APPENDIX B

Mitigated Negative Declaration

COUNTY OF RIVERSIDE
ENVIRONMENTAL ASSESSMENT FORM: INITIAL STUDY

Environmental Assessment (E.A.) Number: 42633
Project Case Type(s) and Number(s): General Plan Amendment No. 01125, Tentative Tract Map NO. 36590
Lead Agency Name: County of Riverside Planning Department
Address: P.O. Box 1409, Riverside, CA 92502-1409
Contact Person: Paul Rull, Contract Planner
Telephone Number: (951) 955-3200
Applicant's Name: Cal Thermal Real Estate LLC
Applicant's Address: 4675 MacArthur Ct., Suite 1550, Newport Beach, CA 92660

I. PROJECT INFORMATION

Project Description:

The Vista Soleada Specific Plan (Project) is a proposed rural, equestrian-themed residential project in the eastern Coachella Valley, California. (**Figure 1, Regional Location Map**) The Project site is located within unincorporated Riverside County south of Avenue 60 and west of Monroe Street in the Vista Santa Rosa Policy Area, adjacent to the east of the City of La Quinta. (**Figure 2, Local Vicinity Map**) The Project site is 80.9 acres in size and development of 230 residences, six private parks, citrus themed country lanes, and a 100 foot wide perimeter grove of Medjool date palm trees is proposed. (**Figure 3, Conceptual Site Plan**) Opportunity sites for a small rural market and equestrian way station are also proposed as these features are encouraged by the Vista Santa Rosa Land Use Conceptual Plan. The Project would include an equestrian way facility in the northeastern portion of the site for public and private use. (**Figure 4, Conceptual Equestrian Way Station**) and a small rural market in the southeastern portion of the site.

Residential density within the Project would average 2.8 dwelling units per gross acre (du/ac), consisting of 211 Citrus Village residential lots with a minimum size of 4,000 square feet (sq. ft.) and an average of 6,000 sq. ft. in the middle of the site and 19 Date Palm Estate lots ranging in size from 0.75 acres to 1 acre in size on the edges of the site on Avenue 60, along the eastern perimeter, and Avenue 61. (**Figure 5, Tentative Tract Map**) The smaller lots abut similar sized residential lots along the western boundary, transitioning to larger estate lots, then to the date palm buffer on the northern, southern and eastern edges. Private parks for joint recreation/retention/community garden use are interspersed throughout the Project site to provide common open space and a convenient location for outdoor community gatherings and activities. An internal system of 3 foot wide multi-use trails would be interspersed within the Project along the central spine road within citrus themed yardscapes. Pedestrian pass-throughs are planned between residential lots at regular intervals to allow ample community access to parks and the perimeter public trail.

The two main entries to the Project site are connected by a central axis road with traffic circles at intersections. To achieve a rural character within the community, the Project proposes custom rural road sections and street standards with reduced centerline radii, hammerhead turnarounds rather than cul-de-sacs, traffic circles rather than standard T-intersections, and turf-lined drainage swales in place of concrete curb and gutter.

Utility improvements would extend from the Project site to the nearest existing utility connections. Potable water lines 18 inches in diameter would extend approximately 970 feet west from the eastern boundary of the equestrian way station within Avenue 60 and then 1,820 linear feet west from the southern entry, within Avenue 61, to existing 18-inch water mains. The sewer main would be 10 inches in diameter and extend east 3,430 linear feet within Avenue 61, connect to a proposed 15-inch sewer main within Jackson Street which would extend 2,695 linear feet to the south to connect to an existing 33-inch sewer main at the corner of Jackson Street and Avenue 62. (**Figure 6, Conceptual Utilities Extension Plan**)

The applicant has applied for a General Plan Amendment to change the current land use designation from Agriculture (AG) to Medium Density Residential (MDR).

A. Type of Project: Site Specific ☒; Countywide ☐; Community ☐; Policy ☐.

B. Total Project Area: 80.9 Gross Acres

Residential Acres:	46.5	**Lots:**	230	**Units:**	230	**Projected No. of Residents:**	736
Commercial Acres:		**Lots:**		**Sq. Ft. of Bldg. Area:**		**Est. No. of Employees:**	
Industrial Acres:		**Lots:**		**Sq. Ft. of Bldg. Area:**		**Est. No. of Employees:**	
Other: Open Space	29.9	**Acres**					

C. Assessor's Parcel No(s): 764-290-003

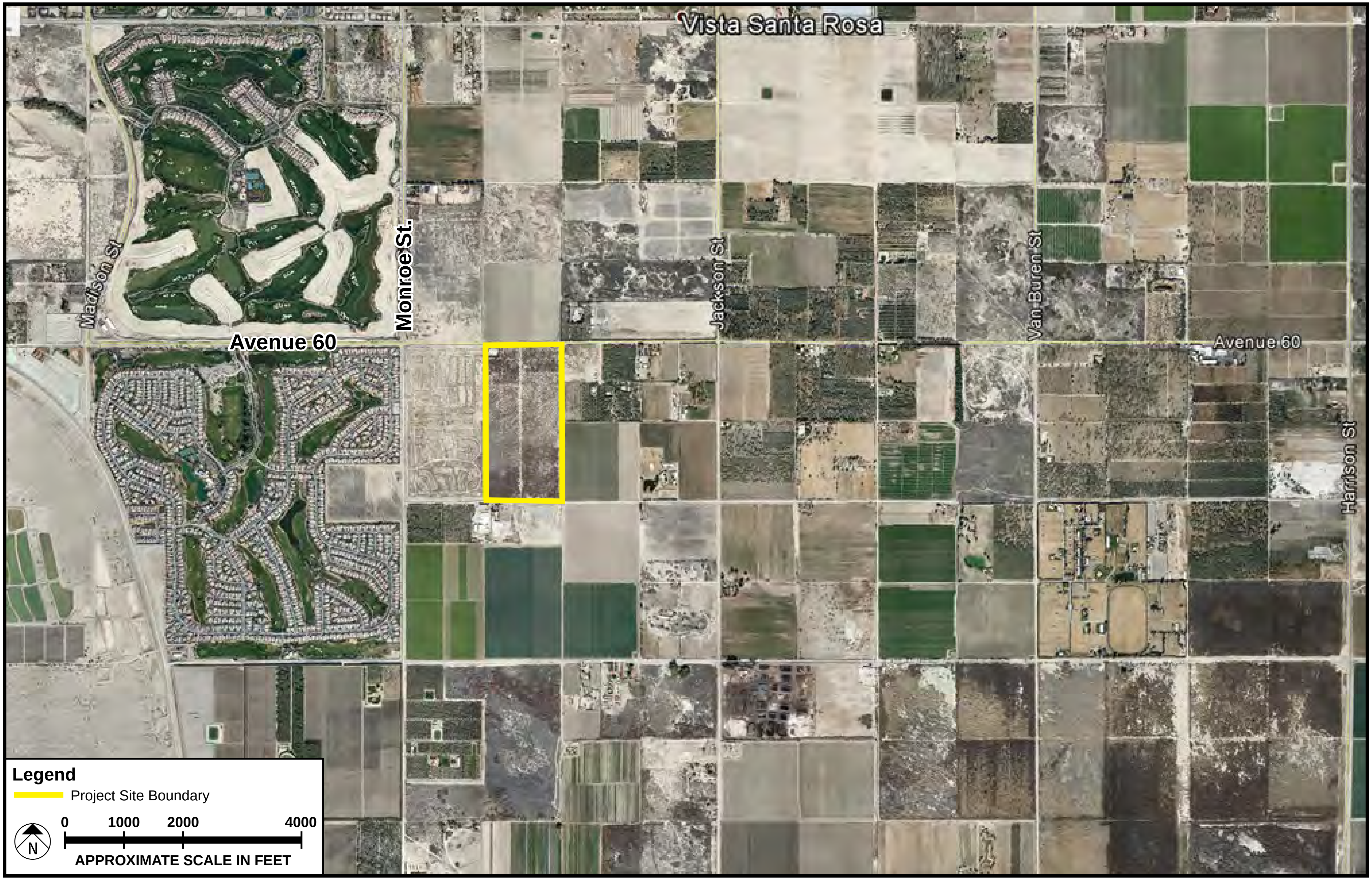
SOURCE: Google Earth - 2013; Meridian Consultants, LLC - November 2013

FIGURE **1**

Meridian Consultants

Regional Location Map

043-001-13



SOURCE: Google Earth - 2013; Meridian Consultants, LLC - November 2013

FIGURE **2**

Meridian Consultants

Local Vicinity Map

043-001-13

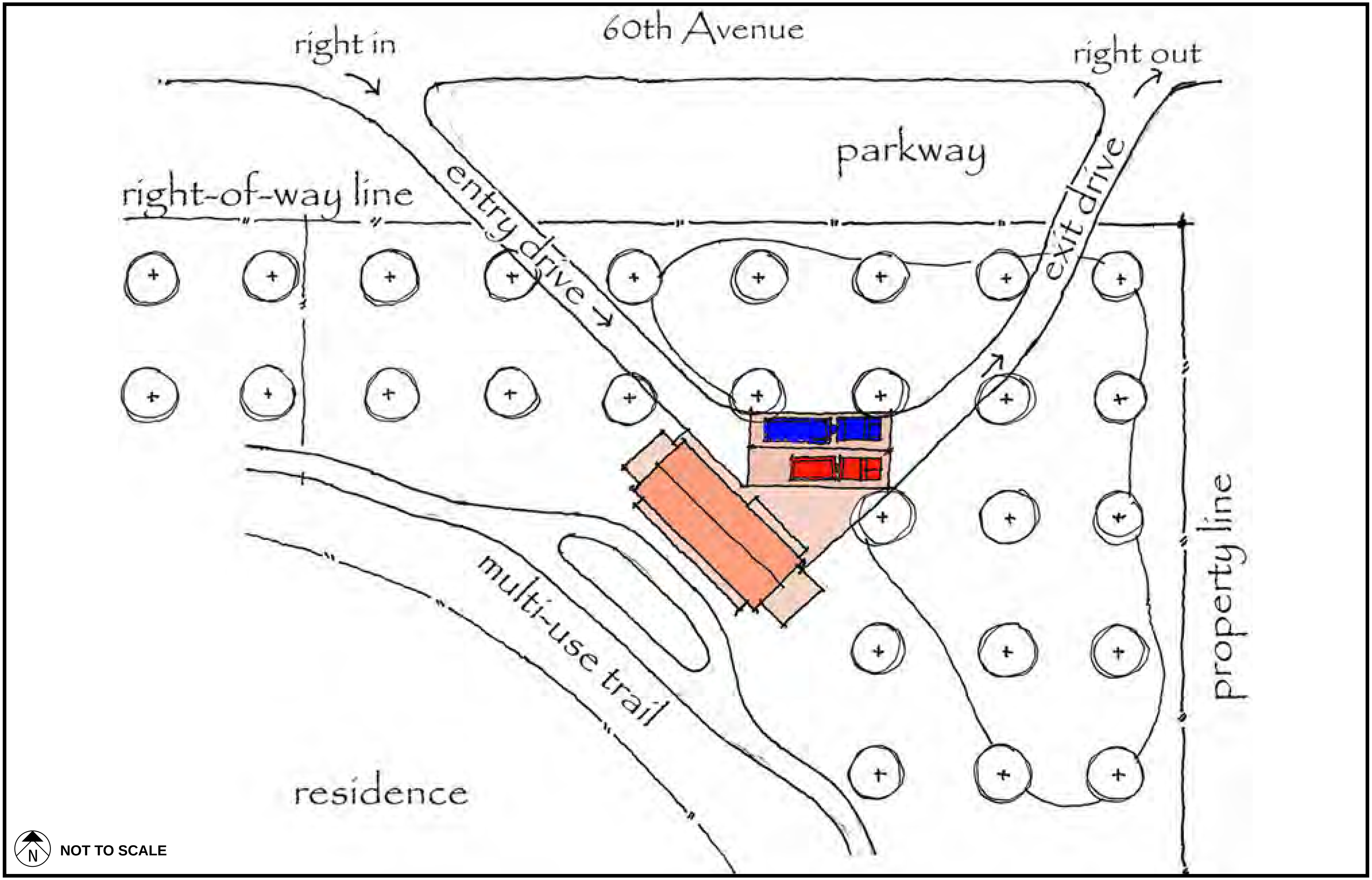
SOURCE: MSA Consulting, Inc.; Meridian Consultants – November 2013

