318.300 468.09
LOCATION L0000593     VOLUME   472399.150 3755311.021 467.85
LOCATION L0000594     VOLUME   472399.241 3755303.742 467.60
LOCATION L0000595     VOLUME   472399.332 3755296.463 467.35
LOCATION L0000596     VOLUME   472399.422 3755289.183 467.01
LOCATION L0000597     VOLUME   472399.513 3755281.904 466.68
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   LOCATION L0000598     VOLUME   472399.604 3755274.625 466.36
   LOCATION L0000599     VOLUME   472399.695 3755267.346 466.03
   LOCATION L0000600     VOLUME   472399.786 3755260.066 466.00
   LOCATION L0000601     VOLUME   472399.877 3755252.787 466.00
   LOCATION L0000602     VOLUME   472399.967 3755245.508 466.00
   LOCATION L0000603     VOLUME   472400.058 3755238.229 466.00
   LOCATION L0000604     VOLUME   472400.149 3755230.949 466.00
   LOCATION L0000605     VOLUME   472400.240 3755223.670 466.00
   LOCATION L0000606     VOLUME   472400.331 3755216.391 466.00
   LOCATION L0000607     VOLUME   472400.422 3755209.112 466.00
   LOCATION L0000608     VOLUME   472400.513 3755201.832 466.00
   LOCATION L0000609     VOLUME   472400.603 3755194.553 466.00
   LOCATION L0000610     VOLUME   472400.694 3755187.274 466.00
   LOCATION L0000611     VOLUME   472400.785 3755179.995 466.00
   LOCATION L0000612     VOLUME   472400.876 3755172.715 466.00
   LOCATION L0000613     VOLUME   472400.967 3755165.436 466.00
   LOCATION L0000614     VOLUME   472401.058 3755158.157 466.00
   LOCATION L0000615     VOLUME   472401.148 3755150.878 466.00
   LOCATION L0000616     VOLUME   472401.239 3755143.598 466.00
   LOCATION L0000617     VOLUME   472401.330 3755136.319 466.00
   LOCATION L0000618     VOLUME   472401.475 3755129.042 466.00
   LOCATION L0000619     VOLUME   472401.896 3755121.774 466.00
   LOCATION L0000620     VOLUME   472402.317 3755114.507 466.00
   LOCATION L0000621     VOLUME   472402.739 3755107.239 466.00
   LOCATION L0000622     VOLUME   472403.160 3755099.971 466.00
   LOCATION L0000623     VOLUME   472403.581 3755092.704 466.00
   LOCATION L0000624     VOLUME   472404.003 3755085.436 466.00
   LOCATION L0000625     VOLUME   472404.424 3755078.168 466.00
   LOCATION L0000626     VOLUME   472404.845 3755070.901 466.00
   LOCATION L0000627     VOLUME   472405.267 3755063.633 466.00
   LOCATION L0000628     VOLUME   472405.688 3755056.366 466.00
   LOCATION L0000629     VOLUME   472406.109 3755049.098 466.00
   LOCATION L0000630     VOLUME   472406.530 3755041.830 466.00
   LOCATION L0000631     VOLUME   472406.952 3755034.563 466.00
   LOCATION L0000632     VOLUME   472407.373 3755027.295 466.00
   LOCATION L0000633     VOLUME   472407.794 3755020.027 466.00
   LOCATION L0000634     VOLUME   472408.216 3755012.760 466.00
** End of LINE VOLUME Source ID = SLINE8
** Source Parameters **
   SRCPARAM STCK1        0.0000101     3.658   366.000  51.81600     0.091
   SRCPARAM STCK2        0.0000101     3.658   366.000  51.81600     0.091
   SRCPARAM STCK3         8.96E-06     3.658   366.000  51.81600     0.091
   SRCPARAM STCK4         8.96E-06     3.658   366.000  51.81600     0.091
   SRCPARAM STCK5         3.42E-06     3.658   366.000  51.81600     0.091
** LINE VOLUME Source ID = SLINE1
   SRCPARAM L0000327     0.000000097      0.00      3.18      6.38
   SRCPARAM L0000328     0.000000097      0.00      3.18      6.38
   SRCPARAM L0000329     0.000000097      0.00      3.18      6.38
   SRCPARAM L0000330     0.000000097      0.00      3.18      6.38
   SRCPARAM L0000331     0.000000097      0.00      3.18      6.38
   SRCPARAM L0000332     0.000000097      0.00      3.18      6.38
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   SRCPARAM L0000333     0.000000097      0.00      3.18      6.38
   SRCPARAM L0000334     0.000000097      0.00      3.18      6.38
   SRCPARAM L0000335     0.000000097      0.00      3.18      6.38
** ----------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE2
   SRCPARAM L0000336     0.000000097      0.00      3.18      6.38
   SRCPARAM L0000337     0.000000097      0.00      3.18      6.38
   SRCPARAM L0000338     0.000000097      0.00      3.18      6.38
   SRCPARAM L0000339     0.000000097      0.00      3.18      6.38
   SRCPARAM L0000340     0.000000097      0.00      3.18      6.38
   SRCPARAM L0000341     0.000000097      0.00      3.18      6.38
   SRCPARAM L0000342     0.000000097      0.00      3.18      6.38
   SRCPARAM L0000343     0.000000097      0.00      3.18      6.38
   SRCPARAM L0000344     0.000000097      0.00      3.18      6.38
** ----------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE3
   SRCPARAM L0000345     0.0000000849      0.00      3.13      6.38
   SRCPARAM L0000346     0.0000000849      0.00      3.13      6.38
   SRCPARAM L0000347     0.0000000849      0.00      3.13      6.38
   SRCPARAM L0000348     0.0000000849      0.00      3.13      6.38
   SRCPARAM L0000349     0.0000000849      0.00      3.13      6.38
   SRCPARAM L0000350     0.0000000849      0.00      3.13      6.38
   SRCPARAM L0000351     0.0000000849      0.00      3.13      6.38
   SRCPARAM L0000352     0.0000000849      0.00      3.13      6.38
   SRCPARAM L0000353     0.0000000849      0.00      3.13      6.38
   SRCPARAM L0000354     0.0000000849      0.00      3.13      6.38
** ----------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE4
   SRCPARAM L0000355     0.0000000849      0.00      3.13      6.38
   SRCPARAM L0000356     0.0000000849      0.00      3.13      6.38
   SRCPARAM L0000357     0.0000000849      0.00      3.13      6.38
   SRCPARAM L0000358     0.0000000849      0.00      3.13      6.38
   SRCPARAM L0000359     0.0000000849      0.00      3.13      6.38
   SRCPARAM L0000360     0.0000000849      0.00      3.13      6.38
   SRCPARAM L0000361     0.0000000849      0.00      3.13      6.38
   SRCPARAM L0000362     0.0000000849      0.00      3.13      6.38
   SRCPARAM L0000363     0.0000000849      0.00      3.13      6.38
   SRCPARAM L0000364     0.0000000849      0.00      3.13      6.38
** ----------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE5
   SRCPARAM L0000365     0.00000006611      0.00      3.21      6.38
   SRCPARAM L0000366     0.00000006611      0.00      3.21      6.38
   SRCPARAM L0000367     0.00000006611      0.00      3.21      6.38
   SRCPARAM L0000368     0.00000006611      0.00      3.21      6.38
   SRCPARAM L0000369     0.00000006611      0.00      3.21      6.38
   SRCPARAM L0000370     0.00000006611      0.00      3.21      6.38
   SRCPARAM L0000371     0.00000006611      0.00      3.21      6.38
   SRCPARAM L0000372     0.00000006611      0.00      3.21      6.38
   SRCPARAM L0000373     0.00000006611      0.00      3.21      6.38
** ----------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE6
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SRCPARAM L0000374     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000375     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000376     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000377     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000378     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000379     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000380     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000381     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000382     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000383     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000384     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000385     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000386     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000387     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000388     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000389     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000390     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000391     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000392     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000393     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000394     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000395     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000396     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000397     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000398     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000399     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000400     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000401     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000402     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000403     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000404     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000405     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000406     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000407     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000408     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000409     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000410     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000411     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000412     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000413     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000414     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000415     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000416     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000417     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000418     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000419     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000420     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000421     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000422     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000423     0.0000002741      0.00      3.37      1.70
SRCPARAM L0000424     0.0000002741      0.00      3.37      1.70
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   SRCPARAM L0000425     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000426     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000427     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000428     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000429     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000430     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000431     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000432     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000433     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000434     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000435     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000436     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000437     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000438     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000439     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000440     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000441     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000442     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000443     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000444     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000445     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000446     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000447     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000448     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000449     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000450     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000451     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000452     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000453     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000454     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000455     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000456     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000457     0.0000002741      0.00      3.37      1.70
   SRCPARAM L0000458     0.0000002741      0.00      3.37      1.70
** ------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE7
   SRCPARAM L0000459     0.0000002859      0.00      3.36      1.70
   SRCPARAM L0000460     0.0000002859      0.00      3.36      1.70
   SRCPARAM L0000461     0.0000002859      0.00      3.36      1.70
   SRCPARAM L0000462     0.0000002859      0.00      3.36      1.70
   SRCPARAM L0000463     0.0000002859      0.00      3.36      1.70
   SRCPARAM L0000464     0.0000002859      0.00      3.36      1.70
   SRCPARAM L0000465     0.0000002859      0.00      3.36      1.70
   SRCPARAM L0000466     0.0000002859      0.00      3.36      1.70
   SRCPARAM L0000467     0.0000002859      0.00      3.36      1.70
   SRCPARAM L0000468     0.0000002859      0.00      3.36      1.70
   SRCPARAM L0000469     0.0000002859      0.00      3.36      1.70
   SRCPARAM L0000470     0.0000002859      0.00      3.36      1.70
   SRCPARAM L0000471     0.0000002859      0.00      3.36      1.70
   SRCPARAM L0000472     0.0000002859      0.00      3.36      1.70
   SRCPARAM L0000473     0.0000002859      0.00      3.36      1.70
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SRCPARAM	L0000474	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000475	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000476	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000477	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000478	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000479	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000480	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000481	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000482	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000483	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000484	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000485	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000486	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000487	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000488	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000489	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000490	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000491	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000492	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000493	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000494	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000495	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000496	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000497	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000498	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000499	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000500	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000501	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000502	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000503	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000504	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000505	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000506	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000507	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000508	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000509	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000510	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000511	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000512	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000513	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000514	0.0000002859	0.00	3.36	1.70
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SRCPARAM	L0000516	0.0000002859	0.00	3.36	1.70
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SRCPARAM	L0000518	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000519	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000520	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000521	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000522	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000523	0.0000002859	0.00	3.36	1.70
SRCPARAM	L0000524	0.0000002859	0.00	3.36	1.70

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   SRCPARAM L0000525     0.0000002859      0.00      3.36      1.70
   SRCPARAM L0000526     0.0000002859      0.00      3.36      1.70
   SRCPARAM L0000527     0.0000002859      0.00      3.36      1.70
   SRCPARAM L0000528     0.0000002859      0.00      3.36      1.70
   SRCPARAM L0000529     0.0000002859      0.00      3.36      1.70
** --------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE8
   SRCPARAM L0000530     0.0000003981      0.00      3.39      1.70
   SRCPARAM L0000531     0.0000003981      0.00      3.39      1.70
   SRCPARAM L0000532     0.0000003981      0.00      3.39      1.70
   SRCPARAM L0000533     0.0000003981      0.00      3.39      1.70
   SRCPARAM L0000534     0.0000003981      0.00      3.39      1.70
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   SRCPARAM L0000541     0.0000003981      0.00      3.39      1.70
   SRCPARAM L0000542     0.0000003981      0.00      3.39      1.70
   SRCPARAM L0000543     0.0000003981      0.00      3.39      1.70
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   SRCPARAM L0000545     0.0000003981      0.00      3.39      1.70
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   SRCPARAM L0000547     0.0000003981      0.00      3.39      1.70
   SRCPARAM L0000548     0.0000003981      0.00      3.39      1.70
   SRCPARAM L0000549     0.0000003981      0.00      3.39      1.70
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   SRCPARAM L0000565     0.0000003981      0.00      3.39      1.70
   SRCPARAM L0000566     0.0000003981      0.00      3.39      1.70
   SRCPARAM L0000567     0.0000003981      0.00      3.39      1.70
   SRCPARAM L0000568     0.0000003981      0.00      3.39      1.70
   SRCPARAM L0000569     0.0000003981      0.00      3.39      1.70
   SRCPARAM L0000570     0.0000003981      0.00      3.39      1.70
   SRCPARAM L0000571     0.0000003981      0.00      3.39      1.70
   SRCPARAM L0000572     0.0000003981      0.00      3.39      1.70
   SRCPARAM L0000573     0.0000003981      0.00      3.39      1.70
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SRCPARAM	L0000577	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000578	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000579	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000580	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000581	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000582	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000583	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000584	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000585	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000586	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000587	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000588	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000589	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000590	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000591	0.0000003981	0.00	3.39	1.70
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SRCPARAM	L0000594	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000595	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000596	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000597	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000598	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000599	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000600	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000601	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000602	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000603	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000604	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000605	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000606	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000607	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000608	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000609	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000610	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000611	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000612	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000613	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000614	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000615	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000616	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000617	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000618	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000619	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000620	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000621	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000622	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000623	0.0000003981	0.00	3.39	1.70
SRCPARAM	L0000624	0.0000003981	0.00	3.39	1.70

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   SRCPARAM L0000625     0.0000003981      0.00      3.39      1.70
   SRCPARAM L0000626     0.0000003981      0.00      3.39      1.70
   SRCPARAM L0000627     0.0000003981      0.00      3.39      1.70
   SRCPARAM L0000628     0.0000003981      0.00      3.39      1.70
   SRCPARAM L0000629     0.0000003981      0.00      3.39      1.70
   SRCPARAM L0000630     0.0000003981      0.00      3.39      1.70
   SRCPARAM L0000631     0.0000003981      0.00      3.39      1.70
   SRCPARAM L0000632     0.0000003981      0.00      3.39      1.70
   SRCPARAM L0000633     0.0000003981      0.00      3.39      1.70
   SRCPARAM L0000634     0.0000003981      0.00      3.39      1.70
** ----------------------------------------------------------------------

** Building Downwash **
   BUILDHGT STCK1          13.72    13.72    13.72    13.72    13.72    13.72
   BUILDHGT STCK1          13.72    13.72    13.72    13.72    13.72    13.72
   BUILDHGT STCK1          13.72    13.72    13.72    13.72    13.72    13.72
   BUILDHGT STCK1          13.72    13.72    13.72    13.72    13.72    13.72
   BUILDHGT STCK1          13.72    13.72    13.72    13.72    13.72    13.72
   BUILDHGT STCK1          13.72    13.72    13.72    13.72    13.72    13.72

   BUILDHGT STCK2          13.72    13.72    13.72    13.72    13.72    13.72
   BUILDHGT STCK2          13.72    13.72    13.72    13.72    13.72    13.72
   BUILDHGT STCK2          13.72    13.72    13.72    13.72    13.72    13.72
   BUILDHGT STCK2          13.72    13.72    13.72    13.72    13.72    13.72
   BUILDHGT STCK2          13.72    13.72    13.72    13.72    13.72    13.72
   BUILDHGT STCK2          13.72    13.72    13.72    13.72    13.72    13.72

   BUILDHGT STCK3          13.72    13.72    13.72    13.72    13.72    13.72
   BUILDHGT STCK3          13.72    13.72    13.72    13.72    13.72    13.72
   BUILDHGT STCK3          13.72    13.72    13.72    13.72    13.72    13.72
   BUILDHGT STCK3          13.72    13.72    13.72    13.72    13.72    13.72
   BUILDHGT STCK3          13.72    13.72    13.72    13.72    13.72    13.72
   BUILDHGT STCK3          13.72    13.72    13.72    13.72    13.72    13.72

   BUILDHGT STCK4          13.72    13.72    13.72    13.72    13.72    13.72
   BUILDHGT STCK4          13.72    13.72    13.72    13.72    13.72    13.72
   BUILDHGT STCK4          13.72    13.72    13.72    13.72    13.72    13.72
   BUILDHGT STCK4          13.72    13.72    13.72    13.72    13.72    13.72
   BUILDHGT STCK4          13.72    13.72    13.72    13.72    13.72    13.72
   BUILDHGT STCK4          13.72    13.72    13.72    13.72    13.72    13.72

   BUILDHGT STCK5          13.72    13.72    13.72    13.72    13.72    13.72
   BUILDHGT STCK5          13.72    13.72    13.72    13.72    13.72    13.72
   BUILDHGT STCK5          13.72    13.72    13.72    13.72    13.72    13.72
   BUILDHGT STCK5          13.72    13.72    13.72    13.72    13.72    13.72
   BUILDHGT STCK5          13.72    13.72    13.72    13.72    13.72    13.72
   BUILDHGT STCK5          13.72    13.72    13.72    13.72    13.72    13.72

   BUILDWID STCK1         165.52   165.40   163.59   156.81   145.27   129.31
   BUILDWID STCK1         109.43    86.22    67.59    92.25   114.11   132.50
   BUILDWID STCK1         146.87   156.77   161.91   162.54   166.35   165.11
```

BUILDWID STCK1	165.52	165.40	163.59	156.81	145.27	129.31
BUILDWID STCK1	109.43	86.22	67.59	92.25	114.11	132.50
BUILDWID STCK1	146.87	156.77	161.91	162.54	166.35	165.11
BUILDWID STCK2	165.52	165.40	163.59	156.81	145.27	129.31
BUILDWID STCK2	109.43	86.22	67.59	92.25	114.11	132.50
BUILDWID STCK2	146.87	156.77	161.91	162.54	166.35	165.11
BUILDWID STCK2	165.52	165.40	163.59	156.81	145.27	129.31
BUILDWID STCK2	109.43	86.22	67.59	92.25	114.11	132.50
BUILDWID STCK2	146.87	156.77	161.91	162.54	166.35	165.11
BUILDWID STCK3	153.59	151.22	149.15	145.13	145.27	129.31
BUILDWID STCK3	109.43	86.22	67.59	92.25	109.10	126.36
BUILDWID STCK3	139.78	148.96	153.61	153.59	152.55	151.29
BUILDWID STCK3	153.59	151.22	149.15	145.13	136.69	124.11
BUILDWID STCK3	107.75	88.12	65.81	88.52	109.10	126.36
BUILDWID STCK3	139.78	148.96	153.61	153.59	152.55	151.29
BUILDWID STCK4	153.59	151.22	149.15	145.13	136.69	124.11
BUILDWID STCK4	107.75	88.12	65.81	88.52	109.10	126.36
BUILDWID STCK4	139.78	148.96	153.61	153.59	152.55	151.29
BUILDWID STCK4	153.59	151.22	149.15	145.13	136.69	124.11
BUILDWID STCK4	107.75	88.12	65.81	88.52	109.10	126.36
BUILDWID STCK4	139.78	148.96	153.61	153.59	152.55	151.29
BUILDWID STCK5	71.34	73.12	77.62	82.81	136.69	124.11
BUILDWID STCK5	107.75	88.12	65.81	88.52	109.10	94.52
BUILDWID STCK5	97.00	96.54	93.14	86.92	78.05	67.39
BUILDWID STCK5	71.34	73.12	77.62	82.81	85.48	85.56
BUILDWID STCK5	83.03	77.99	70.86	81.10	89.16	94.52
BUILDWID STCK5	97.00	96.54	93.14	86.92	78.05	67.39
BUILDLEN STCK1	92.25	114.11	132.50	146.87	156.77	161.91
BUILDLEN STCK1	162.54	166.35	165.11	165.52	165.40	163.59
BUILDLEN STCK1	156.81	145.27	129.31	109.43	86.22	67.59
BUILDLEN STCK1	92.25	114.11	132.50	146.87	156.77	161.91
BUILDLEN STCK1	162.54	166.35	165.11	165.52	165.40	163.59
BUILDLEN STCK1	156.81	145.27	129.31	109.43	86.22	67.59
BUILDLEN STCK2	92.25	114.11	132.50	146.87	156.77	161.91
BUILDLEN STCK2	162.54	166.35	165.11	165.52	165.40	163.59
BUILDLEN STCK2	156.81	145.27	129.31	109.43	86.22	67.59
BUILDLEN STCK2	92.25	114.11	132.50	146.87	156.77	161.91
BUILDLEN STCK2	162.54	166.35	165.11	165.52	165.40	163.59
BUILDLEN STCK2	156.81	145.27	129.31	109.43	86.22	67.59
BUILDLEN STCK3	88.52	109.10	126.36	139.78	156.77	161.91
BUILDLEN STCK3	162.54	166.35	165.11	165.52	151.22	149.15
BUILDLEN STCK3	145.13	136.69	124.11	107.75	88.12	65.81
BUILDLEN STCK3	88.52	109.10	126.36	139.78	148.96	153.61
BUILDLEN STCK3	153.59	152.55	151.29	153.59	151.22	149.15

BUILDLEN	STCK3	145.13	136.69	124.11	107.75	88.12	65.81
BUILDLEN	STCK4	88.52	109.10	126.36	139.78	148.96	153.61
BUILDLEN	STCK4	153.59	152.55	151.29	153.59	151.22	149.15
BUILDLEN	STCK4	145.13	136.69	124.11	107.75	88.12	65.81
BUILDLEN	STCK4	88.52	109.10	126.36	139.78	148.96	153.61
BUILDLEN	STCK4	153.59	152.55	151.29	153.59	151.22	149.15
BUILDLEN	STCK4	145.13	136.69	124.11	107.75	88.12	65.81
BUILDLEN	STCK5	81.10	89.16	94.52	97.00	148.96	153.61
BUILDLEN	STCK5	153.59	152.55	151.29	153.59	151.22	77.62
BUILDLEN	STCK5	82.81	85.48	85.56	83.03	77.99	70.86
BUILDLEN	STCK5	81.10	89.16	94.52	97.00	96.54	93.14
BUILDLEN	STCK5	86.92	78.05	67.39	71.34	73.12	77.62
BUILDLEN	STCK5	82.81	85.48	85.56	83.03	77.99	70.86
XBADJ	STCK1	-43.12	-41.96	-39.53	-35.90	-31.18	-25.52
XBADJ	STCK1	-19.07	-12.05	-4.66	-0.88	-1.01	-4.46
XBADJ	STCK1	-7.77	-10.85	-13.60	-15.93	-17.78	-24.63
XBADJ	STCK1	-49.14	-72.15	-92.97	-110.97	-125.59	-136.40
XBADJ	STCK1	-143.47	-154.31	-160.45	-164.64	-164.38	-159.13
XBADJ	STCK1	-149.04	-134.42	-115.72	-93.50	-68.44	-42.96
XBADJ	STCK2	-68.92	-92.79	-113.84	-131.44	-145.03	-154.22
XBADJ	STCK2	-158.73	-158.41	-153.28	-147.24	-140.67	-133.17
XBADJ	STCK2	-121.62	-106.38	-87.91	-66.76	-43.59	-24.63
XBADJ	STCK2	-23.33	-21.32	-18.66	-15.44	-11.74	-7.69
XBADJ	STCK2	-3.81	-7.94	-11.83	-18.28	-24.73	-30.42
XBADJ	STCK2	-35.19	-38.89	-41.41	-42.67	-42.63	-42.96
XBADJ	STCK3	-51.76	-51.55	-49.78	-46.50	-202.67	-217.70
XBADJ	STCK3	-226.11	-227.65	-222.28	-213.91	-3.72	-3.80
XBADJ	STCK3	-6.34	-8.69	-10.77	-12.53	-13.91	-14.86
XBADJ	STCK3	-36.76	-57.54	-76.57	-93.28	-107.15	-117.77
XBADJ	STCK3	-124.81	-131.70	-138.42	-145.16	-147.50	-145.35
XBADJ	STCK3	-138.79	-128.00	-113.33	-95.22	-74.21	-50.95
XBADJ	STCK4	-70.43	-92.58	-111.92	-127.86	-139.91	-147.71
XBADJ	STCK4	-151.02	-149.75	-144.50	-138.79	-128.87	-119.92
XBADJ	STCK4	-109.91	-96.56	-80.27	-61.54	-40.95	-19.11
XBADJ	STCK4	-18.09	-16.51	-14.44	-11.93	-9.05	-5.90
XBADJ	STCK4	-2.57	-2.80	-6.79	-14.80	-22.35	-29.23
XBADJ	STCK4	-35.22	-40.14	-43.84	-46.21	-47.17	-46.70
XBADJ	STCK5	-49.11	-49.13	-47.66	-44.74	-190.60	-205.49
XBADJ	STCK5	-214.15	-216.30	-212.45	-206.08	-193.45	-7.01
XBADJ	STCK5	-10.86	-14.39	-17.47	-20.03	-21.98	-23.26
XBADJ	STCK5	-31.99	-40.03	-46.86	-52.26	-56.08	-58.19
XBADJ	STCK5	-58.53	-57.10	-54.22	-61.61	-67.13	-70.61
XBADJ	STCK5	-71.95	-71.09	-68.08	-63.00	-56.01	-47.60

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   YBADJ    STCK1          -81.88   -81.68   -77.33   -70.63   -61.78   -51.06
   YBADJ    STCK1          -38.78   -25.33    -9.16     3.01    15.09    26.72
   YBADJ    STCK1           37.53    47.20    55.44    62.20    71.13    77.90
   YBADJ    STCK1           81.88    81.68    77.33    70.63    61.78    51.06
   YBADJ    STCK1           38.78    25.33     9.16    -3.01   -15.09   -26.72
   YBADJ    STCK1          -37.53   -47.20   -55.44   -62.20   -71.13   -77.90

   YBADJ    STCK2           64.48    57.97    51.38    43.22    33.75    23.25
   YBADJ    STCK2           12.05     0.48    -9.17   -22.80   -35.74   -47.59
   YBADJ    STCK2          -58.00   -66.65   -73.27   -77.46   -75.23   -70.72
   YBADJ    STCK2          -64.48   -57.97   -51.38   -43.22   -33.75   -23.25
   YBADJ    STCK2          -12.05    -0.48     9.17    22.80    35.74    47.59
   YBADJ    STCK2           58.00    66.65    73.27    77.46    75.23    70.72

   YBADJ    STCK3          -68.37   -71.89   -70.77   -66.22    72.41    51.32
   YBADJ    STCK3           28.66     5.14   -16.60   -42.10     2.99    13.40
   YBADJ    STCK3           23.39    32.67    40.97    48.01    55.42    62.78
   YBADJ    STCK3           68.37    71.89    70.77    66.22    59.66    51.28
   YBADJ    STCK3           41.34    30.15    18.04     7.50    -2.99   -13.40
   YBADJ    STCK3          -23.39   -32.67   -40.97   -48.01   -55.42   -62.78

   YBADJ    STCK4           62.00    53.26    45.35    37.34    28.21    18.22
   YBADJ    STCK4            7.67    -3.11   -13.80   -26.17   -38.03   -48.74
   YBADJ    STCK4          -57.96   -65.43   -70.90   -74.23   -73.47   -68.86
   YBADJ    STCK4          -62.00   -53.26   -45.35   -37.34   -28.21   -18.22
   YBADJ    STCK4           -7.67     3.11    13.80    26.17    38.03    48.74
   YBADJ    STCK4           57.96    65.43    70.90    74.23    73.47    68.85

   YBADJ    STCK5          -25.94   -30.57   -31.80   -30.54    73.51    54.03
   YBADJ    STCK5           32.90    10.78   -11.68   -35.88   -59.28    -0.40
   YBADJ    STCK5            3.76     7.81    11.62    15.08    18.07    20.53
   YBADJ    STCK5           25.94    30.57    31.80    30.54    28.35    25.30
   YBADJ    STCK5           21.49    17.01    12.17     8.56     4.55     0.40
   YBADJ    STCK5           -3.76    -7.81   -11.62   -15.08   -18.07   -20.53

   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
****************************************
** AERMOD Receptor Pathway
****************************************
**
**
RE STARTING
   INCLUDED "Dan Kipper.rou"
RE FINISHED
**
****************************************
** AERMOD Meteorology Pathway
****************************************
```

```
**
**
ME STARTING
   SURFFILE "C:\Users\Kate Wilson\Desktop\Met data\rivr8.sfc"
   PROFFILE "C:\Users\Kate Wilson\Desktop\Met data\rivr8.PFL"
   SURFDATA 0 2008
   UAIRDATA 3190 2008
   SITEDATA 99999 2008
   PROFBASE 250.0 METERS
ME FINISHED
**
****************************************
** AERMOD Output Pathway
****************************************
**
**
OU STARTING
** Auto-Generated Plotfiles
   PLOTFILE ANNUAL ALL "Dan Kipper.AD\AN00GALL.PLT" 31
   SUMMFILE "Dan Kipper.sum"
OU FINISHED


  *** Message Summary For AERMOD Model Setup ***

  --------- Summary of Total Messages --------

 A Total of             0 Fatal Error Message(s)
 A Total of             5 Warning Message(s)
 A Total of             0 Informational Message(s)


    ******** FATAL ERROR MESSAGES ********
               ***  NONE  ***


    ********   WARNING MESSAGES   ********
 SO W320     498  PPARM:Input Parameter May Be Out-of-Range for Parameter            VS
 SO W320     499  PPARM:Input Parameter May Be Out-of-Range for Parameter            VS
 SO W320     500  PPARM:Input Parameter May Be Out-of-Range for Parameter            VS
 SO W320     501  PPARM:Input Parameter May Be Out-of-Range for Parameter            VS
 SO W320     502  PPARM:Input Parameter May Be Out-of-Range for Parameter            VS

 ***********************************
 *** SETUP Finishes Successfully ***
 ***********************************
```

```
**MODELOPTs:  NonDFAULT CONC                                         ELEV                                    FASTALL

                                           ***     MODEL SETUP OPTIONS SUMMARY       ***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

**Model Is Setup For Calculation of Average CONCentration Values.

  --  DEPOSITION LOGIC  --
**NO GAS DEPOSITION Data Provided.
**NO PARTICLE DEPOSITION Data Provided.
**Model Uses NO DRY DEPLETION.  DRYDPLT  =  F
**Model Uses NO WET DEPLETION.  WETDPLT  =  F

**Model Uses URBAN Dispersion Algorithm for the SBL for   313 Source(s),
  for Total of    1 Urban Area(s):
  Urban Population =    313673.0 ;  Urban Roughness Length =  1.000 m

**Model Allows User-Specified Options:
        1. Stack-tip Downwash.
        2. Model Accounts for ELEVated Terrain Effects.
        3. Use Calms Processing Routine.
        4. Use Missing Data Processing Routine.
        5. No Exponential Decay.
        6. Urban Roughness Length of 1.0 Meter Used.

**Other Options Specified:
        FASTALL  - Use effective sigma-y to optimize meander for
                   POINT and VOLUME sources, and hybrid approach
                   to optimize AREA sources (formerly TOXICS option)

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates ANNUAL Averages Only

**This Run Includes:    313 Source(s);       1 Source Group(s); and     451 Receptor(s)

**The Model Assumes A Pollutant Type of:  DPM

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
         Model Outputs Tables of ANNUAL Averages by Receptor
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)
         Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and Missing Hours

**Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =   250.00 ;  Decay Coef. =    0.000     ;  Rot. Angle =     0.0
```

Emission Units = GRAMS/SEC ; Emission Rate Unit Factor = 0.10000E+07
Output Units = MICROGRAMS/M**3

**Approximate Storage Requirements of Model = 4.1 MB of RAM.

**Detailed Error/Message File: Dan Kipper.err
**File for Summary of Results: Dan Kipper.sum

*** POINT SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	STACK HEIGHT (METERS)	STACK TEMP. (DEG.K)	STACK EXIT VEL. (M/SEC)	STACK DIAMETER (METERS)	BLDG EXISTS	URBAN SOURCE	CAP/ HOR	EMIS RATE SCALAR VARY BY
STCK1	0	0.10100E-04	471837.0	3755743.2	482.7	3.66	366.00	51.82	0.09	YES	YES	NO	
STCK2	0	0.10100E-04	471985.6	3755743.2	475.1	3.66	366.00	51.82	0.09	YES	YES	NO	
STCK3	0	0.89600E-05	472054.6	3755750.6	471.3	3.66	366.00	51.82	0.09	YES	YES	NO	
STCK4	0	0.89600E-05	472186.2	3755746.3	467.0	3.66	366.00	51.82	0.09	YES	YES	NO	
STCK5	0	0.34200E-05	472254.1	3755744.2	466.7	3.66	366.00	51.82	0.09	YES	YES	NO	

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000327	0	0.97000E-07	471817.8	3755742.4	483.7	0.00	3.18	6.38	YES	
L0000328	0	0.97000E-07	471817.8	3755735.6	483.2	0.00	3.18	6.38	YES	
L0000329	0	0.97000E-07	471817.8	3755728.7	482.8	0.00	3.18	6.38	YES	
L0000330	0	0.97000E-07	471817.8	3755721.9	482.3	0.00	3.18	6.38	YES	
L0000331	0	0.97000E-07	471817.8	3755715.0	481.9	0.00	3.18	6.38	YES	
L0000332	0	0.97000E-07	471817.8	3755708.2	481.7	0.00	3.18	6.38	YES	
L0000333	0	0.97000E-07	471817.8	3755701.4	481.5	0.00	3.18	6.38	YES	
L0000334	0	0.97000E-07	471817.8	3755694.5	481.3	0.00	3.18	6.38	YES	
L0000335	0	0.97000E-07	471817.8	3755687.7	481.0	0.00	3.18	6.38	YES	

L0000336	0	0.97000E-07	472003.2	3755740.8	474.9	0.00	3.18	6.38	YES		
L0000337	0	0.97000E-07	472003.1	3755734.0	475.2	0.00	3.18	6.38	YES		
L0000338	0	0.97000E-07	472003.1	3755727.2	475.4	0.00	3.18	6.38	YES		
L0000339	0	0.97000E-07	472003.0	3755720.3	475.7	0.00	3.18	6.38	YES		
L0000340	0	0.97000E-07	472002.9	3755713.5	475.8	0.00	3.18	6.38	YES		
L0000341	0	0.97000E-07	472002.8	3755706.7	475.9	0.00	3.18	6.38	YES		
L0000342	0	0.97000E-07	472002.8	3755699.8	475.9	0.00	3.18	6.38	YES		
L0000343	0	0.97000E-07	472002.7	3755693.0	476.0	0.00	3.18	6.38	YES		
L0000344	0	0.97000E-07	472002.6	3755686.2	476.0	0.00	3.18	6.38	YES		
L0000345	0	0.84900E-07	472034.6	3755747.9	472.6	0.00	3.13	6.38	YES		
L0000346	0	0.84900E-07	472034.6	3755741.2	473.0	0.00	3.13	6.38	YES		
L0000347	0	0.84900E-07	472034.5	3755734.5	473.3	0.00	3.13	6.38	YES		
L0000348	0	0.84900E-07	472034.5	3755727.8	473.7	0.00	3.13	6.38	YES		
L0000349	0	0.84900E-07	472034.5	3755721.0	474.1	0.00	3.13	6.38	YES		
L0000350	0	0.84900E-07	472034.5	3755714.3	474.4	0.00	3.13	6.38	YES		
L0000351	0	0.84900E-07	472034.4	3755707.6	474.8	0.00	3.13	6.38	YES		
L0000352	0	0.84900E-07	472034.4	3755700.9	475.1	0.00	3.13	6.38	YES		
L0000353	0	0.84900E-07	472034.4	3755694.1	475.5	0.00	3.13	6.38	YES		
L0000354	0	0.84900E-07	472034.4	3755687.4	475.8	0.00	3.13	6.38	YES		
L0000355	0	0.84900E-07	472200.7	3755745.8	467.1	0.00	3.13	6.38	YES		
L0000356	0	0.84900E-07	472200.7	3755739.1	467.7	0.00	3.13	6.38	YES		
L0000357	0	0.84900E-07	472200.7	3755732.4	468.3	0.00	3.13	6.38	YES		
L0000358	0	0.84900E-07	472200.7	3755725.7	468.9	0.00	3.13	6.38	YES		
L0000359	0	0.84900E-07	472200.7	3755718.9	469.5	0.00	3.13	6.38	YES		
L0000360	0	0.84900E-07	472200.7	3755712.2	469.9	0.00	3.13	6.38	YES		
L0000361	0	0.84900E-07	472200.7	3755705.5	470.3	0.00	3.13	6.38	YES		
L0000362	0	0.84900E-07	472200.7	3755698.8	470.7	0.00	3.13	6.38	YES		
L0000363	0	0.84900E-07	472200.7	3755692.1	471.1	0.00	3.13	6.38	YES		
L0000364	0	0.84900E-07	472200.7	3755685.3	471.4	0.00	3.13	6.38	YES		
L0000365	0	0.66110E-07	472233.0	3755741.5	467.4	0.00	3.21	6.38	YES		
L0000366	0	0.66110E-07	472233.0	3755734.5	467.9	0.00	3.21	6.38	YES		

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000367	0	0.66110E-07	472233.1	3755727.6	468.4	0.00	3.21	6.38	YES	
L0000368	0	0.66110E-07	472233.2	3755720.7	468.9	0.00	3.21	6.38	YES	
L0000369	0	0.66110E-07	472233.2	3755713.8	469.5	0.00	3.21	6.38	YES	
L0000370	0	0.66110E-07	472233.3	3755706.9	470.4	0.00	3.21	6.38	YES	
L0000371	0	0.66110E-07	472233.4	3755700.0	471.2	0.00	3.21	6.38	YES	

L0000372	0	0.66110E-07	472233.5	3755693.1	472.0	0.00	3.21	6.38	YES	
L0000373	0	0.66110E-07	472233.5	3755686.2	472.8	0.00	3.21	6.38	YES	
L0000374	0	0.27410E-06	471812.7	3755668.7	482.3	0.00	3.37	1.70	YES	
L0000375	0	0.27410E-06	471820.0	3755668.7	482.2	0.00	3.37	1.70	YES	
L0000376	0	0.27410E-06	471827.2	3755668.7	481.6	0.00	3.37	1.70	YES	
L0000377	0	0.27410E-06	471834.5	3755668.7	481.1	0.00	3.37	1.70	YES	
L0000378	0	0.27410E-06	471841.7	3755668.7	480.6	0.00	3.37	1.70	YES	
L0000379	0	0.27410E-06	471848.9	3755668.8	480.0	0.00	3.37	1.70	YES	
L0000380	0	0.27410E-06	471856.2	3755668.8	479.4	0.00	3.37	1.70	YES	
L0000381	0	0.27410E-06	471863.4	3755668.8	478.8	0.00	3.37	1.70	YES	
L0000382	0	0.27410E-06	471870.7	3755668.8	478.1	0.00	3.37	1.70	YES	
L0000383	0	0.27410E-06	471877.9	3755668.8	477.5	0.00	3.37	1.70	YES	
L0000384	0	0.27410E-06	471885.1	3755668.8	477.2	0.00	3.37	1.70	YES	
L0000385	0	0.27410E-06	471892.4	3755668.9	477.0	0.00	3.37	1.70	YES	
L0000386	0	0.27410E-06	471899.6	3755668.9	476.9	0.00	3.37	1.70	YES	
L0000387	0	0.27410E-06	471906.9	3755668.9	476.7	0.00	3.37	1.70	YES	
L0000388	0	0.27410E-06	471914.1	3755668.9	476.5	0.00	3.37	1.70	YES	
L0000389	0	0.27410E-06	471921.3	3755668.9	476.4	0.00	3.37	1.70	YES	
L0000390	0	0.27410E-06	471928.6	3755668.9	476.2	0.00	3.37	1.70	YES	
L0000391	0	0.27410E-06	471935.8	3755669.0	476.1	0.00	3.37	1.70	YES	
L0000392	0	0.27410E-06	471943.1	3755669.0	476.0	0.00	3.37	1.70	YES	
L0000393	0	0.27410E-06	471950.3	3755669.0	476.0	0.00	3.37	1.70	YES	
L0000394	0	0.27410E-06	471957.5	3755669.0	476.0	0.00	3.37	1.70	YES	
L0000395	0	0.27410E-06	471964.8	3755669.0	476.0	0.00	3.37	1.70	YES	
L0000396	0	0.27410E-06	471972.0	3755669.0	476.0	0.00	3.37	1.70	YES	
L0000397	0	0.27410E-06	471979.2	3755669.0	476.0	0.00	3.37	1.70	YES	
L0000398	0	0.27410E-06	471986.5	3755669.1	476.0	0.00	3.37	1.70	YES	
L0000399	0	0.27410E-06	471993.7	3755669.1	476.0	0.00	3.37	1.70	YES	
L0000400	0	0.27410E-06	472001.0	3755669.1	476.0	0.00	3.37	1.70	YES	
L0000401	0	0.27410E-06	472008.2	3755669.1	475.8	0.00	3.37	1.70	YES	
L0000402	0	0.27410E-06	472015.4	3755669.1	475.7	0.00	3.37	1.70	YES	
L0000403	0	0.27410E-06	472022.7	3755669.1	475.6	0.00	3.37	1.70	YES	
L0000404	0	0.27410E-06	472029.9	3755669.2	475.4	0.00	3.37	1.70	YES	
L0000405	0	0.27410E-06	472037.2	3755669.2	475.2	0.00	3.37	1.70	YES	
L0000406	0	0.27410E-06	472044.4	3755669.2	474.9	0.00	3.37	1.70	YES	

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000407	0	0.27410E-06	472051.6	3755669.2	474.7	0.00	3.37	1.70	YES	

L0000408	0	0.27410E-06	472058.9	3755669.2	474.4	0.00	3.37	1.70	YES
L0000409	0	0.27410E-06	472066.1	3755669.2	473.9	0.00	3.37	1.70	YES
L0000410	0	0.27410E-06	472073.4	3755669.3	473.2	0.00	3.37	1.70	YES
L0000411	0	0.27410E-06	472080.6	3755669.3	472.6	0.00	3.37	1.70	YES
L0000412	0	0.27410E-06	472087.8	3755669.3	472.0	0.00	3.37	1.70	YES
L0000413	0	0.27410E-06	472095.1	3755669.3	471.4	0.00	3.37	1.70	YES
L0000414	0	0.27410E-06	472102.3	3755669.3	470.8	0.00	3.37	1.70	YES
L0000415	0	0.27410E-06	472109.6	3755669.3	470.2	0.00	3.37	1.70	YES
L0000416	0	0.27410E-06	472116.8	3755669.4	469.7	0.00	3.37	1.70	YES
L0000417	0	0.27410E-06	472124.0	3755669.4	469.4	0.00	3.37	1.70	YES
L0000418	0	0.27410E-06	472131.3	3755669.4	469.5	0.00	3.37	1.70	YES
L0000419	0	0.27410E-06	472138.5	3755669.4	469.5	0.00	3.37	1.70	YES
L0000420	0	0.27410E-06	472145.8	3755669.4	469.6	0.00	3.37	1.70	YES
L0000421	0	0.27410E-06	472153.0	3755669.4	469.7	0.00	3.37	1.70	YES
L0000422	0	0.27410E-06	472160.2	3755669.4	469.9	0.00	3.37	1.70	YES
L0000423	0	0.27410E-06	472167.5	3755669.5	470.2	0.00	3.37	1.70	YES
L0000424	0	0.27410E-06	472174.7	3755669.5	470.4	0.00	3.37	1.70	YES
L0000425	0	0.27410E-06	472181.9	3755669.5	470.7	0.00	3.37	1.70	YES
L0000426	0	0.27410E-06	472189.2	3755669.5	471.2	0.00	3.37	1.70	YES
L0000427	0	0.27410E-06	472196.4	3755669.5	471.7	0.00	3.37	1.70	YES
L0000428	0	0.27410E-06	472203.7	3755669.5	472.2	0.00	3.37	1.70	YES
L0000429	0	0.27410E-06	472210.9	3755669.6	472.6	0.00	3.37	1.70	YES
L0000430	0	0.27410E-06	472218.1	3755669.6	472.7	0.00	3.37	1.70	YES
L0000431	0	0.27410E-06	472225.4	3755669.6	472.8	0.00	3.37	1.70	YES
L0000432	0	0.27410E-06	472232.6	3755669.6	472.9	0.00	3.37	1.70	YES
L0000433	0	0.27410E-06	472239.9	3755669.6	473.0	0.00	3.37	1.70	YES
L0000434	0	0.27410E-06	472247.1	3755669.6	472.3	0.00	3.37	1.70	YES
L0000435	0	0.27410E-06	472254.3	3755669.7	471.6	0.00	3.37	1.70	YES
L0000436	0	0.27410E-06	472261.6	3755669.7	470.9	0.00	3.37	1.70	YES
L0000437	0	0.27410E-06	472268.8	3755669.7	470.2	0.00	3.37	1.70	YES
L0000438	0	0.27410E-06	472276.1	3755669.7	470.1	0.00	3.37	1.70	YES
L0000439	0	0.27410E-06	472283.3	3755669.7	470.1	0.00	3.37	1.70	YES
L0000440	0	0.27410E-06	472290.5	3755669.7	470.0	0.00	3.37	1.70	YES
L0000441	0	0.27410E-06	472297.8	3755669.8	470.0	0.00	3.37	1.70	YES
L0000442	0	0.27410E-06	472305.0	3755669.8	469.6	0.00	3.37	1.70	YES
L0000443	0	0.27410E-06	472311.5	3755671.3	469.0	0.00	3.37	1.70	YES
L0000444	0	0.27410E-06	472316.1	3755676.9	468.5	0.00	3.37	1.70	YES
L0000445	0	0.27410E-06	472320.4	3755682.7	468.0	0.00	3.37	1.70	YES
L0000446	0	0.27410E-06	472322.6	3755689.6	467.6	0.00	3.37	1.70	YES

