



REVISED TRAFFIC IMPACT ANALYSIS

SYCAMORE CANYON INDUSTRIAL BUILDINGS 1&2
(P14-1072)



CITY OF
RIVERSIDE

May 2016



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May 24, 2016

Mr. Kyle Smith
City of Riverside – Planning Department
3900 Main Street, 3rd Floor
Riverside, CA 92522

RE: Revised Traffic Impact Analysis Report, Sycamore Canyon Industrial Buildings
1 & 2 (P14-0172), City of Riverside, CA.

Dear Mr. Smith,

We are pleased to submit herewith our Revised Traffic Impact Analysis Report for
the proposed Sycamore Canyon Industrial Buildings 1 & 2 (P14-0172) which we
have prepared at your request.

If you have any questions regarding this report, please call the undersigned for
clarification.

Sincerely yours,

ALBERT A. WEBB ASSOCIATES

A handwritten signature in blue ink, appearing to read "Grace Cheng".

Grace Cheng, P.E.
Associate Engineer

A handwritten signature in blue ink, appearing to read "Myung Choo".

Myung Choo, P.E., T.E.
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EXECUTIVE SUMMARY

▪ Purpose of Report and Study Objectives

The purpose of this study is to evaluate the effects on traffic circulation produced from the proposed development of Sycamore Canyon Industrial Buildings 1 & 2 in the City of Riverside.

The objectives of this study include the following:

- Document existing traffic conditions in the vicinity of the proposed development;
- Determine the traffic generated from the proposed development;
- Evaluate existing plus project traffic conditions;
- Evaluate existing plus ambient growth plus project traffic conditions;
- Evaluate existing plus ambient growth plus other cumulative projects plus project traffic conditions;
- Determine if the level of service (LOS) required by the City of Riverside General Plan will be maintained at all study area intersections, and if not, determine feasible mitigation measures that will be necessary to avoid or reduce the impact;
- Determine if the level of service (LOS) required by Caltrans will be maintained at all study area freeway ramps, and if not, determine feasible mitigation measures that will be necessary to avoid or reduce the impact;
- Determine if peak hour traffic signal warrants are met for any of the unsignalized study area intersections;
- Evaluate the adequacy of on-site circulation for the proposed development;
- Determine if safety and/or operational improvements are necessary due to the proposed development;

▪ Site Location and Study Area

The proposed project is located in the City of Riverside. Sycamore Canyon Industrial Buildings 1 & 2 are located on the northwest corner of Sierra Ridge Drive and Lance Drive.

▪ Development Description

Project Size

The project site encompasses approximately 72.0 acres. The project is currently proposed for development of a 1,012,999 square feet of gross floor area high-cube warehouse and a 420,604 square feet of gross floor area high-cube warehouse.

Project Trip Generation

The proposed project is anticipated to generate approximately 3,801 daily trip-ends, including 223 trip-ends during the AM peak hour and 260 trip-ends during the PM peak hour in passenger car equivalence (PCE).

Project Site Circulation

The project will have access to Lance Drive east of the project and Sierra Ridge Drive south of the project. The project will also have limited access to Dan Kipper Drive north of the project. No vehicle type restrictions are proposed for the project driveways on Lance Drive and all project driveways are expected to be utilized by both passenger cars and trucks.

After a preliminary analysis of the possibility of using Dan Kipper Drive as a point of egress for passenger cars and/or trucks, it was determined based on future nearby development of the area, the existing and future geometry of the intersection and nearby intersections, that it would not be advantageous for the Project or for the City to allow the Project egress at Dan Kipper Drive. Therefore, the traffic analysis assumes the trip distribution of vehicles as shown in the directional distribution figures in the report, i.e. without project egress at Dan Kipper Drive and left turns onto Dan Kipper Drive from Sycamore Canyon Boulevard.

Project Zoning and Land Use

The existing and proposed zoning and land use designations are as follows:

- Existing Zoning: BMP - Industrial
- Proposed Zoning: BMP - Industrial
- Existing Land Use: Vacant
- Proposed Land Use: Industrial

■ Principal Findings

Prior to the preparation of this report, the City of Riverside Traffic Engineering Division and the California Department of Transportation (Caltrans) was solicited for input and approval of key assumptions used in the analysis of this traffic impact analysis. The approved scoping agreement or correspondence with these entities is included in Appendix A.