FIGURE **3**

Meridian Consultants

Conceptual Site Plan

043-001-13



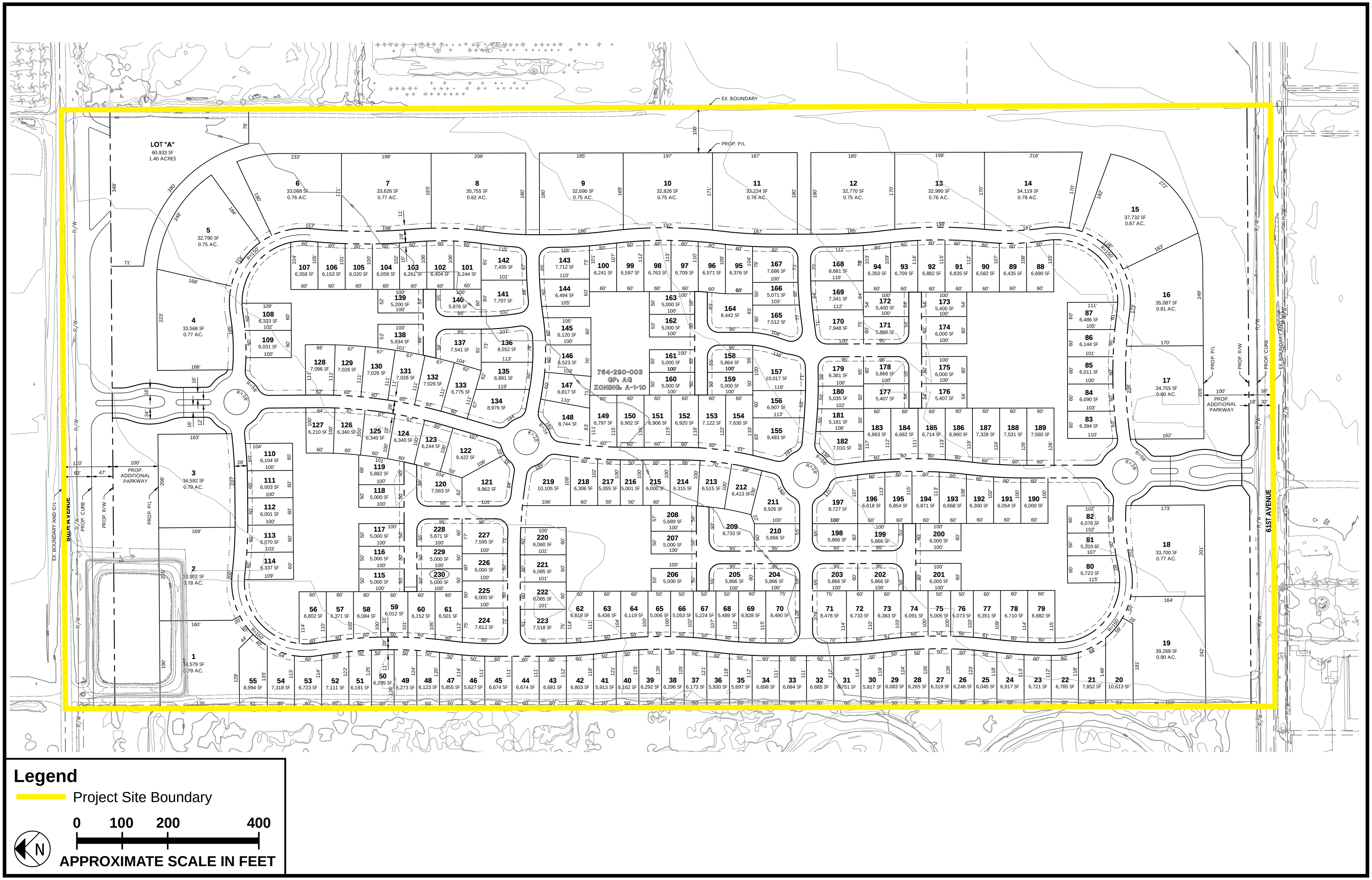
SOURCE: MSA Consulting, Inc.; Meridian Consultants – November 2013

FIGURE 4

Meridian Consultants

Conceptual Equestrian Way Station Plan

043-001-13

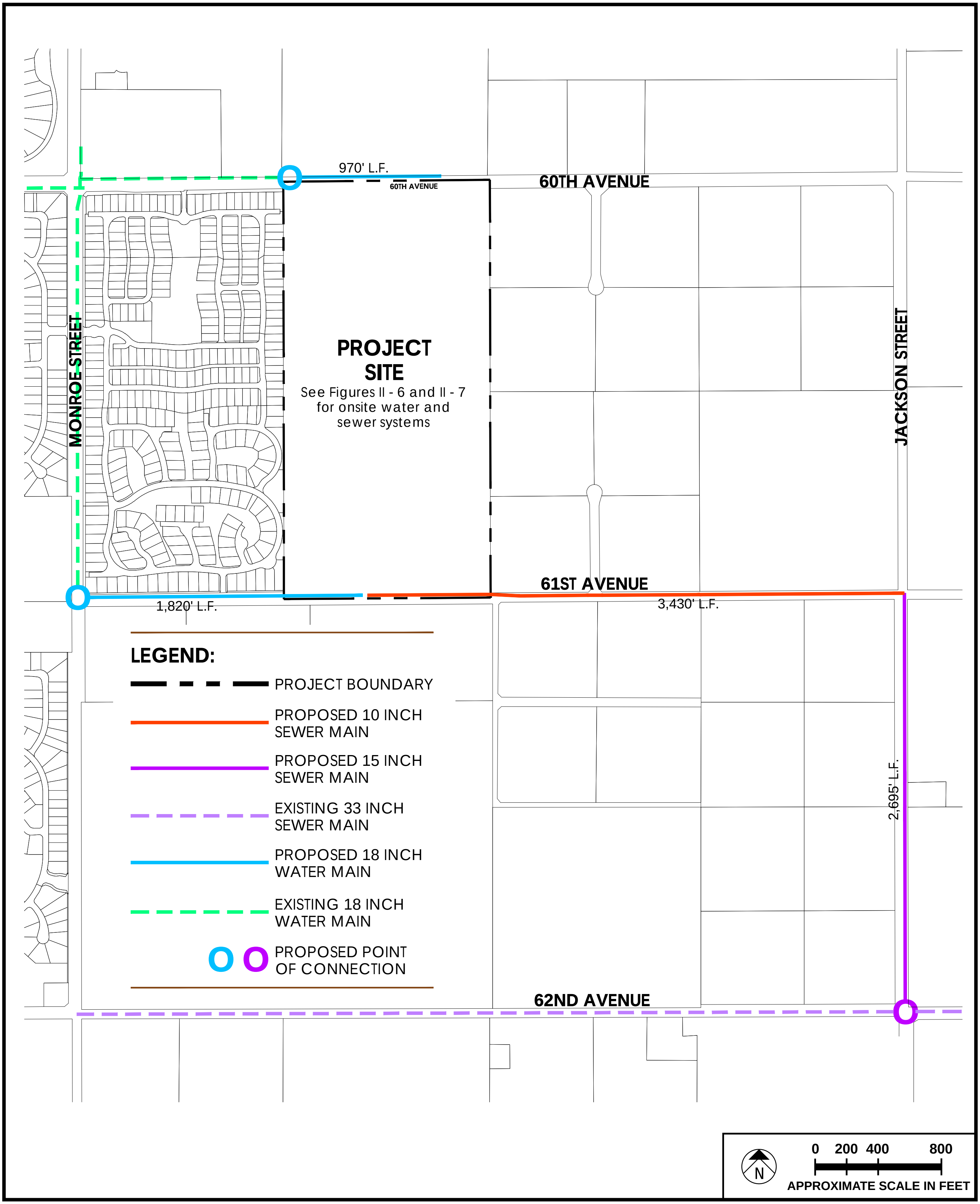


SOURCE: MSA Consulting, Inc.; Meridian Consultants – November 2013

FIGURE 5

Tentative Tract Map

043-001-13



SOURCE: MSA Consulting, Inc. - Vista Soleada Specific Plan, December 2013.

FIGURE 6

Meridian Consultants

Conceptual Utilities Extension Plan

043-001-13

View northeast from southwest boundary of Project site

View north from southwest boundary of Project site

SOURCE: Meridian Consultants – November 2013

FIGURE **7**

Meridian Consultants

Existing Views

043-001-13

D. Street References: The Project is located southerly of Avenue 60, easterly of Monroe Street, and westerly of Jackson Street.

E. Section, Township & Range Description or reference/attach a Legal Description: Township 6 South, Range 7 East, Section 35.

F. Brief description of the existing environmental setting of the project site and its surroundings: The Project site is approximately 81 acres in size and consists of farmland which is currently being used to grow carrots. (**Figure 7, Existing Views**) The site is topographically flat and level at an elevation ranging from 81 to 88 feet below mean sea level. A system of tile agricultural drains are located approximately 8 to 10 feet below ground surface. There is vacant land north of Avenue 60, vacant unimproved land in the City of La Quinta west of the Project site, a date farm packaging plant and a vacant residential building south of Avenue 61, and vacant land and some agricultural uses east of the Project site.

II. APPLICABLE GENERAL PLAN AND ZONING REGULATIONS

A. General Plan Elements/Policies

1. **Land Use:** The applicant requests a General Plan Amendment to change the Agriculture Designation to Medium Density Residential. The Project is consistent with the Medium Density Residential land use designation and other applicable land use policies within the General Plan.

2. **Circulation:** The Project would have adequate circulation to the site and is therefore consistent with the Circulation Element of the General Plan. The Project meets all other applicable circulation policies of the General Plan.

3. **Multipurpose Open Space:** The Project is consistent with all other applicable Multipurpose Open Space Element policies.

4. **Safety:** The Project would allow for sufficient provision of emergency response services to the future residents of this site through the Project design features. The Project is consistent with all other applicable Safety Element policies.

5. **Noise:** Sufficient mitigation against any foreseeable noise sources in the area have been provided for in the design of the Project. The Project would not generate noise levels in excess of standards established in the General Plan or County Noise Ordinance. The Project is consistent all other applicable Noise Element policies.

6. **Housing:** The Project is consistent with all applicable Housing Element policies.

7. **Air Quality:** The Project is consistent with all applicable Air Quality Element policies.

B. **General Plan Area Plan(s):** Eastern Coachella Valley

C. **Foundation Component(s):** Agriculture

D. **Land Use Designation(s):** Agriculture (AG)

E. **Overlay(s), if any:** Community Development Overlay

F. **Policy Area(s), if any:** Vista Santa Rosa Community

G. **Adjacent and Surrounding:**

1. **Area Plan(s):** Eastern Coachella Valley

2. **Foundation Component(s):** Agriculture to east, north, and south. City of La Quinta to west.

3. **Land Use Designation(s):** AG to east, north, and south. City of La Quinta to west (Project site is within the City of La Quinta Sphere of Influence).

4. **Overlay(s) and Policy Area(s), if any:** Community Development Overlay to north and south. Vista Santa Rosa Policy Area to north and south.

H. **Adopted Specific Plan Information**

5. **Name and Number of Specific Plan, if any:** N/A

6. **Specific Plan Planning Area, and Policies, if any:** N/A

I. **Existing Zoning:** Agriculture (AG)

Proposed Zoning, if any: Medium Density Residential

J. **Adjacent and Surrounding Zoning:** AG to the north of Avenue 60, east of the Project site, south of Avenue 61; and Medium High Density Residential as designated by the City of La Quinta to the west.

III. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below (x) would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" or "Less than Significant with Mitigation Incorporated" as indicated by the checklist on the following pages.

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

IV. DETERMINATION

On the basis of this initial evaluation:

A PREVIOUS ENVIRONMENTAL IMPACT REPORT/NEGATIVE DECLARATION WAS NOT PREPARED
☐ I find that the proposed project **COULD NOT** have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared.
☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project, described in this document, have been made or agreed to by the project proponent. **A MITIGATED NEGATIVE DECLARATION** will be prepared.
☐ I find that the proposed project MAY have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.

A PREVIOUS ENVIRONMENTAL IMPACT REPORT/NEGATIVE DECLARATION WAS PREPARED
☐ I find that although the proposed project could have a significant effect on the environment, **NO NEW ENVIRONMENTAL DOCUMENTATION IS REQUIRED** because (a) all potentially significant effects of the proposed project have been adequately analyzed in an earlier EIR or Negative Declaration pursuant to applicable legal standards, (b) all potentially significant effects of the proposed project have been avoided or mitigated pursuant to that earlier EIR or Negative Declaration, (c) the proposed project will not result in any new significant environmental effects not identified in the earlier EIR or Negative Declaration, (d) the proposed project will not substantially increase the severity of the environmental effects identified in the earlier EIR or Negative Declaration, (e) no considerably different mitigation measures have been identified and (f) prior mitigation measures found infeasible have become feasible.
☐ I find that although all potentially significant effects have been adequately analyzed in an earlier EIR or Negative Declaration pursuant to applicable legal standards, some changes or additions are necessary but none of the conditions described in California Code of Regulations, Section 15162 exist. An **ADDENDUM** to a previously-certified EIR or Negative Declaration has been prepared and will be considered by the approving body or bodies.

☐ I find that at least one of the conditions described in California Code of Regulations, Section 15162 exist, but I further find that only minor additions or changes are necessary to make the previous EIR adequately apply to the project in the changed situation; therefore a **SUPPLEMENT TO THE ENVIRONMENTAL IMPACT REPORT** is required that need only contain the information necessary to make the previous EIR adequate for the project as revised.

☐ I find that at least one of the following conditions described in California Code of Regulations, Section 15162, exist and a **SUBSEQUENT ENVIRONMENTAL IMPACT REPORT** is required: (1) Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; (2) Substantial changes have occurred with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or (3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the negative declaration was adopted, shows any the following: (A) The project will have one or more significant effects not discussed in the previous EIR or negative declaration; (B) Significant effects previously examined will be substantially more severe than shown in the previous EIR or negative declaration; (C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measures or alternatives; or, (D) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR or negative declaration would substantially reduce one or more significant effects of the project on the environment, but the project proponents decline to adopt the mitigation measures or alternatives.

Signature

Date

For Carolyn Syms Luna, Planning Director

Printed Name

V. ENVIRONMENTAL ISSUES ASSESSMENT

a) In accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000-21178.1), this Initial Study has been prepared to analyze the proposed project to determine any potential significant impacts upon the environment that would result from construction and implementation of the project. In accordance with California Code of Regulations, Section 15063, this Initial Study is a preliminary analysis prepared by the Lead Agency, the County of Riverside, in consultation with other jurisdictional agencies, to determine whether a Negative Declaration, Mitigated Negative Declaration, or an Environmental Impact Report is required for the proposed project. The purpose of this Initial Study is to inform the decision-makers, affected agencies, and the public of potential environmental impacts associated with the implementation of the proposed project.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
AESTHETICS Would the project				
1. Scenic Resources				
b) Have a substantial effect upon a scenic highway corridor within which it is located?	☐	☐	☐	☒
c) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings and unique or landmark features; obstruct any prominent scenic vista or view open to the public; or result in the creation of an aesthetically offensive site open to public view?	☐	☐	☒	☐

Source: a) Riverside County General Plan, Eastern Coachella Valley Area Plan, Figure 10 "Scenic Highways."

Findings of Fact:

a) The purpose of the California Scenic Highways program, which was established in 1963, is to "Preserve and protect scenic highway corridors from change which would diminish the aesthetic value of lands adjacent to highways." A scenic highway provides the motorist with a view of distinctive natural characteristics that are not typical of other areas in Riverside County (County). The Eastern Coachella Valley Area Plan (Area Plan) designates State Route (SR) - 111, from Bombay Beach on the Salton Sea to State Route 195 near Mecca, as a state-eligible Scenic Highway, providing views of the Salton Sea and the surrounding mountainous wilderness. The Project site is located approximately 6.5 miles west of SR-111 and is not located within the state eligible scenic highway corridor.

b) The Project site is located in an unincorporated area of Riverside County, immediately east of the City of La Quinta, and is currently being used for farming. The existing character of the Project site is topographically flat, with views of the Santa Rosa Mountains to the west and the Mecca Hills and the

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

edge of Joshua Tree National Park to the northeast. The site does not contain any scenic resources such as trees, rock outcroppings, and unique or landmark features.