*** VOLUME SOURCE DATA ***

SOURCE	NUMBER PART.	EMISSION RATE (GRAMS/SEC)	X	Y	BASE ELEV.	RELEASE HEIGHT	INIT. SY	INIT. SZ	URBAN SOURCE	EMISSION RATE SCALAR VARY

ID	CATS.		(METERS)	(METERS)	(METERS)	(METERS)	(METERS)	(METERS)		BY
L0000447	0	0.27410E-06	472324.7	3755696.5	467.1	0.00	3.37	1.70	YES	
L0000448	0	0.27410E-06	472326.9	3755703.4	466.6	0.00	3.37	1.70	YES	
L0000449	0	0.27410E-06	472328.5	3755710.4	466.3	0.00	3.37	1.70	YES	
L0000450	0	0.27410E-06	472329.5	3755717.6	466.0	0.00	3.37	1.70	YES	
L0000451	0	0.27410E-06	472330.6	3755724.8	466.0	0.00	3.37	1.70	YES	
L0000452	0	0.27410E-06	472331.6	3755731.9	466.0	0.00	3.37	1.70	YES	
L0000453	0	0.27410E-06	472335.3	3755738.0	465.9	0.00	3.37	1.70	YES	
L0000454	0	0.27410E-06	472339.7	3755743.8	465.7	0.00	3.37	1.70	YES	
L0000455	0	0.27410E-06	472344.1	3755749.5	465.4	0.00	3.37	1.70	YES	
L0000456	0	0.27410E-06	472348.4	3755755.3	465.1	0.00	3.37	1.70	YES	
L0000457	0	0.27410E-06	472354.5	3755758.8	464.8	0.00	3.37	1.70	YES	
L0000458	0	0.27410E-06	472361.2	3755761.6	464.5	0.00	3.37	1.70	YES	
L0000459	0	0.28590E-06	472172.3	3756229.1	463.2	0.00	3.36	1.70	YES	
L0000460	0	0.28590E-06	472177.0	3756223.7	463.1	0.00	3.36	1.70	YES	
L0000461	0	0.28590E-06	472181.8	3756218.3	462.9	0.00	3.36	1.70	YES	
L0000462	0	0.28590E-06	472186.6	3756212.9	462.8	0.00	3.36	1.70	YES	
L0000463	0	0.28590E-06	472191.4	3756207.4	462.6	0.00	3.36	1.70	YES	
L0000464	0	0.28590E-06	472196.2	3756202.0	462.4	0.00	3.36	1.70	YES	
L0000465	0	0.28590E-06	472200.9	3756196.6	462.3	0.00	3.36	1.70	YES	
L0000466	0	0.28590E-06	472205.7	3756191.2	462.3	0.00	3.36	1.70	YES	
L0000467	0	0.28590E-06	472210.5	3756185.8	462.4	0.00	3.36	1.70	YES	
L0000468	0	0.28590E-06	472215.3	3756180.4	462.5	0.00	3.36	1.70	YES	
L0000469	0	0.28590E-06	472220.1	3756175.0	462.7	0.00	3.36	1.70	YES	
L0000470	0	0.28590E-06	472224.8	3756169.6	462.9	0.00	3.36	1.70	YES	
L0000471	0	0.28590E-06	472229.8	3756164.4	463.0	0.00	3.36	1.70	YES	
L0000472	0	0.28590E-06	472234.9	3756159.2	463.0	0.00	3.36	1.70	YES	
L0000473	0	0.28590E-06	472240.0	3756154.1	463.0	0.00	3.36	1.70	YES	
L0000474	0	0.28590E-06	472245.0	3756148.9	463.0	0.00	3.36	1.70	YES	
L0000475	0	0.28590E-06	472250.1	3756143.8	463.0	0.00	3.36	1.70	YES	
L0000476	0	0.28590E-06	472255.2	3756138.7	463.0	0.00	3.36	1.70	YES	
L0000477	0	0.28590E-06	472260.2	3756133.5	463.1	0.00	3.36	1.70	YES	
L0000478	0	0.28590E-06	472265.3	3756128.4	463.3	0.00	3.36	1.70	YES	
L0000479	0	0.28590E-06	472270.3	3756123.2	463.4	0.00	3.36	1.70	YES	
L0000480	0	0.28590E-06	472275.4	3756118.1	463.6	0.00	3.36	1.70	YES	
L0000481	0	0.28590E-06	472280.5	3756112.9	463.8	0.00	3.36	1.70	YES	
L0000482	0	0.28590E-06	472285.1	3756107.4	464.0	0.00	3.36	1.70	YES	
L0000483	0	0.28590E-06	472289.3	3756101.5	464.1	0.00	3.36	1.70	YES	
L0000484	0	0.28590E-06	472293.4	3756095.6	464.3	0.00	3.36	1.70	YES	
L0000485	0	0.28590E-06	472297.6	3756089.7	464.5	0.00	3.36	1.70	YES	
L0000486	0	0.28590E-06	472300.7	3756083.3	464.8	0.00	3.36	1.70	YES	

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000487	0	0.28590E-06	472303.7	3756076.7	464.9	0.00	3.36	1.70	YES	
L0000488	0	0.28590E-06	472306.6	3756070.1	465.0	0.00	3.36	1.70	YES	
L0000489	0	0.28590E-06	472309.5	3756063.5	465.1	0.00	3.36	1.70	YES	
L0000490	0	0.28590E-06	472312.5	3756056.9	465.2	0.00	3.36	1.70	YES	
L0000491	0	0.28590E-06	472315.4	3756050.3	465.4	0.00	3.36	1.70	YES	
L0000492	0	0.28590E-06	472318.3	3756043.7	465.4	0.00	3.36	1.70	YES	
L0000493	0	0.28590E-06	472321.3	3756037.1	465.3	0.00	3.36	1.70	YES	
L0000494	0	0.28590E-06	472324.2	3756030.5	465.2	0.00	3.36	1.70	YES	
L0000495	0	0.28590E-06	472327.1	3756023.9	465.1	0.00	3.36	1.70	YES	
L0000496	0	0.28590E-06	472328.3	3756016.8	465.0	0.00	3.36	1.70	YES	
L0000497	0	0.28590E-06	472329.5	3756009.7	465.2	0.00	3.36	1.70	YES	
L0000498	0	0.28590E-06	472330.6	3756002.5	465.4	0.00	3.36	1.70	YES	
L0000499	0	0.28590E-06	472331.8	3755995.4	465.7	0.00	3.36	1.70	YES	
L0000500	0	0.28590E-06	472333.0	3755988.3	465.8	0.00	3.36	1.70	YES	
L0000501	0	0.28590E-06	472334.1	3755981.2	465.5	0.00	3.36	1.70	YES	
L0000502	0	0.28590E-06	472335.3	3755974.0	465.0	0.00	3.36	1.70	YES	
L0000503	0	0.28590E-06	472336.4	3755966.9	464.5	0.00	3.36	1.70	YES	
L0000504	0	0.28590E-06	472337.6	3755959.8	463.9	0.00	3.36	1.70	YES	
L0000505	0	0.28590E-06	472338.8	3755952.7	463.6	0.00	3.36	1.70	YES	
L0000506	0	0.28590E-06	472339.9	3755945.5	463.4	0.00	3.36	1.70	YES	
L0000507	0	0.28590E-06	472341.1	3755938.4	463.2	0.00	3.36	1.70	YES	
L0000508	0	0.28590E-06	472342.2	3755931.3	463.1	0.00	3.36	1.70	YES	
L0000509	0	0.28590E-06	472343.3	3755924.1	463.0	0.00	3.36	1.70	YES	
L0000510	0	0.28590E-06	472344.4	3755917.0	463.2	0.00	3.36	1.70	YES	
L0000511	0	0.28590E-06	472345.5	3755909.9	463.3	0.00	3.36	1.70	YES	
L0000512	0	0.28590E-06	472346.8	3755902.8	463.4	0.00	3.36	1.70	YES	
L0000513	0	0.28590E-06	472348.5	3755895.8	463.6	0.00	3.36	1.70	YES	
L0000514	0	0.28590E-06	472350.2	3755888.8	463.8	0.00	3.36	1.70	YES	
L0000515	0	0.28590E-06	472351.9	3755881.8	463.9	0.00	3.36	1.70	YES	
L0000516	0	0.28590E-06	472353.6	3755874.7	463.9	0.00	3.36	1.70	YES	
L0000517	0	0.28590E-06	472355.3	3755867.7	464.0	0.00	3.36	1.70	YES	
L0000518	0	0.28590E-06	472357.0	3755860.7	464.0	0.00	3.36	1.70	YES	
L0000519	0	0.28590E-06	472358.7	3755853.7	464.0	0.00	3.36	1.70	YES	
L0000520	0	0.28590E-06	472360.4	3755846.7	464.0	0.00	3.36	1.70	YES	
L0000521	0	0.28590E-06	472362.1	3755839.7	463.9	0.00	3.36	1.70	YES	
L0000522	0	0.28590E-06	472363.9	3755832.7	463.9	0.00	3.36	1.70	YES	
L0000523	0	0.28590E-06	472365.7	3755825.7	463.9	0.00	3.36	1.70	YES	
L0000524	0	0.28590E-06	472367.5	3755818.7	463.9	0.00	3.36	1.70	YES	
L0000525	0	0.28590E-06	472369.2	3755811.7	463.9	0.00	3.36	1.70	YES	
L0000526	0	0.28590E-06	472371.0	3755804.7	464.0	0.00	3.36	1.70	YES	

**MODELOPTs: NonDFAULT CONC   ELEV   FASTALL

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000527	0	0.28590E-06	472372.8	3755797.7	464.0	0.00	3.36	1.70	YES	
L0000528	0	0.28590E-06	472374.6	3755790.7	464.0	0.00	3.36	1.70	YES	
L0000529	0	0.28590E-06	472376.4	3755783.7	464.0	0.00	3.36	1.70	YES	
L0000530	0	0.39810E-06	472376.4	3755767.5	464.1	0.00	3.39	1.70	YES	
L0000531	0	0.39810E-06	472378.3	3755760.5	464.2	0.00	3.39	1.70	YES	
L0000532	0	0.39810E-06	472380.1	3755753.5	464.2	0.00	3.39	1.70	YES	
L0000533	0	0.39810E-06	472382.0	3755746.4	464.3	0.00	3.39	1.70	YES	
L0000534	0	0.39810E-06	472383.9	3755739.4	464.6	0.00	3.39	1.70	YES	
L0000535	0	0.39810E-06	472385.8	3755732.4	465.0	0.00	3.39	1.70	YES	
L0000536	0	0.39810E-06	472387.7	3755725.3	465.4	0.00	3.39	1.70	YES	
L0000537	0	0.39810E-06	472389.5	3755718.3	465.9	0.00	3.39	1.70	YES	
L0000538	0	0.39810E-06	472390.2	3755711.0	466.0	0.00	3.39	1.70	YES	
L0000539	0	0.39810E-06	472390.9	3755703.8	466.0	0.00	3.39	1.70	YES	
L0000540	0	0.39810E-06	472391.6	3755696.6	466.0	0.00	3.39	1.70	YES	
L0000541	0	0.39810E-06	472392.4	3755689.3	466.0	0.00	3.39	1.70	YES	
L0000542	0	0.39810E-06	472393.1	3755682.1	466.1	0.00	3.39	1.70	YES	
L0000543	0	0.39810E-06	472393.8	3755674.8	466.3	0.00	3.39	1.70	YES	
L0000544	0	0.39810E-06	472394.5	3755667.6	466.5	0.00	3.39	1.70	YES	
L0000545	0	0.39810E-06	472395.2	3755660.3	466.7	0.00	3.39	1.70	YES	
L0000546	0	0.39810E-06	472395.9	3755653.1	467.0	0.00	3.39	1.70	YES	
L0000547	0	0.39810E-06	472396.7	3755645.8	467.5	0.00	3.39	1.70	YES	
L0000548	0	0.39810E-06	472397.4	3755638.6	467.9	0.00	3.39	1.70	YES	
L0000549	0	0.39810E-06	472397.6	3755631.3	468.4	0.00	3.39	1.70	YES	
L0000550	0	0.39810E-06	472397.6	3755624.0	468.8	0.00	3.39	1.70	YES	
L0000551	0	0.39810E-06	472397.6	3755616.8	469.1	0.00	3.39	1.70	YES	
L0000552	0	0.39810E-06	472397.6	3755609.5	469.3	0.00	3.39	1.70	YES	
L0000553	0	0.39810E-06	472397.6	3755602.2	469.6	0.00	3.39	1.70	YES	
L0000554	0	0.39810E-06	472397.6	3755594.9	469.8	0.00	3.39	1.70	YES	
L0000555	0	0.39810E-06	472397.6	3755587.6	470.0	0.00	3.39	1.70	YES	
L0000556	0	0.39810E-06	472397.6	3755580.4	470.3	0.00	3.39	1.70	YES	
L0000557	0	0.39810E-06	472397.6	3755573.1	470.5	0.00	3.39	1.70	YES	
L0000558	0	0.39810E-06	472397.6	3755565.8	470.8	0.00	3.39	1.70	YES	
L0000559	0	0.39810E-06	472397.6	3755558.5	471.0	0.00	3.39	1.70	YES	
L0000560	0	0.39810E-06	472397.6	3755551.2	471.2	0.00	3.39	1.70	YES	
L0000561	0	0.39810E-06	472397.7	3755544.0	471.5	0.00	3.39	1.70	YES	
L0000562	0	0.39810E-06	472397.7	3755536.7	471.7	0.00	3.39	1.70	YES	
L0000563	0	0.39810E-06	472397.7	3755529.4	472.0	0.00	3.39	1.70	YES	
L0000564	0	0.39810E-06	472397.8	3755522.1	472.2	0.00	3.39	1.70	YES	
L0000565	0	0.39810E-06	472397.8	3755514.8	472.4	0.00	3.39	1.70	YES	
L0000566	0	0.39810E-06	472397.8	3755507.6	472.7	0.00	3.39	1.70	YES	

**MODELOPTs: NonDFAULT CONC   ELEV   FASTALL

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000567	0	0.39810E-06	472397.9	3755500.3	472.7	0.00	3.39	1.70	YES	
L0000568	0	0.39810E-06	472397.9	3755493.0	472.6	0.00	3.39	1.70	YES	
L0000569	0	0.39810E-06	472397.9	3755485.7	472.5	0.00	3.39	1.70	YES	
L0000570	0	0.39810E-06	472398.0	3755478.5	472.5	0.00	3.39	1.70	YES	
L0000571	0	0.39810E-06	472398.0	3755471.2	472.3	0.00	3.39	1.70	YES	
L0000572	0	0.39810E-06	472398.0	3755463.9	472.0	0.00	3.39	1.70	YES	
L0000573	0	0.39810E-06	472398.1	3755456.6	471.8	0.00	3.39	1.70	YES	
L0000574	0	0.39810E-06	472398.1	3755449.3	471.5	0.00	3.39	1.70	YES	
L0000575	0	0.39810E-06	472398.1	3755442.1	471.3	0.00	3.39	1.70	YES	
L0000576	0	0.39810E-06	472398.2	3755434.8	471.0	0.00	3.39	1.70	YES	
L0000577	0	0.39810E-06	472398.2	3755427.5	470.8	0.00	3.39	1.70	YES	
L0000578	0	0.39810E-06	472398.2	3755420.2	470.6	0.00	3.39	1.70	YES	
L0000579	0	0.39810E-06	472398.3	3755412.9	470.4	0.00	3.39	1.70	YES	
L0000580	0	0.39810E-06	472398.3	3755405.7	470.4	0.00	3.39	1.70	YES	
L0000581	0	0.39810E-06	472398.3	3755398.4	470.4	0.00	3.39	1.70	YES	
L0000582	0	0.39810E-06	472398.4	3755391.1	470.4	0.00	3.39	1.70	YES	
L0000583	0	0.39810E-06	472398.4	3755383.8	470.3	0.00	3.39	1.70	YES	
L0000584	0	0.39810E-06	472398.4	3755376.5	470.1	0.00	3.39	1.70	YES	
L0000585	0	0.39810E-06	472398.5	3755369.3	469.8	0.00	3.39	1.70	YES	
L0000586	0	0.39810E-06	472398.5	3755362.0	469.6	0.00	3.39	1.70	YES	
L0000587	0	0.39810E-06	472398.6	3755354.7	469.3	0.00	3.39	1.70	YES	
L0000588	0	0.39810E-06	472398.7	3755347.4	469.1	0.00	3.39	1.70	YES	
L0000589	0	0.39810E-06	472398.8	3755340.1	468.8	0.00	3.39	1.70	YES	
L0000590	0	0.39810E-06	472398.9	3755332.9	468.6	0.00	3.39	1.70	YES	
L0000591	0	0.39810E-06	472399.0	3755325.6	468.3	0.00	3.39	1.70	YES	
L0000592	0	0.39810E-06	472399.1	3755318.3	468.1	0.00	3.39	1.70	YES	
L0000593	0	0.39810E-06	472399.1	3755311.0	467.9	0.00	3.39	1.70	YES	
L0000594	0	0.39810E-06	472399.2	3755303.7	467.6	0.00	3.39	1.70	YES	
L0000595	0	0.39810E-06	472399.3	3755296.5	467.4	0.00	3.39	1.70	YES	
L0000596	0	0.39810E-06	472399.4	3755289.2	467.0	0.00	3.39	1.70	YES	
L0000597	0	0.39810E-06	472399.5	3755281.9	466.7	0.00	3.39	1.70	YES	
L0000598	0	0.39810E-06	472399.6	3755274.6	466.4	0.00	3.39	1.70	YES	
L0000599	0	0.39810E-06	472399.7	3755267.3	466.0	0.00	3.39	1.70	YES	
L0000600	0	0.39810E-06	472399.8	3755260.1	466.0	0.00	3.39	1.70	YES	
L0000601	0	0.39810E-06	472399.9	3755252.8	466.0	0.00	3.39	1.70	YES	
L0000602	0	0.39810E-06	472400.0	3755245.5	466.0	0.00	3.39	1.70	YES	

L0000603	0	0.39810E-06	472400.1	3755238.2	466.0	0.00	3.39	1.70	YES	
L0000604	0	0.39810E-06	472400.1	3755230.9	466.0	0.00	3.39	1.70	YES	
L0000605	0	0.39810E-06	472400.2	3755223.7	466.0	0.00	3.39	1.70	YES	
L0000606	0	0.39810E-06	472400.3	3755216.4	466.0	0.00	3.39	1.70	YES	

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000607	0	0.39810E-06	472400.4	3755209.1	466.0	0.00	3.39	1.70	YES	
L0000608	0	0.39810E-06	472400.5	3755201.8	466.0	0.00	3.39	1.70	YES	
L0000609	0	0.39810E-06	472400.6	3755194.6	466.0	0.00	3.39	1.70	YES	
L0000610	0	0.39810E-06	472400.7	3755187.3	466.0	0.00	3.39	1.70	YES	
L0000611	0	0.39810E-06	472400.8	3755180.0	466.0	0.00	3.39	1.70	YES	
L0000612	0	0.39810E-06	472400.9	3755172.7	466.0	0.00	3.39	1.70	YES	
L0000613	0	0.39810E-06	472401.0	3755165.4	466.0	0.00	3.39	1.70	YES	
L0000614	0	0.39810E-06	472401.1	3755158.2	466.0	0.00	3.39	1.70	YES	
L0000615	0	0.39810E-06	472401.1	3755150.9	466.0	0.00	3.39	1.70	YES	
L0000616	0	0.39810E-06	472401.2	3755143.6	466.0	0.00	3.39	1.70	YES	
L0000617	0	0.39810E-06	472401.3	3755136.3	466.0	0.00	3.39	1.70	YES	
L0000618	0	0.39810E-06	472401.5	3755129.0	466.0	0.00	3.39	1.70	YES	
L0000619	0	0.39810E-06	472401.9	3755121.8	466.0	0.00	3.39	1.70	YES	
L0000620	0	0.39810E-06	472402.3	3755114.5	466.0	0.00	3.39	1.70	YES	
L0000621	0	0.39810E-06	472402.7	3755107.2	466.0	0.00	3.39	1.70	YES	
L0000622	0	0.39810E-06	472403.2	3755100.0	466.0	0.00	3.39	1.70	YES	
L0000623	0	0.39810E-06	472403.6	3755092.7	466.0	0.00	3.39	1.70	YES	
L0000624	0	0.39810E-06	472404.0	3755085.4	466.0	0.00	3.39	1.70	YES	
L0000625	0	0.39810E-06	472404.4	3755078.2	466.0	0.00	3.39	1.70	YES	
L0000626	0	0.39810E-06	472404.8	3755070.9	466.0	0.00	3.39	1.70	YES	
L0000627	0	0.39810E-06	472405.3	3755063.6	466.0	0.00	3.39	1.70	YES	
L0000628	0	0.39810E-06	472405.7	3755056.4	466.0	0.00	3.39	1.70	YES	
L0000629	0	0.39810E-06	472406.1	3755049.1	466.0	0.00	3.39	1.70	YES	
L0000630	0	0.39810E-06	472406.5	3755041.8	466.0	0.00	3.39	1.70	YES	
L0000631	0	0.39810E-06	472407.0	3755034.6	466.0	0.00	3.39	1.70	YES	
L0000632	0	0.39810E-06	472407.4	3755027.3	466.0	0.00	3.39	1.70	YES	
L0000633	0	0.39810E-06	472407.8	3755020.0	466.0	0.00	3.39	1.70	YES	
L0000634	0	0.39810E-06	472408.2	3755012.8	466.0	0.00	3.39	1.70	YES	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs							
ALL	STCK1 ,	STCK2 ,	STCK3 ,	STCK4 ,	STCK5 ,	L0000327 ,	L0000328 ,	L0000329 ,
	L0000330 ,	L0000331 ,	L0000332 ,	L0000333 ,	L0000334 ,	L0000335 ,	L0000336 ,	L0000337 ,
	L0000338 ,	L0000339 ,	L0000340 ,	L0000341 ,	L0000342 ,	L0000343 ,	L0000344 ,	L0000345 ,
	L0000346 ,	L0000347 ,	L0000348 ,	L0000349 ,	L0000350 ,	L0000351 ,	L0000352 ,	L0000353 ,
	L0000354 ,	L0000355 ,	L0000356 ,	L0000357 ,	L0000358 ,	L0000359 ,	L0000360 ,	L0000361 ,
	L0000362 ,	L0000363 ,	L0000364 ,	L0000365 ,	L0000366 ,	L0000367 ,	L0000368 ,	L0000369 ,
	L0000370 ,	L0000371 ,	L0000372 ,	L0000373 ,	L0000374 ,	L0000375 ,	L0000376 ,	L0000377 ,
	L0000378 ,	L0000379 ,	L0000380 ,	L0000381 ,	L0000382 ,	L0000383 ,	L0000384 ,	L0000385 ,
	L0000386 ,	L0000387 ,	L0000388 ,	L0000389 ,	L0000390 ,	L0000391 ,	L0000392 ,	L0000393 ,
	L0000394 ,	L0000395 ,	L0000396 ,	L0000397 ,	L0000398 ,	L0000399 ,	L0000400 ,	L0000401 ,
	L0000402 ,	L0000403 ,	L0000404 ,	L0000405 ,	L0000406 ,	L0000407 ,	L0000408 ,	L0000409 ,
	L0000410 ,	L0000411 ,	L0000412 ,	L0000413 ,	L0000414 ,	L0000415 ,	L0000416 ,	L0000417 ,
	L0000418 ,	L0000419 ,	L0000420 ,	L0000421 ,	L0000422 ,	L0000423 ,	L0000424 ,	L0000425 ,
	L0000426 ,	L0000427 ,	L0000428 ,	L0000429 ,	L0000430 ,	L0000431 ,	L0000432 ,	L0000433 ,
	L0000434 ,	L0000435 ,	L0000436 ,	L0000437 ,	L0000438 ,	L0000439 ,	L0000440 ,	L0000441 ,
	L0000442 ,	L0000443 ,	L0000444 ,	L0000445 ,	L0000446 ,	L0000447 ,	L0000448 ,	L0000449 ,
	L0000450 ,	L0000451 ,	L0000452 ,	L0000453 ,	L0000454 ,	L0000455 ,	L0000456 ,	L0000457 ,
	L0000458 ,	L0000459 ,	L0000460 ,	L0000461 ,	L0000462 ,	L0000463 ,	L0000464 ,	L0000465 ,
	L0000466 ,	L0000467 ,	L0000468 ,	L0000469 ,	L0000470 ,	L0000471 ,	L0000472 ,	L0000473 ,
	L0000474 ,	L0000475 ,	L0000476 ,	L0000477 ,	L0000478 ,	L0000479 ,	L0000480 ,	L0000481 ,

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs							
	L0000482 ,	L0000483 ,	L0000484 ,	L0000485 ,	L0000486 ,	L0000487 ,	L0000488 ,	L0000489 ,
	L0000490 ,	L0000491 ,	L0000492 ,	L0000493 ,	L0000494 ,	L0000495 ,	L0000496 ,	L0000497 ,
	L0000498 ,	L0000499 ,	L0000500 ,	L0000501 ,	L0000502 ,	L0000503 ,	L0000504 ,	L0000505 ,
	L0000506 ,	L0000507 ,	L0000508 ,	L0000509 ,	L0000510 ,	L0000511 ,	L0000512 ,	L0000513 ,
	L0000514 ,	L0000515 ,	L0000516 ,	L0000517 ,	L0000518 ,	L0000519 ,	L0000520 ,	L0000521 ,
	L0000522 ,	L0000523 ,	L0000524 ,	L0000525 ,	L0000526 ,	L0000527 ,	L0000528 ,	L0000529 ,
	L0000530 ,	L0000531 ,	L0000532 ,	L0000533 ,	L0000534 ,	L0000535 ,	L0000536 ,	L0000537 ,
	L0000538 ,	L0000539 ,	L0000540 ,	L0000541 ,	L0000542 ,	L0000543 ,	L0000544 ,	L0000545 ,
	L0000546 ,	L0000547 ,	L0000548 ,	L0000549 ,	L0000550 ,	L0000551 ,	L0000552 ,	L0000553 ,
	L0000554 ,	L0000555 ,	L0000556 ,	L0000557 ,	L0000558 ,	L0000559 ,	L0000560 ,	L0000561 ,
	L0000562 ,	L0000563 ,	L0000564 ,	L0000565 ,	L0000566 ,	L0000567 ,	L0000568 ,	L0000569 ,
	L0000570 ,	L0000571 ,	L0000572 ,	L0000573 ,	L0000574 ,	L0000575 ,	L0000576 ,	L0000577 ,
	L0000578 ,	L0000579 ,	L0000580 ,	L0000581 ,	L0000582 ,	L0000583 ,	L0000584 ,	L0000585 ,
	L0000586 ,	L0000587 ,	L0000588 ,	L0000589 ,	L0000590 ,	L0000591 ,	L0000592 ,	L0000593 ,
	L0000594 ,	L0000595 ,	L0000596 ,	L0000597 ,	L0000598 ,	L0000599 ,	L0000600 ,	L0000601 ,
	L0000602 ,	L0000603 ,	L0000604 ,	L0000605 ,	L0000606 ,	L0000607 ,	L0000608 ,	L0000609 ,
	L0000610 ,	L0000611 ,	L0000612 ,	L0000613 ,	L0000614 ,	L0000615 ,	L0000616 ,	L0000617 ,
	L0000618 ,	L0000619 ,	L0000620 ,	L0000621 ,	L0000622 ,	L0000623 ,	L0000624 ,	L0000625 ,
	L0000626 ,	L0000627 ,	L0000628 ,	L0000629 ,	L0000630 ,	L0000631 ,	L0000632 ,	L0000633 ,
	L0000634 ,							

*** DIRECTION SPECIFIC BUILDING DIMENSIONS ***

SOURCE ID: STCK1

IFV	BH	BW	BL	XADJ	YADJ	IFV	BH	BW	BL	XADJ	YADJ
1	13.7,	165.5,	92.2,	-43.1,	-81.9,	2	13.7,	165.4,	114.1,	-42.0,	-81.7,
3	13.7,	163.6,	132.5,	-39.5,	-77.3,	4	13.7,	156.8,	146.9,	-35.9,	-70.6,
5	13.7,	145.3,	156.8,	-31.2,	-61.8,	6	13.7,	129.3,	161.9,	-25.5,	-51.1,
7	13.7,	109.4,	162.5,	-19.1,	-38.8,	8	13.7,	86.2,	166.4,	-12.1,	-25.3,
9	13.7,	67.6,	165.1,	-4.7,	-9.2,	10	13.7,	92.2,	165.5,	-0.9,	3.0,
11	13.7,	114.1,	165.4,	-1.0,	15.1,	12	13.7,	132.5,	163.6,	-4.5,	26.7,
13	13.7,	146.9,	156.8,	-7.8,	37.5,	14	13.7,	156.8,	145.3,	-10.9,	47.2,
15	13.7,	161.9,	129.3,	-13.6,	55.4,	16	13.7,	162.5,	109.4,	-15.9,	62.2,
17	13.7,	166.4,	86.2,	-17.8,	71.1,	18	13.7,	165.1,	67.6,	-24.6,	77.9,
19	13.7,	165.5,	92.2,	-49.1,	81.9,	20	13.7,	165.4,	114.1,	-72.1,	81.7,
21	13.7,	163.6,	132.5,	-93.0,	77.3,	22	13.7,	156.8,	146.9,	-111.0,	70.6,
23	13.7,	145.3,	156.8,	-125.6,	61.8,	24	13.7,	129.3,	161.9,	-136.4,	51.1,
25	13.7,	109.4,	162.5,	-143.5,	38.8,	26	13.7,	86.2,	166.4,	-154.3,	25.3,
27	13.7,	67.6,	165.1,	-160.5,	9.2,	28	13.7,	92.2,	165.5,	-164.6,	-3.0,
29	13.7,	114.1,	165.4,	-164.4,	-15.1,	30	13.7,	132.5,	163.6,	-159.1,	-26.7,
31	13.7,	146.9,	156.8,	-149.0,	-37.5,	32	13.7,	156.8,	145.3,	-134.4,	-47.2,
33	13.7,	161.9,	129.3,	-115.7,	-55.4,	34	13.7,	162.5,	109.4,	-93.5,	-62.2,
35	13.7,	166.4,	86.2,	-68.4,	-71.1,	36	13.7,	165.1,	67.6,	-43.0,	-77.9,

SOURCE ID: STCK2

IFV	BH	BW	BL	XADJ	YADJ	IFV	BH	BW	BL	XADJ	YADJ
1	13.7,	165.5,	92.2,	-68.9,	64.5,	2	13.7,	165.4,	114.1,	-92.8,	58.0,
3	13.7,	163.6,	132.5,	-113.8,	51.4,	4	13.7,	156.8,	146.9,	-131.4,	43.2,
5	13.7,	145.3,	156.8,	-145.0,	33.8,	6	13.7,	129.3,	161.9,	-154.2,	23.2,
7	13.7,	109.4,	162.5,	-158.7,	12.1,	8	13.7,	86.2,	166.4,	-158.4,	0.5,
9	13.7,	67.6,	165.1,	-153.3,	-9.2,	10	13.7,	92.2,	165.5,	-147.2,	-22.8,
11	13.7,	114.1,	165.4,	-140.7,	-35.7,	12	13.7,	132.5,	163.6,	-133.2,	-47.6,
13	13.7,	146.9,	156.8,	-121.6,	-58.0,	14	13.7,	156.8,	145.3,	-106.4,	-66.6,
15	13.7,	161.9,	129.3,	-87.9,	-73.3,	16	13.7,	162.5,	109.4,	-66.8,	-77.5,
17	13.7,	166.4,	86.2,	-43.6,	-75.2,	18	13.7,	165.1,	67.6,	-24.6,	-70.7,
19	13.7,	165.5,	92.2,	-23.3,	-64.5,	20	13.7,	165.4,	114.1,	-21.3,	-58.0,
21	13.7,	163.6,	132.5,	-18.7,	-51.4,	22	13.7,	156.8,	146.9,	-15.4,	-43.2,
23	13.7,	145.3,	156.8,	-11.7,	-33.8,	24	13.7,	129.3,	161.9,	-7.7,	-23.2,
25	13.7,	109.4,	162.5,	-3.8,	-12.1,	26	13.7,	86.2,	166.4,	-7.9,	-0.5,
27	13.7,	67.6,	165.1,	-11.8,	9.2,	28	13.7,	92.2,	165.5,	-18.3,	22.8,
29	13.7,	114.1,	165.4,	-24.7,	35.7,	30	13.7,	132.5,	163.6,	-30.4,	47.6,
31	13.7,	146.9,	156.8,	-35.2,	58.0,	32	13.7,	156.8,	145.3,	-38.9,	66.6,
33	13.7,	161.9,	129.3,	-41.4,	73.3,	34	13.7,	162.5,	109.4,	-42.7,	77.5,
35	13.7,	166.4,	86.2,	-42.6,	75.2,	36	13.7,	165.1,	67.6,	-43.0,	70.7,

SOURCE ID: STCK3

IFV	BH	BW	BL	XADJ	YADJ	IFV	BH	BW	BL	XADJ	YADJ
1	13.7,	153.6,	88.5,	-51.8,	-68.4,	2	13.7,	151.2,	109.1,	-51.5,	-71.9,
3	13.7,	149.2,	126.4,	-49.8,	-70.8,	4	13.7,	145.1,	139.8,	-46.5,	-66.2,
5	13.7,	145.3,	156.8,	-202.7,	72.4,	6	13.7,	129.3,	161.9,	-217.7,	51.3,
7	13.7,	109.4,	162.5,	-226.1,	28.7,	8	13.7,	86.2,	166.4,	-227.7,	5.1,
9	13.7,	67.6,	165.1,	-222.3,	-16.6,	10	13.7,	92.2,	165.5,	-213.9,	-42.1,
11	13.7,	109.1,	151.2,	-3.7,	3.0,	12	13.7,	126.4,	149.2,	-3.8,	13.4,
13	13.7,	139.8,	145.1,	-6.3,	23.4,	14	13.7,	149.0,	136.7,	-8.7,	32.7,
15	13.7,	153.6,	124.1,	-10.8,	41.0,	16	13.7,	153.6,	107.8,	-12.5,	48.0,
17	13.7,	152.6,	88.1,	-13.9,	55.4,	18	13.7,	151.3,	65.8,	-14.9,	62.8,
19	13.7,	153.6,	88.5,	-36.8,	68.4,	20	13.7,	151.2,	109.1,	-57.5,	71.9,
21	13.7,	149.2,	126.4,	-76.6,	70.8,	22	13.7,	145.1,	139.8,	-93.3,	66.2,
23	13.7,	136.7,	149.0,	-107.1,	59.7,	24	13.7,	124.1,	153.6,	-117.8,	51.3,
25	13.7,	107.8,	153.6,	-124.8,	41.3,	26	13.7,	88.1,	152.6,	-131.7,	30.2,
27	13.7,	65.8,	151.3,	-138.4,	18.0,	28	13.7,	88.5,	153.6,	-145.2,	7.5,
29	13.7,	109.1,	151.2,	-147.5,	-3.0,	30	13.7,	126.4,	149.2,	-145.4,	-13.4,
31	13.7,	139.8,	145.1,	-138.8,	-23.4,	32	13.7,	149.0,	136.7,	-128.0,	-32.7,
33	13.7,	153.6,	124.1,	-113.3,	-41.0,	34	13.7,	153.6,	107.8,	-95.2,	-48.0,
35	13.7,	152.6,	88.1,	-74.2,	-55.4,	36	13.7,	151.3,	65.8,	-50.9,	-62.8,

SOURCE ID: STCK4

IFV	BH	BW	BL	XADJ	YADJ	IFV	BH	BW	BL	XADJ	YADJ
1	13.7,	153.6,	88.5,	-70.4,	62.0,	2	13.7,	151.2,	109.1,	-92.6,	53.3,
3	13.7,	149.2,	126.4,	-111.9,	45.3,	4	13.7,	145.1,	139.8,	-127.9,	37.3,
5	13.7,	136.7,	149.0,	-139.9,	28.2,	6	13.7,	124.1,	153.6,	-147.7,	18.2,
7	13.7,	107.8,	153.6,	-151.0,	7.7,	8	13.7,	88.1,	152.6,	-149.8,	-3.1,
9	13.7,	65.8,	151.3,	-144.5,	-13.8,	10	13.7,	88.5,	153.6,	-138.8,	-26.2,
11	13.7,	109.1,	151.2,	-128.9,	-38.0,	12	13.7,	126.4,	149.2,	-119.9,	-48.7,
13	13.7,	139.8,	145.1,	-109.9,	-58.0,	14	13.7,	149.0,	136.7,	-96.6,	-65.4,
15	13.7,	153.6,	124.1,	-80.3,	-70.9,	16	13.7,	153.6,	107.8,	-61.5,	-74.2,
17	13.7,	152.6,	88.1,	-40.9,	-73.5,	18	13.7,	151.3,	65.8,	-19.1,	-68.9,
19	13.7,	153.6,	88.5,	-18.1,	-62.0,	20	13.7,	151.2,	109.1,	-16.5,	-53.3,
21	13.7,	149.2,	126.4,	-14.4,	-45.3,	22	13.7,	145.1,	139.8,	-11.9,	-37.3,
23	13.7,	136.7,	149.0,	-9.1,	-28.2,	24	13.7,	124.1,	153.6,	-5.9,	-18.2,
25	13.7,	107.8,	153.6,	-2.6,	-7.7,	26	13.7,	88.1,	152.6,	-2.8,	3.1,
27	13.7,	65.8,	151.3,	-6.8,	13.8,	28	13.7,	88.5,	153.6,	-14.8,	26.2,
29	13.7,	109.1,	151.2,	-22.4,	38.0,	30	13.7,	126.4,	149.2,	-29.2,	48.7,
31	13.7,	139.8,	145.1,	-35.2,	58.0,	32	13.7,	149.0,	136.7,	-40.1,	65.4,
33	13.7,	153.6,	124.1,	-43.8,	70.9,	34	13.7,	153.6,	107.8,	-46.2,	74.2,
35	13.7,	152.6,	88.1,	-47.2,	73.5,	36	13.7,	151.3,	65.8,	-46.7,	68.8,

*** DIRECTION SPECIFIC BUILDING DIMENSIONS ***

SOURCE ID: STCK5

IFV	BH	BW	BL	XADJ	YADJ	IFV	BH	BW	BL	XADJ	YADJ
1	13.7,	71.3,	81.1,	-49.1,	-25.9,	2	13.7,	73.1,	89.2,	-49.1,	-30.6,
3	13.7,	77.6,	94.5,	-47.7,	-31.8,	4	13.7,	82.8,	97.0,	-44.7,	-30.5,
5	13.7,	136.7,	149.0,	-190.6,	73.5,	6	13.7,	124.1,	153.6,	-205.5,	54.0,
7	13.7,	107.8,	153.6,	-214.2,	32.9,	8	13.7,	88.1,	152.6,	-216.3,	10.8,
9	13.7,	65.8,	151.3,	-212.5,	-11.7,	10	13.7,	88.5,	153.6,	-206.1,	-35.9,
11	13.7,	109.1,	151.2,	-193.5,	-59.3,	12	13.7,	94.5,	77.6,	-7.0,	-0.4,
13	13.7,	97.0,	82.8,	-10.9,	3.8,	14	13.7,	96.5,	85.5,	-14.4,	7.8,
15	13.7,	93.1,	85.6,	-17.5,	11.6,	16	13.7,	86.9,	83.0,	-20.0,	15.1,
17	13.7,	78.0,	78.0,	-22.0,	18.1,	18	13.7,	67.4,	70.9,	-23.3,	20.5,
19	13.7,	71.3,	81.1,	-32.0,	25.9,	20	13.7,	73.1,	89.2,	-40.0,	30.6,
21	13.7,	77.6,	94.5,	-46.9,	31.8,	22	13.7,	82.8,	97.0,	-52.3,	30.5,
23	13.7,	85.5,	96.5,	-56.1,	28.4,	24	13.7,	85.6,	93.1,	-58.2,	25.3,
25	13.7,	83.0,	86.9,	-58.5,	21.5,	26	13.7,	78.0,	78.0,	-57.1,	17.0,
27	13.7,	70.9,	67.4,	-54.2,	12.2,	28	13.7,	81.1,	71.3,	-61.6,	8.6,
29	13.7,	89.2,	73.1,	-67.1,	4.5,	30	13.7,	94.5,	77.6,	-70.6,	0.4,
31	13.7,	97.0,	82.8,	-72.0,	-3.8,	32	13.7,	96.5,	85.5,	-71.1,	-7.8,
33	13.7,	93.1,	85.6,	-68.1,	-11.6,	34	13.7,	86.9,	83.0,	-63.0,	-15.1,
35	13.7,	78.0,	78.0,	-56.0,	-18.1,	36	13.7,	67.4,	70.9,	-47.6,	-20.5,

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

471226.1, 471301.1, 471376.1, 471451.1, 471526.1, 471601.1, 471676.1, 471751.1, 471826.1, 471901.1,
471976.1, 472051.1, 472126.1, 472201.1, 472276.1, 472351.1, 472426.1, 472501.1, 472576.1, 472651.1,
472726.1,

*** Y-COORDINATES OF GRID ***
(METERS)

3754959.2, 3755034.2, 3755109.2, 3755184.2, 3755259.2, 3755334.2, 3755409.2, 3755484.2, 3755559.2, 3755634.2,
3755709.2, 3755784.2, 3755859.2, 3755934.2, 3756009.2, 3756084.2, 3756159.2, 3756234.2, 3756309.2, 3756384.2,
3756459.2,

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD (METERS)	X-COORD (METERS) 471226.08	471301.08	471376.08	471451.08	471526.08	471601.08	471676.08	471751.08	471826.08
3756459.17	493.10	498.20	489.80	485.30	483.40	485.40	481.80	473.60	467.40
3756384.17	493.00	503.00	504.00	498.70	496.30	488.40	480.40	472.00	469.20
3756309.17	494.50	500.80	502.90	500.00	492.20	487.70	482.90	477.60	473.10
3756234.17	500.20	504.30	496.10	493.30	489.70	493.00	486.40	479.10	474.70
3756159.17	506.60	501.90	499.90	495.80	488.10	484.50	482.10	476.80	473.20
3756084.17	498.10	499.40	496.70	493.50	488.20	484.50	484.00	481.90	480.70
3756009.17	493.90	494.00	493.80	493.90	486.70	481.80	485.80	483.30	474.90
3755934.17	500.00	499.30	497.60	489.70	485.80	482.20	479.90	475.80	475.60
3755859.17	499.60	498.50	499.50	493.10	488.40	486.30	483.10	482.60	481.80
3755784.17	501.90	496.90	494.30	491.20	488.80	489.30	487.70	486.00	482.50
3755709.17	506.10	500.90	492.70	488.40	487.20	487.90	487.90	483.30	481.40
3755634.17	499.90	498.80	492.80	490.20	484.80	485.00	488.00	487.30	483.40
3755559.17	493.10	491.70	488.10	487.30	487.30	482.00	484.30	485.20	482.20
3755484.17	484.20	486.60	488.80	484.30	483.00	481.30	483.10	481.00	482.00
3755409.17	477.10	483.70	484.90	482.00	481.50	480.10	480.90	480.40	476.70
3755334.17	470.30	478.20	479.30	481.50	475.00	480.00	478.50	478.00	475.80
3755259.17	472.00	473.10	476.20	477.70	475.20	475.70	476.10	479.10	474.60
3755184.17	482.80	478.30	476.80	476.40	475.40	472.90	475.80	476.10	473.70
3755109.17	485.00	480.90	475.40	475.30	469.20	471.50	474.40	477.90	475.60
3755034.17	481.50	479.80	476.00	473.30	470.70	469.20	473.70	475.20	477.20
3754959.17	476.80	476.00	472.30	471.20	469.60	470.20	471.90	468.80	470.90

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD (METERS)	X-COORD (METERS) 471901.08	471976.08	472051.08	472126.08	472201.08	472276.08	472351.08	472426.08	472501.08
3756459.17	463.10	456.90	456.00	455.70	454.50	455.60	451.30	449.20	454.10
3756384.17	464.70	465.50	462.10	459.50	457.00	457.70	458.20	450.80	453.90