***Required Level of Service**

According to the City of Riverside Traffic Impact Analysis Guidelines, Exhibit F:

City of Riverside allows Level of Service (LOS) D to be used as the maximum acceptable threshold for the study intersections and roadways of Collector or higher classification. LOS C is to be maintained on all street intersections. For projects in conformance with the General Plan, a significant impact occurs at a study intersection when the peak hour LOS falls below C, or D per CCM-2.3 as noted below. For projects that propose uses or intensities above that contained in the General Plan, a significant impact at a study intersection is when the addition of project related trips causes either peak hour LOS to degrade from acceptable (LOS A thru D) to unacceptable levels (E or F) or the peak hour delay to increase as follows:

LOS A/B = By 10.0 seconds

LOS C = By 8.0 seconds

LOS D = By 5.0 seconds

LOS E = By 2.0 seconds

LOS F = By 1.0 seconds

City of Riverside General Plan 2025 Policy CCM-2.3:

Maintain LOS D or better on Arterial Streets wherever possible. At key locations, such as City Arterials that are used by regional freeway bypass traffic and at heavily traveled freeway interchanges, allow LOS E at peak hours as the acceptable standard on a case-by-case basis.

Since the project does not propose a use or intensity above that contained in the general plan, study intersections will be analyzed per CCM-2.3.

According to the Caltrans' *Guide for the Preparation of Traffic Impact Studies* Section II:

The LOS for operating State highway facilities is based upon Measures of Effectiveness (MOE) identified in the Highway Capacity Manual (HCM). Caltrans endeavors to maintain a target LOS at the transition between LOS “C” and LOS “D” on State highway facilities; however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. If an existing State highway facility is operating at less than this target LOS, the existing MOE should be maintained. In general, the region-wide goal for an acceptable LOS on all freeways, roadway segments, and intersections is “D”. For undeveloped or not densely developed locations, the goal may be to achieve LOS “C”.

Therefore, the target LOS for freeway segments, roadway segments, and roadway intersections will be considered “D” for consistency with the region-wide goal. Any highway facility operating at less than “D” will be maintained at the existing LOS.

Levels of Service – Existing Conditions (2015)

The existing levels of service for the study area intersections vary from LOS B to D. None of the study area intersections operate at an unacceptable LOS. The study area freeway segments operate at levels of service that vary from LOS B to D. None of the study area freeway segments operate at an unacceptable LOS.

Levels of Service – Existing Plus Project Conditions (2015)

For existing plus project traffic conditions without off-site improvements, the study area intersections are expected to operate at levels of service that vary from LOS B to D. None of the study area intersections would operate at an unacceptable LOS. The study area freeway segments are expected to operate at levels of service that vary from LOS B to D. None of the study area freeway segments would operate at an unacceptable LOS.

With the existing geometrics presented in Table 6-1, Table 6-2, and Figure 6-A, levels of service at the impacted study area intersections would meet the required level of service.

Levels of Service – Existing Plus Ambient Growth Plus Project Conditions (2018)

For existing plus ambient growth plus project traffic conditions without off-site improvements, the study area intersections are expected to operate at levels of service that vary from LOS B to D. None of the study area intersections would operate at an unacceptable LOS. The study area freeway segments are expected to operate at levels of service that vary from LOS B to E. The following study area freeway segment would operate at an unacceptable LOS:

I-215 Northbound

1. Eastridge Ave-Eucalyptus Ave Off-Ramp

With the existing and under construction geometrics presented in Table 6-3, Table 6-4, and Figure 6-B, levels of service at the impacted study area intersections would meet the required level of service.

Levels of Service – Existing Plus Ambient Growth Plus Cumulative Plus Project Conditions (2018)

For existing plus ambient growth plus cumulative plus project traffic conditions without off-site improvements, the study area intersections are expected to operate at levels of service that vary from LOS B to F. The following study area intersection would operate at an unacceptable LOS:

4. Sycamore Canyon Boulevard (NS) / Dan Kipper Drive (EW)

The study area freeway segments are expected to operate at levels of service that vary from LOS B to F. The following study area freeway segment would operate at an unacceptable LOS:

I-215 Northbound

1. Eastridge Ave-Eucalyptus Ave Off-Ramp
3. Fair Isle-Box Springs On-Ramp

With the existing and under construction improvements presented in Table 6-5, Table 6-6, and Figure 6-C, levels of service at the impacted study area intersections could be improved to meet the required level of service.

▪ Traffic Signal Warrants

The California MUTCD states that the satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal. Peak hour traffic signal warrant analysis should only be considered as an “indicator” of the likelihood of an unsignalized intersection warranting a traffic signal. Intersections that exceed the peak hour warrant are more likely to meet one or more of the other volume based signal warrants. The Manual on Uniform Traffic Control Devices (MUTCD) also advises that a traffic control signal should not be installed unless:

- One or more of the traffic signal warrants is satisfied;
- An engineering study indicates that installing a traffic control signal will improve the overall safety and/or operation of the intersection; and
- It will not seriously disrupt progressive traffic flow.