Scenic vistas are points, accessible to the general public, that provide a view of the countryside. The Project site is located on the valley floor east of the City of La Quinta. Project development would include the construction of 230 residences with six private parks within the Vista Santa Rosa Community. The residences would be a maximum of 24 feet in height. The northern perimeter of the Project Site would be visually buffered when viewing south from the center of Avenue 60 by 110-feet of right-of-way, the 100-foot date palm orchard, and the setbacks of the residences from the edge of the Date Palm Orchard estate residential lot. The southern perimeter of the site would be visually buffered when viewing north from the center of Avenue 61 by the northern 50 feet of right-of-way, the 100-foot date palm orchard, and the setbacks of the residences from the edge of the Date Palm Orchard estate residential lot. As a result, the residences would not block southern views across the Project site. The Project site is not located within a scenic vista, nor does it obstruct any scenic vistas surrounding the Project site. Implementation of the Project would not obstruct the views of these mountains from areas adjacent to the Project site and impacts would be less than significant.

The Project Site would be designed with a 100-foot wide date palm grove as a buffer along the northern, eastern, and southern edges. The northeastern and southeastern has been designated to consist of an equestrian way station and a rural market. The two entrance gateways would utilize native granite stacked boulders and a wood beam overhead structure element to provide a ranch entry common to the Vista Santa Rosa Community. As identified in the Vista Santa Rosa Design Guidelines, a split rail fence would be provided along the public rights-of-way on Avenue 60 and 61 and at the back of the Date Palm Orchard estate residential lots. A rural wire fence would also be designed along the eastern property line to separate and project the Project and regional trail from adjacent agricultural users. A six foot high block wall is proposed along the western property line where the site adjoins an urban density subdivision in the City of La Quinta. The Project would not create an aesthetically offensive site open to public view and impacts would be less than significant.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

2. Mt. Palomar Observatory				
a) Interfere with the nighttime use of the Mt. Palomar Observatory, as protected through Riverside County Ordinance No. 655?	☐	☐	☒	☐

Source: GIS database. Riverside County Land Information System. Ord. No. 655 (Regulating Light Pollution).

Findings of Fact:

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

a) The Project site is located in an unincorporated area of Riverside County approximately 40.5 miles northeast of the Mt. Palomar Observatory, within the designated 45-mile (Zone B) Special Lighting Area that surrounds the Mt. Palomar Observatory. Ordinance 655 contains approved materials and methods of installation, definition, general requirements for lamp source and shielding, prohibition and exceptions. The Project would be designed to incorporate lighting requirements of the Riverside County Ordinance No. 655, including the use of low landscape bollard lights near the entry gates to the site, at roundabouts, and at hammerhead intersections. The Project would conform to Zone B requirements of Ordinance 655 and would result in less than significant impacts regards to nighttime operation of Mt. Palomar Observatory.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

3. Other Lighting Issues				
a) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐
b) Expose residential property to unacceptable light levels?	☐	☐	☒	☐

Source: MSA Consulting, Inc., *Vista Soleada Specific Plan*, December 2013.

Findings of Fact:

a) Existing light sources include residential uses and street lights from the PGA West community located west of the Project site and streetlights along Monroe Street, Avenue 61, and Avenue 60, adjacent to the Project site. The Project would add additional lighting sources. Pursuant to Ordinance No. 655, the Project's on-site lighting would be directed downward or shielded and hooded to avoid shining onto adjacent properties and streets. Therefore, impacts would be less than significant as nighttime view of the area would not be adversely affected. The Project perimeter would incorporate a 100-foot wide Medjool date palm buffer, landscaping and open space which would minimize offsite glare during the daytime. Daytime glare from the Project would result in less than significant impacts.

b) The Project has been designed to include the use of bollard lighting at the entrances and along the roundabouts and internal streets for nighttime safety. These lights would include low sodium bulbs and directed downwards to minimize light spill offsite. Therefore, the Project would not expose residential property to unacceptable light levels and impacts would be reduced to less than significant levels.

Mitigation: No mitigation measures are required.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Monitoring: No monitoring measures are required.

AGRICULTURE & FOREST RESOURCES Would the project

4. Agriculture

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☒	☐
b) Conflict with existing agricultural use, or a Williamson Act (agricultural preserve) contract (Riv. Co. Agricultural Land Conversation Contract Maps)?	☐	☐	☒	☐
c) Cause development of non-agricultural uses within 300 feet of agriculturally zoned property (Ordinance No. 625 “Right-to-Farm”)?	☐	☐	☒	☐
d) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☒	☐

Source: (a) California Department of Conservation, Farmland Mapping and Monitoring Program “Riverside County.” Eastern Coachella Valley Area Plan “Land Use Plan.” (b) California Department of Conservation, Riverside County Williamson Act FY 2008/2009 Sheet 2 of 3, 2012. Riverside County, *General Plan*, “Land Use Element,” Agriculture, (2003). Riverside County, *General Plan*, Eastern Coachella Valley Area Plan, Table 2. Riverside County, “Memorandum: Agricultural Conversion Acreage,” (2011) 2.

Findings of Fact:

a) The Project Site is located within the Eastern Coachella Valley Area Plan within the Vista Santa Rosa Community Policy Area. The land use designation for the Project Site is Agriculture with a Community Development Overlay. The site is also designated as Farmland of Statewide Importance by the California Department of Conservation, Farmland Mapping and Monitoring Program.

The Riverside County General Plan Land Use Element includes the Agricultural Foundation

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Component, which contains the agriculture area plan. The Agriculture land use designation has been established to help conserve productive agricultural lands within the county. The intent of the Agriculture Foundation Component and its associated policies is to identify and preserve areas where agricultural uses are the long-term desirable use, as stated in the general plan principles: "Provide for the continued and even expanded production of agricultural products by conserving areas appropriate for agriculture and related infrastructure and supporting services." In addition, the intent of these policies is to minimize the conflicts between agricultural and urban or suburban uses.

The Agriculture Foundation Amendment cycle allows up to 7 percent of all land designated as Agriculture to change to other foundation and land use designations during each 2.5-year Agriculture Foundation Amendment cycle and convert to another land use consistent with the amended foundation and land use designation. At the end of the first 2.5-year period, properties may only be removed from the Agriculture designation. Properties that are proposed to be added to the Agriculture designation would have to wait until the end of the second 2.5-year period (i.e., five years from the adoption of the general plan). At the end of each 2.5-year period, the board of supervisors would consider whether changes to the Agriculture Foundation should be reviewed every two and a half years or whether a five-year amendment cycle, like those for the other foundations, would be more appropriate. The 7 percent conversion can occur any time within the 2.5-year Agriculture Foundation Amendment cycle, and is to be calculated separately for each of the following three areas:

- The area covered by the Palo Verde and Desert Center area plans and the Eastern Desert Land Use Plan
- The area covered by the Eastern Coachella Valley and Western Coachella Valley area plans
- The area covered by all other area plans

The intent of the Agricultural Foundation is to protect the Agricultural industry in the County. As previously mentioned, the General Plan uses a 7 percent threshold for the conversion of agriculture land to another designation.

The total acreage of designated agricultural land use within the Eastern Coachella Valley Area Plan is 41,403 acres. The total acreage of designated agricultural land use within the Western Coachella Valley Area Plan is 695 acres. This totals 2,947 acres (7 percent of existing 42,098 acres under agricultural land uses) of designated Agriculture Land that may be converted to other foundation components and land use designations.

The 81 acres currently designated Agriculture under the County's General Plan would be subject to this amendment process. Conversion of agricultural land to urban uses in the Project would occur over a three to five year period, consistent with the general plan limitations on the rate and timing of such conversion.

From 2003 to 2010, a total of 920.10 acres of Agricultural Foundation land have been converted to another Foundation designation over three 2.5-year cycles. This Project—with 81 acres of land designated as Agricultural —is within the 7 percent conversion allowance provided for in the Riverside County General Plan. Furthermore, if the total acreage amended during the three 2.5-year cycles that have elapsed since the program was initiated is added to the Project, the resulting total of 1,001.10 acres would still fall within the 7 percent conversion allowed in any single cycle (conversion of 2,947 acres). Therefore, the adoption of the general plan amendment would not result in the 7 percent

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

threshold being exceed during the fourth Agriculture Foundation review cycle (2011 - 2013). The proposed Amendment of converting 80.8 acres from agriculture to residential will not significantly alter or affect the overall agricultural identity of the County. Therefore, impacts related to the change in zoning from agricultural designations would be less than significant.

b) The Project site is designated as Non-Enrolled Land on the Williamson Act map. As such, the Project would not conflict a Williamson Act contract land. No impacts would occur.

c) The nearest agricultural use is located east of the site. The Specific Plan would provide a 100 foot wide date palm orchard around the northern, eastern, and southern perimeter of the site. The buffer would include stormwater retention basins, a 12-foot wide equestrian/multi-use trail, and the date palm orchard. The Specific Plan sites Date Palm Orchard Estate residential lots along the eastern portion of the site east of the 100-foot wide date palm orchard. The proposed homes would be located a minimum of 110 feet from the eastern edge of the parcel, and as such, would be located a minimum of 210 feet from the eastern project boundary. According to Riverside County Ordinance 625.1, the “Right to Farm ordinance”, potential buyers of the Date Palm Orchard Estate residential lots would be notified that active farming is conducted within 300 feet of the residence east of the site. The Project design and the notification required by Ordinance 625.1 would result in less than significant impacts.

d) The Project is consistent with the Agricultural Foundation Amendment policies discussed within the Certainty System in the Riverside County General Plan Administrative Element. The total acreage of designated agricultural land within the Eastern and Western Coachella Valley Area Plan is 42,098 acres. The Agriculture Foundation allows up to 7 percent of land, 2,947 acres of existing agricultural land uses within both Area Plans, that is designated agricultural land use or zoning to be transferred to another foundation land use element during a 2.5-year cycle.

The Vista Santa Rosa Land Use Concept Plan was approved on June 17, 2008 by the Riverside County Board of Supervisors for inclusion in the County’s General Plan update proposal to provide guidance for development proposals in Vista Santa Rosa, prior to the adoption of the General Plan update. This update has been delayed due to the significant real estate recession in Southern California that started in late 2006/2007 and reduced the number of projects proposed throughout the County, including the Vista Santa Rosa area.

The Project Site is located immediately east of approved Tract Map 31732 in the City of La Quinta, which created 133 residential lots. The General Plan Amendment would contribute to the implementation of the Vista Santa Rosa Land Use Concept Plan and provide a transition between residential uses and agricultural uses within the County. Impacts would be less than significant in regards to converting other Farmland to non-agricultural use.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

5. Forest				
a) Conflict with existing zoning for, or cause rezoning of, forest land (as	☐	☐	☐	☒

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	defined in Public Resources Code sec-tion 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Govt. Code section 51104(g))?				
b)	Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
c)	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of forest land to non-forest use?	☐	☐	☐	☒

Source: County of Riverside, General Plan, Eastern Coachella Valley Area Plan “Land Use Map.”

Findings of Fact:

a) The County Land Use Map designates the Project site as Light Agriculture with a Community Development Overlay and is not designated or zoned for forest or timberland or used for foresting. The development of the Project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production. Therefore, no impact would occur with implementation of the Project.

b) The Project site is currently being farmed for carrots and is not designated or zoned for forest or timberland. Therefore, the Project would not result in the loss of forest land or conversion of forest land to non-forest use. No impacts would occur.

c) The Project site and surrounding area to the north, east, and south is designated as Agriculture with a Community Development Overlay. The City of La Quinta is located adjacent to the east and is zoned for residential uses. The Project would not involve changes in the existing environment that would result in the conversion of forest land to non-forest use. No impacts would occur.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

AIR QUALITY Would the project					
6.	**Air Quality Impacts**				
a)	Conflict with or obstruct implementation of the applicable air	☐	☐	☒	☐

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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 non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors which are located within 1 mile of the project site to project substantial point source emissions?	☐	☐	☒	☐
e) Involve the construction of a sensitive receptor located within one mile of an existing substantial point source emitter?	☐	☐	☒	☐
f) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

Source: (a) South Coast Air Quality Management District (SCAQMD), "Final 2012 Air Quality Management Plan." California Department of Finance, *E-5 City/County Population and Housing Estimates*, January 1, 2013. California Air Resources Board (CARB), *Air Quality and Land Use Handbook* (2005). Meridian Consultants, *Technical Air Quality & Greenhouse Gas Emission Report for the Vista Soleada Specific Plan*, January 2014.

Findings of Fact:

a) The 2012 Air Quality Management Plan (AQMP) was prepared by the South Coast Air Quality Management District (SCAQMD) to accommodate growth, to reduce the high levels of pollutants within the areas under the jurisdiction of SCAQMD, to return clean air to the region, and to minimize the impact on the economy. Projects that are considered consistent with the AQMP would not interfere with attainment because this growth is included in the projections utilized in the formulation of the AQMP. Therefore, projects, uses, and activities that are consistent with the applicable assumptions used in the development of the AQMP would not jeopardize attainment of the air quality levels identified in the AQMP, even if they exceed the SCAQMD's recommended daily emissions thresholds.