3756309.17	464.50	470.60	463.70	464.00	461.30	460.20	459.50	457.80	455.60
3756234.17	468.60	471.20	467.30	468.10	462.30	461.50	460.50	458.70	457.10
3756159.17	474.60	474.50	472.20	469.50	463.00	463.00	462.50	459.80	457.00
3756084.17	476.10	476.00	473.40	466.00	464.50	464.20	463.80	462.10	457.00
3756009.17	472.50	469.20	469.70	469.00	467.50	465.60	465.10	461.90	458.10
3755934.17	476.50	476.70	475.80	471.40	468.80	466.00	463.10	458.10	462.70
3755859.17	480.70	476.40	473.90	471.50	469.80	464.40	464.00	461.20	467.00
3755784.17	477.00	474.10	471.50	468.70	466.40	465.30	464.20	462.90	468.20
3755709.17	475.20	476.00	475.40	469.80	470.10	468.10	466.10	465.10	466.20
3755634.17	477.80	476.00	473.70	469.80	472.60	471.80	469.10	467.30	467.20
3755559.17	482.50	475.40	474.00	472.50	472.70	472.30	471.20	470.00	467.00
3755484.17	482.10	474.80	474.10	475.70	472.60	473.20	473.20	470.80	467.00
3755409.17	477.90	475.50	475.70	477.70	472.20	474.00	472.50	468.80	468.80
3755334.17	475.00	473.80	475.70	475.30	469.70	473.80	471.70	467.00	468.70
3755259.17	474.10	472.90	471.50	471.20	469.00	473.80	469.40	466.00	467.40
3755184.17	471.90	474.10	469.50	470.20	467.50	471.50	467.50	466.00	467.50
3755109.17	469.10	469.20	469.90	467.80	466.30	467.00	466.20	466.20	466.80
3755034.17	471.00	469.00	469.70	466.00	466.00	466.00	466.00	466.00	466.00
3754959.17	471.70	466.50	469.80	465.90	465.00	466.00	466.00	465.80	465.00

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD (METERS)	X-COORD (METERS) 472576.08	472651.08	472726.08
3756459.17	457.00	461.00	465.40
3756384.17	457.70	463.70	467.20
3756309.17	458.10	460.30	465.60
3756234.17	459.80	461.70	464.30
3756159.17	460.90	462.20	462.20
3756084.17	463.00	463.00	464.30
3756009.17	463.90	464.70	467.00
3755934.17	460.50	463.00	463.90
3755859.17	464.50	462.60	464.00
3755784.17	469.80	464.70	463.60
3755709.17	469.20	470.00	463.00
3755634.17	468.40	469.80	465.10
3755559.17	467.80	469.00	468.80
3755484.17	468.50	468.90	469.00
3755409.17	471.20	472.50	469.00
3755334.17	471.20	473.00	469.60
3755259.17	470.80	472.50	471.00

3755184.17	469.30	471.00	470.00
3755109.17	467.20	469.50	469.00
3755034.17	466.40	467.80	469.60
3754959.17	465.80	468.30	469.50

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD (METERS)	X-COORD (METERS) 471226.08	471301.08	471376.08	471451.08	471526.08	471601.08	471676.08	471751.08	471826.08
3756459.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3756384.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3756309.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3756234.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3756159.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3756084.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3756009.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3755934.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3755859.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3755784.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3755709.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3755634.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3755559.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3755484.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3755409.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3755334.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3755259.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3755184.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3755109.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3755034.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3754959.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD (METERS)	471901.08	471976.08	472051.08	472126.08	472201.08	472276.08	472351.08	472426.08	472501.08
3756459.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3756384.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3756309.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3756234.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3756159.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3756084.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3756009.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3755934.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3755859.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3755784.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3755709.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3755634.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3755559.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3755484.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3755409.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3755334.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3755259.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3755184.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3755109.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3755034.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00
3754959.17	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00	939.00

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD (METERS)	472576.08	472651.08	472726.08
3756459.17	939.00	939.00	939.00
3756384.17	939.00	939.00	939.00
3756309.17	939.00	939.00	939.00
3756234.17	939.00	939.00	939.00
3756159.17	939.00	939.00	939.00
3756084.17	939.00	939.00	939.00
3756009.17	939.00	939.00	939.00
3755934.17	939.00	939.00	939.00
3755859.17	939.00	939.00	939.00
3755784.17	939.00	939.00	939.00
3755709.17	939.00	939.00	939.00

```
 3755634.17 |        939.00       939.00       939.00
 3755559.17 |        939.00       939.00       939.00
 3755484.17 |        939.00       939.00       939.00
 3755409.17 |        939.00       939.00       939.00
 3755334.17 |        939.00       939.00       939.00
 3755259.17 |        939.00       939.00       939.00
 3755184.17 |        939.00       939.00       939.00
 3755109.17 |        939.00       939.00       939.00
 3755034.17 |        939.00       939.00       939.00
 3754959.17 |        939.00       939.00       939.00
```


*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

```
( 471772.5, 3755791.0,     484.9,     939.0,       0.0);        ( 471825.4, 3755789.5,     482.4,     939.0,       0.0);
( 471908.2, 3755791.8,     476.6,     939.0,       0.0);        ( 471971.9, 3755788.7,     474.4,     939.0,       0.0);
( 472129.9, 3755789.5,     468.6,     939.0,       0.0);        ( 472175.1, 3755789.5,     467.4,     939.0,       0.0);
( 472337.0, 3755794.1,     464.3,     939.0,       0.0);        ( 472321.6, 3755870.8,     463.6,     939.0,       0.0);
( 472302.4, 3755960.5,     465.8,     939.0,       0.0);        ( 472153.7, 3756188.3,     465.8,     939.0,       0.0);
```


* SOURCE-RECEPTOR COMBINATIONS FOR WHICH CALCULATIONS MAY NOT BE PERFORMED *
LESS THAN 1.0 METER; WITHIN OPENPIT; OR BEYOND 80KM FOR FASTAREA/FASTALL

SOURCE ID	- - RECEPTOR LOCATION - - XR (METERS)	YR (METERS)	DISTANCE (METERS)
L0000360	472201.1	3755709.2	-3.66
L0000361	472201.1	3755709.2	-3.05
L0000518	472351.1	3755859.2	-1.08

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

```
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1
```

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

Surface file: C:\Users\Kate Wilson\Desktop\Met data\rivr8.sfc Met Version: 14134
Profile file: C:\Users\Kate Wilson\Desktop\Met data\rivr8.PFL
Surface format: FREE
Profile format: FREE
Surface station no.: 0 Upper air station no.: 3190
Name: UNKNOWN Name: UNKNOWN
Year: 2008 Year: 2008

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF WS	WD	HT	REF TA	HT
08	01	01	1	01	-64.0	0.616	-9.000	-9.000	-999.	1157.	319.6	0.31	1.00	1.00	5.40	27.	9.1	287.5	5.5
08	01	01	1	02	-54.0	0.502	-9.000	-9.000	-999.	866.	204.9	0.31	1.00	1.00	4.50	40.	9.1	287.5	5.5
08	01	01	1	03	-16.4	0.152	-9.000	-9.000	-999.	347.	18.8	0.31	1.00	1.00	2.20	62.	9.1	287.0	5.5
08	01	01	1	04	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.31	1.00	1.00	3.10	67.	9.1	287.0	5.5
08	01	01	1	05	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.31	1.00	1.00	4.90	96.	9.1	286.4	5.5
08	01	01	1	06	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.31	1.00	1.00	3.10	342.	9.1	286.4	5.5
08	01	01	1	07	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.31	1.00	1.00	4.00	38.	9.1	287.0	5.5
08	01	01	1	08	-35.7	0.448	-9.000	-9.000	-999.	719.	220.9	0.31	1.00	0.53	4.00	62.	9.1	287.0	5.5
08	01	01	1	09	26.7	0.649	0.357	0.005	59.	1253.	-895.5	0.31	1.00	0.32	5.40	294.	9.1	288.1	5.5
08	01	01	1	10	76.5	0.503	0.700	0.009	157.	879.	-146.3	0.31	1.00	0.25	4.00	42.	9.1	289.2	5.5
08	01	01	1	11	123.5	0.418	1.124	0.012	404.	655.	-51.7	0.31	1.00	0.22	3.10	30.	9.1	290.9	5.5

08	01	01	1	12	130.9	0.715	1.311	0.005	605.	1451.	-245.0	0.31	1.00	0.21	5.80	37.	9.1	290.9	5.5
08	01	01	1	13	81.1	0.560	1.174	0.006	701.	1033.	-189.8	0.31	1.00	0.21	4.50	4.	9.1	290.9	5.5
08	01	01	1	14	76.4	0.604	1.171	0.005	739.	1124.	-252.5	0.31	1.00	0.23	4.90	13.	9.1	290.9	5.5
08	01	01	1	15	52.3	0.805	1.043	0.005	762.	1730.	-875.8	0.31	1.00	0.26	6.70	39.	9.1	290.9	5.5
08	01	01	1	16	11.1	0.377	0.624	0.011	767.	800.	-422.2	0.31	1.00	0.35	3.10	346.	9.1	290.4	5.5
08	01	01	1	17	-43.3	0.441	-9.000	-9.000	-999.	705.	173.6	0.31	1.00	0.63	4.00	9.	9.1	290.4	5.5
08	01	01	1	18	-29.0	0.400	-9.000	-9.000	-999.	608.	192.9	0.31	1.00	1.00	3.60	45.	9.1	289.9	5.5
08	01	01	1	19	-49.6	0.505	-9.000	-9.000	-999.	860.	227.3	0.31	1.00	1.00	4.50	25.	9.1	289.9	5.5
08	01	01	1	20	-64.0	0.730	-9.000	-9.000	-999.	1496.	533.1	0.31	1.00	1.00	6.30	60.	9.1	289.9	5.5
08	01	01	1	21	-29.1	0.400	-9.000	-9.000	-999.	736.	192.1	0.31	1.00	1.00	3.60	238.	9.1	288.8	5.5
08	01	01	1	22	-41.2	0.562	-9.000	-9.000	-999.	1010.	378.5	0.31	1.00	1.00	4.90	87.	9.1	287.5	5.5
08	01	01	1	23	-53.8	0.733	-9.000	-9.000	-999.	1504.	642.6	0.31	1.00	1.00	6.30	95.	9.1	287.0	5.5
08	01	01	1	24	-29.5	0.399	-9.000	-9.000	-999.	738.	189.5	0.31	1.00	1.00	3.60	37.	9.1	285.4	5.5

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB_TMP	sigmaA	sigmaW	sigmaV
08	01	01	01	5.5	0	-999.	-99.00	287.6	99.0	-99.00	-99.00
08	01	01	01	9.1	1	27.	5.40	-999.0	99.0	-99.00	-99.00

F indicates top of profile (=1) or below (=0)

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 5 YEARS FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 , STCK2 , STCK3 , STCK4 , STCK5 ,
L0000327 , L0000328 , L0000329 , L0000330 , L0000331 , L0000332 , L0000333 , L0000334 ,
L0000335 , L0000336 , L0000337 , L0000338 , L0000339 , L0000340 , L0000341 , L0000342 ,
L0000343 , L0000344 , L0000345 , L0000346 , L0000347 , L0000348 , L0000349 , . . . ,

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF DPM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 471226.08	471301.08	471376.08	471451.08	471526.08	471601.08	471676.08	471751.08	471826.08
3756459.17	0.00012	0.00012	0.00014	0.00015	0.00017	0.00018	0.00020	0.00022	0.00024
3756384.17	0.00013	0.00013	0.00013	0.00015	0.00017	0.00020	0.00023	0.00025	0.00027
3756309.17	0.00014	0.00014	0.00015	0.00017	0.00020	0.00023	0.00026	0.00030	0.00033
3756234.17	0.00015	0.00015	0.00018	0.00020	0.00023	0.00025	0.00029	0.00035	0.00038
3756159.17	0.00015	0.00017	0.00020	0.00022	0.00027	0.00031	0.00035	0.00039	0.00044
3756084.17	0.00018	0.00020	0.00023	0.00026	0.00030	0.00035	0.00039	0.00045	0.00053
3756009.17	0.00021	0.00023	0.00026	0.00029	0.00035	0.00040	0.00045	0.00053	0.00061
3755934.17	0.00021	0.00024	0.00028	0.00034	0.00040	0.00046	0.00053	0.00061	0.00075
3755859.17	0.00023	0.00027	0.00030	0.00037	0.00044	0.00052	0.00064	0.00078	0.00102

3755784.17	0.00024	0.00029	0.00034	0.00041	0.00049	0.00059	0.00074	0.00100	0.00143
3755709.17	0.00023	0.00028	0.00035	0.00041	0.00050	0.00062	0.00081	0.00123	0.00313
3755634.17	0.00024	0.00028	0.00034	0.00040	0.00048	0.00060	0.00076	0.00116	0.00308
3755559.17	0.00024	0.00028	0.00032	0.00038	0.00045	0.00055	0.00069	0.00096	0.00149
3755484.17	0.00024	0.00027	0.00030	0.00036	0.00042	0.00050	0.00062	0.00081	0.00108
3755409.17	0.00021	0.00025	0.00029	0.00033	0.00038	0.00045	0.00055	0.00069	0.00087
3755334.17	0.00020	0.00023	0.00026	0.00030	0.00035	0.00041	0.00049	0.00060	0.00075
3755259.17	0.00019	0.00021	0.00024	0.00028	0.00032	0.00038	0.00045	0.00054	0.00065
3755184.17	0.00018	0.00020	0.00022	0.00025	0.00029	0.00034	0.00040	0.00048	0.00056
3755109.17	0.00017	0.00019	0.00021	0.00024	0.00027	0.00031	0.00037	0.00042	0.00050
3755034.17	0.00016	0.00017	0.00019	0.00022	0.00025	0.00029	0.00033	0.00038	0.00043
3754959.17	0.00014	0.00016	0.00018	0.00020	0.00023	0.00026	0.00030	0.00034	0.00038

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 5 YEARS FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 , STCK2 , STCK3 , STCK4 , STCK5 ,
L0000327 , L0000328 , L0000329 , L0000330 , L0000331 , L0000332 , L0000333 , L0000334 ,
L0000335 , L0000336 , L0000337 , L0000338 , L0000339 , L0000340 , L0000341 , L0000342 ,
L0000343 , L0000344 , L0000345 , L0000346 , L0000347 , L0000348 , L0000349 , . . . ,

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF DPM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 471901.08	471976.08	472051.08	472126.08	472201.08	472276.08	472351.08	472426.08	472501.08
3756459.17	0.00025	0.00026	0.00028	0.00029	0.00029	0.00029	0.00027	0.00025	0.00025
3756384.17	0.00030	0.00033	0.00036	0.00039	0.00040	0.00039	0.00037	0.00032	0.00030
3756309.17	0.00035	0.00041	0.00046	0.00057	0.00065	0.00061	0.00053	0.00045	0.00039
3756234.17	0.00042	0.00050	0.00058	0.00092	0.00264	0.00125	0.00085	0.00064	0.00052
3756159.17	0.00051	0.00058	0.00070	0.00103	0.00350	0.00359	0.00150	0.00093	0.00068
3756084.17	0.00060	0.00068	0.00077	0.00104	0.00167	0.00450	0.00280	0.00135	0.00088
3756009.17	0.00071	0.00078	0.00088	0.00107	0.00141	0.00248	0.00522	0.00177	0.00111
3755934.17	0.00090	0.00100	0.00108	0.00126	0.00147	0.00219	0.00720	0.00205	0.00138
3755859.17	0.00128	0.00138	0.00146	0.00168	0.00176	0.00227	0.00595	0.00272	0.00169
3755784.17	0.00187	0.00218	0.00220	0.00245	0.00233	0.00287	0.00578	0.00389	0.00208
3755709.17	0.00321	0.00449	0.00555	0.00445	0.00526	0.00558	0.00864	0.00597	0.00257
3755634.17	0.00422	0.00513	0.00543	0.00542	0.00591	0.00585	0.00577	0.00701	0.00291
3755559.17	0.00191	0.00237	0.00265	0.00283	0.00303	0.00326	0.00448	0.00687	0.00292
3755484.17	0.00134	0.00162	0.00183	0.00198	0.00220	0.00252	0.00394	0.00659	0.00276
3755409.17	0.00106	0.00126	0.00143	0.00156	0.00179	0.00214	0.00362	0.00635	0.00265
3755334.17	0.00089	0.00105	0.00119	0.00133	0.00153	0.00190	0.00335	0.00625	0.00253
3755259.17	0.00076	0.00089	0.00101	0.00114	0.00133	0.00171	0.00316	0.00645	0.00242
3755184.17	0.00066	0.00077	0.00086	0.00099	0.00117	0.00153	0.00299	0.00650	0.00231

3755109.17 |	0.00057	0.00066	0.00074	0.00085	0.00101	0.00136	0.00269	0.00657	0.00215
3755034.17 |	0.00050	0.00057	0.00064	0.00073	0.00086	0.00113	0.00210	0.00647	0.00178
3754959.17 |	0.00043	0.00049	0.00055	0.00062	0.00072	0.00089	0.00124	0.00153	0.00113

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 5 YEARS FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 , STCK2 , STCK3 , STCK4 , STCK5 ,
L0000327 , L0000328 , L0000329 , L0000330 , L0000331 , L0000332 , L0000333 , L0000334 ,
L0000335 , L0000336 , L0000337 , L0000338 , L0000339 , L0000340 , L0000341 , L0000342 ,
L0000343 , L0000344 , L0000345 , L0000346 , L0000347 , L0000348 , L0000349 , . . . ,

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF DPM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 472576.08	472651.08	472726.08
3756459.17	0.00023	0.00022	0.00021
3756384.17	0.00029	0.00027	0.00025
3756309.17	0.00035	0.00032	0.00029
3756234.17	0.00045	0.00039	0.00035
3756159.17	0.00056	0.00048	0.00041
3756084.17	0.00071	0.00058	0.00049
3756009.17	0.00086	0.00069	0.00058
3755934.17	0.00101	0.00081	0.00066
3755859.17	0.00121	0.00093	0.00075
3755784.17	0.00143	0.00106	0.00083
3755709.17	0.00165	0.00122	0.00092
3755634.17	0.00184	0.00134	0.00101
3755559.17	0.00194	0.00142	0.00109
3755484.17	0.00189	0.00143	0.00112
3755409.17	0.00180	0.00138	0.00109
3755334.17	0.00168	0.00129	0.00103
3755259.17	0.00158	0.00120	0.00096
3755184.17	0.00147	0.00110	0.00088
3755109.17	0.00134	0.00099	0.00080
3755034.17	0.00114	0.00087	0.00071
3754959.17	0.00087	0.00071	0.00061

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 5 YEARS FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 , STCK2 , STCK3 , STCK4 , STCK5 ,
L0000327 , L0000328 , L0000329 , L0000330 , L0000331 , L0000332 , L0000333 , L0000334 ,
L0000335 , L0000336 , L0000337 , L0000338 , L0000339 , L0000340 , L0000341 , L0000342 ,
L0000343 , L0000344 , L0000345 , L0000346 , L0000347 , L0000348 , L0000349 , . . . ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF DPM IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
471772.49	3755790.99	0.00107	471825.41	3755789.46	0.00140
471908.24	3755791.76	0.00182	471971.89	3755788.69	0.00209
472129.88	3755789.46	0.00236	472175.13	3755789.46	0.00243
472336.95	3755794.06	0.00446	472321.61	3755870.75	0.00370
472302.44	3755960.49	0.00319	472153.66	3756188.26	0.00170

*** THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 5 YEARS ***

** CONC OF DPM IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	0.00864 AT	(472351.08, 3755709.17, 466.10, 939.00, 0.00)	GC	UCART1
	2ND HIGHEST VALUE IS	0.00720 AT	(472351.08, 3755934.17, 463.10, 939.00, 0.00)	GC	UCART1
	3RD HIGHEST VALUE IS	0.00701 AT	(472426.08, 3755634.17, 467.30, 939.00, 0.00)	GC	UCART1
	4TH HIGHEST VALUE IS	0.00687 AT	(472426.08, 3755559.17, 470.00, 939.00, 0.00)	GC	UCART1
	5TH HIGHEST VALUE IS	0.00659 AT	(472426.08, 3755484.17, 470.80, 939.00, 0.00)	GC	UCART1
	6TH HIGHEST VALUE IS	0.00657 AT	(472426.08, 3755109.17, 466.20, 939.00, 0.00)	GC	UCART1
	7TH HIGHEST VALUE IS	0.00650 AT	(472426.08, 3755184.17, 466.00, 939.00, 0.00)	GC	UCART1
	8TH HIGHEST VALUE IS	0.00647 AT	(472426.08, 3755034.17, 466.00, 939.00, 0.00)	GC	UCART1
	9TH HIGHEST VALUE IS	0.00645 AT	(472426.08, 3755259.17, 466.00, 939.00, 0.00)	GC	UCART1
	10TH HIGHEST VALUE IS	0.00635 AT	(472426.08, 3755409.17, 468.80, 939.00, 0.00)	GC	UCART1

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

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*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------

A Total of           0 Fatal Error Message(s)
A Total of           5 Warning Message(s)
A Total of        2006 Informational Message(s)

A Total of       43848 Hours Were Processed

A Total of           7 Calm Hours Identified

A Total of        1999 Missing Hours Identified (  4.56 Percent)


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
SO W320     498  PPARM:Input Parameter May Be Out-of-Range for Parameter            VS
SO W320     499  PPARM:Input Parameter May Be Out-of-Range for Parameter            VS
SO W320     500  PPARM:Input Parameter May Be Out-of-Range for Parameter            VS
SO W320     501  PPARM:Input Parameter May Be Out-of-Range for Parameter            VS
SO W320     502  PPARM:Input Parameter May Be Out-of-Range for Parameter            VS

   ************************************
   *** AERMOD Finishes Successfully ***
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EMFAC2011 for Riverside County (SC)				PM10 Running Exhaust																					
Area	Season	Veh	Fuel	MdlYr	Speed	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
					(Miles/hr)	(gms/mile)	(gms/mile)	(gms/mile)	(gms/mile)	(gms/mile)	(gms/mile)	(gms/mile)	(gms/mile)	(gms/mile)	(gms/mile)	(gms/mile)	(gms/mile)	(gms/mile)	(gms/mile)	(gms/mile)	(gms/mile)	(gms/mile)	(gms/mile)	(gms/mile)	(gms/mile)
Riverside (SC)	Annual	LDA	GAS	AllMYr	5	0.01042934	0.01038854	0.010502234	0.01073767	0.0110349	0.0113455	0.011663	0.011968	0.012258	0.0125463	0.01283034	0.0130812	0.0132952	0.0134669	0.0136	0.013698289	0.0137675	0.013813723	0.0138352	0.013837084
Riverside (SC)	Annual	LDA	DSL	AllMYr	5	0.0720703	0.06032564	0.051448577	0.04366506	0.0376328	0.0328179	0.028569	0.024792	0.021389	0.0190047	0.01693718	0.01516071	0.0138593	0.0130579	0.012485	0.012189441	0.0118801	0.01170079	0.01155272	0.011399999
Riverside (SC)	Annual	LDA	GAS	AllMYr	10	0.00665995	0.00661539	0.006671253	0.00680843	0.006988	0.0071779	0.007372	0.007558	0.007735	0.0079123	0.00808903	0.00824499	0.0083779	0.0084836	0.008565	0.008625255	0.0086672	0.008694981	0.00870748	0.008707726
Riverside (SC)	Annual	LDA	DSL	AllMYr	10	0.06344755	0.05305215	0.045192398	0.03830054	0.0329572	0.0286901	0.024925	0.021577	0.018561	0.0164473	0.01461442	0.01303979	0.0118858	0.0111741	0.010664	0.01039985	0.010124	0.009963724	0.00983185	0.009696595
Riverside (SC)	Annual	LDA	GAS	AllMYr	15	0.00448469	0.00444265	0.004469375	0.00455322	0.0046676	0.00479	0.004915	0.005035	0.005148	0.0052636	0.00537957	0.00548189	0.0055689	0.0056377	0.005691	0.005729237	0.005756	0.005773685	0.00578134	0.00578091
Riverside (SC)	Annual	LDA	DSL	AllMYr	15	0.05011104	0.04184077	0.035585114	0.03009946	0.0258441	0.0224435	0.019442	0.016775	0.014372	0.0126861	0.01122477	0.00996964	0.0090493	0.0084806	0.008072	0.007858706	0.0076369	0.007507886	0.0074021	0.007294413
Riverside (SC)	Annual	LDA	GAS	AllMYr	20	0.00318319	0.0031453	0.003156982	0.00321081	0.0032876	0.0033709	0.003456	0.003537	0.003614	0.0036931	0.00377357	0.00384445	0.0039047	0.003952	0.003988	0.00401445	0.0040326	0.004044418	0.00404937	0.004048699
Riverside (SC)	Annual	LDA	DSL	AllMYr	20	0.04057317	0.03385611	0.02877438	0.02431802	0.0208603	0.0180964	0.015657	0.013489	0.011536	0.0101654	0.00897749	0.00795725	0.007209	0.0067462	0.006414	0.00623906	0.0060582	0.005952791	0.00586657	0.00577908
Riverside (SC)	Annual	LDA	GAS	AllMYr	25	0.00238063	0.00234678	0.002350498	0.00238688	0.0024414	0.0025012	0.002563	0.002621	0.002675	0.0027328	0.00279172	0.0028436	0.0028876	0.002922	0.002948	0.002967192	0.0029802	0.002988614	0.00299203	0.002991295
Riverside (SC)	Annual	LDA	DSL	AllMYr	25	0.03367051	0.02810041	0.023886584	0.02019135	0.0173244	0.0150328	0.01301	0.011213	0.009593	0.0084573	0.00747238	0.00662652	0.0060062	0.0056226	0.005347	0.005202455	0.0050526	0.004965335	0.0048939	0.004821351
Riverside (SC)	Annual	LDA	GAS	AllMYr	30	0.00187528	0.00184475	0.001844161	0.00187014	0.001911	0.0019565	0.002003	0.002047	0.002088	0.0021325	0.00217808	0.00221822	0.0022523	0.0022787	0.002299	0.002313359	0.0023232	0.002329635	0.00233215	0.002331442
Riverside (SC)	Annual	LDA	DSL	AllMYr	30	0.02864081	0.02392495	0.020358343	0.01723081	0.0148051	0.0128671	0.011157	0.009636	0.008267	0.0073064	0.0064737	0.00575844	0.0052341	0.0049102	0.004678	0.004556685	0.0044306	0.004357341	0.00429718	0.004235788
Riverside (SC)	Annual	LDA	GAS	AllMYr	35	0.0015547	0.0015274	0.001524395	0.00154406	0.0015766	0.0016131	0.001651	0.001686	0.001719	0.0017547	0.00179197	0.00182481	0.0018526	0.0018742	0.001891	0.001902428	0.0019104	0.0019156	0.00191759	0.001916944
Riverside (SC)	Annual	LDA	DSL	AllMYr	35	0.02497868	0.02090293	0.017822084	0.01512073	0.013027	0.0113556	0.009881	0.00857	0.007388	0.0065604	0.00584268	0.00522598	0.0047742	0.0044958	0.004297	0.00419393	0.0040864	0.004024018	0.00397256	0.003919551
Riverside (SC)	Annual	LDA	GAS	AllMYr	40	0.00135827	0.00133179	0.001327363	0.00134321	0.0013707	0.0014018	0.001434	0.001463	0.001492	0.0015223	0.00155464	0.00158305	0.0016071	0.0016258	0.00164	0.001650194	0.0016571	0.001661564	0.00166327	0.001662694
Riverside (SC)	Annual	LDA	DSL	AllMYr	40	0.02234839	0.01875362	0.016038673	0.01365846	0.0118156	0.0103464	0.00905	0.007898	0.006859	0.0061323	0.00550197	0.00496013	0.0045636	0.0043203	0.004147	0.004059142	0.0039663	0.003912623	0.00386799	0.003821312
Riverside (SC)	Annual	LDA	GAS	AllMYr	45	0.00124849	0.00122277	0.001217414	0.00123109	0.0012557	0.0012838	0.001313	0.001339	0.001365	0.0013926	0.0014222	0.00144821	0.0014703	0.0014874	0.0015	0.001509808	0.0015162	0.001520281	0.00152187	0.001521362
Riverside (SC)	Annual	LDA	DSL	AllMYr	45	0.02053112	0.01729723	0.014857933	0.0127198	0.011067	0.0097521	0.008592	0.007561	0.006631	0.0059814	0.00541791	0.00493326	0.0045791	0.0043632	0.00421	0.004135155	0.0040542	0.004007831	0.0039687	0.003926797
Riverside (SC)	Annual	LDA	GAS	AllMYr	50	0.00120792	0.00118213	0.00117608	0.00118875	0.0012122	0.0012391	0.001267	0.001292	0.001316	0.0013433	0.00137193	0.00139712	0.0014185	0.0014352	0.001448	0.001457038	0.0014633	0.001467327	0.00146892	0.00146849
Riverside (SC)	Annual	LDA	DSL	AllMYr	50	0.0193942	0.01642927	0.014197024	0.01224094	0.0107324	0.0095358	0.008481	0.007542	0.006695	0.006106	0.00559426	0.00515366	0.0048325	0.0046384	0.004502	0.004438593	0.0043679	0.004327866	0.00429334	0.004255057
Riverside (SC)	Annual	LDA	GAS	AllMYr	55	0.00123019	0.00120342	0.001196762	0.00120942	0.0012332	0.0012606	0.001288	0.001314	0.001338	0.0013663	0.0013956	0.0014214	0.0014433	0.0014605	0.001474	0.001483164	0.0014897	0.001493926	0.00149565	0.001495302
Riverside (SC)	Annual	LDA	DSL	AllMYr	55	0.018876	0.01610933	0.014032036	0.0122125	0.0108141	0.0097098	0.008737	0.007871	0.007088	0.0065465	0.00607564	0.00566961	0.0053747	0.005199	0.005077	0.005025083	0.004964	0.004929956	0.0048996	0.004864045
Riverside (SC)	Annual	LDA	GAS	AllMYr	60	0.00131897	0.00129018	0.001282919	0.00129654	0.0013222	0.0013517	0.001382	0.001409	0.001435	0.0014655	0.00149719	0.00152512	0.0015489	0.0015676	0.001582	0.001592528	0.0015998	0.001604489	0.00160648	0.001606235
Riverside (SC)	Annual	LDA	DSL	AllMYr	60	0.01898475	0.01636286	0.014402265	0.01268603	0.0113739	0.0103447	0.009438	0.008632	0.007901	0.0073993	0.00696237	0.00658476	0.006312	0.0061531	0.006045	0.00600597	0.0059548	0.005927363	0.0059012	0.005867756
Riverside (SC)	Annual	LDA	GAS	AllMYr	65	0.00148905	0.00145694	0.001449038	0.00146483	0.0014943	0.0015279	0.001562	0.001593	0.001623	0.0016577	0.00169398	0.00172594	0.0017531	0.0017748	0.001792	0.001803756	0.0018122	0.001817843	0.00182029	0.00182018
Riverside (SC)	Annual	LDA	DSL	AllMYr	65	0.01981345	0.0172992	0.015430828	0.01379692	0.0125579	0.0115962	0.010751	0.009997	0.009313	0.0088486	0.00844324	0.00809167	0.00784	0.0076987	0.007606	0.007583583	0.0075445	0.00752513	0.00750387	0.007472159
Riverside (SC)	Annual	LDA	GAS	AllMYr	70				0.00158802	0.0016203	0.0016569	0.001694	0.001728	0.001761	0.0017987	0.00183826	0.00187315	0.0019029	0.0019266	0.001945	0.001958505	0.0019679	0.001974119	0.00197688	0.001976867
Riverside (SC)	Annual	LDA	DSL	AllMYr	70				0.01581523	0.0146501	0.0137619	0.012983	0.012287	0.011653	0.011231	0.01086123	0.01053848	0.010311	0.0101918	0.01012	0.010120874	0.0100985	0.01009058	0.01007598	0.010045957
Riverside (SC)	Annual	LDT1	GAS	AllMYr	5	0.02244756	0.0212693	0.020295083	0.01953481	0.0188791	0.0182913	0.01774	0.01722	0.016746	0.0163243	0.01598312	0.01567297	0.0153918	0.0151125	0.014866	0.014589223	0.0143627	0.014163993	0.01397747	0.013850213
Riverside (SC)	Annual	LDT1	DSL	AllMYr	5	0.13814669	0.12185203	0.106504254	0.08964581	0.0780387	0.0728755	0.069659	0.063571	0.056021	0.0474989	0.04084644	0.02284593	0.0158364	0.0126167	0.010669	0.010537165	0.0105069	0.010613884	0.01067776	0.01068819
Riverside (SC)	Annual	LDT1	GAS	AllMYr	10	0.01465575	0.01384732	0.013175696	0.01265158	0.0121982	0.0117916	0.011411	0.011051	0.010727	0.010431	0.01019446	0.00997939	0.0097841	0.0095966	0.009418	0.009227073	0.0090715	0.008936822	0.00881062	0.008725142
Riverside (SC)	Annual	LDT1	DSL	AllMYr	10	0.12186417	0.10744684	0.093867582	0.07895441	0.0686834	0.0641084	0.061255	0.055866	0.049187	0.0416486	0.03576328	0.019852	0.0136503	0.0107981	0.009071	0.008948591	0.0089178	0.009008653	0.00906287	0.009071721
Riverside (SC)	Annual	LDT1	GAS	AllMYr	15	0.01006835	0.00948816	0.009004332	0.00862708	0.0083	0.0080067	0.007732	0.007473	0.007236	0.0070249	0.00685411	0.00669871	0.0065575	0.0064215	0.006292	0.006154772	0.0060432	0.005947765	0.00585841	0.005798254
Riverside (SC)	Annual	LDT1	DSL	AllMYr	15	0.09651226	0.08504795	0.074250384	0.062395	0.0542265	0.0505816	0.048305	0.044017	0.038706	0.0327147	0.02803563	0.01539978	0.0104687	0.008197	0.006819	0.00671607	0.0066874	0.006755489	0.00679614	0.006802783
Riverside (SC)	Annual	LDT1	GAS	AllMYr	20	0.00726977	0.00683466	0.006470794	0.0061876	0.0059417	0.0057212	0.005515	0.00532	0.005142	0.0049832	0.00485482	0.00473799	0.0046318	0.0045293	0.004432	0.004328882	0.0042455	0.004174868	0.00410878	0.004064492
Riverside (SC)	Annual	LDT1	DSL	AllMYr	20	0.07823458	0.0689253	0.060157557	0.05053184	0.0438984	0.0409362	0.039085	0.035602	0.03129	0.0264254	0.02262612	0.01237122	0.0083672	0.0065212	0.005401	0.005315153	0.0052904	0.005344272	0.00537643	0.005381687
Riverside (SC)	Annual	LDT1	GAS	AllMYr	25	0.00551135	0.00517062	0.004885128	0.0046636	0.0044711	0.0042986	0.004137	0.003985	0.003845	0.0037211	0.00362077	0.00352944	0.0034464	0.0033661	0.00329	0.003209661	0.0031448	0.003090273	0.00303927	0.00300522
Riverside (SC)	Annual	LDT1	DSL	AllMYr	25	0.0649062	0.05718612	0.049915086	0.04193236	0.0364314	0.0339754	0.03244	0.029553	0.025976	0.0219422	0.01879148	0.01028606	0.0069656	0.005435	0.004506	0.004435482	0.0044152	0.004460208	0.00448705	0.004491434
Riverside (SC)	Annual	LDT1	GAS	AllMYr	30	0.00438343	0.00410496	0.003871368	0.0036909	0.0035341	0.0033936	0.003262	0.003138	0.003025	0.0029236	0.00284206	0.00276789	0.0027005	0.0026352	0.002574	0.002508289	0.0024559	0.002411955	0.00237093	0.002343615
Riverside (SC)	Annual	LDT1	DSL	AllMYr	30	0.05511298	0.04857479	0.04241678	0.03565497	0.0309966	0.0289192	0.027622	0.025177	0.022148	0.0187309	0.01606221	0.00885289	0.0060406	0.0047457	0.003961	0.00390296	0.0038874	0.003926959	0.00395059	0.003954451
Riverside (SC)	Annual	LDT1	GAS	AllMYr	35	0.00365535	0.00341788	0.003218622	0.00306555	0.0029326	0.0028136	0.002702	0.002597	0.002501	0.0024158	0.00234703	0.00228447	0.0022277	0.0021726	0.002121	0.002065694	0.002016	0.001984831	0.00195046	0.001927614
Riverside (SC)	Annual	LDT1	DSL	AllMYr	35	0.04790279	0.04224855	0.036922899	0.0310733	0.0270455	0.0252533	0.024136	0.022024	0.019404	0.016447	0.01413864	0.0078939	0.0054616	0.0043441	0.003668	0.003621582	0.0036107	0.003647476	0.00366943	0.003673012
Riverside (SC)	Annual	LDT1	GAS	AllMYr	40	0.00319482	0.00298354	0.002806333	0.00267118	0.002554	0.0024492	0.002351	0.002259	0.002174	0.002099	0.00203875	0.00198397	0.0019343	0.0018861	0.001841	0.001792601	0.0017541	0.001722016	0.00169204	0.00167212
Riverside (SC)	Annual	LDT1	DSL	AllMYr	40	0.04263078	0.03763887	0.03293678	0.02776961	0.0242147	0.0226386	0.021659	0.019796	0.017483	0.0148701	0.01283154	0.00730406	0.0051564	0.004173	0.00358	0.003543976	0.003538	0.003574072	0.00359558	0.003599093
Riverside (SC)	Annual	LDT1	GAS	AllMYr	45	0.0029263	0.00273014	0.002565803	0.00244156	0.0023341	0.002238	0.002148	0.002064	0.001986	0.0019175	0.00186269	0.00181287	0.0017678	0.001724	0.001683	0.001639148	0.0016042	0.001575081	0.00154787	0.001529768
Riverside (SC)	Annual	LDT1	DSL	AllMYr	45	0.0388628	0.03436539	0.030128701	0.02546966	0.0222683	0.0208565	0.019983	0.018308	0.016223	0.0138662	0.01202862	0.0070296	0.0050942	0.0042126	0.003683	0.003657795	0.0036574	0.003694612	0.00371685	0.003720477
Riverside (SC)	Annual	LDT1	GAS	AllMYr	50	0.00280932	0.00261922	0.002460247	0.00234129	0.0022387	0.0021471	0.002062	0.001981	0.001907	0.0018442	0.00179012	0.00174308	0.0017006	0.0016593	0.00162	0.0015738	0.0015464	0.001518906	0.00149318	0.001476041
Riverside (SC)	Annual	LDT1	DSL	AllMYr	50	0.0363155	0.03218328	0.028290102	0.02400437	0.0210649	0.0197787	0.018989	0.017454	0.015537	0.0133674	0.01167783	0.0070592	0.0052804	0.0044762	0.003997	0.003982311	0.0039885	0.00402911	0.00405336	0.004057317
Riverside (SC)	Annual	LDT1	GAS	AllMYr	55	0.00282783	0.00263543	0.002474932	0.00235624	0.0022542	0.0021633	0.002079	0.001999	0.001926	0.0018611	0.00181007	0.00176392	0.0017224	0.0016819	0.001644	0.001603739	0.0015715	0.00154435	0.00151902	0.001502095
Riverside (SC)	Annual	LDT1	DSL	AllMYr	55	0.03482177	0.03095376	0.027308813	0.02329031	0.0205414	0.0193524	0.01863	0.017198	0.015403	0.0133665	0.01178337	0.00742528	0.0057594	0.0050146	0.004575	0.004573899	0.0045886	0.004635368	0.00466326	0.004667819
Riverside (SC)	Annual	LDT1	GAS	AllMYr	60	0.00298625	0.00278276	0.002613531	0.00249004	0.0023844	0.0022904	0.002203	0.00212	0.002045	0.0019784	0.00192635	0.00187928	0.001837	0.0017959	0.001757	0.001716438	0.0016835	0.001655717	0.00162971	0.001612276
Riverside (SC)	Annual	LDT1	DSL	AllMYr	60	0.03431572	0.03063307	0.027161828	0.02332635	0.0207128	0.0196019	0.018937	0.017582	0.01587	0.0139246	0.012415	0.00821696	0.0066299	0.0059318	0.005527	0.00554261	0.0055692	0.005625926	0.00565978	0.005665312
Riverside (SC)	Annual	LDT1	GAS	AllMYr	65	0.00331092	0.00308586	0.002899359	0.00276524	0.0026511	0.0025497	0.002456	0.002367	0.002286	0.0022141	0.00215875	0.0021088	0.0020642	0.0020207	0.00198	0.001936674	0.0019017	0.001871975	0.00184412	0.001825351
Riverside (SC)	Annual	LDT1	DSL	AllMYr	65	0.03483711	0.03128065	0.027926938	0.02420895	0.0216903	0.0206481	0.02004	0.018743	0.017087	0.0151971	0.01373594	0.00961052	0.0080762	0.0074183	0.007046	0.007086765	0.0071308	0.007203417	0.00724677	0.007253847
Riverside (SC)	Annual	LDT1	GAS	AllMYr	70				0.00296956	0.002849	0.002742	0.002643	0.002549	0.002464	0.0023883	0.00233034	0.0022781	0.0022315	0.0021862	0.002144	0.002098463	0.0020619	0.002030609	0.00200131	0.001981499
Riverside (SC)	Annual	LDT1	DSL	AllMYr	70				0.02617539	0.0237279	0.0227587	0.022218	0.02097	0.019352	0.0174925	0.01606275	0.01193156	0.0104332	0.0098165	0.009483	0.00956104	0.009632	0.009730113	0.00978867	0.009798233
Riverside (SC)	Annual	LDT2	GAS	AllMYr	5	0.01120155	0.01107709	0.011097865	0.01121457	0.0113899	0.011595	0.011818	0.012048	0.012272	0.0124924	0.0127161	0.01292164	0.0131042	0.0132606	0.013394	0.013503773	0.0135905	0.013652584	0.01369999	0.013731057
Riverside (SC)	Annual	LDT2	DSL	AllMYr	5	0.08702901	0.06172027	0.05013456	0.04629147	0.0424277	0.0405798	0.040021	0.035358	0.028767	0.025822	0.02471929	0.01969637	0.0158868	0.0146721	0.013437	0.012557852	0.0123102	0.012347516	0.01230035	0.012180447
Riverside (SC)	Annual	LDT2	GAS	AllMYr	10	0.00715424	0.00705429	0.007049923	0.00711063	0.0072117	0.0073342	0.007468	0.007608	0.007744	0.0078794	0.00801764	0.00814496	0.0082579	0.0083544	0.008437	0.008504274	0.0085574	0.008595215	0.00862386	0.008642359
Riverside (SC)	Annual	LDT2	DSL	AllMYr	10	0.07668857	0.05430145	0.044044306	0.04063153	0.0372026	0.0355553	0.035049	0.030918	0.025085	0.0224736	0.02149273	0.01705003	0.013679	0.0126015	0.011507	0.010726321	0.0105049	0.010535163	0.01049318	0.010386448
Riverside (SC)	Annual	LDT2	GAS	AllMYr	15	0.00481767	0.00473718	0.00472289	0.0047549	0.004816	0.004893	0.004978	0.005068	0.005155	0.0052423	0.00533249	0.00541573	0.0054895	0.0055523	0.005606	0.005649822	0.0056842	0.005708486	0.00572676	0.005738371
Riverside (SC)	Annual	LDT2	DSL	AllMYr	15	0.06064605	0.04285057	0.034687699	0.03196066	0.029223	0.0279002	0.027484	0.024194	0.019554	0.0174721	0.01668653	0.01315544	0.0104746	0.0096147	0.008742	0.008118845	0.0079403	0.007961449	0.0079278	0.007842241
Riverside (SC)	Annual	LDT2	GAS	AllMYr	20	0.00341897	0.00335316	0.003335537	0.00335245	0.0033913	0.0034424	0.0035	0.00356	0.003619	0.0036786	0.00374079	0.00379827	0.0038492	0.0038924	0.003929	0.003959401	0.0039829	0.003999408	0.00401174	0.004019447
Riverside (SC)	Annual	LDT2	DSL	AllMYr	20	0.04912994	0.03468177	0.028051036	0.02583202	0.0236051	0.0225265	0.022184	0.019511	0.015742	0.0140497	0.01340988	0.01054312	0.0083661	0.0076668	0.006957	0.006450484	0.0063046	0.006320806	0.00629339	0.006223678
Riverside (SC)	Annual	LDT2	GAS	AllMYr	25	0.0025559	0.00250087	0.002482676	0.00249147	0.0025175	0.0025535	0.002594	0.002637	0.002679	0.0027223	0.00276762	0.00280958	0.0028467	0.0028781	0.002905	0.002926874	0.0029439	0.002955764	0.00296458	0.002970017
Riverside (SC)	Annual	LDT2	DSL	AllMYr	25	0.04076612	0.02878398	0.023285645	0.02144636	0.0196004	0.0187068	0.018424	0.016207	0.013082	0.0116789	0.01114865	0.00877117	0.0069658	0.0063861	0.005798	0.00537775	0.0052569	0.005270583	0.00524786	0.005190102
Riverside (SC)	Annual	LDT2	GAS	AllMYr	30	0.00201193	0.00196465	0.00194692	0.00195127	0.0019698	0.0019966	0.002027	0.00206	0.002092	0.0021245	0.00215937	0.00219176	0.0022204	0.0022446	0.002265	0.002282142	0.0022952	0.002304267	0.00231097	0.002315054
Riverside (SC)	Annual	LDT2	DSL	AllMYr	30	0.03464792	0.02449787	0.019843716	0.01829088	0.0167316	0.0159795	0.015745	0.013869	0.011223	0.010037	0.00958999	0.00757588	0.006047	0.0055572	0.00506	0.004704947	0.0046035	0.004616164	0.00459702	0.004548353
Riverside (SC)	Annual	LDT2	GAS	AllMYr	35	0.00166712	0.00162524	0.001608243	0.00161014	0.0016242	0.0016455	0.00167	0.001696	0.001722	0.0017481	0.00177662	0.00180309	0.0018265	0.0018462	0.001863	0.001876866	0.0018875	0.00189486	0.00190029	0.001903567
Riverside (SC)	Annual	LDT2	DSL	AllMYr	35	0.03016988	0.02138829	0.01736747	0.01603277	0.0146911	0.0140487	0.013854	0.012235	0.009948	0.0089255	0.0085424	0.00679959	0.0054776	0.0050559	0.004627	0.004321815	0.0042357	0.004248359	0.00423197	0.004190303
Riverside (SC)	Annual	LDT2	GAS	AllMYr	40	0.00145383	0.00141551	0.001399149	0.00139973	0.0014112	0.0014292	0.00145	0.001472	0.001494	0.0015167	0.00154133	0.00156422	0.0015845	0.0016016	0.001616	0.001628052	0.0016373	0.001643606	0.00164829	0.001651117
Riverside (SC)	Annual	LDT2	DSL	AllMYr	40	0.02692622	0.01916791	0.015623855	0.01445702	0.0132821	0.0127262	0.012566	0.011141	0.009123	0.0082255	0.00789214	0.00635206	0.0051852	0.0048155	0.004439	0.004171581	0.0040977	0.004111406	0.00409717	0.004060978
Riverside (SC)	Annual	LDT2	GAS	AllMYr	45	0.00133414	0.00129786	0.001281895	0.00128182	0.0012902	0.0013083	0.001327	0.001347	0.001367	0.0013875	0.00141001	0.00143098	0.0014496	0.0014652	0.001479	0.001489516	0.001498	0.001503811	0.00150812	0.001510736
Riverside (SC)	Annual	LDT2	DSL	AllMYr	45	0.02464841	0.01765141	0.014466158	0.01343036	0.0123847	0.011899	0.01177	0.010492	0.008676	0.0078741	0.00758027	0.00619086	0.00514	0.0048105	0.004474	0.00423583	0.0041722	0.00418789	0.00417538	0.004143565
Riverside (SC)	Annual	LDT2	GAS	AllMYr	50	0.00128835	0.00125275	0.001236864	0.00123657	0.0012463	0.001262	0.00128	0.001299	0.001318	0.0013383	0.00136013	0.00138047	0.0013985	0.0014137	0.001427	0.001437367	0.0014456	0.001451327	0.00145556	0.00145815
Riverside (SC)	Annual	LDT2	DSL	AllMYr	50	0.02316771	0.01672921	0.013812927	0.01288189	0.0119384	0.0115122	0.011414	0.010248	0.008583	0.0078543	0.00759303	0.00631389	0.0053488	0.0050508	0.004745	0.004530257	0.0044757	0.004494597	0.00448352	0.004455352
Riverside (SC)	Annual	LDT2	GAS	AllMYr	55	0.00130935	0.00127311	0.001256933	0.00125678	0.0012669	0.0012831	0.001302	0.001321	0.001341	0.0013611	0.00138354	0.00140442	0.001423	0.0014386	0.001452	0.001462997	0.0014715	0.001477475	0.0014819	0.001484641
Riverside (SC)	Annual	LDT2	DSL	AllMYr	55	0.02239536	0.01635539	0.013639645	0.01279627	0.0119365	0.0115651	0.011501	0.010421	0.008866	0.0081956	0.00796294	0.00676213	0.0058594	0.0055869	0.005306	0.005109748	0.0050639	0.005087786	0.00507799	0.005053069
Riverside (SC)	Annual	LDT2	GAS	AllMYr	60	0.00140073	0.00136241	0.001345528	0.00134587	0.0013573	0.0013751	0.001395	0.001417	0.001438	0.0014598	0.00148416	0.00150683	0.001527	0.0015441	0.001559	0.00157067	0.00158	0.001586592	0.00159151	0.001594597
Riverside (SC)	Annual	LDT2	DSL	AllMYr	60	0.02231739	0.01654841	0.013982557	0.01321908	0.0124334	0.0121183	0.012096	0.011083	0.009608	0.008987	0.00878214	0.00763401	0.0067755	0.0065252	0.006264	0.00608498	0.0060488	0.006080099	0.00607157	0.006049878
Riverside (SC)	Annual	LDT2	GAS	AllMYr	65	0.00157778	0.00153568	0.001517601	0.00151894	0.0015327	0.0015535	0.001577	0.001602	0.001626	0.0016512	0.00167913	0.00170516	0.0017284	0.001748	0.001765	0.001778732	0.0017896	0.001797263	0.00180305	0.001806743
Riverside (SC)	Annual	LDT2	DSL	AllMYr	65	0.02300551	0.01740728	0.014958175	0.01427849	0.0135678	0.0133198	0.013356	0.0124	0.010983	0.0104076	0.0102341	0.00911823	0.0082905	0.008062	0.00782	0.007657552	0.0076335	0.007676239	0.00766917	0.007651188
Riverside (SC)	Annual	LDT2	GAS	AllMYr	70				0.00164584	0.0016613	0.0016844	0.00171	0.001737	0.001764	0.0017915	0.00182208	0.00185054	0.0018759	0.0018975	0.001916	0.001931176	0.0019431	0.001951591	0.00195801	0.001962128
Riverside (SC)	Annual	LDT2	DSL	AllMYr	70				0.016234	0.0156145	0.0154587	0.015581	0.014684	0.013314	0.0127904	0.01265847	0.01155965	0.0107547	0.0105522	0.010331	0.010189428	0.0101825	0.010243424	0.01023832	0.010225322
Riverside (SC)	Annual	LHD1	GAS	AllMYr	5	0.00729622	0.0066302	0.006008227	0.00540456	0.0048774	0.0044349	0.004032	0.003661	0.003325	0.0030229	0.00275947	0.00253034	0.0023282	0.0021393	0.001963	0.001813046	0.0016823	0.00156361	0.00143506	0.001331444
Riverside (SC)	Annual	LHD1	DSL	AllMYr	5	0.09985803	0.09573744	0.091377632	0.08695845	0.0829934	0.0801063	0.077429	0.074581	0.071974	0.0695122	0.06755397	0.06569444	0.0640282	0.0624175	0.060972	0.060445028	0.0599787	0.059530735	0.05890738	0.058164693
Riverside (SC)	Annual	LHD1	GAS	AllMYr	10	0.00587552	0.00533918	0.004838318	0.0043522	0.0039276	0.0035713	0.003247	0.002948	0.002677	0.0024343	0.00222215	0.00203764	0.0018748	0.0017227	0.00158	0.001460014	0.0013547	0.001259147	0.00115563	0.001072188
Riverside (SC)	Annual	LHD1	DSL	AllMYr	10	0.08823463	0.08459368	0.08074135	0.07683655	0.073333	0.070782	0.068416	0.0659	0.063596	0.061421	0.05969074	0.05804765	0.0565754	0.0551521	0.053875	0.053409272	0.0529973	0.0526014	0.0520506	0.051394366