For existing traffic conditions, the peak hour traffic control signal warrant is not satisfied for any of the study area unsignalized intersections (see Appendix D for technical calculations).

For existing plus project traffic conditions, no study area unsignalized intersections are expected to meet the peak hour traffic control signal warrant (see Appendix D for technical calculations).

For existing plus ambient growth plus project traffic conditions, no study area unsignalized intersections are expected to meet the peak hour traffic control signal warrant (see Appendix D for technical calculations).

For existing plus ambient growth plus cumulative plus project traffic conditions, no study area unsignalized intersections are expected to meet the peak hour traffic control signal warrant (see Appendix D for technical calculations).

▪ Circulation Recommendations

This traffic impact analysis demonstrates that improvements can be made by the project for its direct traffic impacts. To meet the required level of service, the following improvements are recommended:

Roadway Improvements

- Construct partial width improvements on the westerly side of Lance Drive at its ultimate cross-section as an 80' collector adjacent to project boundary line, from southerly project boundary to Lance Drive's connection to Dan Kipper Drive.

▪ **Safety and Operational Recommendations**

- Sight distance at the project entrance roadway should be reviewed with respect to standard City of Riverside sight distance standards at the time of preparation of final grading, landscape and street improvement plans. The City of Riverside conforms to the Caltrans Highway Design Manual Section 405.1 in sight distance standards.
- Participate in the construction of traffic signals within the City of Riverside through payment of project's fair share of traffic signal mitigation fees as a standard impact fee for all development projects.
- Signing/stripping should be implemented in conjunction with detailed construction plans for the project site.

Site Queuing Analysis

Per discussion with the City of Riverside, the threshold in which queuing for the Project would cause an impact would be when trucks begin to queue onto Lance Drive. It should be noted however that Lance Drive is a small collector road, which will only carry traffic for the Project and the development southeast from the Project.

Operationally, queuing for industrial land uses can be the worst during the morning when trucks arrive but the gates have not opened yet. Trucks would then queue outside of the gate. Based on Table 4-2, 21 trucks are expected to arrive during the AM Peak Hour between 7 and 9 AM for Building 1 and 9 trucks for Building 2. Figure 6-E and Figure 6-F show the queuing capacity of Buildings 1 and 2 outside of the gate for trucks with a 53' trailer and a 48' trailer, respectively. Building 1's site plan can accommodate approximately 32 53'-trailer trucks and 35 48'-trailer trucks. Building 2's site plan can accomodate approximately five 53'-trailer trucks and six 48'-trailer trucks. The trucks used to model the storage space are WB-62 and WB-67 trucks from "A Policy on Geometric Design of Highways and Streets, 6th Edition" (AASHTO 2011).

▪ **Regional Funding Mechanisms**

The project will participate in the cost of off-site improvements through payment of the following "fair share" mitigation fees:

- Transportation Uniform Mitigation Fee (TUMF), current at time of construction.
- City of Riverside Development Impact Fee (DIF), current at time of construction.

These fees should be collected and utilized as needed by the City of Riverside to construct the improvements necessary to maintain the required level of service.

INTRODUCTION

▪ Purpose of Report and Study Objectives

The purpose of this study is to evaluate the effects on traffic circulation produced from the proposed development of Sycamore Canyon Industrial Buildings 1 & 2 (P14-1072).

The objectives of this study include the following:

- Document existing traffic conditions in the vicinity of the proposed development;
- Determine the traffic generated from the proposed development;
- Evaluate existing plus project traffic conditions;
- Evaluate existing plus ambient growth plus project traffic conditions;
- Evaluate existing plus ambient growth plus other projects plus project traffic conditions;
- Determine if the level of service (LOS) required by the City of Riverside General Plan will be maintained at all study area intersections, and if not, determine feasible mitigation measures that will be necessary to avoid or reduce the impact;
- Determine if the level of service (LOS) required by Caltrans will be maintained at all study area freeway ramps, and if not, determine feasible mitigation measures that will be necessary to avoid or reduce the impact;
- Determine if peak hour traffic signal warrants are met for any of the unsignalized study area intersections;
- Evaluate the adequacy of on-site circulation for the proposed development;
- Determine if safety and/or operational improvements are necessary due to the proposed development;

▪ Site Location and Study Area

The proposed project is located in the City of Riverside. Sycamore Canyon Industrial Buildings 1 & 2 are located on the northwest corner of Sierra Ridge Drive and Lance Drive.

The project site location is presented on Figure 2-A.