Demographic growth forecasts for various socioeconomic categories (e.g., population, housing, employment), developed by the Southern California Association of Governments (SCAG) for their 2012 Regional Transportation Plan (RTP) were used to estimate future emissions within the 2012 AQMP (refer to the 2012 AQMP, Chapter 3). Projects that are consistent with the growth projections are considered consistent with the AQMP. The Project would result in population growth for the region. According to the California Department of Finance estimates, the current (2013) population within the unincorporated areas of Riverside County is 358,827 residents (California Department of Finance). Based on SCAG data, the population projections used to estimate emissions in the 2012 AQMP for year 2020 anticipated a population of 471,500 within unincorporated areas of the County. The Project would generate approximately 736 residents. The Project would account for approximately 1 percent of the anticipated increase of residents within the City between 2012 and 2020. [736 Project residents/ (471,500 -358,827 = 112,673 (the increase in residents in unincorporated Riverside County between 2012 and 2020) = 0.16.] This total is within the growth projections for the unincorporated Riverside County as adopted by SCAG. Because the SCAQMD has incorporated these same projections into the AQMP, the Project would be consistent with the projections in the 2012 AQMP.

b) ***Construction Emissions***

Project implementation would include the construction of 230 residences within the Vista Santa Rosa Community. SCAQMD enforces two rules to minimize fugitive dust emissions during construction. Rule 402 prohibits the discharge from any source whatsoever of 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. Rule 403 governs emissions of fugitive dust during construction and operation activities. Compliance with this rule is achieved through Best Management Practices. This may include application of water or chemical stabilizers to disturbed soils, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 miles per hour (mph), 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.

The construction emissions for the Project were calculated according to the SCAQMD CEQA Air Quality Handbook and construction emission factors contained in the California Emissions Estimator Model (CalEEMod). The emission calculations assume the use of standard construction practices, such as compliance with SCAQMD Rule 402 and Rule 403 (Fugitive Dust), to minimize the generation of fugitive dust, which is mandatory for all construction projects.

The maximum daily emissions during Project construction are listed in **Table 1, Maximum Construction Emissions.** The analysis assumes that all construction equipment and activities would occur continuously over the day and that activities would overlap. In reality, this would not occur as most equipment would operate only a fraction of each workday and many of the activities would not overlap on a daily basis. Therefore, **Table 1** represents a conservative scenario for construction activities.

Table 1
Maximum Construction Emissions (pounds/day)

Source	ROG	NOx	CO	SOx	PM10	PM2.5
Maximum Summer Emissions	37.97	29.90	51.67	0.08	9.38	5.06
Maximum Winter Emissions	37.68	29.92	49.84	0.08	9.38	5.07
SCAQMD Threshold	75	100	550	150	150	55
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Note: Refer to Technical Air Quality & Greenhouse Gas Emission Report for the Vista Soleada Specific Plan in ***Appendix A.***

Based on the modeling, construction of the Project would result in a maximum unmitigated daily emissions of 37.97 pounds/day of reactive organic gases (ROG), 29.92 pounds/day of nitrogen oxide (NOx), 51.67 pounds/day of carbon monoxide (CO), 0.08 pounds/day of sulfur oxides (SOx), 9.38 pounds/day of particulate matter (PM10) and 5.07 pounds/day of fine particulate matter (PM 2.5), all of which do not exceed SCAQMD thresholds for criteria pollutants. Therefore, impacts would be less than significant.

Operational Emissions

Operational emissions would be generated by both stationary and mobile sources as a result of normal day-to-day activities on the Project site after occupancy. Stationary emissions would be generated by the consumption of natural gas for space and water heating equipment. Mobile emissions would be generated by motor vehicles traveling to and from the Project site. The analysis of daily operational emissions has been prepared using the data and methodologies identified in the SCAQMD CEQA Air Quality Handbook and current motor vehicle emission factors in the CalEEMod model. The estimated emissions are based upon development of all the proposed land uses on the Project site. The results presented in **Table 2, Maximum Operational Emissions**, are compared to the SCAQMD established operational significance thresholds.

Table 2
Maximum Operational Emissions (pounds/day)

Source	ROG	NOx	CO	SOx	PM10	PM2.5
Maximum Summer Emissions	31.50	19.75	103.04	0.17	11.30	3.62
Maximum Winter Emissions	30.05	21.12	104.56	0.16	11.30	3.62
SCAQMD Threshold	75	100	550	150	150	55
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Note: Refer to Technical Air Quality & Greenhouse Gas Emission Report for the Vista Soleada Specific Plan in ***Appendix A.***

Based on the modeling, operation of the Specific Plan would result in maximum unmitigated daily emissions of 31.50 pounds/day of reactive organic gases (ROG), 21.12 pounds/day of nitrogen oxide (NOx), 104.56 pounds/day of carbon monoxide (CO), 0.17 pounds/day of sulfur oxides (SOx), 11.30 pounds/day of particulate matter (PM10) and 3.62 pounds/day of fine particulate matter (PM 2.5), all of which do not exceed SCAQMD thresholds for criteria pollutants. Therefore, impacts would be less than significant.

Carbon Monoxide (CO) Hot Spots

The SCAQMD suggests that localized CO impacts be evaluated at intersections due to increases in project-related off-site mobile sources. The SCAQMD recommends performing a localized CO impacts analysis for intersections that change from level of service (LOS) C to D as a result of the project and for all intersections rated D or worse where the project increases the volume-to-capacity ratio by 2 percent or more. No Project intersection falls under the SCAQMD's criteria requiring a more detailed localized CO impact analysis. As a result, no significant Project-related impacts would occur relative to future CO concentrations.

Toxic Air Contaminants (TAC)

Projects that use hazardous materials or emit TACs have the potential to expose sensitive receptors to adverse health impacts. The residential land uses associated with the Project are not anticipated to use hazardous or acutely hazardous materials in appreciable quantities. Hazardous substances currently are regulated under the California Accidental Release Prevention (CalARP) Program. The CalARP Program satisfies the requirements of the Federal Risk Management Plan Program, and contains additional state requirements. The CalARP Program applies to regulated substances in excess of specific quantity thresholds. The majority of the substances have thresholds in the range of 100 to 10,000 pounds. The residential land uses associated with the Project may contain small, if any, amounts of these hazardous substances in household and commercial cleaners and other products. However, typical use of these products would not result in quantities at any one location that exceed the thresholds. Moreover, significant amounts of hazardous substances would typically be expected at industrial, manufacturing, and complex water or wastewater treatment land uses. Accordingly, the Project would not result in a significant impact with respect to hazardous materials.

SCAQMD Rule 1401

The proposed residential land uses may potentially emit trace amounts of TACs but would not exceed the thresholds contained in SCAQMD Rule 1401 (New Source Review of Toxic Air Contaminants) and would not result in an incremental increase in cancer risk of 10 in 1 million or more or a Hazard Index of 1.0 or more. Diesel-fueled waste-hauling trucks would drive to and from the Project site resulting in emissions of diesel particulate matter. However, the number of trucks would be equal to that occurring in other similarly developed residential neighborhoods throughout the region. Residential land uses are not substantial sources of TACs as well. Therefore, the site is not expected to generate emissions of TACs that would exceed the SCAQMD's cancer risk threshold of 10 in 1 million or the noncancer Hazard Index threshold of 1.0.

CARB has determined that adverse health effects are generally elevated near heavily traveled roadways. The CARB guidance document, *Air Quality and Land Use Handbook*, recommends that lead agencies, where possible, avoid sitting new sensitive land uses within 500 feet of a freeway, an urban road with 100,000 vehicles per day, or a rural road with 50,000 vehicles per day. This recommendation is not mandated by State law, but only serves as a general guidance to lead agencies when considering land use projects. The *Air Quality and Land Use Handbook* states that it is up to lead agencies to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues. The Project would not locate sensitive land uses along a rural road with 50,000 vehicles per day. An analysis of the traffic report for the Project indicated average daily trips much less than the 50,000 limit for rural roads. For these reasons, no significant impacts are anticipated with respect to TACs.

c) As shown in **Table 1** and **Table 2**, all emissions associated with the Project would not exceed the SCAQMD recommended construction or operational emissions thresholds and would not result in a cumulatively considerable net increase of any criteria pollutant.

d) ***Localized Significance Emissions***

Sensitive receptors are defined as schools, residential homes, hospitals, resident care facilities, daycare centers or other facilities that may house individuals with health conditions that would be adversely impacted by changes in air quality. The Project site is located on a site that is currently being farmed with the nearest sensitive receptor being the approved residential subdivision east of the site in the City of La Quinta. While the Project site is within a 1 mile radius of a sensitive receptor, **Table 3, LST Worst-Case Emissions (pounds/day)**, indicate that emissions would be well below the SCAQMD localized significance thresholds. Therefore, impacts would be less than significant.

Table 3
LST Worst-Case Emissions (pounds/day)

Source	NOx	CO	PM10	PM2.5
Construction				

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Total mitigated maximum emissions	37.97	51.67	9.38	5.07
LST threshold	80	498	14	8
Threshold exceeded?	**No**	**No**	**No**	**No**
Operational				
Area/energy emissions	1.94	19.8	0.54	0.54
LST threshold	304	2,292	4	2
Threshold exceeded?	**No**	**No**	**No**	**No**

Note: Refer to Technical Air Quality & Greenhouse Gas Emission Report for the Vista Soleada Specific Plan in **Appendix A.**

e) As indicated in **Table 3**, the construction of the Project would result in emissions below the localized significance thresholds. As such, the Project would result in a less than significant impact on the future sensitive receptors located east of the Project site.

f) According to the SCAQMD, while almost any source may emit objectionable odors, some land uses will be more likely to produce odors because of their operation. Land uses that are more likely to produce odors include agriculture, chemical plants, composting operations, dairies, fiberglass molding, landfills, refineries, rendering plants, rail yards and wastewater treatment plants. The Project does not contain any active manufacturing activities and would convert current agricultural land to residential land uses. Therefore, objectionable odors would not be emitted by the residential uses.

Any unforeseen odors generated by the Project will be controlled in accordance with SCAQMD Rule 402 (Nuisance). Rule 402 prohibits the discharge of air contaminants that cause "injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, 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." Failure to comply with Rule 402 could subject the offending facility to possible fines and/or operational limitations in an approved odor control or odor abatement plan. No impacts would occur.

<u>Mitigation:</u> No mitigation measures are required.

<u>Monitoring:</u> No monitoring measures are required.

BIOLOGICAL RESOURCES Would the project

7. Wildlife & Vegetation

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state conservation plan?	☐	☐	☒	☐

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Have a substantial adverse effect, either directly or through habitat modifications, on any endangered, or threatened species, as listed in Title 14 of the California Code of Regulations (Sections 670.2 or 670.5) or in Title 50, Code of Federal Regulations (Sections 17.11 or 17.12)?	☐	☒	☐	☐
c) 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. Wildlife Service?	☐	☒	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) 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?	☐	☐	☐	☒
f) 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?	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
g) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐

Source: (a) County of Riverside General Plan. Multipurpose Open Space Element. James W. Cornett Ecological Consultants, *General Biological Resources Assessment*, November 2013.

Findings of Fact:

a) The Project site is located within the Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP) Area. According to the Figure 4-1: Conservation Areas of the CVMSCHP, the Project site does not lie within a Conservation Area. Because the Project Site is located within the CVMSHCP Area, a per-acre mitigation fee shall be paid to the County for potential impacts to sensitive species found elsewhere in the CVMSHCP Area. In accordance with Riverside County Ordinance 875, "Local Development Mitigation Fee for Funding the Preservation of Natural Ecosystems in Accordance with the CVMSHCP," payment of the fee for residential development would be conditioned for compliance. Therefore, the Project would not conflict with the provisions of the adopted CVMSHCP and impacts would be less than significant.

b) A General Biological Resources Assessment has been prepared in compliance with Riverside County Planning Departments Biological Report Guidelines. No sensitive plant species were observed during the survey conducted for the Project site and surrounding area. In particular, there was no presence of Rare, Endangered, or Threatened plant species on or adjacent to the Project site. No additional plant surveys are recommended and impacts on sensitive plan species would be less than significant.

   Surveys were conducted to determine the presence of sensitive wildlife species including insect species, amphibians, reptiles, birds, and mammals. No presence of the Burrowing Owl, Casey's June beetle, Desert tortoise, or Loggerhead shrike. No further surveys are recommended for the Casey's June beetle, Desert tortoise, or Loggerhead shrike. However, there is still the potential for the Burrowing Owl to occupy the Project site and perimeter prior to grading due to suitable habitat for the species. As such, mitigation will be required to reduce potential impacts to the Burrowing Owl. Impacts would be less than significant with implementation of mitigation measure 7a and 7b.

c) According to the General Biological Resources Assessment, suitable habitat exists for the burrowing owl (non-covered species under the Migratory Bird Treaty Act) exists. However, as previously indicated, the burrowing owl was not observed on the Project site during surveying. Implementation of mitigation measure 7a and 7b would reduce potential impacts to less than significant. Although the desert tortoise is a covered species under the CVMSHCP, clearance surveys for the tortoise can be required by the United States Fish & Wildlife Service prior to site disturbance. However, because field surveys revealed no evidence of suitable habitat for the occurrence of this species on the Project site, no additional surveys for this species are recommended. No evidence of the Casey's June beetle was found and has not been identified east of Cathedral City. No suitable nesting habitat for the Loggerhead shrike was identified within the Project boundaries. Therefore, no additional surveys or

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

actions are required. Impacts would be less than significant to sensitive, candidate, or special status species.

d) The site is currently being farmed for carrots and the perimeter contains access roads for use of agricultural equipment. Use of the perimeter roads would provide the potential as a wildlife corridor. Surveys were conducted for the General Biological Resources Assessment to determine the presence of wildlife corridors around the Project site. No regularly used wildlife corridors could be detected through sign or observation. Therefore, the Project would not conflict with established native resident migratory wildlife corridors, or impede the use of native wildlife nursery sites. In addition, a persistently flowing watercourse is not present on or adjacent to the Project site. The Project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species.

e) No riparian habitat or sensitive natural community is located on the Project site. The closest potential for riparian habitat would be Lake Cachuilla, approximately 3 miles northwest of the Project site. However, due to the distance from the Project site, development would not impact potential riparian habitats. Therefore, no impacts would occur.

f) The Project site is neither in proximity to, nor does it contain, wetland habitat or a blue line stream. Therefore, Project implementation would not have a substantial adverse effect on federally protected wetlands, as defined by Section 404 of the Clean Water Act (CWA) through direct removal, filling, hydrological interruption or other means. Therefore, no impacts would occur.

g) The County of Riverside recognizes the importance of trees. The County's General Plan recognizes trees as important in providing aesthetic appeal throughout the area. In additional, the General Plan emphasizes to maintain and conserve superior examples of native trees, natural vegetation, stands of established trees, and other features for ecosystem, aesthetic, and water conservation purposes (Open Space Element). Trees do not exist on the Project site. Furthermore, the Project site and surrounding area do not contain any biological resources and Project development would not include the removal or disturbance of any trees. Therefore, impacts would be less than significant.