Riverside (SC)	Annual	LHD1	GAS	AllMYr	15	0.00393061	0.00357181	0.003236742	0.00291154	0.0026275	0.0023891	0.002172	0.001972	0.001791	0.0016285	0.00148658	0.00136314	0.0012542	0.0011525	0.001057	9.77E-04	9.06E-04	8.42E-04	7.73E-04	7.17E-04
Riverside (SC)	Annual	LHD1	DSL	AllMYr	15	0.07003531	0.06714534	0.06408759	0.0609882	0.0582073	0.0561825	0.054305	0.052308	0.050479	0.0487523	0.0473789	0.04607471	0.0449061	0.0437764	0.042763	0.042393046	0.042066	0.041751809	0.04131462	0.040793734
Riverside (SC)	Annual	LHD1	GAS	AllMYr	20	0.00274092	0.00249072	0.002257069	0.00203029	0.0018322	0.001666	0.001515	0.001375	0.001249	0.0011356	0.00103663	9.51E-04	8.75E-04	8.04E-04	7.37E-04	6.81E-04	6.32E-04	5.87E-04	5.39E-04	5.00E-04
Riverside (SC)	Annual	LHD1	DSL	AllMYr	20	0.05682632	0.05448141	0.052000369	0.04948554	0.0472291	0.0455862	0.044062	0.042442	0.040958	0.0395574	0.03844301	0.03738481	0.0364366	0.03552	0.034697	0.034397516	0.0341322	0.033877219	0.03352248	0.033099847
Riverside (SC)	Annual	LHD1	GAS	AllMYr	25	0.00199231	0.00181045	0.001640608	0.00147577	0.0013318	0.001211	0.001101	1.00E-03	9.08E-04	8.25E-04	7.54E-04	6.91E-04	6.36E-04	5.84E-04	5.36E-04	4.95E-04	4.59E-04	4.27E-04	3.92E-04	3.64E-04
Riverside (SC)	Annual	LHD1	DSL	AllMYr	25	0.04713423	0.04518926	0.043131379	0.04104547	0.0391739	0.0378112	0.036547	0.035203	0.033972	0.0328106	0.03188632	0.03100859	0.0302221	0.0294618	0.02878	0.028530805	0.0283107	0.028099246	0.02780501	0.027454457
Riverside (SC)	Annual	LHD1	GAS	AllMYr	30	0.00150952	0.00137173	0.001243049	0.00111816	0.0010091	9.18E-04	8.34E-04	7.57E-04	6.88E-04	6.25E-04	5.71E-04	5.24E-04	4.82E-04	4.43E-04	4.06E-04	3.75E-04	3.48E-04	3.23E-04	2.97E-04	2.75E-04
Riverside (SC)	Annual	LHD1	DSL	AllMYr	30	0.03996482	0.0383157	0.036570827	0.0348022	0.0332153	0.0320599	0.030988	0.029849	0.028805	0.0278199	0.02703621	0.02629199	0.0256252	0.0249805	0.024402	0.02419109	0.0240045	0.023825175	0.0235757	0.023278462
Riverside (SC)	Annual	LHD1	GAS	AllMYr	35	0.00119219	0.00108337	9.82E-04	8.83E-04	7.97E-04	7.25E-04	6.59E-04	5.98E-04	5.43E-04	4.94E-04	4.51E-04	4.13E-04	3.80E-04	3.50E-04	3.21E-04	2.96E-04	2.75E-04	2.55E-04	2.34E-04	2.18E-04
Riverside (SC)	Annual	LHD1	DSL	AllMYr	35	0.03463967	0.03321028	0.031697915	0.03016495	0.0287895	0.027788	0.026859	0.025871	0.024967	0.024113	0.02343375	0.02278869	0.0222107	0.0216519	0.021151	0.020967726	0.020806	0.020650566	0.02043433	0.020176701
Riverside (SC)	Annual	LHD1	GAS	AllMYr	40	9.81E-04	8.92E-04	8.08E-04	7.27E-04	6.56E-04	5.97E-04	5.42E-04	4.93E-04	4.47E-04	4.07E-04	3.71E-04	3.40E-04	3.13E-04	2.88E-04	2.64E-04	2.44E-04	2.26E-04	2.10E-04	1.93E-04	1.79E-04
Riverside (SC)	Annual	LHD1	DSL	AllMYr	40	0.03069193	0.02942544	0.02808543	0.02672717	0.0255085	0.0246211	0.023798	0.022923	0.022122	0.021365	0.02076309	0.02019155	0.0196794	0.0191844	0.01874	0.018578118	0.0184348	0.018297105	0.01810551	0.017877245
Riverside (SC)	Annual	LHD1	GAS	AllMYr	45	8.42E-04	7.65E-04	6.94E-04	6.24E-04	5.63E-04	5.12E-04	4.65E-04	4.23E-04	3.84E-04	3.49E-04	3.19E-04	2.92E-04	2.69E-04	2.47E-04	2.27E-04	2.09E-04	1.94E-04	1.80E-04	1.66E-04	1.54E-04
Riverside (SC)	Annual	LHD1	DSL	AllMYr	45	0.02779899	0.02665188	0.025438173	0.02420794	0.0231041	0.0223004	0.021555	0.020762	0.020036	0.0193511	0.01880602	0.01828835	0.0178245	0.0173761	0.016974	0.016826995	0.0166972	0.016572469	0.01639893	0.016192183
Riverside (SC)	Annual	LHD1	GAS	AllMYr	50	7.53E-04	6.85E-04	6.20E-04	5.58E-04	5.04E-04	4.58E-04	4.16E-04	3.78E-04	3.43E-04	3.12E-04	2.85E-04	2.61E-04	2.40E-04	2.21E-04	2.03E-04	1.87E-04	1.74E-04	1.61E-04	1.48E-04	1.37E-04
Riverside (SC)	Annual	LHD1	DSL	AllMYr	50	0.0257388	0.02467671	0.023552948	0.02241389	0.0213919	0.0206477	0.019958	0.019224	0.018552	0.017917	0.01741231	0.016933	0.0165035	0.0160883	0.015716	0.015579946	0.0154598	0.015344282	0.01518361	0.01499218
Riverside (SC)	Annual	LHD1	GAS	AllMYr	55	7.02E-04	6.38E-04	5.78E-04	5.20E-04	4.70E-04	4.27E-04	3.88E-04	3.52E-04	3.20E-04	2.91E-04	2.66E-04	2.44E-04	2.24E-04	2.06E-04	1.89E-04	1.75E-04	1.62E-04	1.51E-04	1.38E-04	1.28E-04
Riverside (SC)	Annual	LHD1	DSL	AllMYr	55	0.0243614	0.02335614	0.022292518	0.02121441	0.0202471	0.0195428	0.01889	0.018195	0.017559	0.0169582	0.01648049	0.01602684	0.0156203	0.0152274	0.014875	0.014746188	0.0146324	0.014523136	0.01437106	0.014189876
Riverside (SC)	Annual	LHD1	GAS	AllMYr	60	6.83E-04	6.20E-04	5.62E-04	5.06E-04	4.56E-04	4.15E-04	3.77E-04	3.43E-04	3.11E-04	2.83E-04	2.58E-04	2.37E-04	2.18E-04	2.00E-04	1.84E-04	1.70E-04	1.57E-04	1.46E-04	1.34E-04	1.25E-04
Riverside (SC)	Annual	LHD1	DSL	AllMYr	60	0.02357059	0.02259797	0.021568871	0.02052576	0.0195898	0.0189084	0.018276	0.017604	0.016989	0.0164077	0.01594551	0.01550658	0.0151133	0.0147331	0.014392	0.014267506	0.0141574	0.014051694	0.01390456	0.013729253
Riverside (SC)	Annual	LHD1	GAS	AllMYr	65	6.92E-04	6.28E-04	5.70E-04	5.12E-04	4.62E-04	4.20E-04	3.82E-04	3.47E-04	3.15E-04	2.87E-04	2.62E-04	2.40E-04	2.21E-04	2.03E-04	1.86E-04	1.72E-04	1.59E-04	1.48E-04	1.36E-04	1.26E-04
Riverside (SC)	Annual	LHD1	DSL	AllMYr	65	0.02331274	0.02235075	0.021332916	0.02030122	0.0193755	0.0187015	0.018076	0.017412	0.016803	0.0162282	0.01577107	0.01533694	0.014948	0.0145719	0.014234	0.014111423	0.0140026	0.013897973	0.01375245	0.01357906
Riverside (SC)	Annual	LHD1	GAS	AllMYr	70				5.41E-04	4.88E-04	4.44E-04	4.04E-04	3.67E-04	3.33E-04	3.03E-04	2.76E-04	2.53E-04	2.33E-04	2.14E-04	1.96E-04	1.81E-04	1.68E-04	1.57E-04	1.44E-04	1.33E-04
Riverside (SC)	Annual	LHD1	DSL	AllMYr	70				0.02052576	0.0195898	0.0189084	0.018276	0.017604	0.016989	0.0164077	0.01594551	0.01550658	0.0151133	0.0147331	0.014392	0.014267507	0.0141574	0.014051696	0.01390456	0.013729255
Riverside (SC)	Annual	LHD2	GAS	AllMYr	5	0.00585711	0.00516285	0.004451811	0.00390907	0.0034468	0.0030552	0.002735	0.002432	0.002169	0.0019375	0.00175187	0.00159923	0.0014851	0.0013762	0.001295	0.001220864	0.0011619	0.00111467	0.00107117	0.001030324
Riverside (SC)	Annual	LHD2	DSL	AllMYr	5	0.09769669	0.09411357	0.089703201	0.08561026	0.0818961	0.078292	0.075211	0.072106	0.069457	0.0659382	0.06370229	0.06174774	0.0597276	0.0583654	0.057239	0.057199489	0.0568926	0.056447561	0.05533369	0.05447453
Riverside (SC)	Annual	LHD2	GAS	AllMYr	10	0.00471662	0.00415755	0.003584964	0.0031479	0.0027757	0.0024603	0.002203	0.001959	0.001747	0.0015603	0.00141075	0.00128783	0.001196	0.0011082	0.001043	9.83E-04	9.36E-04	8.98E-04	8.63E-04	8.30E-04
Riverside (SC)	Annual	LHD2	DSL	AllMYr	10	0.08632487	0.08315884	0.079261816	0.07564529	0.0723634	0.0691789	0.066457	0.063713	0.061372	0.0582631	0.05628739	0.05456035	0.0527753	0.0515717	0.050576	0.050541512	0.0502704	0.049877106	0.04889288	0.048133737
Riverside (SC)	Annual	LHD2	GAS	AllMYr	15	0.00315533	0.00278132	0.002398272	0.00210589	0.0018569	0.0016459	0.001474	0.00131	0.001169	0.0010438	9.44E-04	8.62E-04	8.00E-04	7.41E-04	6.98E-04	6.58E-04	6.26E-04	6.00E-04	5.77E-04	5.55E-04
Riverside (SC)	Annual	LHD2	DSL	AllMYr	15	0.06851945	0.06600645	0.062913228	0.06004264	0.0574377	0.05491	0.052749	0.050571	0.048713	0.0462457	0.04467752	0.0433067	0.0418899	0.0409345	0.040145	0.040116792	0.0399016	0.039589425	0.03880821	0.038205647
Riverside (SC)	Annual	LHD2	GAS	AllMYr	20	0.0022003	0.00193949	0.001672381	0.00146849	0.0012948	0.0011477	0.001028	9.14E-04	8.15E-04	7.28E-04	6.58E-04	6.01E-04	5.58E-04	5.17E-04	4.87E-04	4.59E-04	4.36E-04	4.19E-04	4.02E-04	3.87E-04
Riverside (SC)	Annual	LHD2	DSL	AllMYr	20	0.05559636	0.05355732	0.051047502	0.04871832	0.0466047	0.0445537	0.042801	0.041033	0.039526	0.0375235	0.03625113	0.03513885	0.0339892	0.033214	0.032573	0.03255058	0.0323759	0.032122674	0.0314888	0.030999881
Riverside (SC)	Annual	LHD2	GAS	AllMYr	25	0.00159934	0.00140977	0.001215613	0.00106741	9.41E-04	8.34E-04	7.47E-04	6.64E-04	5.92E-04	5.29E-04	4.78E-04	4.37E-04	4.06E-04	3.76E-04	3.54E-04	3.33E-04	3.17E-04	3.04E-04	2.92E-04	2.81E-04
Riverside (SC)	Annual	LHD2	DSL	AllMYr	25	0.04611405	0.04442278	0.042341028	0.04040911	0.038656	0.0369548	0.035501	0.034035	0.032784	0.0311237	0.03006827	0.0291457	0.0281922	0.0275492	0.027018	0.026998869	0.026854	0.026643949	0.02611818	0.025712657
Riverside (SC)	Annual	LHD2	GAS	AllMYr	30	0.00121178	0.00106815	9.21E-04	8.09E-04	7.13E-04	6.32E-04	5.66E-04	5.03E-04	4.49E-04	4.01E-04	3.62E-04	3.31E-04	3.07E-04	2.85E-04	2.68E-04	2.53E-04	2.40E-04	2.31E-04	2.22E-04	2.13E-04
Riverside (SC)	Annual	LHD2	DSL	AllMYr	30	0.03909982	0.0376658	0.035900691	0.03426263	0.0327762	0.0313337	0.030101	0.028858	0.027798	0.0263896	0.0254947	0.02471246	0.023904	0.0233588	0.022908	0.022892174	0.0227694	0.022591238	0.02214545	0.021801601
Riverside (SC)	Annual	LHD2	GAS	AllMYr	35	9.57E-04	8.44E-04	7.27E-04	6.39E-04	5.63E-04	4.99E-04	4.47E-04	3.97E-04	3.54E-04	3.17E-04	2.86E-04	2.61E-04	2.43E-04	2.25E-04	2.12E-04	1.99E-04	1.90E-04	1.82E-04	1.75E-04	1.68E-04
Riverside (SC)	Annual	LHD2	DSL	AllMYr	35	0.03388992	0.03264699	0.031117069	0.02969727	0.0284089	0.0271586	0.02609	0.025013	0.024094	0.0228733	0.02209764	0.02141962	0.0207188	0.0202463	0.019856	0.019841882	0.0197354	0.019581048	0.01919466	0.018896623
Riverside (SC)	Annual	LHD2	GAS	AllMYr	40	7.88E-04	6.94E-04	5.99E-04	5.26E-04	4.64E-04	4.11E-04	3.68E-04	3.27E-04	2.92E-04	2.61E-04	2.36E-04	2.15E-04	2.00E-04	1.85E-04	1.74E-04	1.64E-04	1.56E-04	1.50E-04	1.44E-04	1.39E-04
Riverside (SC)	Annual	LHD2	DSL	AllMYr	40	0.03002763	0.02892634	0.027570783	0.02631279	0.0251712	0.0240635	0.023117	0.022162	0.021348	0.0202665	0.01957926	0.01897851	0.0183576	0.0179389	0.017593	0.017580585	0.0174863	0.017349473	0.01700712	0.016743053
Riverside (SC)	Annual	LHD2	GAS	AllMYr	45	6.76E-04	5.96E-04	5.14E-04	4.51E-04	3.98E-04	3.53E-04	3.16E-04	2.81E-04	2.50E-04	2.24E-04	2.02E-04	1.85E-04	1.71E-04	1.59E-04	1.50E-04	1.41E-04	1.34E-04	1.29E-04	1.24E-04	1.19E-04
Riverside (SC)	Annual	LHD2	DSL	AllMYr	45	0.0271973	0.02619982	0.024972034	0.02383262	0.0227987	0.0217953	0.020938	0.020073	0.019336	0.0183562	0.01773377	0.01718965	0.0166273	0.016248	0.015934	0.015923487	0.0158381	0.015714159	0.01540407	0.015164898
Riverside (SC)	Annual	LHD2	GAS	AllMYr	50	6.05E-04	5.33E-04	4.60E-04	4.04E-04	3.56E-04	3.15E-04	2.82E-04	2.51E-04	2.24E-04	2.00E-04	1.81E-04	1.65E-04	1.53E-04	1.42E-04	1.34E-04	1.26E-04	1.20E-04	1.15E-04	1.11E-04	1.06E-04
Riverside (SC)	Annual	LHD2	DSL	AllMYr	50	0.02518171	0.02425815	0.023121358	0.02206639	0.021109	0.0201801	0.019386	0.018586	0.017903	0.0169958	0.01641952	0.01591572	0.015395	0.0150439	0.014754	0.014743395	0.0146643	0.014549582	0.01426248	0.014041027
Riverside (SC)	Annual	LHD2	GAS	AllMYr	55	5.64E-04	4.97E-04	4.29E-04	3.76E-04	3.32E-04	2.94E-04	2.63E-04	2.34E-04	2.09E-04	1.87E-04	1.69E-04	1.54E-04	1.43E-04	1.32E-04	1.25E-04	1.18E-04	1.12E-04	1.07E-04	1.03E-04	9.92E-05
Riverside (SC)	Annual	LHD2	DSL	AllMYr	55	0.02383411	0.02295998	0.02188402	0.02088551	0.0199794	0.0191001	0.018349	0.017591	0.016945	0.0160863	0.01554083	0.015064	0.0145712	0.0142388	0.013964	0.013954406	0.0138795	0.013770965	0.01349922	0.013289624
Riverside (SC)	Annual	LHD2	GAS	AllMYr	60	5.48E-04	4.83E-04	4.17E-04	3.66E-04	3.23E-04	2.86E-04	2.56E-04	2.28E-04	2.03E-04	1.81E-04	1.64E-04	1.50E-04	1.39E-04	1.29E-04	1.21E-04	1.14E-04	1.09E-04	1.04E-04	1.00E-04	9.64E-05
Riverside (SC)	Annual	LHD2	DSL	AllMYr	60	0.02306043	0.02221467	0.021173637	0.02020753	0.0193308	0.0184801	0.017753	0.01702	0.016395	0.0155641	0.01503635	0.014575	0.0140982	0.0137766	0.013511	0.013501427	0.013429	0.01332394	0.01306102	0.012858224
Riverside (SC)	Annual	LHD2	GAS	AllMYr	65	5.55E-04	4.89E-04	4.22E-04	3.71E-04	3.27E-04	2.90E-04	2.59E-04	2.31E-04	2.06E-04	1.84E-04	1.66E-04	1.52E-04	1.41E-04	1.30E-04	1.23E-04	1.16E-04	1.10E-04	1.06E-04	1.02E-04	9.77E-05
Riverside (SC)	Annual	LHD2	DSL	AllMYr	65	0.02280815	0.02197164	0.020942003	0.01998647	0.0191194	0.018278	0.017559	0.016834	0.016215	0.0153939	0.01487186	0.01441555	0.0139439	0.0136259	0.013363	0.013353725	0.0132821	0.01317818	0.01291814	0.01271756
Riverside (SC)	Annual	LHD2	GAS	AllMYr	70				3.91E-04	3.45E-04	3.06E-04	2.74E-04	2.43E-04	2.17E-04	1.94E-04	1.75E-04	1.60E-04	1.49E-04	1.38E-04	1.30E-04	1.22E-04	1.16E-04	1.12E-04	1.07E-04	1.03E-04
Riverside (SC)	Annual	LHD2	DSL	AllMYr	70				0.02020753	0.0193308	0.0184801	0.017753	0.01702	0.016395	0.0155641	0.01503636	0.014575	0.0140982	0.0137766	0.013511	0.013501427	0.013429	0.013323941	0.01306102	0.012858225
Riverside (SC)	Annual	MCY	GAS	AllMYr	5	8.69E-04	7.72E-04	6.98E-04	6.40E-04	5.96E-04	5.65E-04	5.42E-04	5.23E-04	5.07E-04	4.97E-04	4.89E-04	4.82E-04	4.78E-04	4.75E-04	4.72E-04	4.70E-04	4.69E-04	4.69E-04	4.68E-04	4.68E-04
Riverside (SC)	Annual	MCY	GAS	AllMYr	10	7.59E-04	6.73E-04	6.07E-04	5.56E-04	5.16E-04	4.89E-04	4.68E-04	4.51E-04	4.38E-04	4.28E-04	4.21E-04	4.16E-04	4.12E-04	4.09E-04	4.07E-04	4.05E-04	4.04E-04	4.03E-04	4.03E-04	4.02E-04
Riverside (SC)	Annual	MCY	GAS	AllMYr	15	6.00E-04	5.30E-04	4.76E-04	4.35E-04	4.02E-04	3.80E-04	3.63E-04	3.50E-04	3.39E-04	3.31E-04	3.25E-04	3.21E-04	3.17E-04	3.15E-04	3.13E-04	3.12E-04	3.11E-04	3.10E-04	3.10E-04	3.10E-04
Riverside (SC)	Annual	MCY	GAS	AllMYr	20	4.98E-04	4.38E-04	3.93E-04	3.57E-04	3.30E-04	3.11E-04	2.97E-04	2.85E-04	2.76E-04	2.69E-04	2.64E-04	2.60E-04	2.58E-04	2.56E-04	2.54E-04	2.53E-04	2.52E-04	2.52E-04	2.51E-04	2.51E-04
Riverside (SC)	Annual	MCY	GAS	AllMYr	25	4.33E-04	3.81E-04	3.40E-04	3.09E-04	2.84E-04	2.68E-04	2.55E-04	2.45E-04	2.36E-04	2.30E-04	2.26E-04	2.23E-04	2.20E-04	2.18E-04	2.17E-04	2.16E-04	2.15E-04	2.15E-04	2.14E-04	2.14E-04
Riverside (SC)	Annual	MCY	GAS	AllMYr	30	3.96E-04	3.47E-04	3.10E-04	2.80E-04	2.58E-04	2.42E-04	2.30E-04	2.21E-04	2.13E-04	2.07E-04	2.03E-04	2.00E-04	1.98E-04	1.96E-04	1.95E-04	1.94E-04	1.93E-04	1.93E-04	1.93E-04	1.92E-04
Riverside (SC)	Annual	MCY	GAS	AllMYr	35	3.80E-04	3.32E-04	2.96E-04	2.67E-04	2.45E-04	2.30E-04	2.19E-04	2.09E-04	2.02E-04	1.96E-04	1.92E-04	1.89E-04	1.87E-04	1.85E-04	1.84E-04	1.83E-04	1.83E-04	1.82E-04	1.82E-04	1.82E-04
Riverside (SC)	Annual	MCY	GAS	AllMYr	40	3.82E-04	3.33E-04	2.97E-04	2.68E-04	2.45E-04	2.30E-04	2.18E-04	2.09E-04	2.01E-04	1.96E-04	1.92E-04	1.88E-04	1.86E-04	1.84E-04	1.83E-04	1.82E-04	1.82E-04	1.81E-04	1.81E-04	1.81E-04
Riverside (SC)	Annual	MCY	GAS	AllMYr	45	4.03E-04	3.51E-04	3.12E-04	2.81E-04	2.57E-04	2.41E-04	2.29E-04	2.18E-04	2.10E-04	2.05E-04	2.00E-04	1.97E-04	1.95E-04	1.93E-04	1.91E-04	1.90E-04	1.90E-04	1.89E-04	1.89E-04	1.89E-04
Riverside (SC)	Annual	MCY	GAS	AllMYr	50	4.45E-04	3.88E-04	3.44E-04	3.10E-04	2.84E-04	2.66E-04	2.52E-04	2.40E-04	2.32E-04	2.25E-04	2.20E-04	2.17E-04	2.14E-04	2.12E-04	2.10E-04	2.09E-04	2.09E-04	2.08E-04	2.08E-04	2.08E-04
Riverside (SC)	Annual	MCY	GAS	AllMYr	55	5.16E-04	4.50E-04	3.99E-04	3.59E-04	3.28E-04	3.07E-04	2.91E-04	2.78E-04	2.68E-04	2.60E-04	2.55E-04	2.50E-04	2.47E-04	2.45E-04	2.43E-04	2.42E-04	2.41E-04	2.40E-04	2.40E-04	2.40E-04
Riverside (SC)	Annual	MCY	GAS	AllMYr	60	6.27E-04	5.46E-04	4.85E-04	4.36E-04	3.99E-04	3.74E-04	3.54E-04	3.38E-04	3.25E-04	3.16E-04	3.09E-04	3.04E-04	3.00E-04	2.97E-04	2.95E-04	2.94E-04	2.93E-04	2.92E-04	2.92E-04	2.91E-04
Riverside (SC)	Annual	MCY	GAS	AllMYr	65	7.99E-04	6.96E-04	6.18E-04	5.56E-04	5.09E-04	4.77E-04	4.52E-04	4.31E-04	4.15E-04	4.04E-04	3.95E-04	3.88E-04	3.83E-04	3.80E-04	3.77E-04	3.75E-04	3.74E-04	3.73E-04	3.72E-04	3.72E-04
Riverside (SC)	Annual	MCY	GAS	AllMYr	70				7.45E-04	6.81E-04	6.38E-04	6.05E-04	5.78E-04	5.56E-04	5.41E-04	5.30E-04	5.21E-04	5.14E-04	5.10E-04	5.06E-04	5.03E-04	5.02E-04	5.01E-04	5.00E-04	4.99E-04
Riverside (SC)	Annual	MDV	GAS	AllMYr	5	0.01264229	0.01255848	0.012539506	0.01252004	0.0125419	0.0125633	0.01259	0.012637	0.012688	0.0127638	0.01284877	0.01294116	0.0130309	0.0131079	0.013171	0.013224899	0.0132654	0.013295881	0.01331987	0.013340328
Riverside (SC)	Annual	MDV	DSL	AllMYr	5	0.07425977	0.06344937	0.0553895	0.0496621	0.0461815	0.040013	0.03459	0.028382	0.023851	0.0204723	0.01848418	0.01506832	0.0129714	0.0116569	0.011263	0.011166618	0.0111013	0.011028872	0.01099315	0.010962975
Riverside (SC)	Annual	MDV	GAS	AllMYr	10	0.00809544	0.00802668	0.008000301	0.0079729	0.0079739	0.0079763	0.007982	0.008002	0.008026	0.008068	0.00811724	0.00817148	0.0082243	0.0082693	0.008306	0.008336381	0.0083594	0.008376003	0.00838869	0.008399747
Riverside (SC)	Annual	MDV	DSL	AllMYr	10	0.06535705	0.05579052	0.04865584	0.04358402	0.0404984	0.0350378	0.030237	0.024743	0.020733	0.0177422	0.01598139	0.01295868	0.011102	0.0099364	0.009585	0.00949712	0.0094382	0.009375241	0.00934337	0.009316093
Riverside (SC)	Annual	MDV	GAS	AllMYr	15	0.00546466	0.00540858	0.005381688	0.00535362	0.005346	0.0053404	0.005337	0.005344	0.005354	0.0053788	0.00540882	0.00544235	0.0054751	0.0055027	0.005525	0.005543165	0.0055568	0.005566281	0.00557318	0.005579373
Riverside (SC)	Annual	MDV	DSL	AllMYr	15	0.05159987	0.04399108	0.038314142	0.0342766	0.0318166	0.0274715	0.023651	0.019282	0.016092	0.0137118	0.01230984	0.00990583	0.0084279	0.0074985	0.007215	0.007143282	0.0070953	0.007046363	0.00702074	0.006998431
Riverside (SC)	Annual	MDV	GAS	AllMYr	20	0.00388641	0.00384022	0.003815173	0.00378893	0.003778	0.0037694	0.003762	0.003763	0.003767	0.0037814	0.00380072	0.00382263	0.0038441	0.003862	0.003876	0.003887735	0.0038963	0.003901913	0.00390578	0.003909396
Riverside (SC)	Annual	MDV	DSL	AllMYr	20	0.04177189	0.03559279	0.030981743	0.02770159	0.0257018	0.0221724	0.019069	0.015521	0.01293	0.010997	0.00985792	0.00790567	0.006705	0.0059495	0.005718	0.005658952	0.0056196	0.005580251	0.00555935	0.005541017
Riverside (SC)	Annual	MDV	GAS	AllMYr	25	0.00291051	0.00287173	0.002849063	0.00282522	0.0028135	0.0028038	0.002795	0.002793	0.002793	0.0028028	0.00281596	0.00283114	0.002846	0.0028584	0.002868	0.002875801	0.0028815	0.002885032	0.00288729	0.002889516
Riverside (SC)	Annual	MDV	DSL	AllMYr	25	0.03466664	0.0295425	0.025718857	0.02299898	0.021341	0.0184143	0.015841	0.012899	0.01075	0.0091471	0.00820265	0.00658369	0.0055881	0.0049617	0.00477	0.004721212	0.0046886	0.004655946	0.00463863	0.004623472
Riverside (SC)	Annual	MDV	GAS	AllMYr	30	0.00229417	0.00226081	0.00224034	0.00221872	0.002207	0.0021974	0.002188	0.002185	0.002184	0.0021898	0.00219946	0.00221069	0.0022217	0.0022308	0.002238	0.002243433	0.0022475	0.002249899	0.00225131	0.002252782
Riverside (SC)	Annual	MDV	DSL	AllMYr	30	0.02949528	0.02515623	0.021919283	0.01961747	0.0182157	0.0157381	0.01356	0.011068	0.009249	0.0078921	0.00709287	0.00572192	0.0048793	0.0043498	0.004189	0.004148235	0.0041211	0.004092962	0.0040784	0.004065789
Riverside (SC)	Annual	MDV	GAS	AllMYr	35	0.00190266	0.00187314	0.001854457	0.00183463	0.0018233	0.0018139	0.001805	0.001801	0.001799	0.0018033	0.00181086	0.00181976	0.0018285	0.0018357	0.001841	0.00184559	0.0018488	0.001850541	0.00185152	0.001852603
Riverside (SC)	Annual	MDV	DSL	AllMYr	35	0.02573584	0.02198449	0.019187403	0.0171996	0.0159913	0.0138506	0.011969	0.009814	0.008242	0.0070694	0.00637932	0.00519398	0.0044662	0.0040098	0.003873	0.00383922	0.0038165	0.003791422	0.003779	0.003768478
Riverside (SC)	Annual	MDV	GAS	AllMYr	40	0.00165986	0.00163292	0.001615551	0.00159701	0.0015861	0.0015771	0.001568	0.001564	0.001561	0.0015651	0.00157145	0.00157904	0.0015866	0.0015926	0.001597	0.00160107	0.0016038	0.001605268	0.00160607	0.001606974
Riverside (SC)	Annual	MDV	DSL	AllMYr	40	0.0230425	0.01973206	0.01726576	0.01551476	0.0144535	0.0125662	0.010907	0.009006	0.007619	0.006585	0.00597741	0.00493129	0.0042901	0.0038894	0.003772	0.003743897	0.0037248	0.003701701	0.00369098	0.003682224
Riverside (SC)	Annual	MDV	GAS	AllMYr	45	0.00152302	0.00149763	0.001481099	0.00146334	0.0014528	0.0014439	0.001435	0.001431	0.001428	0.0014314	0.00143732	0.00144429	0.0014512	0.0014568	0.001461	0.001464648	0.0014672	0.001468609	0.0014694	0.001470267
Riverside (SC)	Annual	MDV	DSL	AllMYr	45	0.02119087	0.01821035	0.01599257	0.01442033	0.0134717	0.0117747	0.010283	0.008571	0.007323	0.0063938	0.00584848	0.00490648	0.0043306	0.0039726	0.003871	0.003848341	0.0038325	0.00381033	0.003801	0.003793828
Riverside (SC)	Annual	MDV	GAS	AllMYr	50	0.00146985	0.00144509	0.001428942	0.00141145	0.001401	0.0013923	0.001384	0.001379	0.001377	0.0013798	0.00138565	0.00139255	0.0013994	0.0014049	0.001409	0.001412898	0.0014155	0.00141703	0.00141794	0.001418886
Riverside (SC)	Annual	MDV	DSL	AllMYr	50	0.02004635	0.01731051	0.015278433	0.01384095	0.0129793	0.0114248	0.010058	0.008486	0.007342	0.0064911	0.00599284	0.00512799	0.0046012	0.0042763	0.004189	0.004171328	0.0041586	0.00413641	0.00412827	0.004122645
Riverside (SC)	Annual	MDV	GAS	AllMYr	55	0.00149223	0.00146721	0.001450996	0.00143326	0.0014228	0.001414	0.001406	0.001401	0.001398	0.0014018	0.0014081	0.00141544	0.0014227	0.0014285	0.001433	0.00143734	0.0014402	0.00144204	0.00144319	0.001444339
Riverside (SC)	Annual	MDV	DSL	AllMYr	55	0.01954906	0.01699177	0.015097276	0.01376135	0.0129683	0.0115196	0.010246	0.008776	0.007709	0.0069153	0.00645279	0.00564414	0.0051542	0.0048555	0.004781	0.004769815	0.0047604	0.004737138	0.00473012	0.004726157
Riverside (SC)	Annual	MDV	GAS	AllMYr	60	0.00159404	0.00156785	0.00155108	0.00153254	0.0015218	0.0015128	0.001504	0.0015	0.001497	0.0015013	0.00150852	0.00151685	0.0015251	0.0015317	0.001537	0.001542073	0.0015455	0.001547812	0.00154938	0.001550856
Riverside (SC)	Annual	MDV	DSL	AllMYr	60	0.01971343	0.01728377	0.01549082	0.01423247	0.0134965	0.0121261	0.010922	0.009525	0.008512	0.0077621	0.00732713	0.00655849	0.0060965	0.0058198	0.00576	0.005755786	0.0057503	0.005724688	0.00571884	0.005716905
Riverside (SC)	Annual	MDV	GAS	AllMYr	65	0.00179232	0.00176385	0.001746012	0.00172602	0.0017148	0.0017055	0.001696	0.001692	0.00169	0.0016951	0.00170399	0.00171405	0.001724	0.001732	0.001739	0.001744934	0.0017493	0.00175236	0.00175457	0.001756577
Riverside (SC)	Annual	MDV	DSL	AllMYr	65	0.02064543	0.01830646	0.016590636	0.01539518	0.0147122	0.0134017	0.012251	0.010904	0.009933	0.009216	0.0088038	0.00806334	0.0076237	0.0073678	0.007326	0.007331538	0.0073313	0.007301523	0.00729709	0.007297906