▪ Development Project Identification

The City of Riverside Case Number assigned to this project is P14-1072.

Figure 2-A – Project Site Location Map



1 Project Site

■ Development Project Description

Project Size and Description

The project site encompasses approximately 72.0 acres. The project is currently proposed for development of a 1,012,999 square feet of gross floor area high-cube warehouse and a 420,604 square feet of gross floor area high-cube warehouse.

Existing Land Use and Zoning

Existing land use and zoning designations are as follows:

- Existing Zoning: BMP (Business and Manufacturing Park) - Industrial
- Existing Land Use: Vacant

Proposed Land Use and Zoning

Proposed land use and zoning designations are as follows:

- Proposed Zoning: BMP (Business and Manufacturing Park) - Industrial
- Proposed Land Use: Industrial

Site Plan of Proposed Project

The current proposed project layout is shown on Figure 2-B. Note that the site plan proposed a 362,174 square feet warehouse for Building 2. This is an update from the 420,604 square feet warehouse that the TIA analyzed. Since the square feet has decreased, the TIA can be considered conservative.

Site Access

As indicated on Figure 2-B, Sycamore Canyon Industrial Buildings 1 & 2 will have access to Lance Drive east of the project, and Sierra Ridge Drive south of the project. The project will also have limited access to Dan Kipper Drive north of the project. No vehicle type restrictions are proposed for the project driveways on Lance Drive and all project driveways are expected to be utilized by both passenger cars and trucks.

After a preliminary analysis of the possibility of using Dan Kipper Drive as a point of egress for passenger cars and/or trucks, it was determined based on future nearby development of the area, the existing and future geometry of the intersection and nearby intersections, that it would not be advantageous for the Project or for the City to allow the Project egress at Dan Kipper Drive. Therefore, the traffic analysis assumes the trip distribution of vehicles as shown in the directional distribution figures in the report, i.e. without project egress at Dan Kipper Drive and left turns onto Dan Kipper Drive from Sycamore Canyon Boulevard.

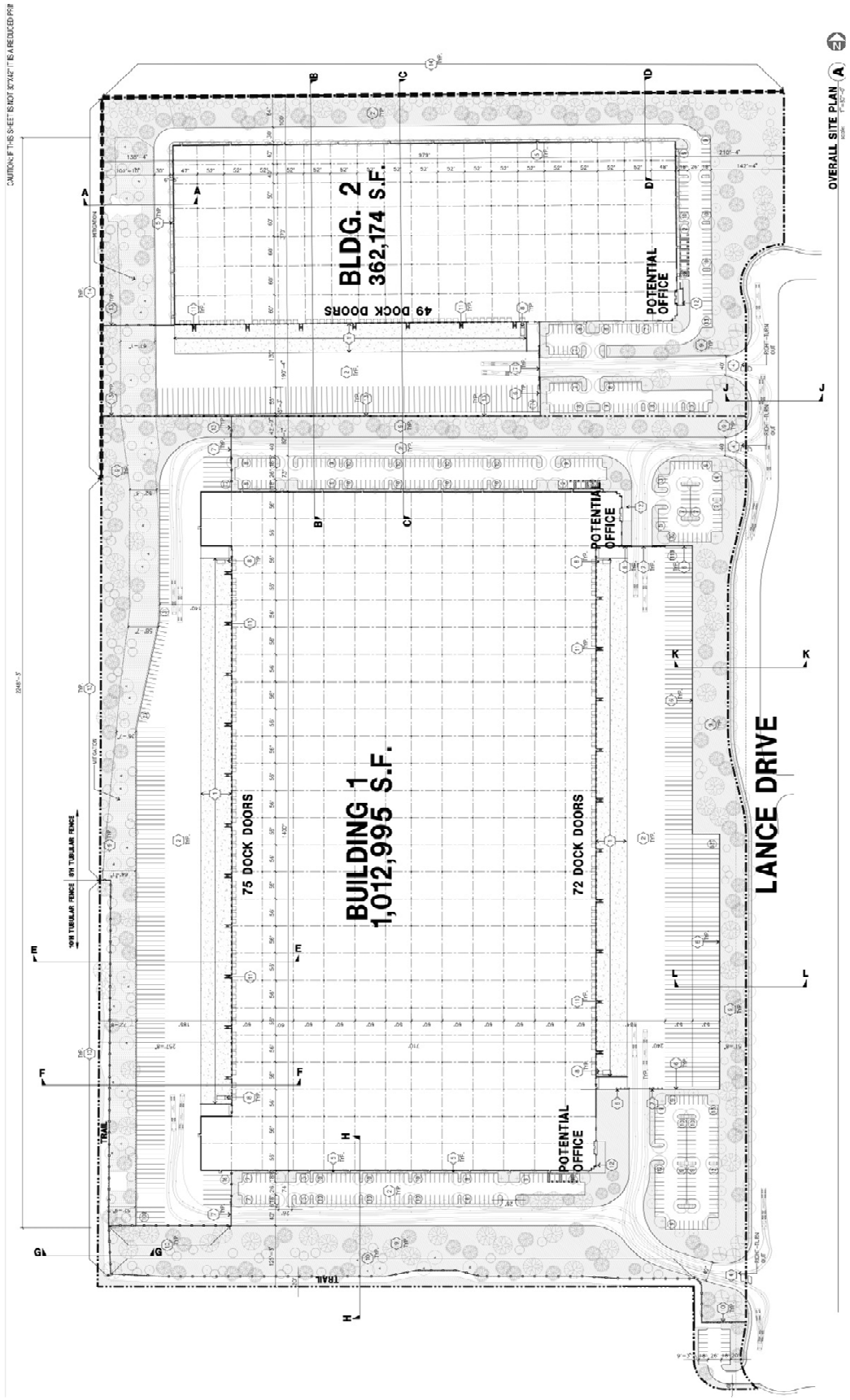
Proposed Project Opening Year and Proposed Project Phasing