<u>Mitigation:</u> 7a. A survey of the Project Site to determine the presence of burrowing owls shall be conducted 30 days prior to project grading to determine if active burrows are present on or within vacant areas within 550 yards of the Project Site. A report of the survey results shall be submitted to the County of Riverside. If the biologist performing the surveys determines the site no longer contains suitable habitat for residency by burrowing owl, grading shall commence.

7b. If an active burrow is located during the preconstruction survey, the burrow shall be treated as a nest site and temporary fencing shall be installed at a distance of 550 yards from the active burrow to prevent disturbance to the burrow during grading and construction. This is the maximum buffer distance recommended in the Staff Report on Burrowing Owl Mitigation prepared by the California Department of Fish and Wildlife (March 7, 2012) when activities will result in a high level of disturbance. The fencing used shall be a visual screen unless the biological monitor determines a visual screen is not appropriate because of the location of the burrow and the nature of the surrounding uses or activities. A biological monitor shall be present to supervise the erection and removal of the temporary fencing.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Monitoring: Department of Building and Safety Grading Division and Planning Department (County Biologist).

CULTURAL RESOURCES Would the project

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
8. Historic Resources				
a) Alter or destroy an historic site?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of a historical resource as defined in California Code of Regulations, Section 15064.5?	☐	☐	☐	☒

Source: McKenna, et al, Cultural Assessment, December 2013.

Findings of Fact:

a) The Cultural Assessment did not identify the Project site as historic; therefore, Project implementation would not alter or destroy any historic sites. No impacts would occur.
b) No structures are present on the Project Site. The Cultural Assessment did not identify historical structures or other historical resources as defined in California Code of Regulations, Section 15064.5. No impacts would occur.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
9. Archaeological Resources				
a) Alter or destroy an archaeological site.	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to California Code of Regulations, Section 15064.5?	☐	☒	☐	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☒
d) Restrict existing religious or sacred uses within the potential impact area?	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Source: McKenna, et al, Cultural Assessment, December 2013.

Findings of Fact:

a) The Cultural Assessment performed for the Project did not identify any archeological resources onsite. However, the Cultural Assessment did identify historic isolates and cremations on the property adjacent to the east. This site is, therefore, considered sensitive. The Cultural Assessment has been reviewed and determined adequate by the County Archaeologist, and based on the recommendations contained within the report, limited archaeological monitoring during construction will be required to mitigate any potential impacts from grading. With implementation of mitigation, Project impacts would be less than significant.

b) See Response 9(a) above. Impacts to archaeological resources on site would be mitigated to less than significant pursuant to California Code of Regulations, Section 15064.5.

c) The survey conducted for the Cultural Assessment did not determine the presence of any cremations, burial sites, or human remains on the Project Site. No impacts would occur.

d) The Project would not restrict existing religious or sacred uses within the potential impact area. No impacts would occur.

Mitigation: 9a. Prior to issuance of a grading permit, a data recovery plan, which makes provisions for adequately recovering the scientifically consequential information from and about the historical resource, shall be prepared and adopted prior to any excavation being undertaken. The data recovery plan shall be deposited with the California Historical Resources Regional Information Center. The developer/permit holder retain and enter into a contract with a qualified archaeologist who will be included in any pre-grade meetings to provide cultural sensitivity training and establish guidelines for ground disturbance in sensitive areas. The archaeologist will manage and oversee monitoring for all mass/rough grading activities (including grubbing, grading, trenching, etc.) on the Project site. A copy of the fully executed contract must be submitted to the Planning Department. If an artifact must be removed during project excavation or testing, the artifact shall be curated.

Monitoring: Department of Building and Safety Grading Division and Planning Department (County Archaeologist).

10. Paleontological Resources				
a) Directly or indirectly destroy a unique paleontological resource, or site, or unique geologic feature?	☐	☒	☐	☐

Source: Riverside County General Plan Figure OS-8 “Paleontological Sensitivity”

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Findings of Fact:

a) The Project is located within a high sensitivity area for the presence of paleontological resources. Therefore, potential impacts to paleontological resources would occur during subsurface grading. Implementation of mitigation measure 10a would reduce potential impacts to less than significant.

Mitigation: 10a. Prior to issuance of a grading permit, a data recovery plan, which makes provisions for adequately recovering the scientifically consequential information from and about the paleontological resource, shall be prepared and adopted prior to any excavation being undertaken. The data recovery plan shall be deposited with the San Bernardino County Museum. The developer/permit holder retain and enter into a contract with a qualified paleontologist who will be included in any pre-grade meetings to provide paleontological sensitivity training and establish guidelines for ground disturbance in sensitive areas. If any paleontological resources are discovered, a qualified paleontologist shall be retained to monitor site subsurface grading activities, with the authority to halt grading to collect uncovered paleontological resources, curate any resources collected with an appropriate repository, and file a report with the Planning Department document any paleontological resources that are found during the course of subsurface grading.

Monitoring: Department of Building and Safety Grading Division and Planning Department (County Archaeologist).

GEOLOGY AND SOILS Would the project				
11. Alquist-Priolo Earthquake Fault Zone or County Fault Hazard Zones				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death?	☐	☐	☒	☐
b) Be subject to 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?	☐	☐	☐	☒

Source: (a) Earth Systems Southwest, Geotechnical Engineering Report Proposed Vista Soleada Tentative Tract 36590, September 2013. California Department of Conservation, Alquist-Priolo Earthquake Fault Zoning Act. California Department of Conservation, California Geological Survey, Regional Geological and Mapping Program. Riverside County Land Information System. (b) Earth Systems Southwest, Geotechnical Engineering Report Proposed Vista Soleada Tentative Tract 36590, September 2013.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Findings of Fact:

a) According to the Geotechnical Engineering Report, the Project site is not underlain by any known, mapped active or potentially active fault deemed capable of rupturing the surface. The Project site is not located within any Alquist-Priolo Earthquake Fault Zone. The potential for fault rupture on the Project site is considered remote.

Project development would include the construction of 230 residences within the Vista Santa Rosa Community. All site and building implementation would be required to be implemented in accordance with the 2010 California Building Code (CBC; California Code of Regulations, Title 24, Part 2), which contains provisions to safeguard against major structural failures or loss of life caused by earthquakes or other geological hazards. Impacts would be less than significant.

b) The main purpose of the Alquist-Priolo Earthquake Fault Zoning Act is to prevent construction of buildings used for human occupancy on the surface of active faults, in order to minimize the hazard of surface rupture of a fault to people and habitable buildings. An active fault is a fault that has had surface displacement within the last 11,000 years. The Project site is not within an Alquist-Priolo Earthquake Fault Rupture Zone, as delineated by the California Geological Survey, or within a Riverside County fault zone. Therefore, no active fault rupture would occur.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring is required.

12. Liquefaction Potential Zone				
a) Be subject to seismic-related groundfailure, including liquefaction?	☐	☒	☐	☐

Source: Riverside County Eastern Coachella Valley Area Plan Figure 14 “Seismic Hazards.” Earth Systems Southwest, Geotechnical Engineering Report Proposed Vista Soleada Tentative Tract 36590, September 2013.

Findings of Fact:

Liquefaction refers to loose, saturated sand or gravel deposits that lose their load-supporting capability when subjected to intense shaking. According to the Area Plan, the Project site is designated in an area with high liquefaction susceptibility. The Geotechnical Engineering Report prepared for the Project identifies recommendations to minimize seismic related ground failure, including liquefaction through moisture conditioning, over-excavation, and compaction of onsite soils. The Project would be required to adhere to the 2010 CBC, which contains provisions for soil preparation to minimize hazards from liquefaction and other seismic-related ground failures. Therefore, impacts from liquefaction would be mitigated to less than significant.

Mitigation: 12a) All grading and earthwork recommendations from the Project Geotechnical Engineering Report, including any updates, must be incorporated into the final Project design, including

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

the final grading, drainage and erosion control plans, or other plans deemed necessary by the County Geologist and muse ensure they meet the County's Building Code requirements set forth in the County Building Code. All grading activities must be supervised by a certified engineering geologist: Final grading, drainage, and erosion control plans must be reviewed and approved by the County Geologist before the County issues a grading permit.

Monitoring: Department of Building and Safety Grading Division and Planning Department (County Geologist).

13. Ground-shaking Zone				
a) Be subject to strong seismic ground shaking?	☐	☐	☒	☐

Source: (a) Riverside County Eastern Coachella Valley Area Plan. Earth Systems Southwest, Geotechnical Engineering Report Proposed Vista Soleada Tentative Tract 36590, September 2013

Findings of Fact:

a) According to the Area Plan, the Project site is not designated within in an area susceptible to slope instability. The Project site is outside all listed levels of slope instability. However, being located in southern California, the Project area is subject to ground shaking in the past on numerous occasions. The Project site, as all of the southern California area, is located in a seismically active region and will experience slight to intense ground shaking as the result of movement along various active faults in the region. The 2010 CBC contains provisions to safeguard against major structural failures or loss of life caused by earthquakes or other geologic hazards. The Project would be required to adhere to the provisions of the 2010 CBC. Compliance with the requirements of the 2010 CBC for structural safety during a seismic event would reduce hazards from strong seismic ground shaking. Therefore, impacts from seismic ground shaking would be less than significant and no mitigation measures are necessary.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring is required.

14. Landslide Risk				
a) 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, collapse, or rockfall hazards?	☐	☒	☐	☐

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Source: Earth Systems Southwest, Geotechnical Engineering Report Proposed Vista Soleada Tentative Tract 36590, September 2013

Findings of Fact:

a) The risks associated with landslides occur when building or structures are placed on slopes. The Project site is topographically level. Therefore, no impacts would occur and no mitigation measures are necessary in regards to on or offsite landslides.

The potential for liquefaction induced lateral spreading under the Project is considered low as no free-face or sloping ground conditions exist in the immediate vicinity of the Project. Impacts would be less than significant.

The potential for collapsible soil exists on site. Implementation of mitigation measure 12a which includes the recommendations presented in the Project Geotechnical Engineering Report, as well as requirements of the CBC, would mitigate potential soil collapse to levels less than significant.

Mitigation: Implement mitigation measure 12a to reduce impacts from collapsible soils.

Monitoring: Department of Building and Safety Grading Division and Planning Department (County Geologist).

15. Ground Subsidence				
a) 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 ground subsidence?	☐	☒	☐	☐

Source: Earth Systems Southwest, Geotechnical Engineering Report Proposed Vista Soleada Tentative Tract 36590, September 2013.

Findings of Fact:

a) The project area is in an area where multiple aerial photograph lineaments have been identified. The origin of these lineaments is unknown but may be the result of past tensional stresses related to areal subsidence of deep sediment profiles due to groundwater withdrawal. Currently, the effects of subsidence in the project area are considered to be stable as recharging of the aquifer is locally occurring. However, in the event that groundwater withdrawal and pumping patterns change in the future, the effects of areal subsidence and associated tensional stresses could include surface fissuring similar to those which have occurred in the southeast La Quinta area. Surface effects of subsidence include ground surface fissuring, differential settlement, and tensional (pull-apart) stresses that have resulted in distress to pavements, infrastructure, hardscape, structures pools, and anthropic water features in other areas of southeast La Quinta and Indian Wells. Implementation of mitigation measure 15a would reduce potential lineament and fissuring impacts to less than

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

significant.

Mitigation: 15a. Prior to the issuance of grading permits, should the on-site lineaments be determined to be associated with subsidence related fissures, mitigation of subsidence and fissuring effects will take into account the estimated differential movement that might occur including horizontal tensional stresses and vertical differential displacement, by including the following feasible measures into grading and building design:

- Structural mitigation of foundation systems with additional reinforcing (i.e. post-tension type foundations).
- Soil subgrade mitigation including over-excavation and replacement with engineered fill with the addition of geogrid soil reinforcing.
- Inclusion of an aggregate or crack-stopper layer under foundation systems to allow for the tensional stresses to be accommodated beneath the structure or utility.
- A combination of structural reinforcing and remedial grading (with geogrid).
- Designing infrastructure to accommodate the estimated effects including tensional (pull-apart of pipe joints) effects and change in grades for gravity feed sewers.
- Avoidance for development along or across defined fissure alignments.

Monitoring: Department of Building and Safety Plan Check Process and Planning Department review (County Geologist).

16. Other Geologic Hazards

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Be subject to geologic hazards, such as seiche, mudflow, or volcanic hazard?	☐	☐	☒	☐

Source: (a) Eastern Coachella Valley Area Plan, Figure 12 “Flood Hazards.” County of Riverside General Plan Safety Element, Figure S-10, “Dam Failure Inundation Zones.”

Findings of Fact:

a) The following describes potential impacts to people and structures from seiches, mudflows, and volcanic hazards. As demonstrated below, the Project would not expose people or structures to inundation by seiche, mudflow, or volcanic hazards.

Seiche

A seiche is a surface wave created when an inland water body is shaken, usually by an earthquake. Seiches are of concern relative to water storage facilities because inundation from a seiche can occur if the wave overflows a containment wall, such as the wall of a reservoir, water storage tank, dam or other artificial body of water. Lake Cahuilla is the closest body of water to the Project site approximately 3.5 miles northwest. The distance of the Project site to a nearby body of water would result in a low potential for seiche impacts. Impacts would be less than significant.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Mudflow

A mudflow is a landslide composed of saturated rock debris and soil with a consistency of wet cement. The Project site and surrounding area are generally flat with gradual changes in elevation, and there are no major slopes or bluffs on or adjacent to the site. Land surrounding the Project site is developed and is generally flat. Therefore, impacts from a mudflow would not occur.

Volcanic Hazard

No known volcanos are located in close proximity to the Project Site. No impacts would occur.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring is required.