Riverside (SC)	Annual	MDV	GAS	AllMYr	70				0.00186793	0.0018564	0.0018468	0.001837	0.001833	0.001831	0.0018374	0.00184745	0.00185874	0.00187	0.0018789	0.001887	0.001893654	0.0018987	0.00190226	0.00190492	0.001907292
Riverside (SC)	Annual	MDV	DSL	AllMYr	70				0.01753381	0.0169103	0.0156525	0.014548	0.01324	0.012304	0.0116154	0.01122547	0.01050634	0.0100877	0.0098553	0.009839	0.009859175	0.0098667	0.009829938	0.00982748	0.009832375
Riverside (SC)	Annual	MH	GAS	AllMYr	5	0.01092305	0.0093452	0.00797936	0.00684542	0.005836	0.0048822	0.00414	0.003518	0.002988	0.0025555	0.0022081	0.00192425	0.0016798	0.0014722	0.00132	0.001198377	0.0011132	0.001048772	0.00100296	9.72E-04
Riverside (SC)	Annual	MH	DSL	AllMYr	5	0.47040679	0.44594717	0.422994461	0.39640557	0.3692759	0.3329551	0.298467	0.269103	0.243711	0.2216266	0.20203248	0.18247054	0.1630647	0.1440604	0.127818	0.112865191	0.1004844	0.089862391	0.08114996	0.073654998
Riverside (SC)	Annual	MH	GAS	AllMYr	10	0.00879614	0.00752552	0.006425636	0.0055125	0.0046996	0.0039316	0.003334	0.002833	0.002406	0.0020579	0.00177814	0.00154956	0.0013527	0.0011855	0.001063	9.65E-04	8.96E-04	8.45E-04	8.08E-04	7.82E-04
Riverside (SC)	Annual	MH	DSL	AllMYr	10	0.39756273	0.37723113	0.358010029	0.33588725	0.313308	0.2831512	0.254565	0.230211	0.209119	0.1905637	0.17403979	0.15747508	0.1411446	0.1252826	0.111667	0.098950046	0.0883513	0.079207641	0.07171739	0.065316551
Riverside (SC)	Annual	MH	GAS	AllMYr	15	0.00588445	0.00503443	0.004298627	0.00368775	0.003144	0.0026301	0.00223	0.001895	0.00161	0.0013767	0.00118954	0.00103663	9.05E-04	7.93E-04	7.11E-04	6.46E-04	6.00E-04	5.65E-04	5.40E-04	5.23E-04
Riverside (SC)	Annual	MH	DSL	AllMYr	15	0.27860419	0.26497296	0.251824918	0.2369535	0.2217629	0.201607	0.182591	0.166361	0.152248	0.1394424	0.1279281	0.11626209	0.1049453	0.0941906	0.084851	0.075795076	0.0681229	0.061413571	0.05593454	0.051328445
Riverside (SC)	Annual	MH	GAS	AllMYr	20	0.00410339	0.00351065	0.002997551	0.00257157	0.0021924	0.0018341	0.001555	0.001322	0.001122	9.60E-04	8.30E-04	7.23E-04	6.31E-04	5.53E-04	4.96E-04	4.50E-04	4.18E-04	3.94E-04	3.77E-04	3.65E-04
Riverside (SC)	Annual	MH	DSL	AllMYr	20	0.19528487	0.18628003	0.177351478	0.16749022	0.1574057	0.1441474	0.131724	0.121092	0.111794	0.1029938	0.09498124	0.08675298	0.0789339	0.0717166	0.065349	0.058873858	0.0532781	0.048306715	0.04426138	0.04092537
Riverside (SC)	Annual	MH	GAS	AllMYr	25	0.00298265	0.0025518	0.002178846	0.00186921	0.0015936	0.0013331	0.00113	9.61E-04	8.16E-04	6.98E-04	6.03E-04	5.25E-04	4.59E-04	4.02E-04	3.60E-04	3.27E-04	3.04E-04	2.86E-04	2.74E-04	2.65E-04
Riverside (SC)	Annual	MH	DSL	AllMYr	25	0.16161219	0.15444661	0.147211098	0.13934112	0.1312855	0.1207588	0.110942	0.102524	0.095135	0.0879439	0.08134331	0.07450956	0.0680968	0.0622875	0.05711	0.051685132	0.0469416	0.042689184	0.03923558	0.036418849
Riverside (SC)	Annual	MH	GAS	AllMYr	30	0.00225988	0.00193344	0.001650859	0.00141626	0.0012074	0.0010101	8.57E-04	7.28E-04	6.18E-04	5.29E-04	4.57E-04	3.98E-04	3.48E-04	3.05E-04	2.73E-04	2.48E-04	2.30E-04	2.17E-04	2.08E-04	2.01E-04
Riverside (SC)	Annual	MH	DSL	AllMYr	30	0.14408616	0.13795288	0.131656489	0.12488743	0.1179462	0.1089194	0.100547	0.093344	0.087008	0.0806779	0.07482045	0.06871761	0.0630474	0.057995	0.053453	0.048561074	0.0442362	0.040330636	0.03716209	0.034601239
Riverside (SC)	Annual	MH	GAS	AllMYr	35	0.00178481	0.00152699	0.001303816	0.00111853	9.54E-04	7.98E-04	6.76E-04	5.75E-04	4.88E-04	4.18E-04	3.61E-04	3.14E-04	2.74E-04	2.41E-04	2.16E-04	1.96E-04	1.82E-04	1.71E-04	1.64E-04	1.59E-04
Riverside (SC)	Annual	MH	DSL	AllMYr	35	0.13413793	0.12870721	0.123032225	0.11698959	0.1107736	0.102724	0.09531	0.088898	0.083256	0.0774507	0.07202797	0.06634672	0.0611148	0.0565317	0.052376	0.047765053	0.0436387	0.039886409	0.0368435	0.034405483
Riverside (SC)	Annual	MH	GAS	AllMYr	40	0.00146934	0.00125709	0.001073362	9.21E-04	7.85E-04	6.57E-04	5.57E-04	4.73E-04	4.02E-04	3.44E-04	2.97E-04	2.59E-04	2.26E-04	1.98E-04	1.78E-04	1.61E-04	1.50E-04	1.41E-04	1.35E-04	1.31E-04
Riverside (SC)	Annual	MH	DSL	AllMYr	40	0.13176752	0.12670966	0.12133829	0.11564758	0.1097677	0.1021724	0.095232	0.089187	0.083878	0.0782625	0.07296587	0.0673969	0.0622992	0.0578974	0.053879	0.049297048	0.0451491	0.041356497	0.03827982	0.035831569
Riverside (SC)	Annual	MH	GAS	AllMYr	45	0.00126088	0.00107875	9.21E-04	7.90E-04	6.74E-04	5.64E-04	4.78E-04	4.06E-04	3.45E-04	2.95E-04	2.55E-04	2.22E-04	1.94E-04	1.70E-04	1.52E-04	1.38E-04	1.29E-04	1.21E-04	1.16E-04	1.12E-04
Riverside (SC)	Annual	MH	DSL	AllMYr	45	0.13697489	0.13196016	0.126574677	0.12086142	0.1149285	0.1072648	0.100312	0.094211	0.088875	0.0831132	0.07763414	0.07186813	0.0666004	0.0620922	0.057963	0.053157077	0.0487674	0.044740908	0.04147104	0.038879515
Riverside (SC)	Annual	MH	GAS	AllMYr	50	0.00112785	9.65E-04	8.24E-04	7.07E-04	6.03E-04	5.04E-04	4.27E-04	3.63E-04	3.09E-04	2.64E-04	2.28E-04	1.99E-04	1.73E-04	1.52E-04	1.36E-04	1.24E-04	1.15E-04	1.08E-04	1.04E-04	1.00E-04
Riverside (SC)	Annual	MH	DSL	AllMYr	50	0.14976006	0.14445878	0.138741378	0.13263109	0.126256	0.118001	0.110551	0.103969	0.098246	0.0920028	0.08603278	0.07976042	0.0740185	0.0691161	0.064627	0.059345132	0.0544935	0.050039635	0.04641717	0.0435493
Riverside (SC)	Annual	MH	GAS	AllMYr	55	0.0010516	9.00E-04	7.68E-04	6.59E-04	5.62E-04	4.70E-04	3.99E-04	3.39E-04	2.88E-04	2.46E-04	2.13E-04	1.85E-04	1.62E-04	1.42E-04	1.27E-04	1.15E-04	1.07E-04	1.01E-04	9.66E-05	9.35E-05
Riverside (SC)	Annual	MH	DSL	AllMYr	55	0.17012305	0.1642055	0.157838424	0.15095659	0.1437502	0.1343811	0.125949	0.118462	0.111992	0.1049314	0.09816179	0.09107378	0.0845535	0.0789691	0.073871	0.067861222	0.0623276	0.057252688	0.05311821	0.049840942
Riverside (SC)	Annual	MH	GAS	AllMYr	60	0.00102205	8.74E-04	7.47E-04	6.41E-04	5.46E-04	4.57E-04	3.87E-04	3.29E-04	2.80E-04	2.39E-04	2.07E-04	1.80E-04	1.57E-04	1.38E-04	1.24E-04	1.12E-04	1.04E-04	9.81E-05	9.38E-05	9.09E-05
Riverside (SC)	Annual	MH	DSL	AllMYr	60	0.19806384	0.19120029	0.183865791	0.17583797	0.1674112	0.156405	0.146505	0.13769	0.130112	0.1218988	0.11402118	0.1058082	0.0982053	0.0916512	0.085696	0.078705329	0.0722694	0.066380057	0.06157415	0.057754426
Riverside (SC)	Annual	MH	GAS	AllMYr	65	0.00103543	8.86E-04	7.56E-04	6.49E-04	5.53E-04	4.63E-04	3.92E-04	3.33E-04	2.83E-04	2.42E-04	2.09E-04	1.82E-04	1.59E-04	1.40E-04	1.25E-04	1.14E-04	1.06E-04	9.94E-05	9.51E-05	9.21E-05
Riverside (SC)	Annual	MH	DSL	AllMYr	65	0.23358243	0.22544319	0.216823467	0.20727516	0.1972388	0.1840729	0.17222	0.161653	0.152608	0.1429051	0.13361093	0.12396368	0.1149741	0.1071624	0.100101	0.091877466	0.0843192	0.077421743	0.071785	0.067289762
Riverside (SC)	Annual	MH	GAS	AllMYr	70				6.85E-04	5.84E-04	4.89E-04	4.14E-04	3.52E-04	2.99E-04	2.56E-04	2.21E-04	1.93E-04	1.68E-04	1.47E-04	1.32E-04	1.20E-04	1.11E-04	1.05E-04	1.00E-04	9.73E-05
Riverside (SC)	Annual	MH	DSL	AllMYr	70				0.24526821	0.2332332	0.2173847	0.203094	0.19035	0.179477	0.1679504	0.15693108	0.14554022	0.1348597	0.1255027	0.117086	0.107377641	0.0984768	0.090377752	0.08375075	0.07844695
Riverside (SC)	Annual	OBUS	GAS	AllMYr	5	0.00470293	0.00409241	0.003594654	0.00319447	0.0028385	0.002543	0.002281	0.00205	0.001852	0.0016847	0.0015527	0.00145037	0.0013556	0.0012869	0.001214	0.001174574	0.0011327	0.001099659	0.00106887	0.001050646
Riverside (SC)	Annual	OBUS	DSL	AllMYr	5	0.23252322	0.12747499	0.11585848	0.10663703	0.079693	0.0609858	0.058884	0.057314	0.057154	0.0577311	0.05807087	0.05828733	0.0584075	0.0585407	0.058595	0.058525138	0.0585379	0.058518463	0.05847716	0.058435643
Riverside (SC)	Annual	OBUS	GAS	AllMYr	10	0.00378718	0.00329555	0.002894711	0.00257245	0.0022858	0.0020478	0.001837	0.001651	0.001492	0.0013566	0.00125036	0.00116795	0.0010916	0.0010363	9.77E-04	9.46E-04	9.12E-04	8.86E-04	8.61E-04	8.46E-04
Riverside (SC)	Annual	OBUS	DSL	AllMYr	10	0.16951659	0.09858252	0.090749743	0.08540131	0.0684184	0.0557793	0.053852	0.05242	0.052607	0.053137	0.05344635	0.05364054	0.0537467	0.0538678	0.053917	0.053759839	0.0537715	0.053753451	0.05371569	0.053677762
Riverside (SC)	Annual	OBUS	GAS	AllMYr	15	0.00253355	0.00220466	0.001936506	0.00172092	0.0015291	0.00137	0.001229	0.001104	9.98E-04	9.08E-04	8.36E-04	7.81E-04	7.30E-04	6.93E-04	6.54E-04	6.33E-04	6.10E-04	5.92E-04	5.76E-04	5.66E-04
Riverside (SC)	Annual	OBUS	DSL	AllMYr	15	0.12527672	0.07600732	0.071762315	0.06844701	0.0577506	0.0496352	0.04788	0.046636	0.046926	0.0474058	0.04770122	0.04790344	0.0480237	0.0481402	0.048186	0.048314772	0.0483263	0.048311317	0.04827581	0.048239832
Riverside (SC)	Annual	OBUS	GAS	AllMYr	20	0.00176672	0.00153737	0.001350379	0.00120005	0.0010663	9.55E-04	8.57E-04	7.70E-04	6.96E-04	6.33E-04	5.83E-04	5.45E-04	5.09E-04	4.83E-04	4.56E-04	4.41E-04	4.25E-04	4.13E-04	4.02E-04	3.95E-04
Riverside (SC)	Annual	OBUS	DSL	AllMYr	20	0.08788328	0.05775932	0.05572014	0.05408734	0.0491361	0.0448444	0.043267	0.042137	0.04223	0.0426608	0.0429251	0.04310473	0.0432108	0.043315	0.043356	0.043334124	0.0433446	0.0433312	0.04329923	0.043266819
Riverside (SC)	Annual	OBUS	GAS	AllMYr	25	0.00128418	0.00111748	9.82E-04	8.72E-04	7.75E-04	6.94E-04	6.23E-04	5.60E-04	5.06E-04	4.60E-04	4.24E-04	3.96E-04	3.70E-04	3.51E-04	3.31E-04	3.21E-04	3.09E-04	3.00E-04	2.92E-04	2.87E-04
Riverside (SC)	Annual	OBUS	DSL	AllMYr	25	0.07751739	0.05231221	0.050849857	0.04971531	0.0461649	0.0428919	0.041386	0.040303	0.040726	0.0411387	0.04138598	0.04154791	0.0416403	0.0417375	0.041776	0.04197367	0.0419829	0.041968953	0.04193928	0.041909449
Riverside (SC)	Annual	OBUS	GAS	AllMYr	30	9.73E-04	8.47E-04	7.44E-04	6.61E-04	5.87E-04	5.26E-04	4.72E-04	4.24E-04	3.83E-04	3.49E-04	3.21E-04	3.00E-04	2.80E-04	2.66E-04	2.51E-04	2.43E-04	2.34E-04	2.28E-04	2.21E-04	2.17E-04
Riverside (SC)	Annual	OBUS	DSL	AllMYr	30	0.07087069	0.04961054	0.048606578	0.04775811	0.0453876	0.042793	0.041297	0.040211	0.040846	0.0412576	0.04149836	0.04164996	0.0417332	0.0418274	0.041866	0.041901483	0.0419103	0.041896113	0.04186695	0.041837713
Riverside (SC)	Annual	OBUS	GAS	AllMYr	35	7.68E-04	6.69E-04	5.87E-04	5.22E-04	4.64E-04	4.16E-04	3.73E-04	3.35E-04	3.03E-04	2.75E-04	2.54E-04	2.37E-04	2.22E-04	2.10E-04	1.98E-04	1.92E-04	1.85E-04	1.80E-04	1.75E-04	1.72E-04
Riverside (SC)	Annual	OBUS	DSL	AllMYr	35	0.06781468	0.04915886	0.048530123	0.04774838	0.0462612	0.0445464	0.042999	0.041861	0.042213	0.042638	0.04288725	0.04304459	0.0431311	0.0432287	0.043268	0.043163068	0.0431724	0.043158038	0.04312765	0.043097119
Riverside (SC)	Annual	OBUS	GAS	AllMYr	40	6.33E-04	5.51E-04	4.84E-04	4.30E-04	3.82E-04	3.42E-04	3.07E-04	2.76E-04	2.49E-04	2.27E-04	2.09E-04	1.95E-04	1.82E-04	1.73E-04	1.63E-04	1.58E-04	1.52E-04	1.48E-04	1.44E-04	1.41E-04
Riverside (SC)	Annual	OBUS	DSL	AllMYr	40	0.06815626	0.05081394	0.050462857	0.05005713	0.0492171	0.0474594	0.0458	0.044596	0.044903	0.0453579	0.0456297	0.04580704	0.0459079	0.0460146	0.046057	0.046123599	0.0461339	0.046118749	0.04608592	0.046052857
Riverside (SC)	Annual	OBUS	GAS	AllMYr	45	5.43E-04	4.72E-04	4.15E-04	3.69E-04	3.28E-04	2.94E-04	2.63E-04	2.37E-04	2.14E-04	1.94E-04	1.79E-04	1.67E-04	1.56E-04	1.49E-04	1.40E-04	1.36E-04	1.31E-04	1.27E-04	1.23E-04	1.21E-04
Riverside (SC)	Annual	OBUS	DSL	AllMYr	45	0.07166536	0.05437966	0.05419692	0.05379209	0.0533673	0.0519485	0.050117	0.048811	0.049181	0.0496823	0.04998768	0.05019322	0.0503136	0.0504338	0.050481	0.050651866	0.0506636	0.05064745	0.05061077	0.05057371
Riverside (SC)	Annual	OBUS	GAS	AllMYr	50	4.86E-04	4.23E-04	3.71E-04	3.30E-04	2.93E-04	2.63E-04	2.36E-04	2.12E-04	1.91E-04	1.74E-04	1.60E-04	1.50E-04	1.40E-04	1.33E-04	1.25E-04	1.21E-04	1.17E-04	1.14E-04	1.10E-04	1.08E-04
Riverside (SC)	Annual	OBUS	DSL	AllMYr	50	0.07900626	0.06069441	0.060578795	0.06015402	0.0599061	0.058439	0.056373	0.054908	0.05599	0.0565572	0.05689557	0.05711582	0.0572408	0.0573736	0.057427	0.057514001	0.0575268	0.057507846	0.05746698	0.057425843
Riverside (SC)	Annual	OBUS	GAS	AllMYr	55	4.53E-04	3.94E-04	3.46E-04	3.08E-04	2.73E-04	2.45E-04	2.20E-04	1.97E-04	1.78E-04	1.62E-04	1.49E-04	1.40E-04	1.31E-04	1.24E-04	1.17E-04	1.13E-04	1.09E-04	1.06E-04	1.03E-04	1.01E-04
Riverside (SC)	Annual	OBUS	DSL	AllMYr	55	0.09028281	0.06981836	0.069674792	0.06940353	0.0690669	0.0674823	0.065119	0.06341	0.06435	0.0649993	0.06538209	0.06562611	0.0657617	0.0659117	0.065972	0.066015299	0.0660295	0.066007434	0.06596108	0.065914523
Riverside (SC)	Annual	OBUS	GAS	AllMYr	60	4.40E-04	3.83E-04	3.36E-04	2.99E-04	2.66E-04	2.38E-04	2.13E-04	1.92E-04	1.73E-04	1.58E-04	1.45E-04	1.36E-04	1.27E-04	1.20E-04	1.14E-04	1.10E-04	1.06E-04	1.03E-04	1.00E-04	9.83E-05
Riverside (SC)	Annual	OBUS	DSL	AllMYr	60	0.10733589	0.08390409	0.083654687	0.08248455	0.0817921	0.0799841	0.077256	0.075175	0.076332	0.0770877	0.07750114	0.07773034	0.0778383	0.0779984	0.078066	0.078553889	0.078567	0.078536747	0.07848693	0.078437979
Riverside (SC)	Annual	OBUS	GAS	AllMYr	65	4.46E-04	3.88E-04	3.41E-04	3.03E-04	2.69E-04	2.41E-04	2.16E-04	1.94E-04	1.76E-04	1.60E-04	1.47E-04	1.37E-04	1.29E-04	1.22E-04	1.15E-04	1.11E-04	1.07E-04	1.04E-04	1.01E-04	9.96E-05
Riverside (SC)	Annual	OBUS	DSL	AllMYr	65	0.12777871	0.10022652	0.099745266	0.09864141	0.0974022	0.0947536	0.091598	0.089075	0.090002	0.0908815	0.09133533	0.0915556	0.091639	0.091813	0.09189	0.092053746	0.092067	0.092029502	0.09197398	0.091920057
Riverside (SC)	Annual	OBUS	GAS	AllMYr	70				3.20E-04	2.84E-04	2.55E-04	2.28E-04	2.05E-04	1.85E-04	1.69E-04	1.55E-04	1.45E-04	1.36E-04	1.29E-04	1.22E-04	1.18E-04	1.13E-04	1.10E-04	1.07E-04	1.05E-04
Riverside (SC)	Annual	OBUS	DSL	AllMYr	70				0.11507728	0.1131283	0.1096045	0.105966	0.103039	0.104071	0.1050858	0.10560522	0.10585211	0.1059416	0.1061406	0.106229	0.10630669	0.1063218	0.106278178	0.10621441	0.106152566
Riverside (SC)	Annual	SBUS	GAS	AllMYr	5	0.03224937	0.02685269	0.018141098	0.01354593	0.0129349	0.0122457	0.011296	0.010178	0.009134	0.0087702	0.00823644	0.0079634	0.0077241	0.0071205	0.006532	0.006009948	0.0053765	0.004077043	0.00317794	0.002002271
Riverside (SC)	Annual	SBUS	DSL	AllMYr	5	0.43112285	0.43299406	0.24095329	0.23602456	0.2312365	0.2215373	0.213613	0.207436	0.19716	0.1867056	0.17434536	0.15882087	0.142475	0.1253136	0.108866	0.091600266	0.0796253	0.062835789	0.06382376	0.064330803
Riverside (SC)	Annual	SBUS	GAS	AllMYr	10	0.02596984	0.021624	0.014608704	0.0109083	0.0104163	0.0098613	0.009096	0.008197	0.007355	0.0070625	0.00663266	0.00641279	0.0062201	0.005734	0.00526	0.004839704	0.0043296	0.00328317	0.00255914	0.001612393
Riverside (SC)	Annual	SBUS	DSL	AllMYr	10	0.30502925	0.30635939	0.168734693	0.1650157	0.1614709	0.1543137	0.149498	0.145811	0.139481	0.1331937	0.1257159	0.11621162	0.1062497	0.0957337	0.085728	0.075131312	0.067962	0.057629532	0.05853564	0.059000676
Riverside (SC)	Annual	SBUS	GAS	AllMYr	15	0.01737332	0.01446604	0.009772942	0.00729744	0.0069683	0.006597	0.006085	0.005483	0.004921	0.0047246	0.00443712	0.00429003	0.0041611	0.0038359	0.003519	0.003237669	0.0028964	0.002196377	0.00171201	0.00107866
Riverside (SC)	Annual	SBUS	DSL	AllMYr	15	0.20841775	0.2093333	0.113555426	0.1107839	0.108206	0.1030229	0.100526	0.09869	0.095308	0.0921244	0.08828514	0.08327399	0.0780739	0.0725184	0.067316	0.061698903	0.0581066	0.052596462	0.05342344	0.053847858
Riverside (SC)	Annual	SBUS	GAS	AllMYr	20	0.0121149	0.01008757	0.006814941	0.00508871	0.0048592	0.0046003	0.004243	0.003824	0.003431	0.0032946	0.00309413	0.00299156	0.0029017	0.0026749	0.002454	0.002257716	0.0020198	0.001531595	0.00119383	7.52E-04
Riverside (SC)	Annual	SBUS	DSL	AllMYr	20	0.13429312	0.13489173	0.071481384	0.06947216	0.067662	0.0640395	0.063226	0.06273	0.061496	0.0605618	0.0593627	0.05762151	0.055883	0.0539383	0.052226	0.05023524	0.0492318	0.047235989	0.04797868	0.048359846
Riverside (SC)	Annual	SBUS	GAS	AllMYr	25	0.00880602	0.00733241	0.004953614	0.00369886	0.003532	0.0033438	0.003084	0.002779	0.002494	0.0023948	0.00224904	0.00217449	0.0021092	0.0019443	0.001784	0.001641078	0.0014681	0.001113279	8.68E-04	5.47E-04
Riverside (SC)	Annual	SBUS	DSL	AllMYr	25	0.11421513	0.11472929	0.06023597	0.05845384	0.0568674	0.0536949	0.053292	0.053119	0.052412	0.0520223	0.05146473	0.05052293	0.0496287	0.0485671	0.047706	0.046602091	0.0462245	0.045090116	0.04579907	0.046162918
Riverside (SC)	Annual	SBUS	GAS	AllMYr	30	0.00667211	0.00555559	0.003753233	0.00280253	0.0026761	0.0025335	0.002337	0.002106	0.00189	0.0018145	0.00170405	0.00164756	0.0015981	0.0014732	0.001351	0.001243405	0.0011124	8.44E-04	6.57E-04	4.14E-04
Riverside (SC)	Annual	SBUS	DSL	AllMYr	30	0.09839404	0.09885999	0.051794529	0.0502526	0.0489021	0.0461724	0.046131	0.046248	0.046	0.0460959	0.04610688	0.04586447	0.0457126	0.0454228	0.045311	0.044981586	0.0451648	0.04477971	0.04548378	0.045845126
Riverside (SC)	Annual	SBUS	GAS	AllMYr	35	0.0052695	0.00438769	0.00296423	0.00221339	0.0021136	0.0020009	0.001846	0.001663	0.001492	0.001433	0.00134582	0.00130121	0.0012621	0.0011635	0.001067	9.82E-04	8.79E-04	6.66E-04	5.19E-04	3.27E-04
Riverside (SC)	Annual	SBUS	DSL	AllMYr	35	0.08682987	0.08728384	0.04615706	0.04486845	0.043766	0.0414719	0.041744	0.042119	0.042259	0.0427825	0.04328914	0.04364613	0.0441347	0.0445056	0.045041	0.045373724	0.0460527	0.04630477	0.04703282	0.047406471
Riverside (SC)	Annual	SBUS	GAS	AllMYr	40	0.0043381	0.00361215	0.002440291	0.00182216	0.00174	0.0016473	0.001519	0.001369	0.001229	0.0011797	0.00110794	0.00107122	0.001039	9.58E-04	8.79E-04	8.08E-04	7.23E-04	5.48E-04	4.27E-04	2.69E-04
Riverside (SC)	Annual	SBUS	DSL	AllMYr	40	0.07952261	0.08000084	0.043323564	0.04230138	0.0414592	0.0395936	0.040131	0.040731	0.041191	0.0420822	0.0430115	0.04386792	0.044895	0.0458154	0.046898	0.047778505	0.0488882	0.049665296	0.05044618	0.050846952
Riverside (SC)	Annual	SBUS	GAS	AllMYr	45	0.00372265	0.00309969	0.002094086	0.00156365	0.0014931	0.0014136	0.001304	0.001175	0.001054	0.0010124	9.51E-04	9.19E-04	8.92E-04	8.22E-04	7.54E-04	6.94E-04	6.21E-04	4.71E-04	3.67E-04	2.31E-04
Riverside (SC)	Annual	SBUS	DSL	AllMYr	45	0.07647226	0.07701098	0.04329404	0.0425514	0.0419817	0.0405374	0.041291	0.042084	0.042794	0.0439949	0.04527397	0.04652984	0.0479936	0.0493521	0.050881	0.052195929	0.0536713	0.054861288	0.05572387	0.056166568
Riverside (SC)	Annual	SBUS	GAS	AllMYr	50	0.00332988	0.00277265	0.001873142	0.00139867	0.0013356	0.0012644	0.001166	0.001051	9.43E-04	9.06E-04	8.50E-04	8.22E-04	7.98E-04	7.35E-04	6.74E-04	6.21E-04	5.55E-04	4.21E-04	3.28E-04	2.07E-04
Riverside (SC)	Annual	SBUS	DSL	AllMYr	50	0.07767882	0.07831427	0.046068489	0.0456185	0.0453334	0.0443033	0.045225	0.046177	0.04707	0.0485207	0.05007655	0.05163187	0.0534303	0.0551158	0.056989	0.058625997	0.0604021	0.061892745	0.06286588	0.063365322
Riverside (SC)	Annual	SBUS	GAS	AllMYr	55	0.00310476	0.0025852	0.001746506	0.00130411	0.0012453	0.0011789	0.001087	9.80E-04	8.79E-04	8.44E-04	7.93E-04	7.67E-04	7.44E-04	6.86E-04	6.29E-04	5.79E-04	5.18E-04	3.93E-04	3.06E-04	1.93E-04
Riverside (SC)	Annual	SBUS	DSL	AllMYr	55	0.0831423	0.0839107	0.051646911	0.05150268	0.0515145	0.0508913	0.051933	0.053012	0.054017	0.0556595	0.05741924	0.05917404	0.0612054	0.0631066	0.065223	0.067068708	0.0690804	0.070759669	0.07187222	0.072443211
Riverside (SC)	Annual	SBUS	GAS	AllMYr	60	0.00301752	0.00251256	0.001697433	0.00126747	0.0012103	0.0011458	0.001057	9.52E-04	8.55E-04	8.21E-04	7.71E-04	7.45E-04	7.23E-04	6.66E-04	6.11E-04	5.62E-04	5.03E-04	3.81E-04	2.97E-04	1.87E-04
Riverside (SC)	Annual	SBUS	DSL	AllMYr	60	0.09286269	0.09380028	0.060029305	0.06020394	0.0605248	0.0603015	0.061415	0.062588	0.063636	0.0654113	0.06730203	0.06915632	0.0713186	0.0733243	0.075583	0.077524062	0.0797064	0.08146206	0.08274289	0.083400236
Riverside (SC)	Annual	T6	GAS	AllMYr	5	0.00640783	0.00526934	0.004349377	0.00369006	0.0031646	0.0027106	0.002404	0.002141	0.001932	0.0017563	0.00161607	0.00150537	0.0014078	0.0013199	0.001248	0.001198072	0.0011517	0.001110264	0.00106787	0.001029474
Riverside (SC)	Annual	T6	DSL	AllMYr	5	0.24409895	0.18934044	0.150636433	0.11585613	0.0603765	0.0417007	0.040931	0.039349	0.03951	0.0395905	0.03962519	0.03964121	0.0396447	0.0396264	0.039612	0.03960493	0.0395926	0.039573894	0.03954989	0.039530357
Riverside (SC)	Annual	T6	GAS	AllMYr	10	0.00516011	0.00424331	0.003502477	0.00297154	0.0025484	0.0021828	0.001936	0.001724	0.001556	0.0014143	0.0013014	0.00121225	0.0011337	0.0010629	0.001005	9.65E-04	9.27E-04	8.94E-04	8.60E-04	8.29E-04
Riverside (SC)	Annual	T6	DSL	AllMYr	10	0.18245077	0.14417149	0.116733177	0.09213563	0.0533734	0.0378641	0.037208	0.035866	0.036047	0.0361494	0.03620774	0.03624544	0.0362686	0.0362682	0.036269	0.036274582	0.0362737	0.036265742	0.03625077	0.036237678
Riverside (SC)	Annual	T6	GAS	AllMYr	15	0.00345202	0.00283869	0.002343089	0.0019879	0.0017048	0.0014603	0.001295	0.001153	0.001041	9.46E-04	8.71E-04	8.11E-04	7.58E-04	7.11E-04	6.72E-04	6.45E-04	6.20E-04	5.98E-04	5.75E-04	5.55E-04
Riverside (SC)	Annual	T6	DSL	AllMYr	15	0.13446301	0.10876785	0.089961772	0.07316196	0.0471638	0.034262	0.033701	0.032561	0.032752	0.0328679	0.03294161	0.03299382	0.0330305	0.0330428	0.033055	0.033068716	0.033076	0.033075835	0.03306761	0.033059405
Riverside (SC)	Annual	T6	GAS	AllMYr	20	0.00240719	0.0019795	0.001633901	0.00138622	0.0011888	0.0010183	9.03E-04	8.04E-04	7.26E-04	6.60E-04	6.07E-04	5.66E-04	5.29E-04	4.96E-04	4.69E-04	4.50E-04	4.33E-04	4.17E-04	4.01E-04	3.87E-04
Riverside (SC)	Annual	T6	DSL	AllMYr	20	0.09661298	0.08049826	0.068306198	0.0574742	0.0411905	0.0305474	0.030072	0.029113	0.029303	0.0294243	0.02950596	0.02956628	0.0296109	0.0296315	0.02965	0.029669941	0.0296826	0.029687779	0.0296845	0.029679952
Riverside (SC)	Annual	T6	GAS	AllMYr	25	0.00174972	0.00143885	0.001187642	0.00100761	8.64E-04	7.40E-04	6.57E-04	5.85E-04	5.28E-04	4.80E-04	4.41E-04	4.11E-04	3.84E-04	3.60E-04	3.41E-04	3.27E-04	3.14E-04	3.03E-04	2.92E-04	2.81E-04
Riverside (SC)	Annual	T6	DSL	AllMYr	25	0.0859194	0.07235485	0.061942967	0.05271405	0.0390144	0.0291012	0.028655	0.027756	0.027943	0.0280631	0.02814505	0.02820614	0.0282518	0.0282739	0.028294	0.028314614	0.0283283	0.028334635	0.02833258	0.028328983

Riverside (SC)	Annual	T6	GAS	AllMYr	30	0.00132572	0.00109018	9.00E-04	7.63E-04	6.55E-04	5.61E-04	4.97E-04	4.43E-04	4.00E-04	3.63E-04	3.34E-04	3.11E-04	2.91E-04	2.73E-04	2.58E-04	2.48E-04	2.38E-04	2.30E-04	2.21E-04	2.13E-04
Riverside (SC)	Annual	T6	DSL	AllMYr	30	0.07924949	0.06753477	0.058375237	0.0502795	0.0384491	0.0288419	0.028407	0.027532	0.027722	0.0278458	0.02793118	0.02799532	0.0280437	0.028068	0.02809	0.028112375	0.0281275	0.028135185	0.02813421	0.028131416
Riverside (SC)	Annual	T6	GAS	AllMYr	35	0.00104703	8.61E-04	7.11E-04	6.03E-04	5.17E-04	4.43E-04	3.93E-04	3.50E-04	3.16E-04	2.87E-04	2.64E-04	2.46E-04	2.30E-04	2.16E-04	2.04E-04	1.96E-04	1.88E-04	1.81E-04	1.74E-04	1.68E-04
Riverside (SC)	Annual	T6	DSL	AllMYr	35	0.07660326	0.06603802	0.057603008	0.05017055	0.0394947	0.0297696	0.029327	0.028439	0.02864	0.0287724	0.02886436	0.02893381	0.0289865	0.0290139	0.029038	0.029063224	0.0290802	0.029089429	0.0290894	0.029087254
Riverside (SC)	Annual	T6	GAS	AllMYr	40	8.62E-04	7.09E-04	5.85E-04	4.96E-04	4.26E-04	3.65E-04	3.23E-04	2.88E-04	2.60E-04	2.36E-04	2.17E-04	2.02E-04	1.89E-04	1.78E-04	1.68E-04	1.61E-04	1.55E-04	1.49E-04	1.44E-04	1.38E-04
Riverside (SC)	Annual	T6	DSL	AllMYr	40	0.0779807	0.06786461	0.059626281	0.0523872	0.0421511	0.031884	0.031416	0.030478	0.030698	0.0308429	0.03094457	0.03102161	0.0310803	0.0311114	0.031139	0.03116716	0.0311864	0.031197367	0.03119813	0.031196495
Riverside (SC)	Annual	T6	GAS	AllMYr	45	7.40E-04	6.08E-04	5.02E-04	4.26E-04	3.65E-04	3.13E-04	2.78E-04	2.47E-04	2.23E-04	2.03E-04	1.87E-04	1.74E-04	1.63E-04	1.52E-04	1.44E-04	1.38E-04	1.33E-04	1.28E-04	1.23E-04	1.19E-04
Riverside (SC)	Annual	T6	DSL	AllMYr	45	0.08338182	0.07301453	0.064445054	0.05692946	0.0464184	0.0351854	0.034673	0.033648	0.033894	0.0340574	0.03417183	0.03425873	0.034325	0.0343607	0.034392	0.034424184	0.0344462	0.034458999	0.03446042	0.034459139
Riverside (SC)	Annual	T6	GAS	AllMYr	50	6.62E-04	5.44E-04	4.49E-04	3.81E-04	3.27E-04	2.80E-04	2.48E-04	2.21E-04	1.99E-04	1.81E-04	1.67E-04	1.55E-04	1.45E-04	1.36E-04	1.29E-04	1.24E-04	1.19E-04	1.15E-04	1.10E-04	1.06E-04
Riverside (SC)	Annual	T6	DSL	AllMYr	50	0.09280661	0.08148779	0.072059329	0.06379731	0.0522966	0.0396737	0.039099	0.037951	0.03823	0.0384158	0.03854612	0.03864517	0.0387207	0.0387616	0.038798	0.038834295	0.0388595	0.038874326	0.03887626	0.038875187
Riverside (SC)	Annual	T6	GAS	AllMYr	55	6.17E-04	5.07E-04	4.19E-04	3.55E-04	3.05E-04	2.61E-04	2.31E-04	2.06E-04	1.86E-04	1.69E-04	1.56E-04	1.45E-04	1.36E-04	1.27E-04	1.20E-04	1.15E-04	1.11E-04	1.07E-04	1.03E-04	9.91E-05
Riverside (SC)	Annual	T6	DSL	AllMYr	55	0.10625508	0.09328438	0.082469104	0.07299077	0.0597856	0.0453488	0.044694	0.043386	0.043706	0.0439182	0.04406747	0.04418091	0.0442674	0.0443142	0.044356	0.044397494	0.0444263	0.044443346	0.04444565	0.044444638
Riverside (SC)	Annual	T6	GAS	AllMYr	60	6.00E-04	4.93E-04	4.07E-04	3.45E-04	2.96E-04	2.54E-04	2.25E-04	2.00E-04	1.81E-04	1.64E-04	1.51E-04	1.41E-04	1.32E-04	1.24E-04	1.17E-04	1.12E-04	1.08E-04	1.04E-04	9.99E-05	9.63E-05
Riverside (SC)	Annual	T6	DSL	AllMYr	60	0.12372722	0.10840431	0.095674381	0.08450983	0.0688854	0.0522108	0.051457	0.049952	0.05032	0.0505645	0.05073585	0.05086598	0.050965	0.0510186	0.051066	0.051113781	0.0511467	0.051166061	0.05116859	0.051167493
Riverside (SC)	Annual	T6	GAS	AllMYr	65	6.07E-04	4.99E-04	4.12E-04	3.50E-04	3.00E-04	2.57E-04	2.28E-04	2.03E-04	1.83E-04	1.66E-04	1.53E-04	1.43E-04	1.33E-04	1.25E-04	1.18E-04	1.14E-04	1.09E-04	1.05E-04	1.01E-04	9.76E-05
Riverside (SC)	Annual	T6	DSL	AllMYr	65	0.14522303	0.12684757	0.111675159	0.0983545	0.0795961	0.0602597	0.059389	0.05765	0.058074	0.0583547	0.05855127	0.05870035	0.0588136	0.0588746	0.058929	0.058983155	0.0590205	0.05904247	0.05904509	0.059043751
Riverside (SC)	Annual	T6	GAS	AllMYr	70				3.69E-04	3.17E-04	2.71E-04	2.41E-04	2.14E-04	1.93E-04	1.76E-04	1.62E-04	1.51E-04	1.41E-04	1.32E-04	1.25E-04	1.20E-04	1.15E-04	1.11E-04	1.07E-04	1.03E-04
Riverside (SC)	Annual	T6	DSL	AllMYr	70				0.11452476	0.0919176	0.0694955	0.06849	0.06648	0.066967	0.0672888	0.06751374	0.06768404	0.0678132	0.0678823	0.067944	0.068005617	0.0680479	0.068072573	0.0680751 4	0.068073413
Riverside (SC)	Annual	T7	GAS	AllMYr	5	0.00270473	0.00241712	0.002079367	0.00193613	0.0017176	0.0015421	0.001448	0.001351	0.001281	0.0012038	0.0011555	0.00111019	0.0010834	0.0010458	0.001014	9.80E-04	9.65E-04	9.51E-04	9.42E-04	9.38E-04
Riverside (SC)	Annual	T7	DSL	AllMYr	5	0.15739351	0.12506118	0.118613923	0.11244018	0.0987239	0.0895697	0.088356	0.087228	0.087367	0.0874953	0.08215066	0.08207723	0.0810018	0.0808878	0.080797	0.080712227	0.0806436	0.080547622	0.08045273	0.080390446
Riverside (SC)	Annual	T7	GAS	AllMYr	10	0.00217807	0.00194647	0.001674477	0.00155913	0.0013832	0.0012418	0.001166	0.001088	0.001032	9.69E-04	9.31E-04	8.94E-04	8.72E-04	8.42E-04	8.16E-04	7.89E-04	7.77E-04	7.66E-04	7.59E-04	7.55E-04
Riverside (SC)	Annual	T7	DSL	AllMYr	10	0.12645277	0.10374133	0.099654644	0.09560272	0.086771	0.0808258	0.079822	0.078947	0.079151	0.0793449	0.07451201	0.07451529	0.0735998	0.0735637	0.073549	0.073546286	0.0735511	0.073536343	0.07352122	0.073526861
Riverside (SC)	Annual	T7	GAS	AllMYr	15	0.00145709	0.00130215	0.001120193	0.00104303	9.25E-04	8.31E-04	7.80E-04	7.28E-04	6.90E-04	6.48E-04	6.22E-04	5.98E-04	5.84E-04	5.63E-04	5.46E-04	5.28E-04	5.20E-04	5.12E-04	5.08E-04	5.05E-04
Riverside (SC)	Annual	T7	DSL	AllMYr	15	0.10155639	0.08620088	0.083884465	0.08143257	0.0762725	0.0727429	0.071911	0.071237	0.071481	0.0717181	0.06736054	0.06741824	0.0666376	0.0666576	0.066698	0.066752822	0.0668096	0.066852875	0.06689471	0.066948446
Riverside (SC)	Annual	T7	GAS	AllMYr	20	0.00101607	9.08E-04	7.81E-04	7.27E-04	6.45E-04	5.79E-04	5.44E-04	5.08E-04	4.81E-04	4.52E-04	4.34E-04	4.17E-04	4.07E-04	3.93E-04	3.81E-04	3.68E-04	3.62E-04	3.57E-04	3.54E-04	3.52E-04
Riverside (SC)	Annual	T7	DSL	AllMYr	20	0.07891287	0.06479424	0.063245303	0.061415	0.0569878	0.0543876	0.053126	0.052392	0.056095	0.0564327	0.05407996	0.05425644	0.0539196	0.0540254	0.054133	0.054830028	0.0549323	0.055026231	0.05511365	0.055205817
Riverside (SC)	Annual	T7	GAS	AllMYr	25	7.39E-04	6.60E-04	5.68E-04	5.29E-04	4.69E-04	4.21E-04	3.95E-04	3.69E-04	3.50E-04	3.29E-04	3.16E-04	3.03E-04	2.96E-04	2.86E-04	2.77E-04	2.68E-04	2.63E-04	2.60E-04	2.57E-04	2.56E-04
Riverside (SC)	Annual	T7	DSL	AllMYr	25	0.07436132	0.06612372	0.065433178	0.0644734	0.0627065	0.0614182	0.060784	0.060321	0.060585	0.0608426	0.05715633	0.05725637	0.0566376	0.0567033	0.056787	0.056886848	0.0569836	0.057072592	0.05715946	0.057250127
Riverside (SC)	Annual	T7	GAS	AllMYr	30	5.60E-04	5.00E-04	4.30E-04	4.01E-04	3.55E-04	3.19E-04	3.00E-04	2.80E-04	2.65E-04	2.49E-04	2.39E-04	2.30E-04	2.24E-04	2.16E-04	2.10E-04	2.03E-04	2.00E-04	1.97E-04	1.95E-04	1.94E-04
Riverside (SC)	Annual	T7	DSL	AllMYr	30	0.07115034	0.06401855	0.063605297	0.06289313	0.0616916	0.0607759	0.060167	0.059736	0.060013	0.060284	0.05663578	0.05674767	0.0561448	0.0562205	0.056314	0.056424194	0.0565302	0.056629508	0.05672652	0.056826321
Riverside (SC)	Annual	T7	GAS	AllMYr	35	4.42E-04	3.95E-04	3.40E-04	3.16E-04	2.81E-04	2.52E-04	2.37E-04	2.21E-04	2.09E-04	1.97E-04	1.89E-04	1.81E-04	1.77E-04	1.71E-04	1.66E-04	1.60E-04	1.58E-04	1.55E-04	1.54E-04	1.53E-04
Riverside (SC)	Annual	T7	DSL	AllMYr	35	0.07113081	0.06470777	0.064524425	0.06400442	0.0632515	0.0626285	0.062022	0.061608	0.06191	0.0622069	0.05844811	0.05857693	0.0579649	0.0580528	0.058159	0.05828258	0.058401	0.058513369	0.05862331	0.058735614
Riverside (SC)	Annual	T7	GAS	AllMYr	40	3.64E-04	3.25E-04	2.80E-04	2.60E-04	2.31E-04	2.07E-04	1.95E-04	1.82E-04	1.72E-04	1.62E-04	1.55E-04	1.49E-04	1.46E-04	1.41E-04	1.36E-04	1.32E-04	1.30E-04	1.28E-04	1.27E-04	1.26E-04
Riverside (SC)	Annual	T7	DSL	AllMYr	40	0.07430273	0.06819138	0.06819056	0.06780728	0.0673861	0.066976	0.066349	0.065935	0.066277	0.0666114	0.06259333	0.06274414	0.062098	0.0622002	0.062322	0.062462005	0.062596	0.062724174	0.06284984	0.062978008
Riverside (SC)	Annual	T7	GAS	AllMYr	45	3.12E-04	2.79E-04	2.40E-04	2.23E-04	1.98E-04	1.78E-04	1.67E-04	1.56E-04	1.48E-04	1.39E-04	1.33E-04	1.28E-04	1.25E-04	1.21E-04	1.17E-04	1.13E-04	1.11E-04	1.10E-04	1.09E-04	1.08E-04
Riverside (SC)	Annual	T7	DSL	AllMYr	45	0.08066611	0.07446937	0.074603702	0.07430171	0.0740956	0.0738184	0.073148	0.072718	0.073112	0.0734975	0.06907142	0.06924929	0.068544	0.0686626	0.068803	0.06896247	0.0691151	0.069261923	0.0694061	0.069553502
Riverside (SC)	Annual	T7	GAS	AllMYr	50	2.79E-04	2.50E-04	2.15E-04	2.00E-04	1.77E-04	1.59E-04	1.50E-04	1.40E-04	1.32E-04	1.24E-04	1.19E-04	1.15E-04	1.12E-04	1.08E-04	1.05E-04	1.01E-04	9.96E-05	9.82E-05	9.73E-05	9.68E-05
Riverside (SC)	Annual	T7	DSL	AllMYr	50	0.09022093	0.08354174	0.083763853	0.0834877	0.0833799	0.0831556	0.082419	0.081957	0.082416	0.0828651	0.0778824	0.0780924	0.077303	0.0774402	0.077602	0.077783975	0.0779584	0.078126617	0.0782921	0.078462096
Riverside (SC)	Annual	T7	GAS	AllMYr	55	2.60E-04	2.33E-04	2.00E-04	1.86E-04	1.65E-04	1.48E-04	1.39E-04	1.30E-04	1.23E-04	1.16E-04	1.11E-04	1.07E-04	1.04E-04	1.01E-04	9.76E-05	9.43E-05	9.29E-05	9.15E-05	9.07E-05	9.03E-05
Riverside (SC)	Annual	T7	DSL	AllMYr	55	0.1029672	0.0954085	0.095671011	0.09536527	0.095239	0.0949878	0.094162	0.093652	0.094189	0.0947143	0.08902626	0.08927346	0.0883749	0.0885328	0.088718	0.088926519	0.0891258	0.089318254	0.08950783	0.089703791
Riverside (SC)	Annual	T7	GAS	AllMYr	60	2.53E-04	2.26E-04	1.95E-04	1.81E-04	1.61E-04	1.44E-04	1.35E-04	1.26E-04	1.20E-04	1.13E-04	1.08E-04	1.04E-04	1.01E-04	9.79E-05	9.49E-05	9.17E-05	9.03E-05	8.90E-05	8.82E-05	8.77E-05
Riverside (SC)	Annual	T7	DSL	AllMYr	60	0.11890493	0.11006964	0.110325176	0.1099344	0.1096729	0.1093148	0.108376	0.107803	0.108432	0.1090451	0.10250301	0.10279247	0.1017597	0.1019405	0.102153	0.102390102	0.1026173	0.102836835	0.10305329	0.103278587
Riverside (SC)	Annual	T7	GAS	AllMYr	65	2.56E-04	2.29E-04	1.97E-04	1.84E-04	1.63E-04	1.46E-04	1.37E-04	1.28E-04	1.21E-04	1.14E-04	1.10E-04	1.05E-04	1.03E-04	9.91E-05	9.61E-05	9.29E-05	9.14E-05	9.01E-05	8.93E-05	8.89E-05
Riverside (SC)	Annual	T7	DSL	AllMYr	65	0.1380341	0.12752516	0.127726349	0.1271951	0.1266816	0.1261367	0.125063	0.12441	0.125143	0.1258575	0.11831263	0.11864943	0.1174575	0.1176633	0.117905	0.118174725	0.118433	0.11868236	0.11892848	0.119186482
Riverside (SC)	Annual	T7	GAS	AllMYr	70				1.94E-04	1.72E-04	1.54E-04	1.45E-04	1.35E-04	1.28E-04	1.20E-04	1.16E-04	1.11E-04	1.08E-04	1.05E-04	1.01E-04	9.81E-05	9.66E-05	9.52E-05	9.43E-05	9.39E-05
Riverside (SC)	Annual	T7	DSL	AllMYr	70				0.14714737	0.1462651	0.1454535	0.144222	0.143473	0.144323	0.1451514	0.13645514	0.13684435	0.1354682	0.1357012	0.135975	0.136280388	0.1365729	0.13685483	0.13713341	0.137427478