For analysis purposes, it is assumed that Sycamore Canyon Industrial Buildings 1 & 2 will be developed in a single phase and full development is anticipated by 2018.

Sphere of Influence

Sycamore Canyon Industrial Buildings 1 & 2 is within one mile of the border of Moreno Valley as well as various Caltrans facilities.

Figure 2-B – Project Site Plan



AREA CONDITIONS

▪ Existing Roadway Descriptions

Sycamore Canyon Boulevard is a divided 4-lane north/south arterial in the project area. It is classified as a 110 foot arterial in the City of Riverside General Plan Circulation Element. South of Alessandro Boulevard, it continues as Meridian Parkway.

Fair Isle Drive is an undivided 2-lane east/west collector at the north end of the study area. It is classified as a 66 foot collector in the City of Riverside General Plan Circulation Element and provides connectivity to the I-215 and SR-60 freeways. West of the freeway interchange, it continues as Box Springs Road.

Box Springs Road is a divided 4-lane east/west arterial at the north end of the study area. It is not classified in the City of Riverside General Plan Circulation Element, but is included as a divided arterial in the City of Moreno Valley General Plan Circulation Plan. It provides connectivity to the I-215 and SR-60 freeways. East of the freeway interchange, it continues as Fair Isle Drive.

Dan Kipper Drive is an undivided 2-lane east/west collector near the project site. It is classified as a 60 foot collector in the Sycamore Canyon Business Park Specific Plan.

Box Springs Boulevard is an undivided 2 to 4-lane north/south arterial in the study area. It is classified as a 88 foot arterial in the City of Riverside General Plan Circulation Element.

Sierra Ridge Drive is an undivided 4-lane collector near the project site. It is classified as a 60 foot collector in the Sycamore Canyon Business Park Specific Plan.

Eastridge Avenue is a divided 4 to 5-lane east/west arterial in the project area. It is classified as a 120 foot arterial in the City of Riverside General Plan Circulation Element and provides connectivity with the I-215 freeway. To the east of the freeway interchange, it continues as Eucalyptus Avenue in the City of Moreno Valley.

Eucalyptus Avenue is a divided 4-lane east/west arterial in the City of Moreno Valley. It is classified as a divided major arterial in the City of Moreno Valley General Plan Circulation Plan. To the west of the I-215 freeway interchange, it continues as Eastridge Avenue in the City of Riverside.

▪ Study Intersections

The study area was determined based on the extent in which the proposed project will add 50 or more peak hour trips up to a 5 mile radius of the project location based on an understanding of existing commercial vehicle patterns in the area, per the City of Riverside Traffic Impact Analysis Preparation Guide, December 2014. The study area includes the following intersections:

1. I-215 Northbound Ramps (NS) / Fair Isle Drive-Box Springs Road (EW)
2. Sycamore Canyon Boulevard (NS) / Fair Isle Drive (EW)
3. Sycamore Canyon Boulevard (NS) / I-215 Southbound Ramps (EW)
4. Sycamore Canyon Boulevard (NS) / Dan Kipper Drive (EW)
5. Sycamore Canyon Boulevard (NS) / Box Springs Boulevard (EW)
6. Sycamore Canyon Boulevard (NS) / Sierra Ridge Drive (EW)
7. Sycamore Canyon Boulevard (NS) / Eastridge Avenue (EW)