17. Slopes				
a) Change topography or ground surface relief features?	☐	☐	☒	☐
b) Create cut or fill slopes greater than 2:1 or higher than 10 feet?	☐	☐	☒	☐
c) Result in grading that affects or negates subsurface sewage disposal systems?	☐	☐	☐	☒

Source: (b) Riverside County General Plan "Regions Underlain by Steep Slopes," Building and Safety – Grading Review, GEO No. 1367.

Findings of Fact:

a) The existing Project site is flat and currently being farmed. Development of the Project site would involve the mass and fine grading, which would not significantly alter the existing topography of the ground surface. Impacts would be less than significant.

b) The existing topography of the Project site is flat. Due to the existing character of the Project site, Project development would not be expected to implement cut or fill slopes greater than 2:1 or higher than 10 feet. Compliance with Riverside County Building and Safety Ordinance No. 457 is required. Ordinance No. 457 would assure cut or fill slopes are manufactured appropriately. Compliance with Ordinance No. 457 and the CBC would reduce potential impacts due to changes in topography, and cut and fill slopes, as a result of the Project, to a less than significant level.

c) There are currently no subsurface sewage disposal systems on the Project site, nor are subsurface sewage disposal systems proposed for the development of the Project. No impact would occur.

Mitigation: No mitigation measures required.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Monitoring: No monitoring measures are required.

18. Soils				
a) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
b) Be located on expansive soil, as defined in Section 1802.3.2 of the California Building Code (2007), creating substantial risks to life or property?	☐	☐	☒	☐
c) Have soils incapable of adequately supporting use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

Source: (a) MSA Consulting, Inc., Vista Soleada Specific Plan, December 2013 (b) Earth Systems Southwest, Geotechnical Engineering Report for Vista Soleada, September 2013.

Findings of Fact:

a) Project development of the site would result in the loss of topsoil from grading activities, but not in a manner that would result in significant amounts of soil erosion. Implementation of Best management practices (BMPs) would reduce the impact to below a level of significance. Furthermore, the Project would be required to comply with SCAQMD Rule 402 and Rule 403 which would reduce the amount of dust erosion during construction. Impacts would be less than significant.
b) Expansive soils become a safety hazard with earth materials that swell and contract depending on the amount of water present. Soils were tested onsite and determined to have a very low expansive soil index. Conformance to the 2010 CBC would ensure that soils onsite would continue to have a low expansive soil index. Impacts would be less than significant.
c) Development of the Project would not require the installation of a septic tank. Project implementation would include a sewer system that would connect to the Coachella Valley Water District. Therefore, no impacts would occur.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
19. Erosion				
a) Change deposition, siltation, or erosion that may modify the channel of a river or stream or the bed of a lake?	☐	☐	☒	☐
b) Result in any increase in water erosion either on or off site?	☐	☐	☒	☐

Source: (a) Earth Systems Southwest, Geotechnical Engineering Report for Vista Soleada, September 2013.

Findings of Fact:

a) Implementation of the Project would involve grading and various construction activities in areas of flat terrain. The Project site is flat, and currently being used for farming methods. Standard construction procedures, and federal, state, and local regulations implemented in conjunction with the site's storm water pollution prevention plan (SWPPP) and its BMPs required under the National Pollution Discharge System (NPDES) general construction permit, would minimize potential for erosion during construction. While there are no adjacent water bodies to the Project site, these practices would keep substantial amounts of soil material from eroding from the Project site and prevent deposition within receiving waters located downstream. Impacts would be less than significant.

b) The potential for onsite erosion would increase due to grading and excavation activities during the construction phase. However, BMPs would be implemented for maintaining water quality and reducing erosion. Off-site erosion would not be affected by Project development due to the paved streets that surround the project site. Therefore, increases in water-induced erosion on or off-site would not cause an adverse impact. Impacts would be less than significant.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

20. Wind Erosion and Blowsand from project either on or off site.				
a) Be impacted by or result in an increase in wind erosion and blowsand, either on or off site?	☐	☐	☒	☐

Source: Riverside County General Plan, Figure S-8 "Wind Erosion Susceptibility Map."

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Findings of Fact:

a) According to the Riverside County General Plan, the Project site is located in an area designated as having moderate to high wind erodibility. However, the Project would decrease the amount of exposed dirt, which is subject to wind erosion, with the incorporation of concrete, asphalt, and landscaping. No changes would be made on adjacent properties that would increase wind erosion offsite that would impact the Project site. Current levels of wind erosion on adjacent properties that would impact the Project site are considered less than significant. Compliance with SCAQMD dust regulations would reduce the amount of wind erosion offsite during construction. Impacts would be less than significant.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
GREENHOUSE GAS EMISSIONS Would the project				
21. Greenhouse Gas Emissions				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Source: Meridian Consultants, *Technical Air Quality & Greenhouse Gas Emission Report for the Vista Soleada Specific Plan*, January 2014.

Findings of Fact:

a) The County of Riverside adopted the Climate Action Plan (CAP) for unincorporated areas in the County in 2012. The CAP allows the County to meet the requirements of AB 32 for reducing GHG emissions by 20 percent from 1990 levels by 2020. The screening threshold set in the CAP is 3,000 million metric tons of carbon dioxide equivalents (MTCO2e) for any project. If the project is below the screening threshold, GHG impacts would be less than significant. If the project exceeds the screening threshold, then two options are provided by the CAP to analyze potential cumulative GHG impacts from implementation of a project. They include the use of County GHG Screening Table document or two air quality emission model runs comparing 2011 levels and Project buildout levels which result in a 25 percent reduction of GHG emissions from the 2011 model run, as discussed in the Technical Air

Quality & Greenhouse Gas Emission Report for the Vista Soleada Specific Plan (**Appendix A**).

The annual net GHG emissions associated with the 2011 operation of the Project and the proposed Project are provided in **Table 4, Comparison of Operational Greenhouse Gas Emissions**. As identified in **Table 4**, both the 2011 and Project GHG emissions would exceed the 3,000 MTCO2e screening threshold. The sum of the direct and indirect emissions associated with the 2011 Project is compared to the direct and indirect emissions associated with the proposed Project. As shown in **Table 4**, the Project would result in a reduction of 25.6 percent with respect to the 2011 GHG emissions. The Project would incorporate required water conservation measures and energy conservation measures into the design. Because the Project results in greater than a 25 percent reduction in GHG emissions, impacts would be less than significant.

Table 4
Comparison of Operational Greenhouse Gas Emissions

GHG Emissions Source	Emissions ($MTCO_2e$/year)
2011 Construction	90.0
2011 Operational sources	4,700.5
Subtotal	4,790.6
Proposed Project Construction	74.3
Proposed Project Operational sources	3,777.9
Subtotal	3,814.7
Annual Difference (reduction)	**975.9 (25.6 %)**

Source: CalEEMod
Notes:
Emissions calculations are provided in **Appendix** Technical Air Quality & Greenhouse Gas Emission Report for the Vista Soleada Specific Plan***.*** *Totals in table may not appear to add exactly due to rounding in the computer model calculations.* $MTCO_2e$ *= metric tons of carbon dioxide emissions. The emissions of the Project represent the net difference between the existing greenhouse generated uses that would be removed and the Project greenhouse gas emissions.*

b) The Project would incorporate energy reduction measures which exceed Title 24 requirements by 5 percent, incorporate water efficient landscaping and irrigation systems, incorporate low flow water features in residential units, etc. as identified in the Riverside County CAP. Because the Project would reduce GHG emissions from 2011 levels by 25 percent, the Project would assist the County in reducing GHG emissions. Project development would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gasses. The impact is less than significant.

<u>Mitigation:</u> No mitigation measures are required.

<u>Monitoring:</u> No monitoring measures are required.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
HAZARDS AND HAZARDOUS MATERIALS Would the project				
22. Hazards and Hazardous Materials				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
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?	☐	☒	☐	☐
c) Impair implementation of or physically interfere with an adopted emergency response plan or an emergency evacuation plan?	☐	☐	☐	☒
d) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
e) 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?	☐	☐	☐	☒

Source: (a)-(e) Vista Soleada Specific Plan.

Findings of Fact:

a) The Project would not create or require transportation of hazardous materials. However, it may result in the use and disposal of substances as household and commercial cleaning products, fertilizers, pesticides, automotive fluids, etc., but the nature and volume of such substances associated with the residential use would not present the potential to create a significant public or environmental hazard.
b) The Project would not create a significant hazard to public or environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

environment. The impact would be considered less than significant.

c) The Project includes adequate access for emergency response vehicles and personnel, as developed in consultation with County Fire personnel; therefore, would not impair the implementation of, or physically interfere with an emergency response plan and/or emergency evacuation plan. No impacts would occur.

d) The Project is not located within one quarter mile of an existing or proposed school. The nearest schools to the Project site are site are Westside Elementary, located at 82225 Airport Boulevard in Thermal, approximately 2.25 miles north, and Coachella Valley High School, located at 83800 Airport Boulevard in Thermal, approximately 2.75 miles northeast of the Project site. Therefore, the Project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. No impacts would occur.

e) The Project site is not located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, it would not create a significant hazard or have any impact to the public or the environment. No impacts would occur.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring is required.

23. Airports				
a) Result in an inconsistency with an Airport Master Plan?	☐	☐	☐	☒
b) Require review by the Airport Land Use Commission?	☐	☐	☐	☒
c) 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?	☐	☐	☐	☒
d) For a project within the vicinity of a private airstrip, or heliport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒

Source: (a)-(d) Eastern Coachella Valley Area Plan, Figure 5 “Desert Resorts Regional Airport Influence Policy Area.”

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Findings of Fact:

a) The Project site is not located within the vicinity of any public or private airport. The closest airport to the Project site is Desert Resorts Regional Airport has since been renamed as the Thermal Airport, approximately 3.5 miles to the northeast. According to the Area Plan, the Project site is located outside the airport influence policy area. Therefore, the Project would not result in an inconsistency with an Airport Master Plan. Impacts would not occur.

b) The Project site is not located within the vicinity of any public or private airport; therefore would not require review by the Airport land Use Commission (ALUC). No impacts would occur.

c) The Project is not located within an airport land use plan and would not result in a safety hazard for people residing or working in the Project area. No impact would result with implementation of the Project. See response to Section 23(a) and (b), previously.

d) The project site is not located within the vicinity of a private airstrip, or heliport, therefore would not result in a safety hazard for people residing or working in the Project area. No impact would result with implementation of the Project. See response to Section 23(a) and (b), previously.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

24. Hazardous Fire Area				
a) 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?	☐	☐	☒	☐

Source: Riverside County General Plan, Eastern Coachella Valley Area Plan, Figure 13 "Wildfire Susceptibility."

Findings of Fact:

b) According to the Area Plan, the Project site is located in area designated as low for wildfire susceptibility. The Project site is surrounded by areas of low wildfire susceptibility to the west and south, and no wildfire susceptibility areas to the north and east. Additionally, the Project would be required to adhere to Riverside County Ordinance No. 787 and CBC, which contains provisions for prevention of fire hazards. Therefore, the Project would not 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. Impacts from wildland fires would be less than significant.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Mitigation: No mitigation measures are necessary.

Monitoring: No monitoring measures are necessary.

HYDROLOGY AND WATER QUALITY Would the project

25. Water Quality Impacts

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
b) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
c) 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)?	☐	☐	☒	☐
d) Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
e) 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?	☐	☐	☒	☐
f) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☒	☐

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
g)	Otherwise substantially degrade water quality?	☐	☐	☒	☐
h)	Include new or retrofitted stormwater Treatment Control Best Management Practices (BMPs) (e.g. water quality treatment basins, constructed treatment wetlands), the operation of which could result in significant environmental effects (e.g. increased vectors and/or odors)?	☐	☐	☒	☐

Source: e) Eastern Coachella Valley Area Plan, Safety Element, Figure S-9, 100 and 500-year Flood Hazard Areas.

Findings of Fact:

a) The Project site is generally flat and post-development of the Project would result in pre-development runoff rates. See Response 19a. Compliance with State Water Board erosion control requirements would result in less than significant impacts during construction.

b) As discussed in Response 25a, the construction of the Project would implement BMP measures to reduce offsite water quality issues to less than significant levels. The Project designed the onsite stormwater drainage system with drainage swales and retention basins. The retention basins would conform to the MS4 Whitewater River Watershed Municipal Stormwater Program. Impacts would be less than significant.

c) Historic groundwater levels for the site are shallow with levels approximately 3 feet below ground surface. The Project would utilize potable water from the Coachella Valley Water District, which in turn uses a mixture of Colorado River water and groundwater to supplement demand within the Coachella Valley Water District service boundaries. The CVWD has numerous groundwater recharge facilities within the Coachella Valley to offset the lowering of the groundwater table. The Project site is located within a groundwater recharge area where groundwater levels are currently rising. As discussed later in this document, the Project would result in less water demand than that required for existing farm operations. Therefore, the Project would not directly or indirectly lower groundwater levels within the Project area. Impacts would be less than significant.

d) The Project site is uniformly level and surface water runoff north of the site drains to the east without entering the site. Surface flow is mainly confined to flows generated onsite. The Project has been designed to include a comprehensive drainage system that collects storm flows, retains the increase in post-development flow, and discharges the surface water at pre-development levels. The Project includes retention basins, which would treat and retain incremental surface water runoff, within the open space areas along the perimeter of the site. The retention basins would conform to the MS4 Whitewater River Watershed Municipal Stormwater Program. Impacts would be less than significant.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

e) The Project Site is located within a 100-year flood hazard area. The Coachella Valley Stormwater Channel intercepts and conveys surface water flows in the Lower Whitewater River Subbasin of the Whitewater River Watershed to the Salton Sea. This Channel is designed to convey 100 year floods. Furthermore, the Project site would be graded to protect all building pads from a 100-year flood event, in accordance with the CBC, and the onsite storm drain system would convey these flows through the site. Impacts would be less than significant.

f) The Project design would be designed in accordance with the CBC to include building pad heights above the 100-year flood hazard area and would include an onsite storm drainage system that retains the post-development flow and discharges surface water at pre-development levels to protect onsite residences and downstream properties. Therefore, the Project would not place structures within a 100-year flood hazard area which would impede or redirect flood hazard flows. Impacts would be less than significant.

g) See Responses 25a through 25h. Impacts would be less than significant.

h) The Project site would be designed to treat stormwater runoff via drainswales and retention basins in accordance with the MS-4 Whitewater River Watershed Municipal Stormwater Program. The onsite drainage facilities would be maintained by the Vista Soleada Homeowners Association to minimize vector population and/or odors. Impacts would be less than significant.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring is required.