Riverside (SC)	Annual	UBUS	GAS	AllMYr	5	0.00806745	0.00750075	0.007175978	0.00698698	0.006736	0.0064343	0.006267	0.00585	0.005448	0.0053586	0.00528073	0.0049614	0.0048906	0.004821	0.003923	0.003867072	0.003812	0.003664413	0.00257517	0.002034879
Riverside (SC)	Annual	UBUS	DSL	AllMYr	5	0.71052484	0.6939649	0.679264627	0.66422991	0.6187728	0.6026314	0.591935	0.579815	0.562256	0.5054927	0.49517073	0.48818271	0.4790885	0.4706065	0.464186	0.442907807	0.435027	0.428486361	0.39888769	0.388810847
Riverside (SC)	Annual	UBUS	GAS	AllMYr	10	0.00649657	0.00604022	0.005778687	0.00562649	0.0054244	0.0051814	0.005047	0.004711	0.004387	0.0043152	0.00425247	0.00399532	0.0039383	0.0038823	0.003159	0.003114084	0.0030697	0.002950886	0.00207374	0.001638651
Riverside (SC)	Annual	UBUS	DSL	AllMYr	10	0.60252487	0.58848204	0.576016235	0.56326682	0.5247192	0.5110313	0.501961	0.491683	0.476793	0.4286577	0.41990469	0.41397883	0.406267	0.3990742	0.393629	0.375585708	0.3689028	0.363356362	0.33825667	0.329711503
Riverside (SC)	Annual	UBUS	GAS	AllMYr	15	0.00434608	0.00404079	0.00386583	0.00376401	0.0036288	0.0034663	0.003376	0.003152	0.002935	0.0028868	0.00284482	0.00267279	0.0026347	0.0025972	0.002113	0.002083262	0.0020536	0.001974086	0.00138729	0.001096226
Riverside (SC)	Annual	UBUS	DSL	AllMYr	15	0.44480192	0.43443503	0.425232426	0.4158204	0.3873634	0.3772586	0.370563	0.362975	0.351983	0.3164479	0.30998619	0.30561155	0.2999184	0.2946085	0.290589	0.277268604	0.2723351	0.268240537	0.24971119	0.243402887
Riverside (SC)	Annual	UBUS	GAS	AllMYr	20	0.00303064	0.00281775	0.00269575	0.00262475	0.0025305	0.0024171	0.002354	0.002198	0.002047	0.002013	0.00198377	0.00186381	0.0018372	0.0018111	0.001474	0.001452716	0.001432	0.001376584	9.67E-04	7.64E-04
Riverside (SC)	Annual	UBUS	DSL	AllMYr	20	0.34006234	0.33213663	0.325100959	0.31790524	0.2961491	0.2884238	0.283305	0.277503	0.2691	0.2419325	0.2369923	0.23364778	0.2292952	0.2252357	0.222163	0.211978881	0.2082071	0.205076694	0.19091054	0.186087679
Riverside (SC)	Annual	UBUS	GAS	AllMYr	25	0.0022029	0.00204816	0.001959474	0.00190787	0.0018393	0.0017569	0.001711	0.001598	0.001488	0.0014632	0.00144196	0.00135476	0.0013354	0.0013164	0.001071	0.001055944	0.0010409	0.001000606	7.03E-04	5.56E-04
Riverside (SC)	Annual	UBUS	DSL	AllMYr	25	0.26924694	0.26297172	0.257401191	0.25170391	0.2344783	0.2283617	0.224309	0.219715	0.213062	0.1915519	0.18764045	0.18499242	0.1815462	0.1783321	0.175899	0.167835906	0.1648495	0.162371034	0.15115487	0.147336333
Riverside (SC)	Annual	UBUS	GAS	AllMYr	30	0.00166908	0.00155184	0.001484646	0.00144554	0.0013936	0.0013312	0.001297	0.00121	0.001127	0.0011087	0.00109254	0.00102647	0.0010118	9.97E-04	8.12E-04	8.00E-04	7.89E-04	7.58E-04	5.33E-04	4.21E-04
Riverside (SC)	Annual	UBUS	DSL	AllMYr	30	0.2207717	0.21562622	0.211058604	0.20638708	0.1922628	0.1872474	0.183924	0.180158	0.174702	0.1570648	0.15385763	0.15168634	0.1488606	0.1462251	0.14423	0.137618692	0.13517	0.133137714	0.12394092	0.120809869
Riverside (SC)	Annual	UBUS	GAS	AllMYr	35	0.00131821	0.00122561	0.001172545	0.00114166	0.0011006	0.0010513	0.001024	9.56E-04	8.90E-04	8.76E-04	8.63E-04	8.11E-04	7.99E-04	7.88E-04	6.41E-04	6.32E-04	6.23E-04	5.99E-04	4.21E-04	3.32E-04
Riverside (SC)	Annual	UBUS	DSL	AllMYr	35	0.18747193	0.18310256	0.179223926	0.17525701	0.1632631	0.1590042	0.156182	0.152984	0.148351	0.1333742	0.13065075	0.12880697	0.1264075	0.1241695	0.122475	0.116861184	0.1147818	0.113056096	0.10524648	0.102587693
Riverside (SC)	Annual	UBUS	GAS	AllMYr	40	0.00108521	0.00100898	9.65E-04	9.40E-04	9.06E-04	8.66E-04	8.43E-04	7.87E-04	7.33E-04	7.21E-04	7.10E-04	6.67E-04	6.58E-04	6.49E-04	5.28E-04	5.20E-04	5.13E-04	4.93E-04	3.46E-04	2.74E-04
Riverside (SC)	Annual	UBUS	DSL	AllMYr	40	0.16486534	0.16102287	0.157611922	0.15412337	0.1435758	0.1398305	0.137349	0.134536	0.130462	0.1172911	0.11489604	0.11327459	0.1111644	0.1091963	0.107706	0.102769301	0.1009407	0.099423057	0.09255517	0.090217006
Riverside (SC)	Annual	UBUS	GAS	AllMYr	45	9.31E-04	8.66E-04	8.28E-04	8.07E-04	7.78E-04	7.43E-04	7.23E-04	6.75E-04	6.29E-04	6.19E-04	6.10E-04	5.73E-04	5.65E-04	5.57E-04	4.53E-04	4.46E-04	4.40E-04	4.23E-04	2.97E-04	2.35E-04
Riverside (SC)	Annual	UBUS	DSL	AllMYr	45	0.15014915	0.14664965	0.143543165	0.14036602	0.1307599	0.1273489	0.125089	0.122527	0.118817	0.1068214	0.10464019	0.10316348	0.1012417	0.0994492	0.098092	0.093595917	0.0919305	0.090548357	0.08429352	0.082164057
Riverside (SC)	Annual	UBUS	GAS	AllMYr	50	8.33E-04	7.74E-04	7.41E-04	7.21E-04	6.96E-04	6.64E-04	6.47E-04	6.04E-04	5.63E-04	5.53E-04	5.45E-04	5.12E-04	5.05E-04	4.98E-04	4.05E-04	3.99E-04	3.94E-04	3.78E-04	2.66E-04	2.10E-04
Riverside (SC)	Annual	UBUS	DSL	AllMYr	50	0.1416174	0.13831676	0.135386809	0.13239017	0.1233299	0.1201128	0.117981	0.115565	0.112065	0.1007517	0.09869435	0.09730156	0.0954889	0.0937984	0.092519	0.088277632	0.0867069	0.085403241	0.07950381	0.077495354
Riverside (SC)	Annual	UBUS	GAS	AllMYr	55	7.77E-04	7.22E-04	6.91E-04	6.73E-04	6.48E-04	6.19E-04	6.03E-04	5.63E-04	5.25E-04	5.16E-04	5.08E-04	4.78E-04	4.71E-04	4.64E-04	3.78E-04	3.72E-04	3.67E-04	3.53E-04	2.48E-04	1.96E-04
Riverside (SC)	Annual	UBUS	DSL	AllMYr	55	0.1383282	0.13510421	0.132242315	0.12931528	0.1204655	0.117323	0.115241	0.112881	0.109463	0.0984116	0.09640208	0.09504161	0.0932711	0.0916198	0.09037	0.086227295	0.084693	0.083419675	0.07765726	0.075695445
Riverside (SC)	Annual	UBUS	GAS	AllMYr	60	7.55E-04	7.02E-04	6.71E-04	6.54E-04	6.30E-04	6.02E-04	5.86E-04	5.47E-04	5.10E-04	5.01E-04	4.94E-04	4.64E-04	4.58E-04	4.51E-04	3.67E-04	3.62E-04	3.57E-04	3.43E-04	2.41E-04	1.90E-04
Riverside (SC)	Annual	UBUS	DSL	AllMYr	60	0.13992815	0.13666688	0.133771854	0.13081099	0.1218588	0.11868	0.116574	0.114187	0.110729	0.0995499	0.09751709	0.0961409	0.0943499	0.0926795	0.091415	0.087224624	0.0856726	0.084384524	0.07855547	0.076570967

70-year Average DPM Emission Factors (2016-2086)

Vehicle Class	10 mph (g/mi)	35 mph (g/mi)
LHDT1	0.054991	0.021589
LHDT2	0.051942	0.020392
T6 (MHDT)	0.042092	0.031135
T7 (HHDT)	0.076058	0.059408

EMFAC2011 Idling Emission Factors (2016 - 2086)

Idling Emission Factors for LHDT1 and LHDT2 are derived by multiplying the Running Exhaust Emission Factor (g/mi) times 5 mph to get g/hr

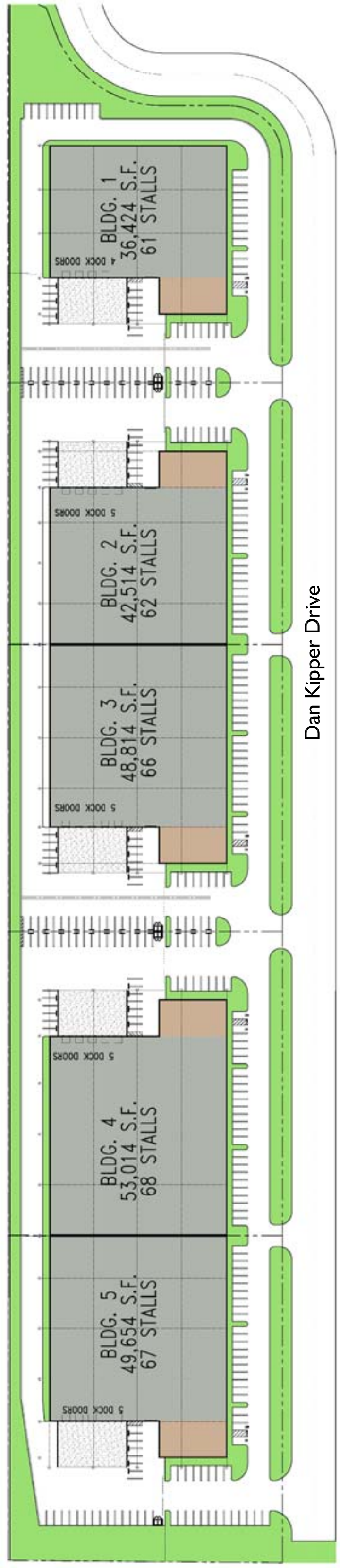
Idling Emission Factors for MHDT and HHDT derived directly from the CARB HDT Idling Emission Factor Database

Vehicle Class	**70-year Ave Emission Factor at 5 mph**	**Speed (mph)**	70-year Emission Factor (g/mi)
LHDT1	0.0207	5	**0.1034**
LHDT2	0.0199	5	**0.0994**

	T6 Idling Factors (g/hr)	T7 Idling Factors (g/hr)
2016	0.277	0.147
2017	0.235	0.125
2018	0.205	0.123
2019	0.178	0.12
2020	0.112	0.117
2021	0.098	0.114
2022	0.096	0.112
2023	0.093	0.11
2024	0.092	0.11
2025	0.092	0.11
2026	0.092	0.109
2027	0.092	0.109
2028	0.091	0.109
2029	0.091	0.109
2030	0.091	0.109
2031	0.091	0.108
2032	0.091	0.108
2033	0.091	0.108
2034	0.091	0.108
2035	0.09	0.108

	70-Year Ave Idling Emission Factor (g/hr)
T6 (MHDT	0.098
T7 (HHDT)	0.110

DAN KIPPER DRIVE AND SYCAMORE CANYON BLVD. PROJECT TRIP GENERATION AND TRIP DISTRIBUTION STUDY City of Riverside, California



RK engineering group, inc.

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November 12, 2014

transportation planning • traffic engineering
acoustical engineering • parking studies

Mr. David Ball
CT REALTY INVESTORS
65 Enterprise, Suite 150
Aliso Viejo, CA 92656

Subject: Dan Kipper Drive and Sycamore Canyon Boulevard Project Trip Generation and Trip Distribution Study, City of Riverside

Dear Mr. Ball:

Introduction

RK ENGINEERING GROUP, INC. (RK) is pleased to provide this trip generation and trip distribution analysis for your proposed Dan Kipper Drive and Sycamore Canyon Boulevard Project. The proposed project is located north of Dan Kipper Drive and west of Sycamore Canyon Boulevard, in the City of Riverside. The proposed project would consist of five (5) buildings with 212,880 square feet of warehouse and 12,540 square feet of office development. The proposed project would have a single access from Dan Kipper Drive at Sycamore Canyon Boulevard. Based upon the discussions with the City of Riverside, the project access will provide full turning movements at this intersection. It should be noted that additional industrial warehouse uses currently exist south of Dan Kipper Drive.

The purpose of this trip generation and trip distribution analysis is to determine the project's AM/PM peak hour and daily trips for the project site. Additionally, since this project includes a warehouse use, the project's Passenger Car Equivalents (PCE) has been determined for purposes of the Air Quality/GHG Health Risk Assessment and Noise Study. The project is consistent with the Business and Manufacturing Park (BMP) zoning for the property.

Trip Generation

Trip generation represents the amount of trips that are produced and attracted by a development. Trip generation rates are developed by the ITE (Institution of Transportation Engineers) in their *Trip Generation Manual*, 9th Edition, 2012. Additionally for the warehouse use, project trip generation has been converted to PCE's based upon local studies which have evaluated the amount of truck traffic generated by warehouse uses. The trip generation rates for this project are shown in Table 1. The project trip generation is shown in Table 2. The proposed project would generate 962 trip ends per day with 94 vehicles per hour during the AM peak hour and 99 vehicles per hour during the PM peak hour. The project trip generation with Passenger Car Equivalents are shown in Table 3. The project will generate 1,167 daily PCE's with 113 PCE's during the AM peak hour and 118 PCE's during the PM peak hour. The warehouse trip generation is based upon ITE Code

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150 and the single tenant office building trip rates are based up ITE Code 715. The Passenger Car Equivalent's trip generation rates for the warehouse are shown in Table 4 and the Passenger Car Equivalents trip generation for the warehouse use are included in Table 5.

Trip Distribution

Trip Distribution represents the directional distribution of traffic to and from the project site. Trip Distribution is based upon the adjacent roadway system, including the regional freeway system and expected destinations, to and from the project site. The project distribution is shown in Exhibit D.

Based upon the project's trip generation and trip distribution, the project's traffic contribution to the adjoining roadway system has been determined. The project's daily trips are shown on Exhibit E. The project's daily PCE's are shown on Exhibit F. These trips can be utilized for the Air Quality/GHG, Health Risk Assessment and Noise studies to determine potential environmental impacts of the proposed project.

Conclusions

RK has completed a trip generation and trip distribution analysis for the proposed Dan Kipper Drive and Sycamore Canyon Boulevard project located in the City of Riverside. The project would consist of five (5) buildings with a total of 212,880 square feet of warehouse and 17,540 square feet of office development. The project would have a single access from Dan Kipper Drive to Sycamore Canyon Boulevard which will provide a full turning movements based upon the City of Riverside Staff. The project's trip generation and distribution have been determined in this report along with the project's traffic contribution to the adjacent highway system.

If you have any questions regarding this study, please do not hesitate to call us at (949) 474-0809.

Sincerely,
RK ENGINEERING GROUP, INC.

Robert Kahn

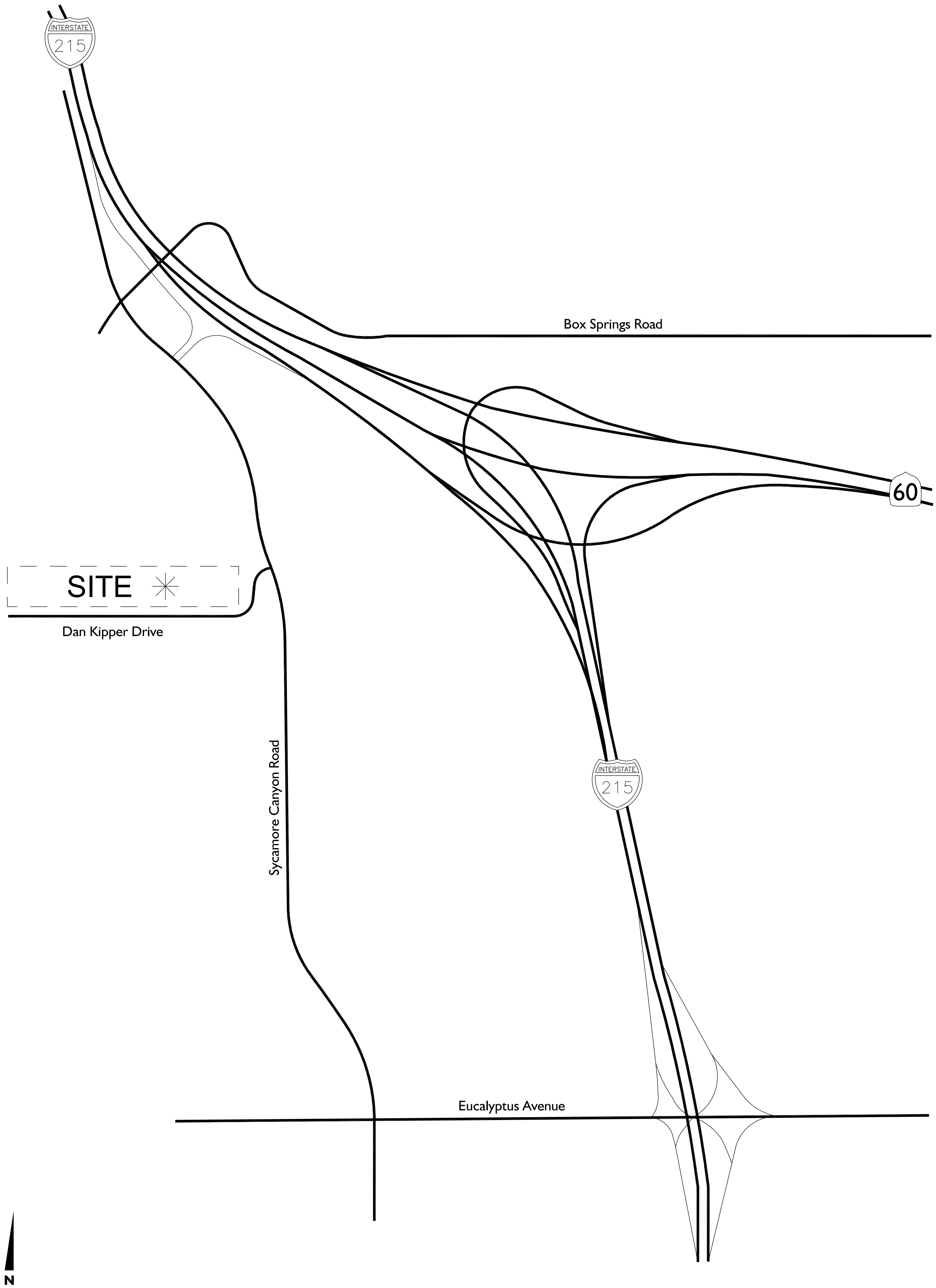
REGISTERED PROFESSIONAL ENGINEER
ROBERT KAHN
No. 0555
Exp. 12/31/15
TRAFFIC
STATE OF CALIFORNIA

Robert Kahn, P.E.
Principal

Attachments

Exhibits

Exhibit A
Location Map

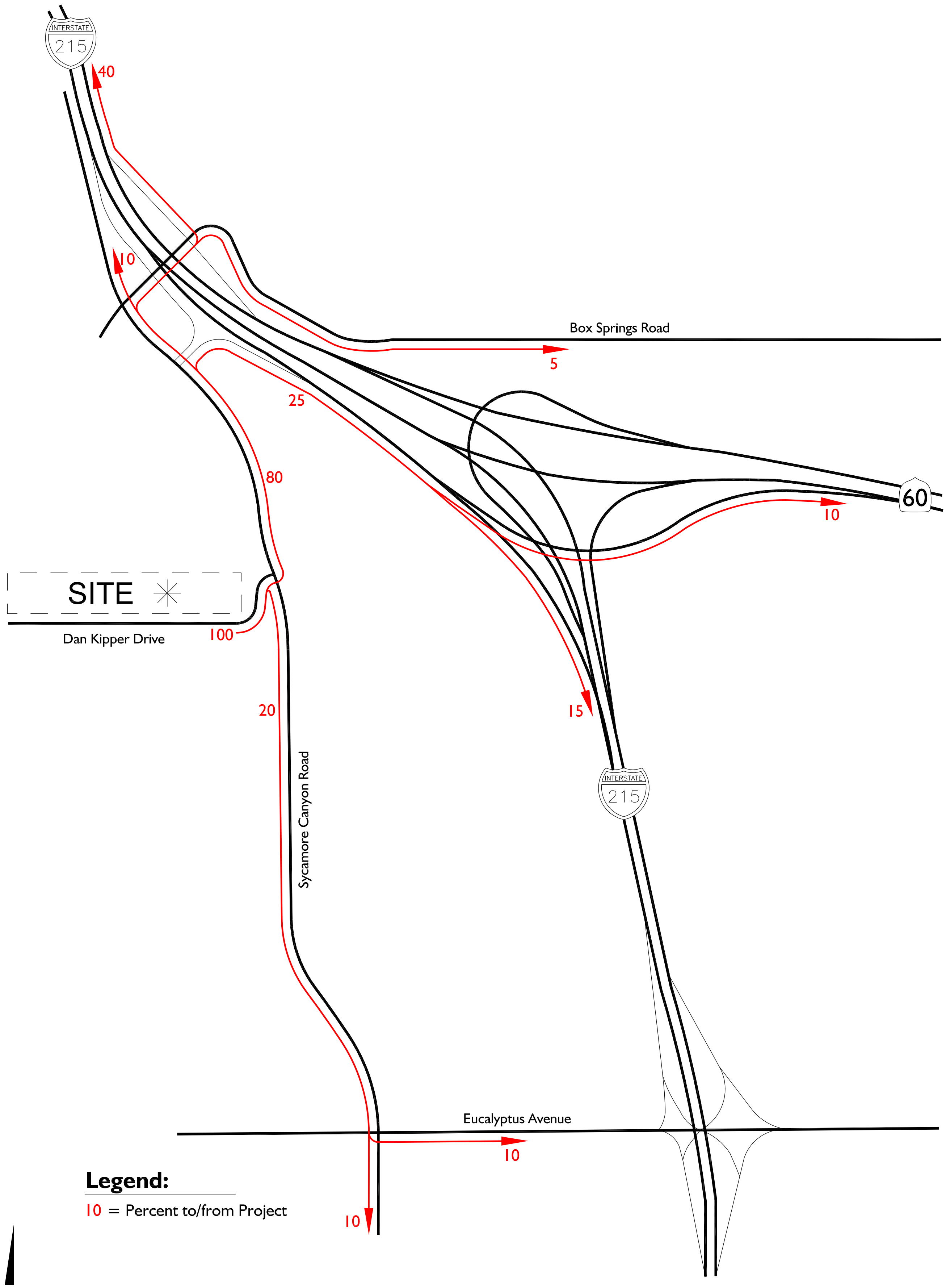


RK engineering group, inc.

Exhibit B
Site Plan

Exhibit C

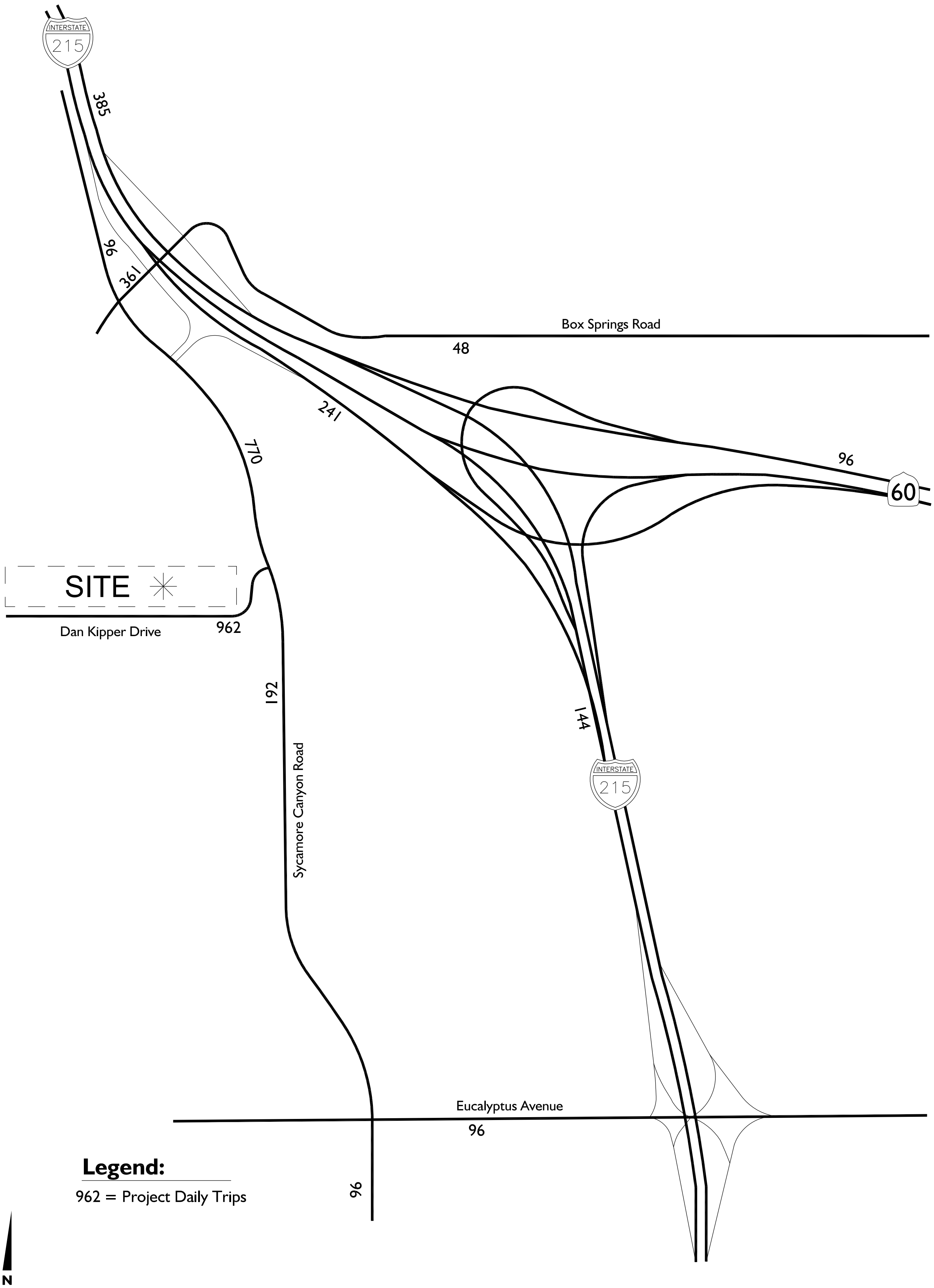
Project Trip Distribution



Legend:

10 = Percent to/from Project

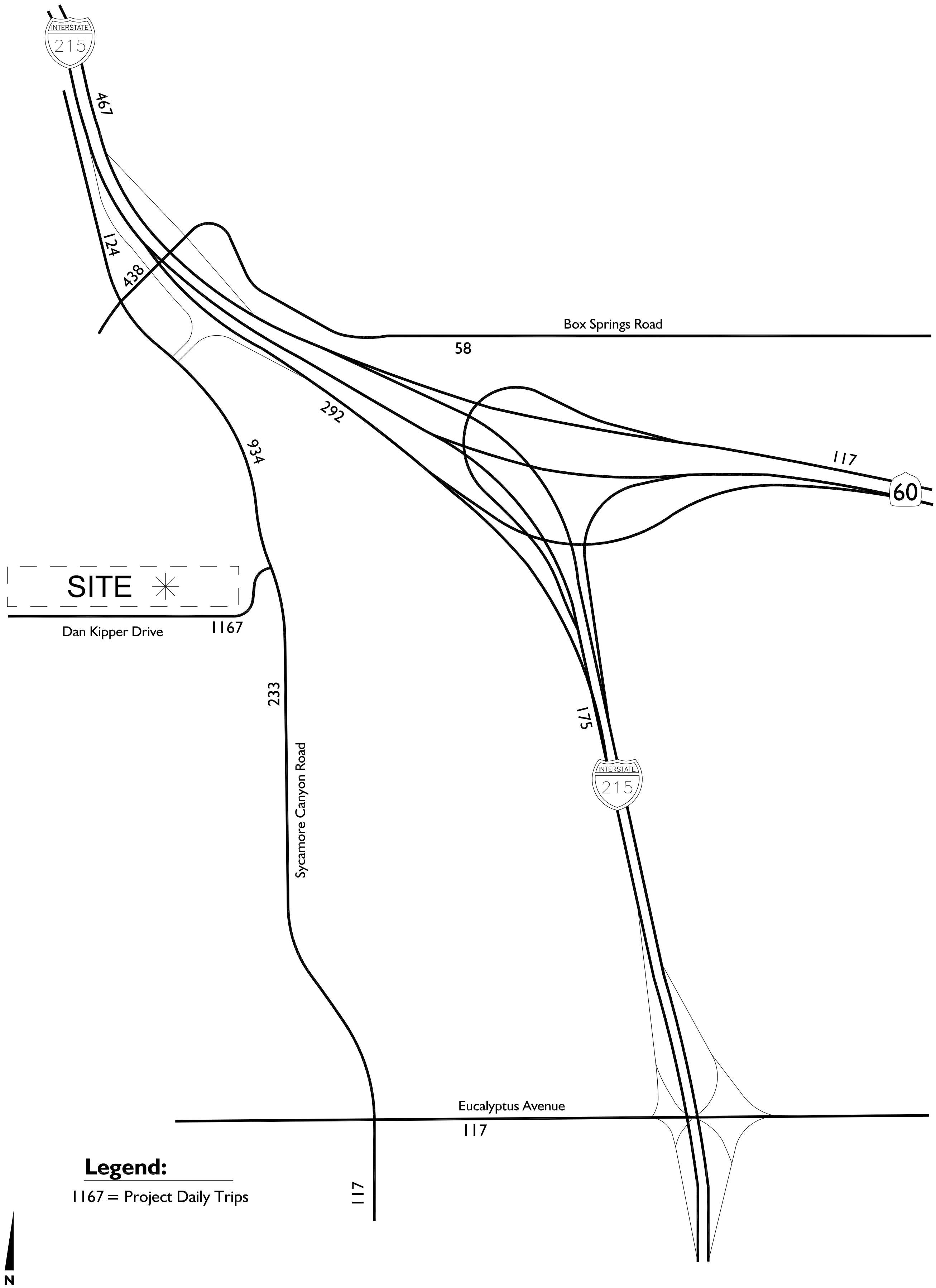
Exhibit D
Project Daily Trips



Legend:
962 = Project Daily Trips

Exhibit E

Project Daily Trips in Passenger Car Equivalents (PCEs)



Legend:

1167 = Project Daily Trips

Tables

Table 1
Trip Generation Rates[1]

Land Use	Quantity	Units[2]	Peak Hour						Daily
			AM			PM			
			In	Out	Total	In	Out	Total	
Warehouse	150	TSF	0.24	0.06	0.30	0.08	0.24	0.32	3.56
Single Tenant Office Building	715	TSF	1.60	0.20	1.80	0.26	1.48	1.74	11.65

[1] Source: Institute of Transportation Engineers (ITE) Trip Generation Manual, 9th Editions, 2012

[2] TSF = Thousand Square Feet

Table 2
Project Trip Generation (Without Passenger Car Equivalents)

Land Use	Quantity	Units[1]	Peak Hour						Daily
			AM			PM			
			In	Out	Total	In	Out	Total	
Warehouse	212.880	TSF	50	13	63	17	51	68	758
Single Tenant Office Building	17.540	TSF	28	3	31	5	26	31	204
TOTALS			78	16	94	22	77	99	962

[1] TSF = Thousand Square Feet

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JN:1421-2014-08

Table 3
Project Trip Generation (With Passenger Car Equivalents)

Land Use	Quantity	Units[1]	Peak Hour						Daily
			AM			PM			
			In	Out	Total	In	Out	Total	
Warehouse	212.880	TSF	65	17	82	22	65	87	963
Single Tenant Office Building	17.540	TSF	28	3	31	5	26	31	204
TOTALS			93	20	113	27	91	118	1167

[1] TSF = Thousand Square Feet

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JN:1421-2014-08

TABLE 4

Passenger Car Equivalent Trip Generation Rates

Land Use	Units[1]	Peak Hour AM In	AM Out	AM Total	PM In	PM Out	PM Total	Daily
Warehouse - ITE Code 150	TSF							
Trip Generation Rates[2]		0.237	0.063	0.300	0.080	0.240	0.320	3.560
PCE Inbound/Outbound Splits[3]		79%	21%	100%	25%	75%	100%	--
Passenger Car Equivalent Rates Calculations								
Passenger Cars								
Recommended Mix (%)[4]		80.30%	80.30%	80.30%	80.30%	80.30%	80.30%	80.30%
PCE Factor[5]		1.0	1.0	1.0	1.0	1.0	1.0	1.0
PCE Rates		0.190	0.051	0.241	0.064	0.193	0.257	2.859
2-Axle Trucks								
Recommended Mix (%)[4]		5.20%	5.20%	5.20%	5.20%	5.20%	5.20%	5.20%
PCE Factor[5]		1.5	1.5	1.5	1.5	1.5	1.5	1.5
PCE Rates		0.018	0.005	0.023	0.006	0.019	0.025	0.278
3-Axle Trucks								
Recommended Mix (%)[4]		4.50%	4.50%	4.50%	4.50%	4.50%	4.50%	4.50%
PCE Factor[5]		2.0	2.0	2.0	2.0	2.0	2.0	2.0
PCE Rates		0.021	0.006	0.027	0.007	0.022	0.029	0.320
4-Axle Trucks								
Recommended Mix (%)[4]		10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%
PCE Factor[5]		3.0	3.0	3.0	3.0	3.0	3.0	3.0
PCE Rates		0.071	0.019	0.090	0.024	0.072	0.096	1.068
Final Rates (In Passenger Car Equivalents)								
Passenger Cars		0.190	0.051	0.241	0.064	0.193	0.257	2.859
2-Axle Trucks		0.018	0.005	0.023	0.006	0.019	0.025	0.278
3-Axle Trucks		0.021	0.006	0.027	0.007	0.022	0.029	0.320
4-Axle+ Trucks		0.071	0.019	0.090	0.024	0.072	0.096	1.068

Building Size: 212.880 TSF

1 TSF = Thousand Square Feet

2 Warehouse Trip Generation Source: ITE Trip Generation, 9th Edition

3 Inbound/Outbound Splits per ITE Trip Generation, 9th Ed., 2012

4 Recommended Vehicle Mix Percentages per City of Fontana Truck Trip Generation Study for Heavy Warehouse uses, August 2003 (Page 20)

5 Recommended PCE Factor per San Bernardino County CMP, 2005 Update

j:/rktables/RK10724TB.xlsx
JN:1421-2014-08

Table 5
Warehouse Trip Generation (Passenger Car Equivalents)

ITE TRIP GENERATION									
			Weekday Peak Hour						
			AM			PM			
Land Use	**Quantity**	**Units[1]**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**Daily**
Warehouse	212.88	TSF	50	13	64	17	51	68	758

ITE TRIP GENERATION IN PASSENGER CAR EQUIVALENTS							
	Weekday Peak Hour						
	AM			PM			
Vehicle Mix	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**Daily**
Passenger Cars	41	11	52	14	41	55	609
2-Axle Trucks	4	1	5	1	4	5	59
3-Axle Trucks	5	1	6	2	5	7	68
4-Axle+ Trucks	15	4	19	5	15	20	227
Final Trip Generation (In Passenger Car Equivalents)	**65**	**17**	**82**	**22**	**65**	**87**	**963**

[1] TSF = Thousand Square Feet

GLOBAL GEO-ENGINEERING, INC.

November 24, 2014
Project 5992-04

CT Realty Investors
65 Enterprise, Suite 150
Aliso Viejo, California 92656

Attention: David L. Ball, A.I.A., LEED
Senior Vice President

Subject: Geotechnical Investigation
Proposed Commercial Development
Dan Kipper Drive and Sycamore Canyon Boulevard
Riverside, California
Riverside County, California

References: *See Appendix A*

Dear Mr. Ball:

1. INTRODUCTION

a) In accordance with your request, we have conducted a geotechnical investigation for the above referenced site located in the Riverside County, California.

b) We understand that, at the present time, the subject development will include five commercial buildings on a 13.08-acre parcel. The total building area will be on the order of 236,000 square feet. Parking and driveway areas are also proposed.

c) Structural or architectural plans were not yet available for our review as of the submittal of this report. We have assumed that the typical wall loads will not exceed 2 kip/ft and the column loads will not exceed 50 kips.

2. PURPOSE

The purpose of the investigation was to obtain and analyze subsurface information in order to provide site-specific recommendations pertaining to the following:

a) grading;

b) processing of soils;

c) foundation types;

d) foundation depths;

e) bearing capacity;

f) expansivity;

g) sulphate content and cement type;

h) shrinkage factor;

i) settlement;

j) retaining walls:

- active pressure;
- at-rest pressure;
- passive resistance;
- coefficient of friction;

k) pavement;

l) seismicity.

3. SCOPE

The scope of services we provided was as follows:

a) Preliminary planning and evaluations, and review of geotechnical literature related to the project site and nearby surrounding area *(See References – Appendix A)*;

b) Preliminary planning and preparation;

c) Pre-marking the borings and contacting Underground Service Alert (USA) in order identify any underground utilities;

d) Drilling of seven geotechnical borings to depths ranging from 6 to 20 feet utilizing a hollow stem auger drill rig;

e) Drilling five borings to a maximum depth of 11 feet below the existing grade for the infiltration testing and geotechnical investigation utilizing a hollow stem auger drill rig;

e) Sampling and logging of subsurface materials encountered in the borings;

f) Infiltration testing to determine the percolation rate;

g) Laboratory testing of samples representative of those obtained in the field, in order to evaluate relevant engineering properties;

h) Engineering and geologic analyses of the field and laboratory data;

i) Preparation of a report presenting our findings, conclusions and recommendations

4. FIELD EXPLORATION

The field exploration program is given in *Appendix B*, which includes the Logs of Borings.

5. LABORATORY TESTING

The results of the laboratory testing are shown in *Appendix C.*

6. SITE DESCRIPTION

6.1 Location

a) The project site is located along the north side of Dan Kipper Drive and west of Sycamore Canyon Boulevard in the County of Riverside, California.

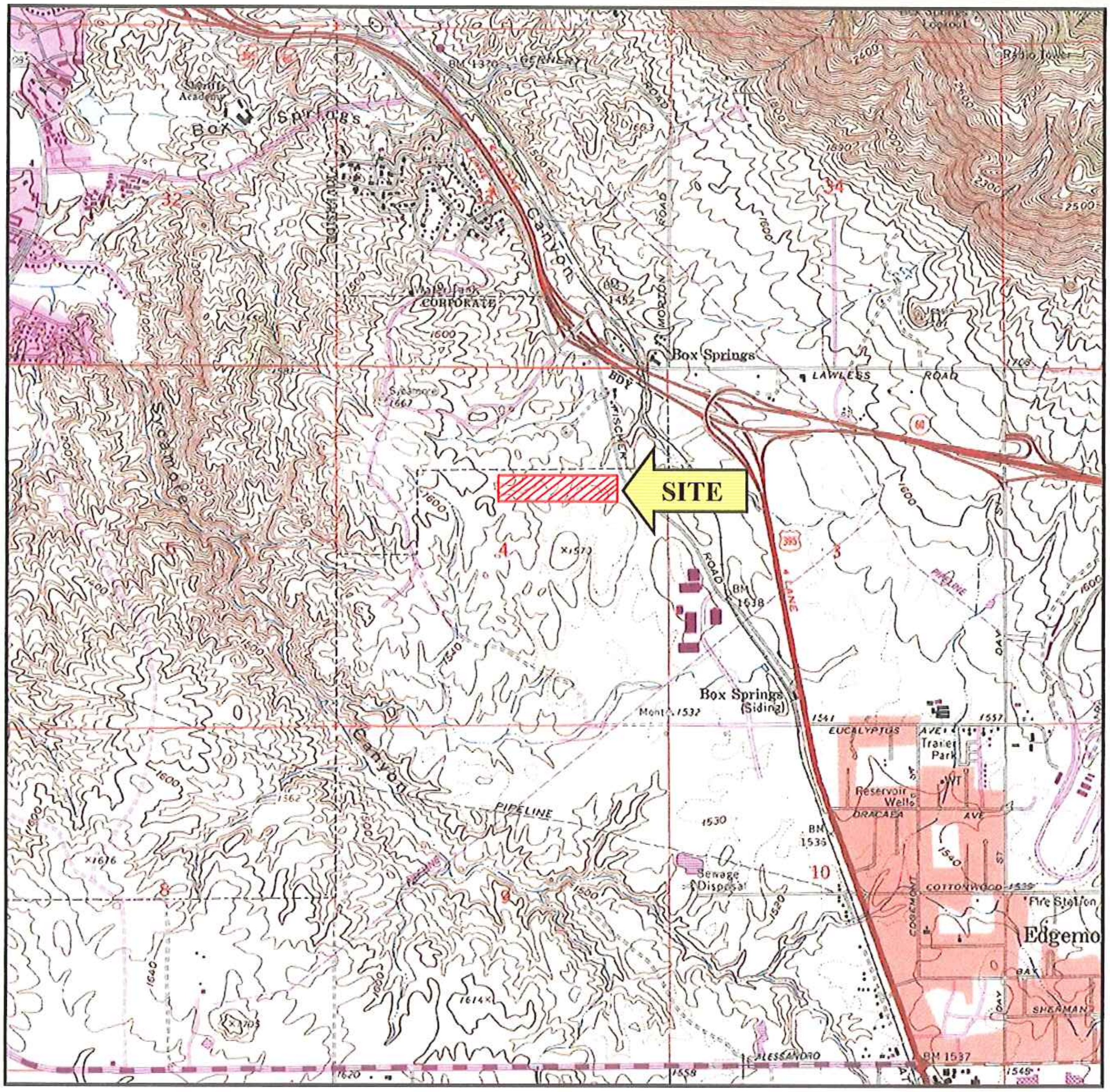
b) The approximate site location is shown on the *Location Map, Figure 1.*

6.2 Existing Surface Conditions

a) The site has been recently graded and is currently void of any structures. A four tiered pad, which generally drains in the northeasterly direction, is present on the site. The current pad elevations range from 1542.0 feet above Mean Sea Level (MSL) near the northeastern corner of the site to 1571.0 near the northwestern corner of the property. The pad surfaces are sparsely covered with weeds and dead grasses.

b) Three- to seven-foot high slopes descend from the north and south edges of the building pads. A 2:1 (horizontal:vertical) gradient slope descends 10 to 15 feet from the eastern end of the pad to the street grade of Dan Kipper Drive. A 5- to 10-foot high slope ascends from the western end of the pad up to the natural ground surface.

LOCATION MAP



BASE MAP: USGS 7.5-Minute Topographic Map,
Riverside East Quadrangle, 1973

2500 0 2500 5000

SCALE FEET

NORTH

GLOBAL GEO-ENGINEERING, INC. GEOLOGIC AND SOILS ENGINEERING IRVINE, CALIFORNIA	Dan Kipper Drive and Sycamore Canyon Boulevard Riverside, California
	Date: November 2014 / **Figure No:** 1
	Project No.: 5992-04

6.3 Geology

6.3.1 Regional Geologic Setting

The property is located within the Peninsular Ranges Geomorphic Province of California. The Peninsular Ranges consist of a series of mountain ranges separated by longitudinal valleys. The ranges trend northwest-southeast and are subparallel to faults branching from the San Andreas Fault. The Peninsular Ranges extend from the southern side of the Santa Monica Mountains into Baja California, Mexico (CDMG, 1997).

6.3.2 Local Geologic Setting

In general, the project site is underlain by fill materials overlying granitic bedrock, classified as Val Verde Tonalite.

6.4 Subsurface Conditions

The subsurface conditions, as observed in our borings, are described in the following sections:

6.4.1 Artificial Fill

a) Fill materials, ranging at depths from 4 to 18 feet, were encountered in all of our borings.

b) The fill was mostly observed to consist of Silty SAND. The fill encountered in our excavations was generally found to be fine to medium grained, slightly moist to moist and medium dense to dense.

c) Documentation certifying the fill was not available. However, based on the field blow counts and the density of the soils as tested in the laboratory, the fill is considered to be competent having the average relative compaction greater than the minimum required of 90 percent by the California Building Code.

6.4.2 Residual Soils

a) A thin layer of residual soils was encountered directly below the fill in Borings B-4 and B-6.

b) The residual soils consisted of fine grained, reddish brown, moist and medium dense Silty SAND.

6.4.3 Bedrock

a) Cretaceous- age granitic bedrock was encountered at the bottoms of all of our deeper geotechnical borings (B-1 through B-7).

b) The bedrock encountered in our explorations was generally observed to be coarse textured and hard.

6.4.4 Groundwater

a) No free groundwater or seepage was encountered in any of our borings drilled on-site.

b) In direct proximity of the property, free ground water is not expected to be present, due to the relatively impermeable nature of the underlying bedrock materials. Intermittent water migrating through fracture zones as seepage may, however, occur within the underlying bedrock formations. The amount of seepage is primarily dependent on seasonal precipitation and irrigation use from the higher elevated properties.

7. SEISMICITY

a) Seismic risk in Southern California is a well-recognized factor, and is directly related to geologic fault proximity to active or potentially active fault zones, and on the type of geologic structures. In relative terms, seismic damage is generally less intense in consolidated formations, i.e. bedrock, than in unconsolidated materials, such as alluvium.

b) In Southern California, most of the seismic damage to man-made structures results from ground shaking and to a lesser degree from ground rupture and liquefaction round rupture caused by earthquakes along active fault zones. In general, the greater the magnitude of the earthquake, the greater the potential damage.

c) We performed a deterministic seismic hazard analysis using the computer program EQFAULT (Blake, 2000). The program computes the peak ground acceleration and the maximum magnitude earthquakes on each of the faults found within a user specified radius. The computation of the peak acceleration is based on the closest distance between the site and each digitized fault and a user specified attenuation relationship. For our analysis, we used a 70-mile radius and the attenuation relationships developed by Boore, et al, (1997). From the seismic history of the region and proximity, the San Jacinto Fault has the greatest potential for causing earthquake damage related to ground shaking at this site. Peak ground acceleration at the subject property is expected to be about 0.31g (based on a Maximum Magnitude of 6.7 on the San Jacinto Fault).

d) The project site is not located within a delineated Earthquake Fault Zone (previously referred to as the Alquist-Priolo Special Studies Zone). The closest known active fault is the San Jacinto Fault, located at a distance of approximately 5.9 miles northeast of the project site. Other known active faults include the San Andreas Fault and Elsinore Fault, located at distances of about 15.8 miles and 17.5 miles, respectively, from the subject property. Due to the distance of the closest active fault to the site, ground rupture is not considered a significant hazard at the site.

e) *Figure 2* shows the geographical relationships among the site location nearby faults and the epicenters of significant occurrences.

8. CONCLUSIONS AND RECOMMENDATIONS

8.1 General

a) It is our opinion that the site will be suitable for the proposed development from a geotechnical aspect, assuming that our recommendations are incorporated in the project plan designs and specifications, and are implemented during construction.

b) We are of the opinion that the proposed structures may be supported on shallow spread footings, founded in the existing compacted fill.

c) We are also of the opinion that with due and reasonable precautions, the required grading will not endanger adjacent property nor will grading be affected adversely by adjoining property.

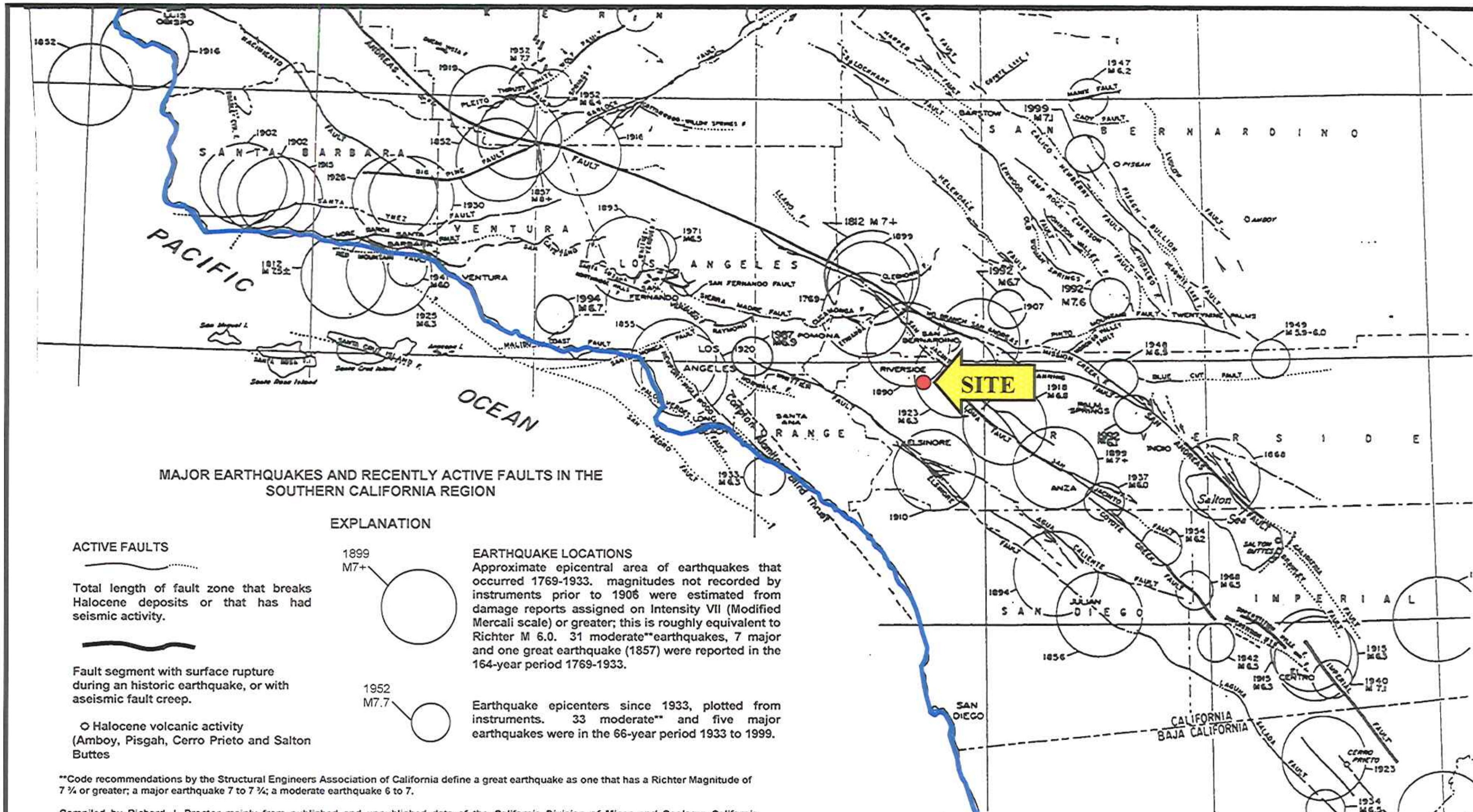
d) The design recommendations in the report should be reviewed during the grading phase when soil conditions in the excavations become exposed.

e) The grading and the foundation plan should be reviewed by a geotechnical engineer.

8.2 Grading

8.2.1 Processing of On-Site Soils

a) Our field exploration and the limited laboratory testing indicated that verifies that the relative compaction of fill to be greater than 90 percent. Therefore, the fill is considered certified fill.



MAJOR EARTHQUAKES AND RECENTLY ACTIVE FAULTS IN THE SOUTHERN CALIFORNIA REGION

EXPLANATION

ACTIVE FAULTS

Total length of fault zone that breaks Halocene deposits or that has had seismic activity.

Fault segment with surface rupture during an historic earthquake, or with aseismic fault creep.

o Halocene volcanic activity (Amboy, Pisgah, Cerro Prieto and Salton Buttes

EARTHQUAKE LOCATIONS

1899 M7+

Approximate epicentral area of earthquakes that occurred 1769-1933. magnitudes not recorded by instruments prior to 1906 were estimated from damage reports assigned on Intensity VII (Modified Mercali scale) or greater; this is roughly equivalent to Richter M 6.0. 31 moderate**earthquakes, 7 major and one great earthquake (1857) were reported in the 164-year period 1769-1933.

1952 M7.7

Earthquake epicenters since 1933, plotted from instruments. 33 moderate** and five major earthquakes were in the 66-year period 1933 to 1999.

**Code recommendations by the Structural Engineers Association of California define a great earthquake as one that has a Richter Magnitude of 7 ¾ or greater; a major earthquake 7 to 7 ¾; a moderate earthquake 6 to 7.

Compiled by Richard J. Proctor mainly from published and unpublished data of the *California Division of Mines and Geology; California Department of Water Resources Bulletin 116-2* (1964); selections from bulletins of the *Geological* and *Seismological Societies of America*; from C.F. Richter, *Elementary Seismology* (1958); and the *National Atlas*, p. 66, and from Working Group on California Earthquake Probabilities- SSA Bulletin V 85.

GLOBAL GEO-ENGINEERING, INC. GEOLOGIC AND SOILS ENGINEERING IRVINE, CALIFORNIA	Dan Kipper and Sycamore Canyon Boulevard Riverside, California	
	Date: November 2014	**Figure No:** 2
	Project No: 5992-04	

b) The thickness of the fill encountered in our borings is provided below:

Building No.	Fill Thickness, feet
1	15
2	10 to 14
3	10 to 18
4	16
5	4

c) If the grades remain unchanged and the footing depth does not exceed 3 feet, there will be at least one foot of compacted fill below the footings and three feet below the slab-on-grade. No additional overexcavation deemed necessary below the footings. The upper one foot of the existing fill is disturbed and should be proof-rolled to support any slab-on-grade and pavements.

d) If the proposed grades are lowered or the footings are designed to be deeper than 2 feet, overexcavation to a depth of 1 foot below the footings and 3 feet below the slab-on-grade will be required. The overexcavation should extend at least one foot beyond the edge of the footings.

e) Prior to placing of any new fill, the existing soils should be scarified, moisture conditioned and reworked to a depth of 6 to 8 inches or to such a depth as deemed by the geotechnical engineer during grading operations.

f) Any loosening of reworked or native material, consequent to the passage of construction traffic, weathering, etc., should be made good prior to further construction.

g) The depths of overexcavation should be reviewed by the Geotechnical Engineer during construction. Any surface or subsurface obstructions, or any variation of site materials or conditions encountered during grading should be brought immediately to the attention of the Geotechnical Engineer for proper exposure, removal or processing, as directed. No underground obstructions or facilities should remain in any structural areas. Depressions and/or cavities created as a result of the removal of obstructions should be backfilled properly with suitable materials, and compacted.

8.2.3 Material Selection

After the site has been stripped of any debris, vegetation and organic soils, excavated on-site soils are considered satisfactory for reuse in the construction of on-site fills, with the following provisions:

a) The organic content does not exceed 3 percent by volume;

b) Large size rocks greater than 8 inches in diameter should not be incorporated in compacted fill;

c) Rocks greater than 4 inches in diameter should not be incorporated in compacted fill to within 1 foot of the underside of the footings and slabs.

8.2.4 Compaction Requirements

a) Reworking/compaction shall include moisture-conditioning/drying as needed to bring the soils to slightly above the optimum moisture content. All reworked soils and structural fills should be densified to achieve at least 90 percent relative compaction with reference to laboratory compaction standard. The optimum moisture content and maximum dry density should be determined in the laboratory in accordance with ASTM Test Designation D1557.

b) Fill should be compacted in lifts not exceeding 8 inches (loose).

8.2.5 Excavating Conditions

a) Excavation of on-site fill materials may be accomplished with standard earthmoving or trenching equipment. However, the encountered bedrock below the fill was determined to be hard. Specialized equipment may be required to excavate the bedrock.

b) Ground water was not encountered to the depths explored. Dewatering is not anticipated.

8.2.6 Expansivity

a) Based upon visual observation, the expansivity of the site soils is considered *Low*.

b) The soil expansion potential for specific areas should be determined during the final stages of rough grading.

8.2.7 Sulphate Content

a) The sulphate contents of representative samples of the soil are less than 0.2%. Type II Portland cement is recommended for the construction.

b) The fill materials should be tested for their sulphate content during the final stage of rough grading.

8.2.8 Utility Trenching

a) The walls of temporary construction trenches in fill should stand nearly vertical, with only minor sloughing, provided the total depth does not exceed 3 feet (approximately). Shoring of excavation walls or flattening of slopes may be required, if greater depths are necessary.

b) Trenches should be located so as not to impair the bearing capacity or to cause settlement under foundations. As a guide, trenches should be clear of a 45-degree plane, extending outward and downward from the edge of foundations. Shoring should comply with Cal-OSHA regulations.

c) Existing soils may be utilized for trenching backfill, provided they are free of organic materials.

d) All work associated with trench shoring must conform to the state and federal safety codes.

8.2.9 Surface Drainage Provisions

Positive surface gradients should be provided adjacent to the buildings to direct surface water run-off away from structural foundations and to suitable discharge facilities.

8.2.10 Grading Control

All grading and earthwork should be performed under the observation of a Geotechnical Engineer in order to achieve proper subgrade preparation, selection of satisfactory materials, placement and compaction of all structural fill. Sufficient notification prior to stripping and earthwork construction is essential to make certain that the work will be adequately observed and tested.

8.3 Slab-on-Grade

a) Concrete floor slabs may be founded on the compacted fill. The subgrade should be proof-rolled just prior to construction to provide a firm, unyielding surface, especially if the surface has been loosened by the passage of construction traffic.

b) The slab should be underlain by 2 inches of SAND. A plastic vapor barrier is recommended. This sheeting should be placed below SAND.

c) It is recommended that #3 bars on 18-inch center or equivalent, both ways, be provided as minimum reinforcement in slabs-on-grade. Joints should be provided and slabs should be at least 4 inches thick. Industrial floor slab which will experience heavy loads or fork lift traffic should be at least 6 inches thick reinforced with #4 bars on 16 inches center bothways or as specified by the structural engineer.

d) The FFL should be at least 6 inches above highest adjacent grade.

e) The exterior slab-on-grade may be constructed 4-inch thick and with the reinforcement, as recommended above. The control joints may be spaced at 5 feet intervals.

f) The subgrade should be kept moist prior to the concrete pour.

8.1 Spread Foundations

The proposed structures can be founded on shallow spread footings. The criteria presented as follows should be adopted:

8.4.1 Dimensions/Embedment Depths

Number of Stories (floors supported)	Minimum Width (ft)	Minimum Footing Thickness (in)	Minimum Embedment Below Lowest Finished Surface (ft)	
1	1.0	6	Perimeter	1.5
			Interior	1.0
2	1.25	7	Perimeter	2.0
			Interior	1.5
Square Column Footings	2.0	-		2.0

8.4.2 Allowable Bearing Capacity

Embedment Depth (ft)	Allowable Bearing Capacity (lb/ft^2)
1.0	2,500
1.5	2,900
2.0	3,300

(Notes:

- These values may be increased by 800 lb/ft^2 for every additional foot increase in the depth and by 300 lb/ft^2 for each additional foot increase the width of footing to a maximum value of 5,000 lb/ft^2;
- These values may be increased by one-third in the case of short-duration loads, such as induced by wind or seismic forces;
- At least 2x#4 bars should be provided in wall footings, one on top and one at the bottom;
- In the event that footings are founded in structural fills consisting of imported materials, the allowable bearing capacities will depend on the type of these materials, and should be re-evaluated;
- Bearing capacities should be re-evaluated when loads have been obtained and footings sized during the preliminary design;
- Planter areas may not be sited adjacent to walls. If planter areas are planned adjacent to the walls, provision should be made so that the irrigation water doesn't saturate the foundation soils and the embedment depths do not become reduced by softening of the soils;
- Footing excavations should be observed by the Geotechnical Engineer;
- It should be insured that the embedment depths do not become reduced or adversely affected by erosion, softening, planting, digging, etc.)

8.4.3 Settlements

Total and differential settlements under spread footings are expected to be within tolerable limits and are not expected to exceed 1 and ¾ inches in a horizontal distance of 40 feet, respectively.

8.5 Lateral Pressures

a) The following lateral pressures are recommended for the design of retaining structures.

Lateral Force	Soil Profile	Pressure (lb/ft^2/ft depth)	
		Unrestrained Wall	Rigidly Supported Wall
Active Pressure	Level	34	-
At-Rest Pressure	Level	-	60
Passive Resistance (ignore upper 1.5 ft.)	Level	400	-

b) Friction coefficient: 0.4 (includes a Factor of Safety of 1.5). While combining friction with passive resistance, reduce passive by 1/3.

c) These values apply to the existing soil, and to compacted backfill generated from in-situ material. Imported material should be evaluated separately. It is recommended that where feasible, imported granular backfill be utilized, for a width equal to approximately one-quarter the wall height, and not less than 1.5 feet.

d) Backfill should be placed under engineering control.

e) Subdrains should be provided behind retaining walls. The subdrain should consist of 4-inch perforated (holes facing downward) schedule 40 or equivalent PVC pipe embedded in at least 1 cubic ft/ft of gravel, wrapped in a geo textile, such as Mirafi 140N.

8.6 Pavement Design

8.6.1 Asphalt Concrete

a) Based on Traffic Index (T.I.) and the anticipated "R"-Value of 37, the following tentative structure pavement sections are recommended:

Location	T.I.	Asphaltic Concrete (inches)	Aggregate Base (inches)
Parking	5.0	3.0	4.0
Driveway	5.5	3.0	6.0
Truck Traffic	6.0	4.0	5.0

b) During the grading phase, the subgrade soils will be mixed in different proportions. Therefore, the subgrade soils should be tested for R-Value at the conclusion of rough grading and the pavement section should be finalized then.

8.6.2 Subgrade Preparation

All pavement areas shall be inspected, tested for compaction requirements, reworked where required and approved immediately prior to the placement of aggregate base. Subgrade soils should be prepared as per the recommendations provided in *Section 7.2.1*.

8.6.3 Base Preparation

Unless otherwise specified, the base shall consist of Class II ¾-inch aggregate base or approved Crushed Miscellaneous Base (CMB). The base shall be compacted to a minimum of 95 percent relative compaction in accordance with the procedures described in ASTM Test Method D1557.

8.6.4 Concrete Pavement

In areas where concrete pavements are proposed, we recommend that the thickness of the concrete pavement should be at least 6 inches. It is preferred that the concrete pavement is reinforced with minimum reinforcement to of #3 bars on 18-inch center both ways. The concrete should be underlain by 4-inch thick base placed in accordance with *Section 7.6.3* above.

8.7 Infiltration Rate

a) We drilled five 8-inch diameter borings using a truck mounted hollow stem auger drill rig to determine the infiltration rate. No seepage or free groundwater was encountered in our boring. The materials encountered in the excavations were observed to generally consist of Silty SAND.

b) In order to prevent caving during testing, a 3-inch diameter perforated pipe encased in gravel rock was installed into the excavation.

c) The holes were pre-soaked immediately prior to the percolation testing. From a fixed reference point, the drop in the water level was measured in 30-minute intervals; refilling after every reading.

d) The computed infiltration rates are as follows:

Location	Infiltration Rate gallons/ft^2/day	Infiltration rate Inches/hour
Northeast of Building 1	7	0.5
Southeast of Building 2	28	1.8
North of Building 3	120	8.0
Northeast of Building 4	29	1.9
South of Building 5	104	7.0

e) The rate was calculated using a factor of safety of 1.0. Appropriate factor of safety should be utilized while designing the infiltration system.

8.8 Seismicity

a) The following table provides the most recent seismic coefficients and seismic data in accordance with requirements included in the 2013 California Building Code of Regulations:

ITEM	VALUE	REFERENCE
Site Longitude (Decimal-degrees)	-117.290	Google Earth
Site Latitude (Decimal-degrees)	33.938	Google Earth
Site Class	C	USGS
Seismic Design Category	D	USGS
Mapped Spectral Response Acceleration-Short Period (0.2 Sec) - S_S	1.500	2013 CBC Section 1613.3.2 & Chapter 20 of ASCE 7
Mapped Spectral Response Acceleration-1 Second Period – S_1	0.600	2013 CBC Section 1613.3.5 & Tables 1613.3.5(1)(2)
Short Period Site Coefficient-F_a	1.0	2013 CBC Section 1613.3.1(1)
Long Period Site Coefficient F_v	1.3	2013 CBC Section 1613.3.1(2)
Adjusted Spectral Response Acceleration @ 0.2 Sec. Period (Sms)	1.500	2013 CBC Section 1613.3.3 Equation 16-37
Adjusted Spectral Response Acceleration @ 1Sec.Period (S_{m1})	0.780	2013 CBC Section 1613.3.3 Equation 16-38
Design Spectral Response Acceleration @ 0.2 Sec. Period (S_{Ds})	1.000	2013 CBC Section 1613.3.4 Equation 16-39
Design Spectral Response Acceleration @ 1-Sec. Period (S_{D1})	0.520	2013 CBC Section 1613.3.4 Equation 16-40

b) No ground water was encountered to the excavated depths of our borings. The potential for liquefaction is considered to be very low.

8.9 Soil Corrosion Potential

a) Soil Corrosion potential for metal and concrete was estimated by performing water-soluble sulfate, chloride, pH, and electrical resistivity tests during this investigation.

b) Electrical resistivity is a measure of soil resistance to the flow of corrosion currents. Corrosion currents are generally high in low resistivity soils. The electrical resistivity of a soil decreases primarily with an increase in its chemical and moisture contents. A commonly accepted correlation between electrical resistivity and corrosivity for buried ferrous metals is presented below:

Electrical Resistivity, Ohm-cm	Corrosion Potential
Less than 1,000	Severe
1,000-2,000	Corrosive
2,000-10,000	Moderate
Greater than 10,000	Mild

c) Results of electrical resistivity tests indicate a minimum resistivity ranges from 6,455 to 20, 205 ohm-cm. Based on this data, it is our opinion that, in general, on-site soils have a *moderate* to *mild* corrosion potential. This potential should be considered in design of underground metal pipes.

9. LIMITATIONS

a) Soils and bedrock over an area show variations in geological structure, type, strength and other properties from what can be observed, sampled and tested from specimens extracted from necessarily limited exploratory borings. Therefore, there are natural limitations inherent in making geologic and soil engineering studies and analyses. Our findings, interpretations, analyses and recommendations are based on observation, laboratory data and our professional experience; and the projections we make are professional judgments conforming to the usual standards of the profession. No other warranty is herein expressed or implied.

b) In the event that during construction, if the conditions are exposed which are significantly different from those described in this report, they should be brought to the attention of the Geotechnical Engineer.

c) The recommendations provided in this report are intended to minimize the potential of distress to the structures caused. However, it should be noted that certain amount of cracking or tilting is unavoidable and can be anticipated during the lifetime of the existing and the proposed structures.

The opportunity to be of service is sincerely appreciated. If you have any questions or if we can be of further assistance, please call.

Very truly yours,

GLOBAL GEO-ENGINEERING, INC.

Mohan B. Upasani
Principal Geotechnical Engineer
RGE 2301
(Exp. March 31, 2015)

Kevin B. Young
Principal Engineering Geologist
CEG 2253
(Exp. October 31, 2015)

MBU/KBY: fdr

Enclosures:

Location Map	- Figure 1
Seismicity Map	- Figure 2
References	- Appendix A
Field Exploration	- Appendix B
Unified Soils Classification System	Figure B-1
Logs of Borings	Figures B-2 through B-13
Laboratory Testing	- Appendix C
Boring Location Plan	- Plate 1

TERMS AND CONDITIONS OF AUTHORIZATION

Consultant shall serve Client by providing professional counsel and technical advice regarding subsurface conditions consistent with the scope of services agreed-to between the parties. Consultant will use his professional judgment and will perform his services using that degree of care and skill ordinarily exercised under similar circumstances, by reputable foundation engineers and/or engineering geologists practicing in this or similar localities.

- In assisting Client, the Consultant may include or rely on information and drawings prepared by others for the purpose of clarification, reference or bidding; however, by including the same, the Consultant assumes no responsibility for the information shown thereon and Client agrees that Consultant is not responsible for any defects in its services that result from reliance on the information and drawings prepared by others. Consultant shall not be liable for any incorrect advice; judgment or decision based on any inaccurate information furnished by the Client or any third party, and Client will indemnify Consultant against claims, demands, or liability arising out of, or contribute to, by such information.

- Unless otherwise negotiated in writing, Client agrees to limit any and all liability, claim for damages, cost of defense, or expenses to be levied against Consultant on account of design defect, error, omission, or professional negligence to a sum **not to exceed ten thousand dollars or charged fees whichever** is less. Further, Client agrees to notify any construction contractor or subcontractor who may perform work in connection with any design, report, or study prepared by Consultant of such limitation of liability for design defects, errors, omissions, or professional negligence, and require as a condition precedent to their performing the work a like limitation of liability on their part as against the Consultant. In the event the Client fails to obtain a like limitation of liability provision as to design defects, errors, omissions or professional negligence, any liability of the Client and Consultant to such contractor or subcontractor arising out of a negligence shall be allocated between Client and Consultant in such a manner that the aggregate liability of Consultant for such design defects to all parties, including the Client shall **not exceed ten thousand dollars or charged fees whichever** is less. No warranty, expressed or implied of merchantability or fitness, is made or intended in connection with the work to be performed by Consultant or by the proposal for consulting or other services or by the furnishing of oral or written reports or findings made by Consultant.

- The Client agrees, to the fullest extent permitted by law, to indemnify, defend and hold harmless the Consultant, its officers, directors, employees, agents and subconsultants from and against all claims, damages, liabilities or costs, including reasonable attorney's fees and defense costs, of any nature whatsoever arising from or in connection with the Project to the extent that said claims, damages, liabilities or costs arise out of the work, services, or conduct of Client or Client's contractors, subconsultants, or other third party not under Consultant's control. Client further agrees that the duty to defend set forth herein arises immediately and is not contingent on a finding of fault against Client or Client's contractors, subconsultants, or other third parties. Client shall not be obligated under this provision to indemnify Consultant for Consultant's sole negligence or willful misconduct.

- Client shall grant free access to the site for all necessary equipment and personnel and Client shall notify any and all possessors of the project site that Client has granted Consultant free access to the project site at no charge to Consultant unless expressly agreed to otherwise in writing.

- If Client is not the property owner for the subject Project, Client agrees that it will notify the property owner of the terms of this agreement and obtain said property owner's approval to the terms and conditions herein. Should Client fail to obtain the property owner's agreement as required herein, Client agrees to be solely responsible to Consultant for all damages, liabilities, costs, including litigation fees and costs, arising from such failure that exceed that limitation of Consultant's liability herein.

- Client shall locate for Consultant and shall assume responsibility for the accuracy of his representations as to the locations of all underground utilities and installations. Consultant will not be responsible for damage to any such utilities or installation not so located.

- Client and Consultant agree to waive claims against each other for consequential damages arising out of or relating to this agreement. Neither party to this agreement shall assign the contract without the express, written consent of the other party.

- Consultant agrees to cover all open test holes and place a cover to carry a 200-pound load on each hole prior to leaving project site unattended. Consultant agrees that all test holes will be backfilled upon completion of the job. However, Client may request test holes to remain open after completion of Consultants work. In the event Client agrees to pay for all costs associated with covering and backfilling said test holes at a later date, and Client shall indemnify, defend and hold harmless Consultant for all claims, demands and liabilities arising from his request, except for the sole negligence of the Consultant, to the extent permitted by law.

- Consultant shall not be responsible for the general safety on the job or for the work of Client, other contractors and third parties.

- Consultant shall be excused for any delay in completion of the contract caused by acts of God, acts of the Client or Client's agent and/or contractors, inclement weather, labor trouble, acts of public utilities, public bodies, or inspectors, extra work, failure of Client to make payments promptly, or other contingencies unforeseen by Consultant and beyond reasonable control of the Consultant.

- In the event that either party desires to terminate this contract prior to completion of the project, written notification of such intention to terminate must be tendered to the other party. In the event Client notifies Consultant of such intention to terminate Consultant's services prior to completion of the contract, Consultant reserves the right to complete such analysis and records as are necessary to place files in order, to dispose of samples, put equipment in order, and (where considered necessary to protect his professional reputation) to complete a report on the work performed to date. In the event that Consultant incurs cost in Client's termination of this Agreement, a termination charge to cover such cost shall be paid by Client.

- If the Client is a corporation, the individual or individuals who sign or initial this Contract, on behalf of the Client, guarantee that Client will perform its duties under this Contract. The individual or individuals so signing or initialing this Contract warrant that they are duly authorized agents of the Client.

- Any notice required or permitted under this Contract may be given by ordinary mail at the address contained in this Contract, but such address may be changed by written notice given by one party to the other from time to time. Notice shall be deemed received in the ordinary course of the mail. This agreement shall be deemed to have been entered into the County of Orange, State of California.

LIMITATIONS

Our findings, interpretations, analyses, and recommendations are professional opinions, prepared and presented in accordance with generally accepted professional practices and are based on observation, laboratory data and our professional experience. Consultant does not assume responsibility for the proper execution of the work by others by undertaking the services being provided to Client under this agreement and shall in no way be responsible for the deficiencies or defects in the work performed by others not under Consultant's direct control. No other warranty herein is expressed or implied.

APPENDIX A

References

1. Blake, T. F., 2000, *EQFAULT: A Computer Program for the Deterministic Prediction of Peak Horizontal Acceleration from Digitized California Fault*, User Manual and Program.

2. Boore, D.M., Joyner, W.B., and Fumal, T.E., 1997, *Equations for the Estimating Horizontal Response Spectra and Peak Acceleration from Western North American Earthquakes: A Summary of Recent Work*: Seismological Research Letters, Vol. 68, No. 1, pp. 128-153.

3. Morton, Doug M. and Cox, Brett F., 1994, *Geologic Map of the Riverside East Quadrangle, Riverside County, California*: U.S. Geological Survey Open File Report 88-754;

4. U.S. Geological Survey, 1967, photo revised 1973, 7.5-Minute Series Topographic Map, Riverside East Quadrangle.

APPENDIX B

Field Exploration

a) The site was explored on August 11, 2014, utilizing a B-53 truck mounted hollow stem drill rig, and on November 6, 2014, using a hollow stem auger track rig to excavate a total of 12 borings to depths ranging from 6 to 20 feet below the existing ground surface. The borings were subsequently backfilled. The approximate locations of the borings are shown on the *Boring Location Plan, Plate 1.*

b) The soils encountered in the excavations were logged and sampled by our Engineering Geologist. The soils were classified in accordance with the Unified Soil Classification System described in *Figure B-1.* The Logs of Borings are presented in *Figures B-2 through B-13.* The logs, as presented, are based on the field logs, modified as required from the results of the laboratory tests. Driven ring and bulk samples were obtained from the excavations for laboratory inspection and testing. The depths at which the samples were obtained are indicated on the logs.

c) Ground water was not encountered in any of our borings explored during this investigation.

d) Caving occurred as indicated on the logs of borings.

UNIFIED SOILS CLASSIFICATION (ASTM D-2487)

PRIMARY DIVISION			GROUP SYMBOL	SECONDARY DIVISIONS
COARSE GRAINED SOILS More than half of materials is larger than #200 sieve size	GRAVELS More than half of coarse fraction is larger than #4 sieve	Clean Gravels (<5% fines)	GW	Well graded gravels, gravel-sand mixture, little or no fines
			GP	Poorly graded gravels or gravel-sand mixtures, little or no fines
		Gravel with Fines	GM	Silty gravels, gravel-sand-silt mixture. Non-plastic fines.
			GC	Clayey gravels, gravel-sand-clay mixtures. Plastic fines
	SANDS More than half of coarse fraction is smaller than #4 sieve	Clean Sands (<5% fines)	SW	Well-graded gravels, gravel-sand mixtures, little or no fines.
			SP	Poorly graded sands or gravelly sands, little or no fines.
		Sands with Fines	SM	Silty sands, sand-silt mixtures. Non-Plastic fines.
			SC	Clayey sands, sand-clay mixtures. Plastic fines.
FINE GRAINED SOILS More than half of material is smaller than #200 sieve size	SILTS AND CLAYS	LIQUID LIMIT IS LESS THAN 50	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts, with slight plasticity
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
			OL	Organic silts and organic silty clays of low plasticity.
	SILTS AND CLAYS	LIQUID LIMIT IS GREATER THAN 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
			CH	Inorganic clays of high plasticity, fat clays
			OH	Organic clays of medium to high plasticity, organic silts.
	Highly Organic Soils		PT	Peat and other highly organic soils.

CLASSIFICATION BASED ON FIELD TESTS

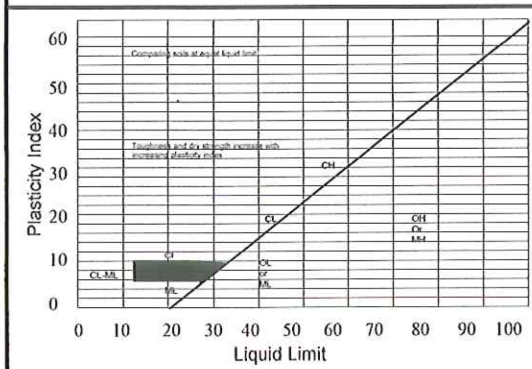
PENETRATION RESISTANCE (PR)	
Sands and Gravels	
Relative Density	Blows/foot
Very loose	0-4
Loose	4-10
Medium Dense	10-30
Dense	30-50
Very Dense	Over 50

Clays and Silts		
Consistency	Blows/foot*	Strength**
Very Soft	0-2	0-½
Soft	2-4	¼-½
Firm	4-8	½-1
Stiff	8-15	1-2
Very Stiff	15-30	2-4
Hard	Over 30	Over 4

*Numbers of blows of 140 lb hammer falling 30 inches to drive a 2-inch O.D. (1 3/8 in. I.D.) Split Barrel sampler (ASTM-1568 Standard Penetration Test)

**Unconfined Compressive strength in tons/sq. ft. Read from pocket penetrometer

CLASSIFICATION CRITERIA BASED ON LAB TESTS



Plasticity chart for laboratory Classification of Fine-grained soils

GW and SW – $C_u = D_{60}/D_{10}$ greater than 4 for GW and 6 for SW; $C_c = (D_{30})^2/D_{10} \times D_{60}$ between 1 and 3

GP and SP – Clean gravel or sand not meeting requirement for GW and SW

GM and SM – Atterberg limit below "A" line or P.I. less than 4

GC and SC – Atterberg limit above "A" line P.I. greater than 7

CLASSIFICATION OF EARTH MATERIAL IS BASED ON FIELD INSPECTION AND SHOULD NOT BE CONSTRUED TO IMPLY LABORATORY ANALYSIS UNLESS SO STATED.

Fines (Silty or Clay)	Fine Sand	Medium Sand	Coarse Sand	Fine Gravel	Coarse Gravel	Cobbles	Boulders
Sieve Sizes 200	40	10	4	¾"	3"	10"	

GLOBAL GEO-ENGINEERING, INC.

GEOLOGIC AND SOILS ENGINEERING, IRVINE, CALIFORNIA

Dan Kipper Drive and Sycamore Canyon Boulevard Riverside, California	
Date: November 2014	**Figure No.:** B-1
Project No.: 5992-04	

Global Geo-Engineering, Inc. GEOLOGIC AND SOILS TESTING Irvine, California	LOG OF BORING B-1	Drilling Method : Hollow Stem Sampling Method : California Modified Hammer Weight (lbs) : 140 Hammer Drop (in.) : 30
Sycamore Canyon Boulevard and Dan Kipper Drive Riverside, California Project 5992-04	Date : August 11, 2014 Logged By : KBY Diameter of Boring : 8" Drilling Company : Gledich Drilling Drilling Rig : Mobile B-53	

Sample Type: Ring; Bulk

Water Levels: Groundwater Encountered; Seepage Encountered

Depth in Feet	Sample	Field Moisture % Dry Weight	Dry Density lb./cubic ft.	Blow Count	Relative Compaction	Water Level	USCS	GRAPHIC	DESCRIPTION
0							SM		Silty SAND: fine to medium grained, olive gray, slightly moist, dense
	Ring / Bulk	4.2	128.8	62	95				
	Ring / Bulk	6.7	129.9	50	96				@4' fine grained, olive brown to olive gray
5									
	Ring	6.1	130.3	71	96				
10									
	Ring	5.0	123.3	49	91				
									FILL
15							GR		GRANITE: coarse textured, hard
	Ring	2.5	111.3	>100					BASEMENT ROCK
20									Bottom of Boring at 17.5 feet: Notes: 1. Caving to 10.5 feet 2. No seepage or groundwater encountered 3. Boring backfilled

Global Geo-Engineering, Inc.
GEOLOGIC AND SOILS TESTING
Irvine, California

Sycamore Canyon Boulevard and
Dan Kipper Drive
Riverside, California

Project 5992-04

LOG OF BORING B-2

Date : August 11, 2014
Logged By : KBY
Diameter of Boring : 8"
Drilling Company : Glodich Drilling
Drilling Rig : Mobile B-53

Drilling Method : Hollow Stem
Sampling Method : California Modified
Hammer Weight (lbs) : 140
Hammer Drop (in.) : 30

Sample Type: Ring; Bulk

Water Levels: Groundwater Encountered; Seepage Encountered

Depth in Feet	Sample	Field Moisture % Dry Weight	Dry Density lb./cubic ft.	Blow Count	Relative Comaction	Water Level	USCS	GRAPHIC	DESCRIPTION
0							SM		Silty SAND: fine to coarse grained, olive gray, slightly moist, medium dense to dense
	Ring	2.6	112.0*	38	83				
									@4' fine grained, light reddish brown to olive gray
5	Ring	2.3	133.1	41	98				
	Ring	4.0	121.8	46	90				FILL
10							GR		GRANITE: coarse textured, hard
	Ring	2.6	122.2						BASEMENT ROCK

Bottom of Boring at 11.5 feet:

Notes:
1. Caving to 8 feet
2. No seepage or groundwater encountered
3. Boring backfilled

* - Sample was disturbed

15

20

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Global Geo-Engineering, Inc. GEOLOGIC AND SOILS TESTING Irvine, California	LOG OF BORING B-3	Drilling Method : Hollow Stem Sampling Method : California Modified Hammer Weight (lbs) : 140 Hammer Drop (In.) : 30
Sycamore Canyon Boulevard and Dan Kipper Drive Riverside, California	Date : August 11, 2014 Logged By : KBY Diameter of Boring : 8" Drilling Company : Glodich Drilling Drilling Rig : Mobile B-53	
Project 5992-04		

Sample Type: Ring; Bulk

Water Levels: Groundwater Encountered; Seepage Encountered

Depth in Feet	Sample	Field Moisture % Dry Weight	Dry Density lb./cubic ft.	Blow Count	Relative Comaction	Water Level	USCS	GRAPHIC	DESCRIPTION
0	Ring	NR	NR	72			SM		Silty SAND: fine to medium grained, olive gray, dry to slightly moist with pieces of granitic rock FILL
5	Ring	2.6	122.4	54	90		GR		GRANITE: coarse textured, hard
	Ring	4.6	117.1	>100	86				BASEMENT ROCK
10									Bottom of Boring at 7.5 feet:
15									
20									

Notes:
1. Caving to 5 feet
2. No seepage or groundwater encountered
3. Boring backfilled

NR - No Recovery

Global Geo-Engineering, Inc.
GEOLOGIC AND SOILS TESTING
Irvine, California

Sycamore Canyon Boulevard and
Dan Kipper Drive
Riverside, California

Project 5992-04

LOG OF BORING B-4

Date	: November 6, 2014
Logged By	: KBY
Diameter of Boring	: 8"
Drilling Company	: CAL PAC
Drilling Rig	: Track R16

Drilling Method	: Hollow Stem
Sampling Method	: California Modified
Hammer Weight (lbs)	: 140
Hammer Drop (in.)	: 30

Sample Type: Ring; Bulk

Water Levels: Groundwater Encountered; Seepage Encountered

Depth in Feet	Sample	Field Moisture % Dry Weight	Dry Density lb./cubic ft.	Blow Count	Relative Comaction	Water Level	USCS	GRAPHIC	DESCRIPTION
0							SM/SP		Silty SAND/SAND: fine to medium grained, olive gray, slightly moist to moist, medium dense FILL
	Ring	1.9	126.0	45					
5	Ring	9.4	116.9	100			SM		Silty SAND: fine grained, reddish brown, moist, medium dense RESIDUAL SOIL
							GR		GRANITE: coarse textured BASEMENT ROCK
10									
15									
20									
25									

Bottom of Boring at 6 feet:

Notes:
1. Caving to 4 feet
2. No seepage or groundwater encountered
3. Boring backfilled

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Global Geo-Engineering, Inc. GEOLOGIC AND SOILS TESTING Irvine, California	LOG OF BORING B-5	Drilling Method : Hollow Stem; Sampling Method : California Modified; Hammer Weight (lbs) : 140; Hammer Drop (in.) : 30
Sycamore Canyon Boulevard and Dan Kipper Drive Riverside, California	Date : November 6, 2014; Logged By : KBY; Diameter of Boring : 8"; Drilling Company : CAL PAC; Drilling Rig : Track R16	
Project 5992-04		

Sample Type: Ring; Bulk

Water Levels: Groundwater Encountered; Seepage Encountered

Depth in Feet	Sample	Field Moisture % Dry Weight	Dry Density lb./cubic ft.	Blow Count	Relative Comaction	Water Level	USCS	GRAPHIC	DESCRIPTION
0							SM		Silty SAND: fine to medium grained, olive gray, moist, medium dense to dense with rock inclusions
	Ring	2.6	122.7	50					
5	Ring	4.8	123.7	37					
	Ring	7.3	129.9	42					@9' olive gray to reddish brown
10									
	Bulk / Ring	8.2	123.5	22					@14' grayish brown, medium dense
15									FILL
							GR		GRANITE: coarse textured, hard
	Ring	NR	NR	>100					BASEMENT ROCK
20									Bottom of Boring at 20 feet:
25									

Notes:
1. Caving to 11 feet
2. No seepage or groundwater encountered
3. Boring backfilled

NR - No Recovery

Global Geo-Engineering, Inc.
GEOLOGIC AND SOILS TESTING

Irvine, California

Sycamore Canyon Boulevard and
Dan Kipper Drive
Riverside, California

Project 5992-04

LOG OF BORING B-6

Date : November 6, 2014
Logged By : KBY
Diameter of Boring : 8"
Drilling Company : CAL PAC
Drilling Rig : Track R16

Drilling Method : Hollow Stem
Sampling Method : California Modified
Hammer Weight (lbs) : 140
Hammer Drop (in.) : 30

Sample Type: Ring; Bulk

Water Levels: Groundwater Encountered; Seepage Encountered

Depth in Feet	Sample	Field Moisture % Dry Weight	Dry Density lb./cubic ft.	Blow Count	Relative Comaction	Water Level	USCS	GRAPHIC	DESCRIPTION
0							SM		Silty SAND: fine to medium grained, olive gray, moist, medium dense to dense with rock inclusions
5	Ring	2.7	118.6	43					
10	Ring	1.8	122.6	45					@9' large rock inclusions
15	Ring	7.7	128.7	41					@14' olive to reddish brown
									FILL
							SM		Silty SAND: fine grained, reddish brown, moist, medium dense RESIDUAL SOIL
	Ring	7.6	123.5	>100			GR		GRANITE: coarse textured, hard
20									Bottom of Boring at 19.5 feet:

Notes:
1. Caving to 11 feet
2. No seepage or groundwater encountered
3. Boring backfilled