26. Floodplains

Degree of Suitability in 100-Year Floodplains. As indicated below, the appropriate Degree of Suitability has been checked.

NA – Not applicable ☒ U – Generally Unsuitable ☐ R – Restricted ☐

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	☐	☐	☒	☐
b) Changes in absorption rates or the rate and amount of surface runoff?	☐	☐	☒	☐
c) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as the result of the failure of a levee or dam (Dam Inundation Area)?	☐	☐	☒	☐

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Changes in the amount of surface water in any water body?	☐	☐	☐	☒

Source: (a) Vista Soleada Specific Plan, December 2013 (c) Riverside County General Plan, Figure S-16 "Inventory of Dam Locations." Riverside County General Plan, Figure S-10 "Dam Failure Inundation Zones."

Findings of Fact:

a) The Project site is located in an unincorporated area of Riverside County, east of the City of La Quinta, which is currently being used for farming carrots. The construction of storm drain and/or other flood control devices are required by the Riverside County Flood Control and Water Conservation District for development of the site and are enforced through the County's standard conditions of approval. As discussed in Responses 25a through 25h, potential onsite and offsite flooding impacts would be less than significant.

b) Although development of the Project site would increase the amount of impervious surface as compared to the existing condition, the Project includes numerous drainage swales and retention basins that would collect on-site flows and would allow for infiltration. With implementation of the Project design in conformance with the MS4 permit, potential impacts to surface runoff from the Project is considered to be less than significant.

c) The Project site is located in an unincorporated area of Riverside County, east of the City of La Quinta, within the Vista Santa Rosa Community. According to the General Plan, the closest dam to the Project site is located in La Quinta. However, the General Plan also designates the Project site outside an area subject to dam inundation. Therefore, impacts would be less than significant.

d) The Project would not cause changes in the amount of surface water in any water body. No impacts would occur.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

LAND USE/PLANNING Would the project				
27. Land Use				
a) Result in a substantial alteration of the present or planned land use of an area?	☐	☐	☒	☐
b) Affect land use within a city sphere of influence and/or within adjacent city or county boundaries?	☐	☐	☒	☐

Source: (a) Riverside County General Plan, Eastern Coachella Valley Area Plan, Vista Santa Rosa Community.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

(b)Riverside County Land Information System. City of la Quinta General Plan, Exhibit II-1, "Land Use Map."

Findings of Fact:

a) The Project site is located in an unincorporated area of Riverside County, immediately east of the City of La Quinta, within the Vista Santa Rosa Policy area and within the City of La Quinta Sphere of Influence. The Project Site is designated as Agriculture with a Community Development Overlay (CDO), which allows for an overall density range of 1-3 dwelling units per acre. Implementation of the Project would require a General Plan amendment to change the land use designation from Agriculture to Medium Density Residential. The CDO allows changes from the Agriculture foundation to the Residential foundation. The Project would provide a residential density of 2.8 dwelling units per acre, provide 29.9 acres of open space (approximately 37 percent of the site), and conform to the policies in the Vista Santa Rosa Land Use Concept Plan. Therefore, the Project would not result in a substantial alternation to the present or planned land use of the area.

b) According to the Riverside County Land Information System and the City of La Quinta General Plan, the Project site is located within the City of La Quinta Sphere of Influence. The City of La Quinta designates the Project site as Low Density Residential, which is appropriate for single family residential development and allowing for up to 4 units per square acre. Residential density within the Project would average 2.8 du/ac, consisting of 211 Citrus Village residential lots with a minimum size of 4,000 sq. ft. and an average of 6,000 sq. ft. in the middle of the site and 19 Date Palm Estate lots ranging in size from 0.75 acres to 1 acre in size on the edges of the site on Avenue 60, along the eastern perimeter, and Avenue 61.The smaller lots abut similar sized residential lots along the western boundary, transitioning to larger estate lots, then to the date palm buffer on the northern, southern and eastern edges. Private parks for joint recreation/retention/community garden use are interspersed throughout the Project site to provide common open space and a convenient location for outdoor community gatherings and activities. An internal system of 3 foot wide multi-use trails would be interspersed within the Project along the central spine road within citrus themed yardscapes. Pedestrian pass-throughs are planned between residential lots at regular intervals to allow ample community access to parks and the perimeter public trail. Furthermore, the Project would be located west of an approved residential subdivision project which would construct 133 residential units. Therefore, Project development would be in accordance with land use designations of the City of La Quinta and impacts would be less than significant.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

28. Planning				
a) Be consistent with the site's existing or proposed zoning?	☐	☐	☒	☐
b) Be compatible with existing and	☐	☐	☒	☐

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	planned surrounding zoning?				
c)	Be compatible with existing and planned surrounding land uses?	☐	☐	☒	☐
d)	Be consistent with the land use designations and policies of the Comprehensive General Plan (including those of any applicable Specific Plan)?	☐	☐	☒	☐
e)	Disrupt or divide the physical arrangement of an established community (including a low-income or minority community)?	☐	☐	☒	☐

Source: (a) Riverside County Planning Department, Zone Descriptions & Requirements. (d) Eastern Coachella Valley Area Plan. Riverside County Land Information System. Vista Soleada Specific Plan, December 2013.

Findings of Fact:

a) The Project site is currently zoned Light Agriculture – 10 Acre Minimum (A-1-10), which allows for one family dwellings. The proposed General Plan amendment will contribute to the achievement of the purposes of the General Plan. The purposes of the General Plan are guided by the General Plan Vision Policies. The policies are arranged into different categories intended to first address planning at an area plan level, then at the community level, and finally down to a specific project level, such as subdivisions or use permits. The General Plan identifies these as macro, medium, and micro levels.

The macro level, entitled the "efficient use of land" in the General Plan has only one policy, LU 2.1, which has several different components. The Project satisfies these components, lettered a through g, as explained below.

a, b, and c- Components a, b, and c of this policy require a broad range and mix in land uses provided at the area plan level, supported by utilities and service systems and evaluation of impacts to the environment. The Project satisfies this requirement for Land Use diversity by providing a mix of residential unit types that are consistent with the Vista Santa Rosa Land Use Conceptual Plan, provides walking and equestrian trails, and provides 29.9 acres of open space, approximately 37 percent of the site. The Project includes a date palm landscape buffer treatment along the perimeter containing a multi-use trail to buffer and transition the larger estate lots from adjacent approved residential subdivisions to the east and agriculture to the north, east, and south. Smaller lots are required within the center of the community. The utilities and service systems needed to serve the project is identified in the Specific Plan, and the impacts of constructing the utilities and service systems is analyzed in this Environmental Assessment Form: Initial Study for impacts and required through conditions of approval and Specific Plan standards.

d and e – Components d and e of the policy require concentration of growth near community centers

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

and near or within existing urban and suburban areas to maintain the rural and open space character of the County. The Project is located within the Vista Santa Rosa Land Use Conceptual Plan area within the Eastern Coachella Valley Area Plan. Community centers are envisioned within this area of the Vista Santa Rosa Land Use Conceptual Plan. The Project is located east of the City of La Quinta with approved suburban residential subdivisions and allowed by the Vista Santa Rosa Land Use Conceptual Plan to have a residential density up to three dwelling units per acre. Open space, trails, equestrian uses, and residential density are required through Conditions of approvals and Specific Plan standards consistent with the Vista Santa Rosa Land Use Conceptual Plan. To create a rural character within the community, the project proposes customized rural road sections and street standards with reduced centerline radii, hammerhead turnarounds rather than cul-de-sacs, traffic circles rather than standard T-intersections, and turf-lined drainage swales in place of concrete curb and gutter. The Project satisfies this requirement for concentrated growth near urban and suburban areas to maintain the rural and open space character of Riverside County.

f and g – Component f requires site development to capitalize on multi-modal transportation opportunities. The Project includes a master circulation plan designed to facilitate efficient vehicular travel throughout the community while also accommodating joint pedestrian use via traffic calming devices such as traffic circles and stamped pavement at intersections. The two main entries are connected by a central axis road with intermittent turning circles to distribute traffic to the rest of the Project. The Project also includes walking and equestrian trails as required by the Policies in the Vista Santa Rosa Land Use Conceptual Plan to connect to other areas in the Vista Santa Rosa community. Parks are also required within a quarter mile of all residential units. Component g prevents inappropriate development in areas that are environmentally sensitive or subject to severe natural hazards. This Environmental Assessment Form: Initial Study addresses these impacts and the Project accommodates mitigation in the design.

While there is only one Land Use Policy directing development at the macro level, there are several at the 'medium', or Community Design level. The Project is consistent with these policies because they are required by the Vista Santa Rosa Land Use Conceptual Plan itself. The Policies in the Community Design section require a mix of uses, multi-modal streets and trails, community separators, unique communities with a sense of place, and compact new towns. The Project addresses each of these policy objectives through the design of the Project, as described above. Other Policies in this section specifically require promotion of infill development and parcel consolidation. For purposes of this analysis it is assumed that these policies are applicable to re-development projects only.

Review of micro, or Project Design Policies, has four Policies each of which has several different components. The Project satisfies these policies, labeled LU 4.1 through LU 4.4. Each are explained below.

Policy LU 4.1 requires that new developments be located and designed to visually enhance, not degrade, the character of the surrounding area through consideration of concepts including compliance with design standards of the appropriate area plan land use category, require that structures be constructed in accordance with requirements of the County's zoning, building, and other pertinent codes and regulations, require use of drought tolerant landscaping and efficient irrigation systems, pursue energy efficiency, incorporate water conservation techniques, encourage innovative and creative design concepts, provision of public art, safe and convenient vehicular access and locate site entries to minimize conflicts with adjacent residential neighborhoods, mitigate noise, odor, lighting, and other impacts on surrounding properties, provide landscaping in open space, include extensive landscaping, preserve natural features, site building access points along sidewalks, pedestrian areas, and bicycle routes that encourage pedestrian activity, establish safe and frequent pedestrian crossings, and include public open areas that separate pedestrian space from auto traffic with special regard to pedestrian safety. The Project addresses each of these policy objectives through the design of the Project, as described above. The Environmental Assessment Form: Initial Study addresses these impacts and the Project accommodates mitigation in the design.

Policy LU 4.2 requires property owners to maintain structures and landscaping to a high standard of design, health, and safety through provide code enforcement activities, programs and work with local service organizations and educational institutions to inform residential property owners about property maintenance methods, and promote and support community and neighborhood based efforts for the maintenance, upkeep, and renovation of structures and sites. The Project addresses these policies as required through conditions of approval.

Policy LU 4.3 requires programs to ensure historic preservation. The Environmental Assessment Form: Initial Study addresses these impacts and the Project accommodates mitigation specific to archeological resources in the design. Furthermore, the Project Site does not contain historic sites or structures and therefore, this policy is not applicable to this Project.

Policy LU 4.4 requires historically significant buildings to be permitted and vary from building and zoning codes in order to maintain the historical character of the County, providing that the variations do not endanger human life and buildings comply with the State Historical Code. The Project Site does not contain structures and therefore, this policy is not applicable to this Project.

The Vista Santa Rosa Land Use Conceptual Plan contains Policies addressing transitions and buffers, and open space and community amenities, community icons, and lifestyle corridors for each specific Policy Area 1 through Policy Area 4. The Project addresses the specific design standards for Policy Area 3 as it would provide a residential community that would be up to 3 dwelling units per gross acre and would provide 29.9 acres of open space, approximately 37 percent of the site. The Project includes a date palm landscape buffer treatment along the perimeter containing a multi-use trail to buffer and transition the larger estate lots from adjacent approved residential subdivisions to the east and agriculture to the north, east, and south. Smaller lots are required within the center of the community. The Project is consistent with the proposed Specific Plan zone; therefore, and impacts would be less than significant.

b) See Response 27a. Impacts would be less than significant.

c) See Response 27 b. The Project would provide similar residential density to the approved project west of the site. The Project would also provide a 100-foot wide Medjool date palm perimeter to the north, east, and south of the site. Impacts would be less than significant.

d) See Response 27a. The Project would comply with policies of the General Plan and Vista Santa Rosa Land Use Conceptual Plan. Impacts would be less than significant.

e) The Project would not disrupt or divide any existing community. See Response 28a. Impacts would be less than significant.

Mitigation: No mitigation measures are required.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Monitoring: No monitoring measures are required.

MINERAL RESOURCES Would the project				
29. Mineral Resources				
a) Result in the loss of availability of a known mineral resource that would be of value to the region or the residents of the State?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒
c) Be an incompatible land use located adjacent to a State classified or designated area or existing surface mine?	☐	☐	☐	☒
d) Expose people or property to hazards from proposed, existing or abandoned quarries or mines?	☐	☐	☐	☒

Source: (a) Riverside County General Plan, Multipurpose and Open Space Element, Figure OS-5 "Mineral Resources."

Findings of Fact:

a) The General Plan identifies policies that encourage protections for existing mining operations and for appropriate management of mineral extraction. A significant impact that would constitute a loss of availability of a known mineral resource would include unmanaged extraction or encroachment on existing extraction. According to the General Plan, the Project site is in an area designated as unstudied for mineral resources. The Project would not result in the loss of availability of a known mineral resource in an area classified or designated by the State that would be of value to the region or the residents of the State. No impacts would occur.

b) The Project would not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. No impacts would occur.

c) The Project site is not located adjacent to a State classified, designated area, or existing surface mine. As such, the Project would not be an incompatible with adjacent land uses. No impacts would occur.

d) No existing or abandoned quarries or mines exist in the area surrounding the Project site. The Project does not propose any mineral extraction on the Project site. The Project would not expose people or

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

property to hazards from proposed, existing or abandoned quarries or mines. No impacts would occur.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

NOISE Would the project

Where indicated below, the appropriate Noise Acceptability Rating(s) has been checked.