Figure B-7

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Global Geo-Engineering, Inc. GEOLOGIC AND SOILS TESTING Irvine, California	LOG OF BORING B-7	Drilling Method : Hollow Stem Sampling Method : California Modified Hammer Weight (lbs) : 140 Hammer Drop (In.) : 30
Sycamore Canyon Boulevard and Dan Kipper Drive Riverside, California Project 5992-04	Date : November 6, 2014 Logged By : KBY Diameter of Boring : 8" Drilling Company : CAL PAC Drilling Rig : Track R16	

Sample Type: Ring; Bulk

Water Levels: Groundwater Encountered; Seepage Encountered

Depth in Feet	Sample	Field Moisture % Dry Weight	Dry Density lb./cubic ft.	Blow Count	Relative Comaction	Water Level	USCS	GRAPHIC	DESCRIPTION
0							SM		Silty SAND: fine to medium grained, olive gray, moist, medium dense to dense
5	Ring	3.2	123.6	37					
10	Ring	8.3	122.2	64					
15	Ring	8.2	123.5	25					@14' dark olive gray, medium dense FILL
							GR		GRANITE: coarse textured, hard BASEMENT ROCK
20	Ring	NR	NR	>100					
25									

Bottom of Boring at 19.5 feet:

Notes:
1. Caving to 10 feet
2. No seepage or groundwater encountered
3. Boring backfilled

NR - No Recovery

Global Geo-Engineering, Inc. GEOLOGIC AND SOILS TESTING Irvine, California	LOG OF BORING P-1	Drilling Method : Hollow Stem Sampling Method : California Modified Hammer Weight (lbs) : 140 Hammer Drop (in.) : 30
Sycamore Canyon Boulevard and Dan Kipper Drive Riverside, California Project 5992-04	Date : November 6, 2014 Logged By : KBY Diameter of Boring : 8" Drilling Company : CAL PAC Drilling Rig : Truck Mounted	

Sample Type: Ring; Bulk

Water Levels: Groundwater Encountered; Seepage Encountered

Depth in Feet	Sample	Field Moisture % Dry Weight	Dry Density lb./cubic ft.	Blow Count	Relative Comaction	Water Level	USCS	GRAPHIC	DESCRIPTION
0							SM		Silty SAND: fine to medium grained, olive brown to olive gray, moist, medium dense to dense
	Ring	5.2	128.7	60					
5	Ring	4.3	130.4	46					FILL
									Bottom of Boring at 6 feet:
10									
15									
20									
25									

Notes:
1. No seepage or groundwater encountered
2. 3-inch diameter perforated pipe installed, 3/4-inch diameter placed around pipe
3. Pre-soaked for future percolation testing

11-24-2014 C:\Program Files (x86)\mtech2010\Boring Logs 2002 Edition\5992-04 CT Realty Dan Kipper - P-1.bor

Global Geo-Engineering, Inc.
GEOLOGIC AND SOILS TESTING
Irvine, California

Sycamore Canyon Boulevard and
Dan Kipper Drive
Riverside, California

Project 5992-04

LOG OF BORING P-2

Date : November 6, 2014
Logged By : KBY
Diameter of Boring : 8"
Drilling Company : CAL PAC
Drilling Rig : Truck Mounted

Drilling Method : Hollow Stem
Sampling Method : California Modified
Hammer Weight (lbs) : 140
Hammer Drop (In.) : 30

Sample Type: Ring; Bulk

Water Levels: Groundwater Encountered; Seepage Encountered

Depth in Feet	Sample	Field Moisture % Dry Weight	Dry Density lb./cubic ft.	Blow Count	Relative Comaction	Water Level	USCS	GRAPHIC	DESCRIPTION
0									Silty SAND: fine to medium grained, olive brown to olive gray, moist, medium dense to dense
	Ring	1.0	119.7	64					@2' with inclusions of granitic rock
5	Ring	5.9	128.8	65			SM		
10	Ring	9.8	123.6	45					FILL

Bottom of Boring at 11 feet:

Notes:
1. No seepage or groundwater encountered
2. 3-inch diameter perforated pipe installed, 3/4-inch diameter placed around pipe
3. Pre-soaked for future percolation testing

15

20

25

Figure B-10

11-24-2014 C:\Program Files (x86)\...tech2010\Boring Logs 2002 Edition\5992-04 CT Realty Dan Kipper - P-2.bor

Global Geo-Engineering, Inc. GEOLOGIC AND SOILS TESTING Irvine, California	LOG OF BORING P-3	Drilling Method : Hollow Stem Sampling Method : California Modified Hammer Weight (lbs) : 140 Hammer Drop (in.) : 30
Sycamore Canyon Boulevard and Dan Kipper Drive Riverside, California Project 5992-04	Date : November 6, 2014 Logged By : KBY Diameter of Boring : 8" Drilling Company : CAL PAC Drilling Rig : Truck Mounted	

Sample Type: Ring; Bulk

Water Levels: Groundwater Encountered; Seepage Encountered

Depth in Feet	Sample	Field Moisture % Dry Weight	Dry Density lb./cubic ft.	Blow Count	Relative Comaction	Water Level	USCS	GRAPHIC	DESCRIPTION
0							SM		Silty SAND: fine to medium grained, olive gray, moist, medium dense to dense
	Ring	6.3	120.8	41					
5	Ring	2.0	123.9	35					@5' olive brown to olive gray FILL
									Bottom of Boring at 6 feet: Notes: 1. No seepage or groundwater encountered 2. 3-inch diameter perforated pipe installed, 3/4-inch diameter placed around pipe 3. Pre-soaked for future percolation testing
10									
15									
20									
25									

11-24-2014 C:\Program Files (x86)\mtech2019\Boring Logs 2002 Editon\5992-04 CT Realty Dan Kipper - P-3.bor

Global Geo-Engineering, Inc.
GEOLOGIC AND SOILS TESTING
Irvine, California

Sycamore Canyon Boulevard and
Dan Kipper Drive
Riverside, California

Project 5992-04

LOG OF BORING P-4

Date	: November 6, 2014
Logged By	: KBY
Diameter of Boring	: 8"
Drilling Company	: CAL PAC
Drilling Rig	: Truck Mounted

Drilling Method	: Hollow Stem
Sampling Method	: California Modified
Hammer Weight (lbs)	: 140
Hammer Drop (in.)	: 30

Sample Type: Ring; Bulk

Water Levels: Groundwater Encountered; Seepage Encountered

Depth in Feet	Sample	Field Moisture % Dry Weight	Dry Density lb./cubic ft.	Blow Count	Relative Comaction	Water Level	USCS	GRAPHIC	DESCRIPTION
0							SM		Silty SAND: fine to medium grained, olive brown to olive gray, moist, medium dense to dense
	Ring	2.8	130.8	34					
5									FILL
	Ring	5.4	122.9	40					
									Bottom of Boring at 7 feet:
10									
15									
20									
25									

Notes:
1. No seepage or groundwater encountered
2. 3-inch diameter perforated pipe installed, 3/4-inch diameter placed around pipe
3. Pre-soaked for future percolation testing

Global Geo-Engineering, Inc. GEOLOGIC AND SOILS TESTING Irvine, California	LOG OF BORING P-5	Drilling Method : Hollow Stem Sampling Method : California Modified Hammer Weight (lbs) : 140 Hammer Drop (In.) : 30
Sycamore Canyon Boulevard and Dan Kipper Drive Riverside, California	Date : November 6, 2014 Logged By : KBY Diameter of Boring : 8" Drilling Company : CAL PAC Drilling Rig : Truck Mounted	
Project 5992-04		

Sample Type: Ring; Bulk

Water Levels: Groundwater Encountered; Seepage Encountered

Depth in Feet	Sample	Field Moisture % Dry Weight	Dry Density lb./cubic ft.	Blow Count	Relative Comaction	Water Level	USCS	GRAPHIC	DESCRIPTION
0							SM		Silty SAND: fine to coarse grained, olive gray, moist, medium dense to dense
	Ring	5.3	118.8	42					
5	Ring	4.1	126.8	42					FILL
									Bottom of Boring at 6 feet:
10									
15									
20									
25									

Notes:
1. No seepage or groundwater encountered
2. 3-inch diameter perforated pipe installed, 3/4-inch diameter placed around pipe
3. Pre-soaked for future percolation testing

APPENDIX C

Laboratory Testing Program

The laboratory-testing program was directed towards providing quantitative data relating to the relevant engineering properties of the soils. Samples considered representative of site conditions were tested as described below.

a) Moisture-Density

Moisture-density information usually provides a gross indication of soil consistency. Local variations at the time of the investigation can be delineated, and a correlation obtained between soils found on this site and nearby sites. The dry unit weights and field moisture contents were determined for selected samples. The results are shown on the Logs of Borings.

b) Compaction

Representative soil samples were tested in the laboratory to determine the maximum dry density and optimum moisture content, using the ASTM D1557 compaction test method. This test procedure requires 25 blows of a 10-pound hammer falling a height of 18 inches on each of five layers, in a 1/30 cubic foot cylinder. The results of the tests are presented below:

Boring No.	Sample Depth (ft)	Soil Description	Optimum Moisture Content (%)	Maximum Dry Density (lb/ft^3)
B-1	1-3	Silty SAND	7.0	135.5
B-1	5-7	Silty SAND	7.1	135.5

c) Direct Shear

Direct shear tests were conducted on remolded samples, using a direct shear machine at a constant rate of strain using ASTM D3080 Test Method. Variable normal or confining loads are applied vertically and the soil shear strengths are obtained at these loads. The angle of internal friction and the cohesion are then evaluated. The samples were tested at saturated moisture contents. The test results are shown in terms of the Coulomb shear strength parameters, as shown below:

Boring No.	**Sample Depth (ft)**	**Soil Description**	**Coulomb Cohesion (lb/ft^2)**	**Angle of Internal Friction (°)**	**Peak/ Residual**
P-2	2	Silty SAND	450 350	35 34	Peak Residual
P-5	2	Silty SAND	500 50	40 35	Peak Residual

d) Sulfate Content

Representative soil samples were analyzed for the sulphate content in accordance with California Test Method CA417. The results are given below:

Boring No.	**Sample Depth (ft)**	**Soil Description**	**Sulphate Content (%)**
B-4	2-3	Silty SAND	0.0043
P-1	2-3	Silty SAND	0.0062
P-4	2-3	Silty SAND	0.0036

e) Chloride Content

Representative soil sample were analyzed for chloride content in accordance with California Test Method CA422. The results are given below:

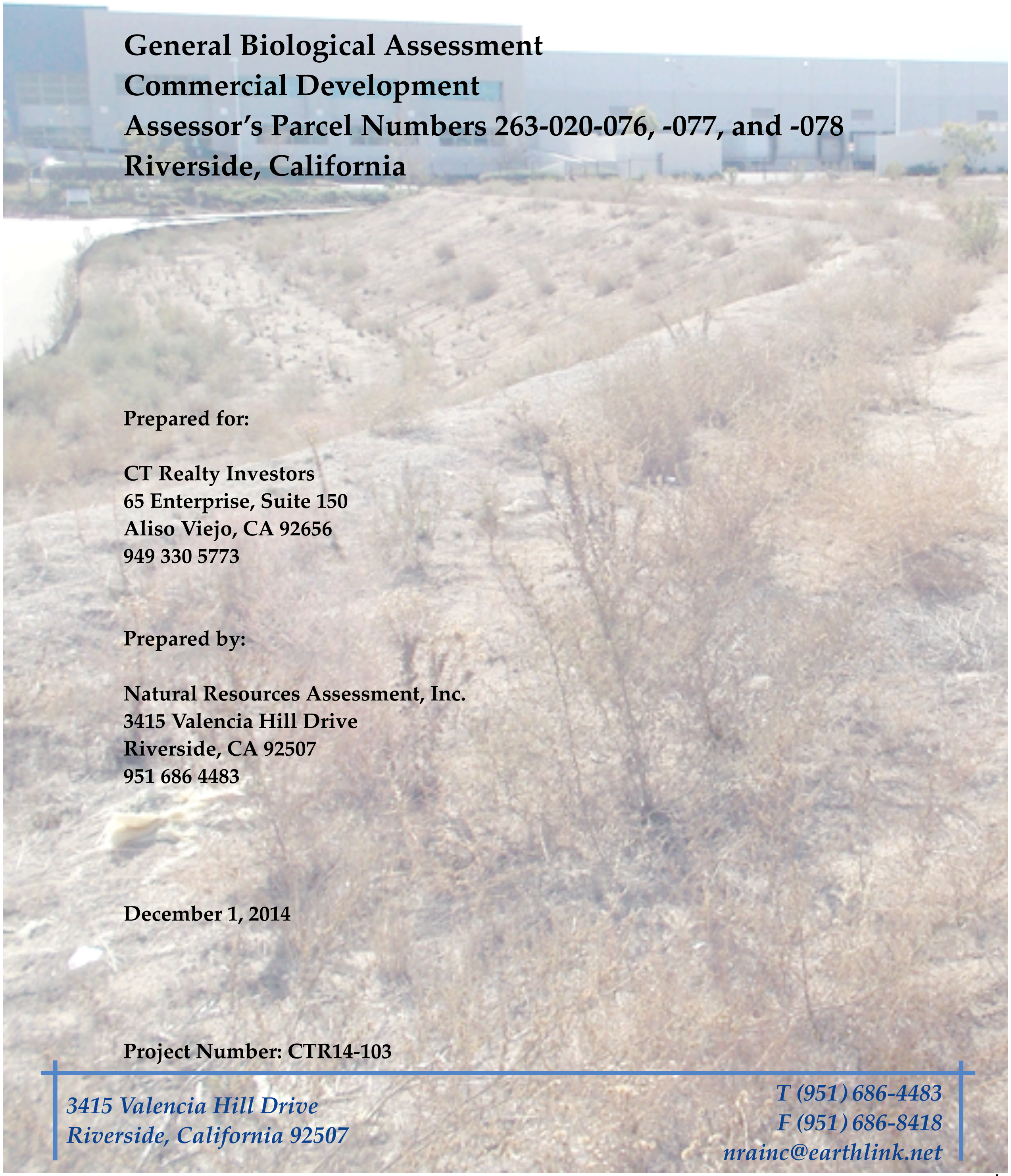
Boring No.	Sample Depth (ft)	Soil Description	Chloride Content (%)
B-4	2-3	Silty SAND	0.0076
P-1	2-3	Silty SAND	0.0066
P-4	2-3	Silty SAND	0.0050

f) Resistivity and pH

Representative soil samples were analyzed in accordance with California Test Methods CA532 and CA643 to determine the minimum resistivity and pH. The results are given below:

Boring No.	Sample Depth (ft)	Soil Description	pH	Minimum Resistivity (ohm-cm)
B-4	2-3	Silty SAND	7.7	20,205
P-1	2-3	Silty SAND	7.5	6,455
P-4	2-3	Silty SAND	7.6	12,458

NATURAL RESOURCES ASSESSMENT, INC.



General Biological Assessment
Commercial Development
Assessor's Parcel Numbers 263-020-076, -077, and -078
Riverside, California

Prepared for:

CT Realty Investors
65 Enterprise, Suite 150
Aliso Viejo, CA 92656
949 330 5773

Prepared by:

Natural Resources Assessment, Inc.
3415 Valencia Hill Drive
Riverside, CA 92507
951 686 4483

December 1, 2014

Project Number: CTR14-103

3415 Valencia Hill Drive
Riverside, California 92507

T (951) 686-4483
F (951) 686-8418
nrainc@earthlink.net

CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

K. Kirtland ______________________ December 1, 2014 ______
Karen Kirtland Date
Natural Resources Assessment, Inc.

Table of Contents

Page

Figures

Photos

Appendices

Executive Summary

Natural Resources Assessment, Inc. (NRAI) was contacted by CT Realty Investors to conduct a general biological assessment for a proposed commercial development project located in Riverside, California.

A data review was conducted to provide information on plant and wildlife species known occurrences within the vicinity, including a review of the Western Riverside County Multiple Species Habitat Conservation Plan.

NRAI subcontracted with SWCA Environmental Consultants to survey the site, evaluate the habitats present, and conduct a jurisdictional waters evaluation. Binoculars were used to aid in the identification of wildlife. All species identified by sight, call or sign (burrows, scat, tracks, etc.) were recorded. Site photographs were taken with a digital camera.

No burrowing owl were seen during the survey, but because this site supports suitable habitat for the burrowing owl, NRAI recommends a Take Avoidance survey.

The Take Avoidance survey method is based on California Department of Fish and Wildlife (CDFW) field experience from 1995 to 2012, that supports the conclusion "that it would be effective to complete an initial take avoidance survey no less than 14 days prior to initiating ground activities using the recommended methods described in the burrowing owl staff report prepared by the CDFW (California Department of Fish and Wildlife 2012a).

There are no jurisdictional waters that will be impacted by project development.

There are no riverine, riparian or vernal pool habitats that will be impacted by the project.

The project will not have direct or indirect construction-related impacts to raptor and migratory bird use of the site.

There will be no increase in habitat fragmentation or loss of wildlife corridors as a result of project construction.

1.0 Introduction

Natural Resources Assessment, Inc. (NRAI) was contacted by CT Realty Investors to conduct a general biological assessment for a proposed commercial development project located in Riverside, California. The purpose of the survey was to document the biological resources present onsite and to assess the potential for sensitive resources to occur on the property.

2.0 Site Location and Project Description

The commercial development is located in the City of Riverside along Dan Kipper Drive, north of Alessandro Boulevard, west of Sycamore Canyon Boulevard. Sycamore Canyon Boulevard forms the eastern boundary, and Dan Kipper Drive is along the southern boundary. An apartment complex lies along the northern border and open space is on the west (Figure 1 and 2).

The project is in Section 4, Township 3 south, Range 4 west, on the Riverside East 7.5' U. S. Geological Survey (USGS) topographic quadrangle, San Bernardino base and meridian (Figure 1).

The proposed project is an office and warehouse commercial development.

3.0 Methods

3.1 Data Review

A data search was conducted to provide information on plant and wildlife species known occurrences within the vicinity. This review included biological texts on general and specific biological resources, and those resources considered to be sensitive by various wildlife agencies, local governmental agencies and interest groups. The documents reviewed include:

- Information provided by the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) for the project study area, Assessor's Parcel Number (APN) 263-020-076, -077, and -078.
- General texts and other documents identifying potential resources on the property

NRAI also reviewed other available technical information on the biological resources of the site. We used the information to focus our survey efforts in the field.

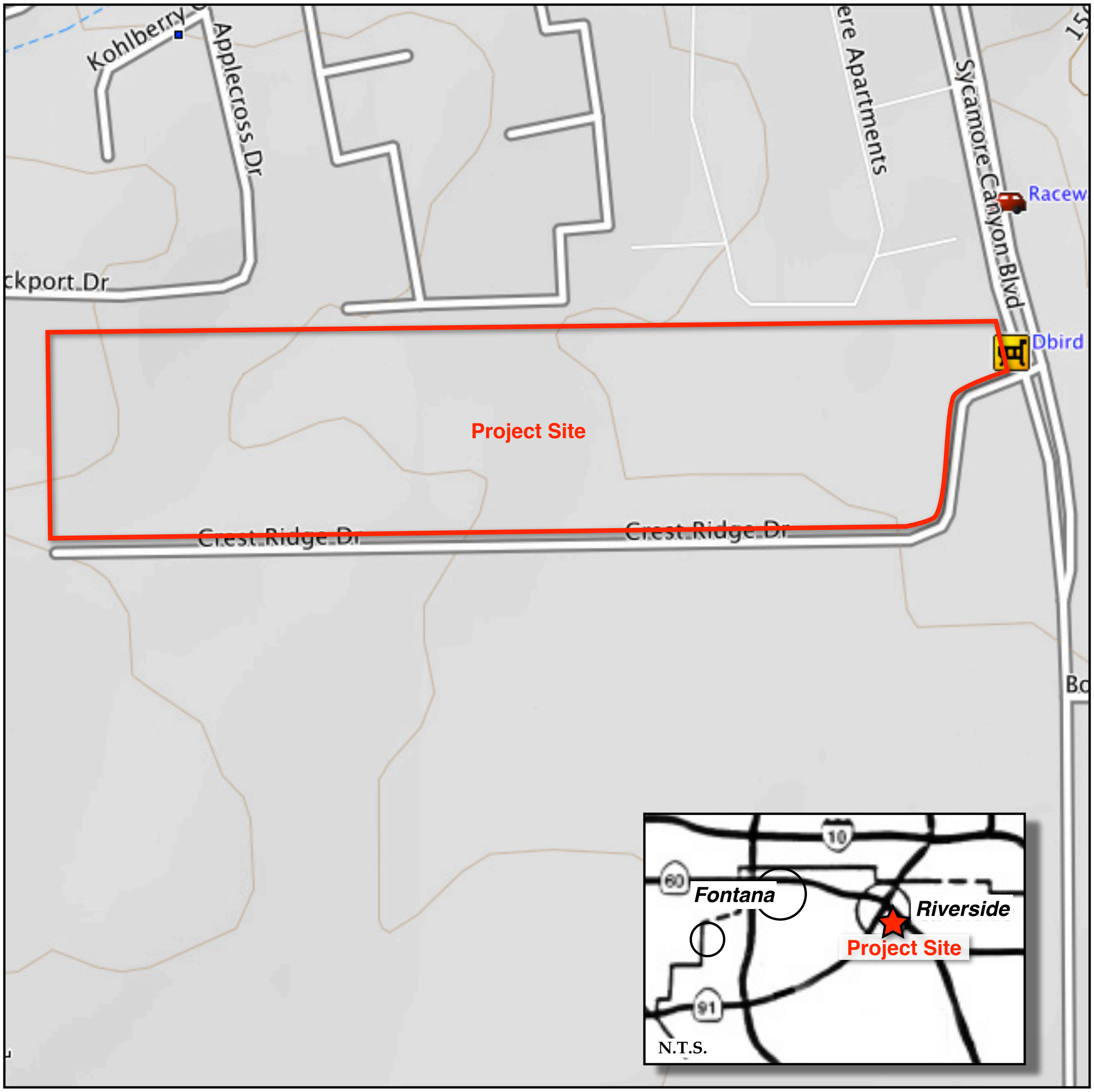
The existing conditions within the site were recorded, paying specific attention to habitats that may potentially support sensitive species identified by the MSHCP.

3.2 Field Surveys

NRAI subcontracted with SWCA Environmental Consultants (SWCA) to conduct the field work. Field surveys were conducted by Ms. French Massarotto of SWCA on November 24, 2014. Ms. Massarotto surveyed 100 percent of the project area to document biological resources and to record habitat conditions.

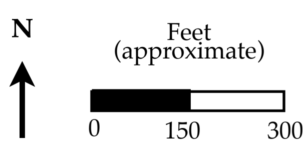
Ms. Massarotto focused her survey efforts on sensitive biological resources, and included observations of potential habitat for sensitive species. During the surveys, she made notes on the plant and animal species observed, the surface characteristics and topography of the project study area, and the suitability of the habitat for sensitive species.

Ms. Massarotto used binoculars were used to aid in the identification of wildlife. All species identified by sight, call or sign (burrows, scat, tracks, etc.) were recorded. Site photographs were taken with a digital camera.



Map Base: Riverside East (date unknown) 7.5′
USGS topographic quadrangle

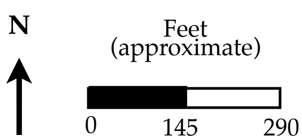
Figure 1. Project Location and Site Vicinity



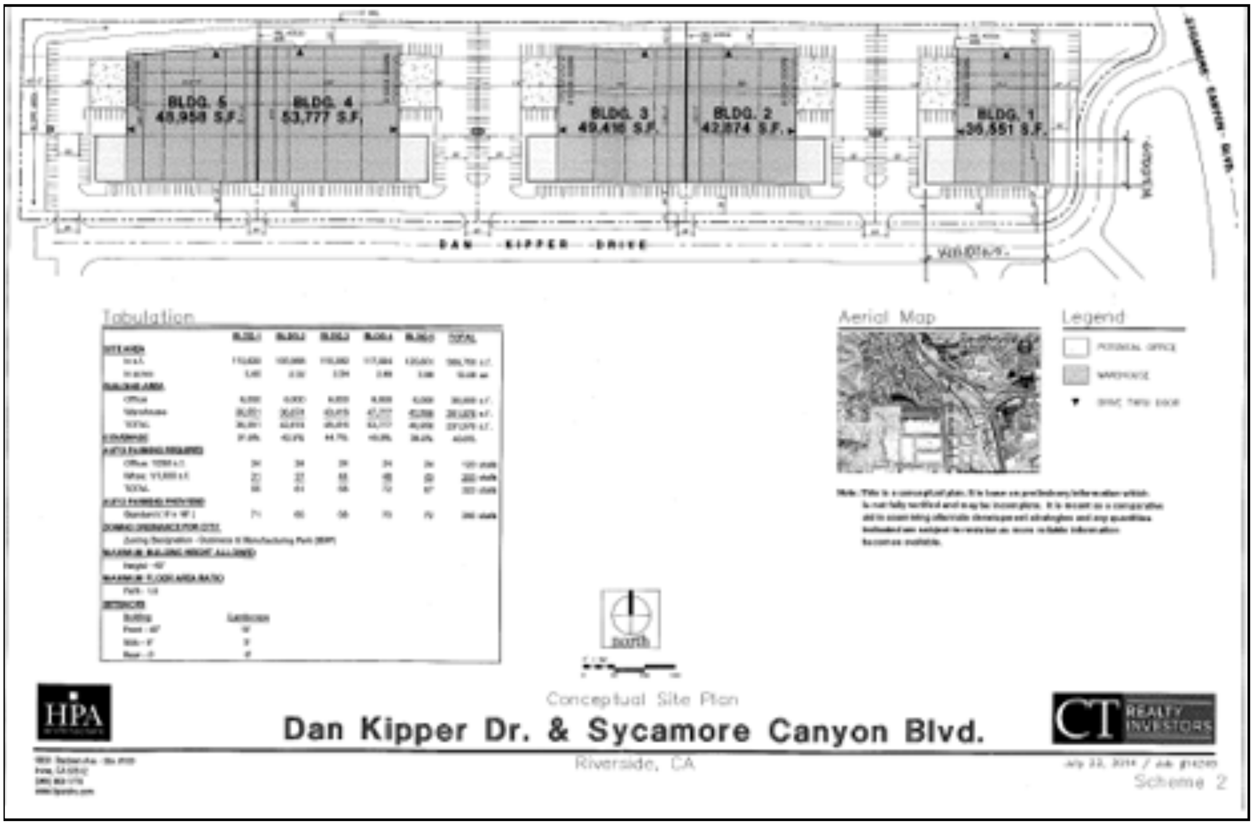
Office and Warehouse
Commercial Development
Riverside, California

Map source: Google Earth 2012

Figure 2. Project Aerial



Office and Warehouse
Commercial Development
Riverside, California



Map source: Google Earth 2012

Figure 3. Proposed Project Layout

Office and Warehouse
Commercial Development
Riverside, California

3.3 Drainages and Wetlands

Ms. Massarotto conducted a jurisdictional evaluation of the project to determine whether there were wetlands and waters subject to jurisdiction by the U. S. Army Corps of Engineers (Corps) under Section 404 of the Clean Water Act, California Department of Fish and Wildlife (CDFW) under Sections 1600 et seq. of the California Fish and Game Code, and the State Water Resources Control Board regulations. We also surveyed for Riparian/Riverine Areas/Vernal Pools, and fairy shrimp habitat per the requirements of the MSHCP.

4.0 Results

4.1 Weather Conditions, Topography, and Soils

The temperature at the start of the survey was 66 (degrees Fahrenheit), fifteen percent scattered cirrus clouds, and no wind. At the end of the survey the temperature was 72 (degrees Fahrenheit), 35 percent scattered cirrus and winds of less than one mile per hour.

The overall topography is flat, but the site has been graded into depressions and rises for a former use in the past.

There are four soils found onsite (Soil Survey Staff 2014). The first soil is Cieneba sandy loam, an eroded soil found on slopes of eight to fifteen percent. This is a soil that typically occurs on hills, and is made up of residuum weathered from igneous rock parent material. This soil is classified as somewhat excessively drained. Cieneba sandy loam forms the western third of the soils on the project site.

The second soil is Hanford coarse sandy loam found on slopes of two to eight percent. It is found on alluvial fans and is formed of alluvium derived from granite. Hanford coarse sandy loam is classified as a well drained soil. This soil is found in the north central area of the project site.

The third soil is Fallbrook fine sandy loam. This is an eroded, shallow soil found on eight to fifteen percent slopes. It is found on hills and is made up of residuum weathered from granodiorite and/or residuum weathered from tonalite. It is classified as a well-drained soil. On site, it occupies most of the southern half of the site.

The fourth soil is Monserate sandy loam. It is found on zero to eight percent slopes. It is found on alluvial fans and is formed of alluvium derived from granite, and is classified as a well-drained soil. On site, it occupies the approximately eastern one third of the site.

4.2 Disturbances

The site has been disturbed by grading, disking, and trash dumping (Photo 1). There are several piles of excavated material dumped on site as well. The site is mostly surrounded by existing commercial development (Figure 1 is out of date).

4.3 Plant Communities

The dominant plant community on site is a mix of scattered sage scrub and ruderal (weedy plants). The scrub habitat is dominated by California buckwheat (*Eriogonum fasciculatum*), with scattered individuals of desert brittlebush (*Encelia farinosa*) (Photo 2). The ruderal plant community is composed of native and non-native weeds such as red brome (*Bromus diandrus*), deerweed (*Acmipson glaber*), doveweed (*Croton setiger*), (slender wild oats *(Avena barbata*), white tumbleweed (*Amaranthus albus*), telegraph weed (*Heterotheca grandiflora*), and short-podded mustard (*Hirschfeldia incana*) (Photo 3).

4.4 Wildlife

Observations of wildlife included scat, trails, tracks, burrows, skeletal remains, calls and visual sightings. Wildlife species on site were dominated by birds. Species observed included western meadowlark (*Sturnella negelcta*), Anna's hummingbird (*Calypte anna*), house finch (*Haemorhous mexicanus*), Audubon's cottontail (*Sylvilagus audubonii*), and Beechey ground squirrel (*Spermophilus beecheyi*).

4.5 Sensitive Biological Resources

The MSHCP identified the project study area has potentially having habitat for the burrowing owl (*Athene cunicularia*). In addition, the MSHCP requires an assessment of jurisdictional waters, riverine and riparian habitats, as well as vernal pools and the potential for fairy shrimp habitat to be present on the project site.

Please see Appendix B for the definitions of listing status.

4.5.1 Burrowing Owl

The burrowing owl (*Athene cunicularia hypogea*) is a resident species in lowland areas of southern California (Garrett & Dunn 1980). It prefers open areas for foraging and burrowing, and is found widely scattered in open desert scrub. This species is scarce in coastal areas, being found mainly in agricultural and grassland habitats. The largest remaining numbers are in the Imperial Valley, where it is common in suitable habitat adjacent to the agricultural fields.

Photo 1. Disked area of the property. Middle of the property looking northwest.

Photo 2. Sparse coastal sage scrub habitat.

Photo 3. Ruderal plant community. Southern boundary looking north along Sycamore Canyon Boulevard.

The burrowing owl prefers large flat open areas for nesting and hunting (Garrett & Dunn 1981). The burrowing owl lives in burrows in the ground in grassy or sparse shrubby habitat. It forages low over the ground surface for insect prey, and seldom flies very high in the air.

As a result of coastal development, the burrowing owl is declining in coastal habitats. The CDFW has designated the burrowing owl as a California Species of Special Concern (CSC). These species are so designated because "declining population levels, limited ranges and/or continuing threats have made them vulnerable to extinction." (California Department of Fish and Game 2012).

Project Findings

No owls or occupied burrows were seen, but there is poor quality habitat for burrowing owls. Burrowing owls could move on to the site in the future, if the site were left fallow. There is suitable foraging and nesting habitat in the open area to the west, as well as some foraging areas on site.

4.5.2 Vernal Pool Fairy Shrimp

Vernal pool fairy shrimp (*Branchinecta lynchi*) is found in grasslands in ponded areas such as vernal pools, cattle watering holes, basins, etc. Fairy shrimp are confined to temporary pools that fill in spring and evaporate by late spring to early summer.

In southern California, this species is found primarily in the interior of western Riverside County, central Santa Barbara County, and eastern Orange County and more recently in Los Angeles County.

Since most pools preferred by fairy shrimp are found in flat areas, many have been lost to agricultural activities and residential development. The limited extent of available habitat, plus the ongoing loss has resulted in the vernal pool fairy shrimp being listed as threatened by the USFWS.

Project Findings

There is no vernal pool fairy shrimp habitat on the property. There are no grasslands on site. The soils are all well-drained to somewhat excessively drained, and water retention is very short. In addition, there are no clay or similar hard-packed surface soils that might retain water long enough to support fairy shrimp. No vernal pool fairy shrimp habitat was observed and none is expected to be present.

4.5.3 Riverside Fairy Shrimp

Riverside fairy shrimp (*Streptocephalus woottoni*) are known only from ephemeral pools in farmlands and similar open, flat terrain. Fairy shrimp are confined to temporary pools that fill in spring and evaporate by late spring to early summer.

The Riverside fairy shrimp is known only from southern Orange and western Riverside and San Diego Counties. Ongoing farming and development in these areas has resulted in the loss and degradation of these habitats. Therefore, the USFWS has listed the Riverside fairy shrimp as endangered.

Project Findings

There is no Riverside pool fairy shrimp habitat on the property. There are no grasslands on site. The soils are all well-drained to somewhat excessively drained, and water retention is very short. In addition, there are no clay or similar hard-packed surface soils that might retain water long enough to support fairy shrimp. No Riverside pool fairy shrimp habitat was observed and none is expected to be present.

4.6 Jurisdictional Waters

4.6.1 Army Corps of Engineers

The Corps regulates discharges of dredged or fill material into waters of the United States. These watershed include wetlands and non-wetland bodies of water that meet specific criteria. The lateral limit of Corps jurisdiction extends to the Ordinary High Water Mark (OHWM) and to any wetland areas extending beyond the OHWM; thus, the maximum jurisdictional area is represented by the OHWM or wetland limit, whichever is greater.

Corps regulatory jurisdiction pursuant to Section 404 of the Clean Water Act is founded on a connection or nexus between the water body in question and interstate (waterway) commerce. This connection may be direct, through a tributary system linking a stream channel with traditional navigable waters used in interstate or foreign commerce, or may be indirect, through a nexus identified in the Corps regulations.

Project Findings

There are no drainages, streams or other waterways on site, and no wetland habitat is present that would come under the jurisdiction of the Corps.

4.6.2 Regional Water Quality Control Board

The Corps has delegated the authority for use of 404 permits to each individual state. The use of a 404 permit in California is regulated by the State Regional Water Quality Control Board (RWQCB) under Section 401 of the Clean Water Act regulations. The Board has authority to issue a 401 permit that allows the use of a 404 permit in the state, with the authority in the state being vested in regional offices.

Under the Porter-Cologne Act of 2003, (Act) the RWQCB has extended its responsibilities to include impacts to water quality from non-point source pollution.

In addition, the RWQCB has the responsibility to require that projects address ground water and water quality issues, which would be evaluated as part of the geotechnical and hydrology studies. Their authority extends to all waters of the State (of California).

The Act identifies beneficial uses of waters of the state that the RWQCB use to evaluate jurisdiction. These beneficial uses (BUs) include: Warm Freshwater Habitat (WARM), Wildlife Habitat (WILD), Groundwater Recharge (GWR), Agricultural Supply (AGR), and Non-Contact Water Recreation (REC2) (which is limited by fencing), beneficial use of "rare, threatened or endangered species habitat", Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Service Supply (IND), and Industrial Process Supply (PROC).

Project Findings

There are no streams, creeks or similar waterways on site that would come under the jurisdiction of the RWQCB.

4.6.3 California Department of Fish and Wildlife

The CDFW, through provisions of the State of California Administrative Code, is empowered to issue agreements for any alteration of a river, stream or lake where fish or wildlife resources may adversely be affected. Streams (and rivers) are defined by the presence of a channel bed and banks, and at least an intermittent flow of water. Lateral limits of jurisdiction are not clearly defined, but generally include any riparian resources associated with a stream or lake, CDFW regulates wetland areas only if those wetlands are part of a river, stream or lake as defined by CDFW.

Project Findings

There are no streams, creeks, washes, or similar waterways that would come under the jurisdiction of the CDFW.

4.7 Riverine, Riparian, and Vernal Pool Habitats

The MSHCP requires an evaluation of the site for riverine, riparian and vernal pool habitats. These habitats include waters under the jurisdiction of the Corps, CDFW and RWQCB, but also include waters that may not fall under the jurisdiction of these agencies, such as vernal pools.

Project Findings

The project site does not have any riverine, vernal pool or fairy shrimp habitats. The soil is primarily sandy loams that drain water.

4.8 Raptors, Migratory Birds, and Habitat

Most of the raptor species (eagles, hawks, falcons and owls) are experiencing population declines as a result of habitat loss. Some, such as the peregrine falcon, have also experienced population losses as a result of environmental toxins affecting reproductive success, animals destroyed as pests or collected for falconry, and other direct impacts on individuals. Only a few species, such as the red-tailed hawk and barn owl, have expanded their range in spite of or a result of human modifications to the environment. As a group, raptors are of concern to state and federal agencies.

Raptors and all migratory bird species, whether listed or not, also receive protection under the Migratory Bird Treaty Act (MBTA) of 1918. The MBTA prohibits individuals to kill, take, possess or sell any migratory bird, bird parts (including nests and eggs) except according to regulations prescribed by the Secretary of the Interior Department (16 U. S. Code 703).

Additional protection is provided to all bald and golden eagles under the Bald and Golden Eagle Protection Act of 1940, as amended. State protection is extended to all birds of prey by the California Department Fish and Game Code, Section 2503.5. No take is allowed under these provisions except through the approval of the agencies or their designated representatives.

Project Findings

The project provides no substantial shrub habitat for nesting species, and no large trees or substantial groves exist on site. The site is located in a primarily commercial area, and natural habitat is relatively limited. No nesting of raptors or migratory bird species was observed during the survey.

4.9 Habitat Fragmentation and Wildlife Movement

Wildlife movement and the fragmentation of wildlife habitat are recognized as important issues that must be considered in assessing impacts to wildlife. In summary, habitat fragmentation is the division or breaking up of larger habitat areas into smaller areas that may or may not be capable of independently sustaining wildlife and plant populations. Wildlife movement (more properly recognized as species movement) is the temporal movement of species along various types of corridors. Wildlife corridors are especially important for connecting fragmented wildlife habitat areas.

Project Findings

The project is within a mixed residential and commercially developed area. Habitat fragmentation has already occurred.

The location of the proposed project within an almost entirely residential and commercial area has eliminated substantial wildlife movement through this area.

5.0 Discussion

5.1 General Biological Resources

Impacts to general biological resources are minimal and no mitigation is required.

5.2 Burrowing Owl

Most of the available habitat is poor and is located within human use area, making it unlikely, but not impossible, that birds will nest in suitable habitat on site. Based on these considerations, we recommend that a Take Avoidance Survey method be conducted for the project.

The Take Avoidance survey method is based on CDFW field experience from 1995 to 2012, that supports the conclusion "that it would be effective to complete an initial take avoidance survey no less than 14 days prior to initiating ground activities using the recommended methods described in the burrowing owl staff report prepared by the CDFW (California Department of Fish and Wildlife 2012a). Implementation of avoidance and minimization measures would be triggered by positive owl presence on the site where project activities will occur. The development of avoidance and minimization approaches would be informed by monitoring the burrowing owls.

Burrowing owls may re-colonize a site after only a few days. Time lapses between project activities trigger subsequent take avoidance surveys including but not limited to a final survey conducted within 24 hours prior to ground disturbance." (California Department of Fish and Game 2012a).

5.3 Vernal Pool Fairy Shrimp and Riverside Fairy Shrimp

No impacts to shrimp habitat exists will occur and no mitigation is required.

5.4 Jurisdictional Waters

There are no jurisdictional waters present on site, and no further action is required.

5.5 Riverine/Riparian, and Vernal Pools

The project will not impact riparian or vernal pool habitats, and no mitigation is required.

5.6 Raptor and Migratory Bird Species

No nests were observed, but it is possible nesting was occurring during the survey. Given the location of the property in a mostly developed area, there will be no significant impacts to nesting birds.

5.7 Habitat Fragmentation and Wildlife Corridors

The project will not significantly add to habitat fragmentation or impact wildlife corridors.

6.0 References

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Appendix A - Plants and Animals Observed

Plants

*indicates non-native species

ANGIOSPERMAE: DICOTYLEDONES	DICOT FLOWERING PLANTS
Amaranthaceae	**Amaranthus family**
**Amaranthus albus*	White tumbleweed
Asteraceae	**Sunflower family**
Baccharis salicifolia	Mulefat (isolated individuals)
**Conyza canadensis*	Horseweed
Corethrogyne filaginifolia	Cudweed aster
Encelia farinosa	Desert brittlebush
Ericameria cooperi	Cooper's goldebush
Hemizonia fasciculata	Common tarweed
Heterotheca grandiflora	Telegraph weed
Brassicaceae	**Mustard family**
**Hirschfeldia incana*	Short-podded mustard
Chenopodiaceae	**Saltbush family**
**Salsola tragus*	Russian thistle
Euphorbiaceae	**Spurge family**
Croton setiger	Doveweed
Fabaceae	**Pea family**
Acmipson glaber	Deer weed
Geraniaceae	**Geranium family**
**Erodium cicutarium*	Red-stemmed filaree
Lamiaceae	**Mint family**
Trichostema lanceolatum	Vinegar weed
Malvaceae	**Mallow family**
**Malva parviflora*	Cheeseweed
Polygonaceae	**Buckwheat family**
Eriogonum fasciculatum var. foliolosum	Interior California buckwheat
Salicaceae	**Willow family**
Salix lasiolepis	Arroyo willow
Solanaceae	**Nightshade family**
Nicotiana glauca	Indian tobacco
ANGIOSPERMAE: MONOCOTYLEDONAE	**MONOCOT FLOWERING PLANTS**
Poaceae	**Grass family**
**Bromus madritensis* ssp. *rubens*	Red brome
**Schismus barbatus*	Mediterranean grass

Taxonomy and nomenclature follow Hickman 1993 and Munz 1974.

Animals

AVES	**BIRDS**
Accipitridae	**Kites, hawks and eagles**
Buteo jamaicensis	Red-tailed hawk
Falconidae	**Caracaras and falcons**
Falco sparverius	American kestrel
Trochlidae	**Hummingbirds**
Calypte anna	Anna's hummingbird
Selasphorus sp.	Selasphorus hummingbird
Tyrannidae	**Tyrant flycatchers**
Sayornis nigricans	Black phoebe
Myiarchus cinerascens	Ash-throated flycatcher
Tyrannus verticaulis	Western kingbird
Alaudidae	**Larks**
Eremophila alpestris	Horned lark
Aegithalidae	**Bushtits**
Psaltriparus minimus	Bushtit
Sylviidae	**Old World warblers, gnatcatchers and allies**
Regulus calendula	Ruby-crowned kinglet
Icteridae	**Blackbirds, orioles and relatives**
Sturnella neglecta	Western meadowlark
Parulidae	**Wood warblers**
Dendroica coronata	Yellow-rumped warbler
Fringillidae	**Finches**
Haemorhous mexicanus	House finch
Carduelis psaltria	Lesser goldfinch
MAMMALIA	**MAMMALS**
Leporidae	**Rabbits and hares**
Sylvilagus audubonii	Audubon's cottontail
Sciuridae	**Squirrels, chipmunks and marmots**
Spermophilus beecheyi	California ground squirrel
Geomyidae	**Pocket gophers**
Thomomys bottae	Botta's pocket gopher
Canidae	**Foxes, wolves and relatives**
Canis latrans	Coyote

Nomenclature follows Hall 1981, Grenfell et al., and Stebbins 1966.

Appendix B - Definitions of Species Status Classification

Federal Classifications

END	Taxa listed as endangered
THR	Taxa listed as threatened
PE	Taxa proposed to be listed as endangered
PT	Taxa proposed to be listed as threatened
C2*	The U.S. Fish and Wildlife Service (USFWS) revised its classifications of candidate taxa (species, subspecies, and other taxonomic designations). The former designation of "Category 2 Candidate for listing" has been discontinued. The USFWS will continue to assess the need for protection of these taxa and may, in the future, designate such taxa as Candidates. NRAI has noted the change in species status by marking with an asterisk (*) those C2 candidates that were removed from the list.
C	Candidate for listing. Refers to taxa for which the USFWS has sufficient information to support a proposal to list as Endangered or Threatened and issuance of the proposal is anticipated but precluded at this time.
ND	Not designated as a sensitive species

State Classifications

END	Taxa listed as endangered
THR	Taxa listed as threatened
CE	Candidate for endangered listing
CT	Candidate for threatened listing
CFP	California Fully Protected. Species legally protected under special legislation enacted prior to the California Endangered Species Act.
SSC	California Species of Special Concern. Taxa with populations declining seriously or that are otherwise highly vulnerable to human development.
SA	Special Animal. Taxa of concern to the California Natural Diversity Data Base regardless of their current legal or protected status.
ND	Not designated as a sensitive species