NA – Not Applicable A – Generally Acceptable B – Conditionally Acceptable

C – Generally Unacceptable D – Land Use Discouraged

30. Airport Noise

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) 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? NA ☒ A ☐ B ☐ C ☐ D ☐	☐	☐	☐	☒
b) 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? NA ☒ A ☐ B ☐ C ☐ D ☐	☐	☐	☐	☒

Source: (a) Eastern Coachella Valley Area Plan, Figure 5 "Desert Resorts Regional Airport Influence Policy Area."

Findings of Fact:

a) The Project site is not located within the vicinity of any public or private airport. The closest airport to the Project site is the Thermal Airport, approximately 3.5 miles to the northeast. According to the Area Plan, the Project site is located outside the airport influence policy area. Therefore, the Project would not expose people residing or working the Project area to excessive noise levels. No impacts would occur.

b) As indicated previously, the Project site is not located within the vicinity of any private airport. See response to Section 30(a).

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

31. Railroad Noise				
NA ☒ A ☐ B ☐ C ☐ D ☐	☐	☐	☐	☒

Source: Eastern Coachella Valley Area Plan, Local Circulation Policies, "Rail."

Findings of Fact:

a) The Project site is not located adjacent to a rail line. The nearest rail line to the Project site is the Southern Pacific Railroad, which runs adjacent to State Route 111 and the Salton Sea, approximately 6.5-miles east of the site. Therefore, the Project would not be impacted by rail noise and no impacts would occur.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring is required.

32. Highway Noise				
NA ☒ A ☐ B ☐ C ☐ D ☐	☐	☐	☐	☒

Source: Riverside County general Plan, Circulation Element.

Findings of Fact:

a) The Project site is located in an unincorporated area of Riverside County, immediately east of the City of La Quinta, within the Vista Santa Rosa Policy Area. The Project site adjacent to any major highways identified in the General Plan. The nearest major highways to the Project site are State Route (SR) -111 and SR-86, which are both approximately 6.5 miles to the east of the Project site. Due to the distance from the Project site, major highway noise would not contribute a significant amount of noise to the Project.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

33. Other Noise				
NA ☒ A ☐ B ☐ C ☐ D ☐	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Source: Project Application Description.

Findings of Fact:

a) No other noise sources have been identified near the Project site that would contribute a significant amount of noise to the Project.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

34. Noise Effects on or by the Project				
a) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
b) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
c) 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?	☐	☒	☐	☐
d) Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?	☐	☐	☐	☒

Source: Meridian Consultants LLC, Noise Technical Study for Vista Soleada Specific Plan, January 2014.

Findings of Fact:

Vehicle Noise

a) The existing noise environment for the roadways in the Project area was determined by calculating noise levels based on the Project's average daily trips as determined in the traffic impact analysis conducted for this environmental document (Appendix E). The noise modeling effort was accomplished using the Federal Highway Administration Highway Traffic Noise Model (TNM). The

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

results of the noise modeling are provided in **Table 5, Existing Roadway Modeled Noise Levels**. As shown, roadway noise levels range from a low of 46.1 to a high of 67.2 dBA CNEL at 75 feet from the roadway centerline.

Table 5
Existing Roadway Noise Levels

Roadway Segment	Noise Level in dBA CNEL at 75 ft. from Roadway Centerline
58th Avenue between Jackson Street and Monroe Street	62.2
58th Avenue between Monroe Street and Madison Street	63.8
60th Avenue between Jackson Street and Driveway 1	59.2
60th Avenue between Driveway 1 and Monroe Street	59.2
60th Avenue between Monroe Street and Madison Street	64.5
61st Avenue between Jackson Street and Driveway 2	46.1
61st Avenue between Driveway 2 and Monroe Street	46.1
Jackson Street between 58th Avenue and 60th Avenue	61.1
Jackson Street between 60th Avenue and 61st Avenue	61.3
Jackson Street between 61st Avenue and 62nd Avenue	60.6
Monroe Street north of 58th Avenue	64.0
Monroe Street between 58th Avenue and 60th Avenue	61.3
Monroe Street between 60th Avenue and 61st Avenue	61.3
Monroe Street between 61st Avenue and 62nd Avenue	60.2
Madison Street north of 58th Avenue	67.2
Madison Street between 58th Avenue and 60th Avenue	64.7

*Source: Refer to **Appendix E** for Modeling Results*

The County of Riverside Noise Element and Ordinance contain land use compatibility guidelines for community noise. Among the various land uses, schools and single-family/multifamily residential uses are generally unacceptable in areas between 65 and 75 dBA CNEL and are conditionally acceptable in areas between 65 and 70 dBA CNEL. Recreational land uses, such as open space areas with horseback riding trails, are generally acceptable in areas up to 65 dBA CNEL and generally unacceptable in areas between 65 and 70 dBA CNEL. As presented in **Table 5,** traffic on roadways surrounding the Project generate noise levels within an acceptable range.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Vehicular noise can potentially affect the Project site, as well as land uses located along the studied roadway system. The results of the modeled weekday roadway noise levels are provided below in **Table 6, Existing With and Without Project Noise Levels (dBA CNEL) at 75 Feet from Roadway Centerline**. For the purposes of this analysis, an increase of 5 dBA at off-site roadway locations containing sensitive uses is considered a significant impact, and if the resulting noise level would exceed the land use compatibility criteria, then an increase of 3 dBA is considered significant. As indicated in **Table 6**, no significant changes in CNEL would result from Project traffic along the majority of the roadway locations based on these criteria. A few roadway locations, however, would exceed these criteria and include 61st Avenue between Jackson Street and Driveway 2 (8.0 dBA), and 61st Avenue between Driveway 2 and Monroe Street (8.0 dBA). These increases are primarily due to these roadway carrying minimal traffic volumes under existing conditions. Because these increases would not result in noise compatibility guideline being exceeded, impacts are also considered to be less than significant.

Table 6

Existing With and Without Project Noise Levels (dBA CNEL) at 75 Feet from Roadway Centerline

Roadway Segment	Existing	Existing +Project	Change Due to Project	Significant Impact?
58th Avenue between Jackson Street and Monroe Street	62.2	62.2	0.0	No
58th Avenue between Monroe Street and Madison Street	63.8	64.5	0.7	No
60th Avenue between Jackson Street and Driveway 1	59.2	61.0	1.8	No
60th Avenue between Driveway 1 and Monroe Street	59.2	63.0	3.8	No
60th Avenue between Monroe Street and Madison Street	64.5	65.0	0.5	No
61st Avenue between Jackson Street and Driveway 2	46.1	52.1	8.0	No
61st Avenue between Driveway 2 and Monroe Street	46.1	52.1	8.0	No
Jackson Street between 58th Avenue and 60th Avenue	61.6	63.0	1.4	No
Jackson Street between 60th Avenue and 61st Avenue	61.3	61.6	0.3	No

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Roadway Segment	**Existing**	**Existing +Project**	**Change Due to Project**	**Significant Impact?**
Jackson Street between 61st Avenue and 62nd Avenue	60.6	61.3	0.7	No
Monroe Street north of 58th Avenue	64.0	64.8	0.8	No
Monroe Street between 58th Avenue and 60th Avenue	61.3	63.6	2.5	No
Monroe Street between 60th Avenue and 61st Avenue	61.3	62.2	0.9	No
Monroe Street between 61st Avenue and 62nd Avenue	60.2	60.2	0.0	No
Madison Street north of 58th Avenue	67.2	67.5	0.3	No
Madison Street between 58th Avenue and 60th Avenue	64.7	65.1	0.4	No

Source: Refer to ***Appendix XX*** *for Modeling Results*

b) The construction period for the Project is anticipated to consist of several phases and would last approximately 60 months. Phase I would involve the excavation of earth materials and replacement with properly compacted fill materials. Grading activities would involve the use of standard earth moving equipment, such as drop hammer, dozers, loaders, excavators, graders, back hoes, pile drivers, dump trucks, and other related heavy-duty equipment, which would be stored on site during construction to minimize disruption of the surrounding land uses.

Phase II would consist of construction of the residential buildings and would involve finishing of the structures. Above-grade construction activities would involve the use of standard construction equipment, such as hoists, cranes, mixer trucks, concrete pumps, laser screeds and other related equipment.

Equipment used during the construction phases would generate both steady state and episodic noise that would be heard both on and off the Project site. Noise levels generated during construction would primarily affect the residential land uses adjacent to the Project site to the south. Construction activities associated with the Project could occur at approximately 200 feet from the existing residential uses. Noise levels generated during each of the Project phases are presented in **Table 7, Typical Maximum Noise Levels for Construction Phases**. Equipment estimates used for the analysis for grading, and building construction noise levels are representative of worse-case conditions, since it very unlikely that all the equipment contained on site would operate simultaneously.

Table 7

Typical Maximum Noise Levels for Construction Phases

Construction Phase	Approximate L_{eq} dBA without Noise Attenuation 25 Feet	50 Feet	100 Feet	200 Feet
Clearing	90	84	78	72
Excavation	94	88	82	78
Foundation/Conditioning	94	88	82	78
Laying Subbase, Paving	85	79	73	67

Source: U.S Department of Transportation, Construction Noise Handbook, Chapter 9.0, August 2006.

Private construction projects located within 0.25 mile from an inhabited dwelling are exempt from the County's noise standards, provided that: construction does not occur between the hours of 6:00 p.m. and 6:00 a.m. during the months of June through September; and construction does not occur between the hours of 6:00 p.m. and 7:00 a.m. during the months of October through May. The project would adhere to this requirement and implement several mitigation measures to alleviate construction noise. Potential construction impact would be reduced to less than significant.

In addition to equipment-generated noise associated with construction activities, construction traffic would generate noise along access routes to the proposed development areas. The major pieces of heavy equipment would be moved onto the development only one time for each construction activity (i.e., demolition, grading, etc.). In addition, daily transportation of construction workers and the hauling of materials both on and off the Project site are expected to cause increases in noise levels along study area roadways, although noise levels from such trips would be less than peak hour noise levels generated by Project trips during Project operation. Average daily trips associated with construction activities would not result in a doubling of trip volumes along study area roadways. Given that it takes a doubling of average daily trips on roadways to increase noise by 3 dBA, the noise level increases associated with construction vehicle trips along major arterials in the City of la Quinta and County of Riverside would be less than 3 dBA, and potential impacts would be less than significant.

c) Future residents located on the Project site, as well as off-site uses, including nearby sensitive receptors, may experience noise due to an increase in human activity within the area from people living on the premises and utilizing the on-site amenities including common open space and trail areas. Potential residential-type noise sources include people talking, doors slamming, stereos, and other noises associated with human activity. These noise sources are not unique and generally contribute to the ambient noise levels experienced in all residential areas. Noise levels for residential areas are typically between 48 to 52 dBA CNEL. Overall, the noise generated by the Project's residential land uses would not exceed the City of La Quinta or County of Riverside's compatibility thresholds and is considered to be less than significant.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

d) The primary source of vibration during construction would be the use of scrapers, bulldozers, a motor grader, and water and pickup trucks. The closest construction activity to a sensitive receptor is estimated to be approximately 200 feet from the closest existing residences to the south. Generally, problems with groundborne vibration from construction sources are localized to areas within approximately 100 feet of the vibration source. Using data provided in the Federal Transit Administration's *Transit Noise and Vibration Impact Assessment* (FTA, May 2006) and *Caltrans Transportation and Construction-Induced Vibration Guidance Manual* (June 2004), it was estimated that the vibration level at these nearest residences to the south would be less than the 0.1 inch per second (in/sec) and would not exceed the 0.2 in/sec threshold for residential structures, and below the level of potential risk for architectural damage to normal buildings. Therefore, the proposed project would not result in significant vibration impacts.

Mitigation: 34a All construction activity shall be conducted in accordance with County of Riverside Noise Ordinance 847indicating that: construction activity does not occur between the hours of 6:00 p.m. and 6:00 a.m. during the months of June through September; and construction activity does not occur between the hours of 6:00 p.m. and 7:00 a.m. during the months of October through May.

34b The following construction best management practices (BMPs) shall be implemented to reduce construction noise levels:

- Ensure that construction equipment is properly muffled according to industry standards and be in good working condition;
- Place noise-generating construction equipment and locate construction staging areas away from sensitive uses, where feasible;
- Schedule high noise-producing activities between the hours of 8:00 AM and 5:00 PM to minimize disruption on sensitive uses;
- Implement noise attenuation measures to the extent feasible, which may include, but are not limited to, temporary noise barriers or noise blankets around stationary construction noise sources;
- Use electric air compressors and similar power tools rather than diesel equipment, where feasible;
- Construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for more than 30 minutes; and
- Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances to allow for surrounding owners to contact the job superintendent. If the City or the job superintendent receives a complaint, the superintendent shall investigate, take appropriate corrective action, and report the action taken to the reporting party.
-

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

34c Construction staging areas along with the operation of earthmoving equipment within the Project area shall be located as far away from vibration-and noise-sensitive sites as possible.

Monitoring: Department of Building and Safety Plan Check Process and Planning Department (County Engineer).

POPULATION AND HOUSING Would the project

35. Housing

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Displace substantial numbers of existing housing, necessitating the construction of replacement housing else- where?	☐	☐	☐	☒
b) Create a demand for additional housing, particularly housing affordable to households earning 80% or less of the County's median income?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
d) Affect a County Redevelopment Project Area?	☐	☐	☐	☒
e) Cumulatively exceed official regional or local population projections?	☐	☐	☒	☐
f) 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)?	☐	☐	☒	☐

Source: General Plan Housing Element.

Findings of Fact:

a) The Project site is currently being farmed and does not contain existing housing. Implementation of the Project would not directly or indirectly necessitate the construction of replacement housing, create the demand for additional housing, or displace people resulting in replacement housing. No

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

impacts would occur.

b) The Project would not create a demand for additional housing, particularly housing affordable to households earning 80 percent or less of the County's median income. No impacts would occur.

c) The Project would not result in the displacement of substantial numbers of people, necessitating the construction of replacement housing elsewhere. No impacts would occur.

d) The Project site is not located within a County Redevelopment Area, and as such, no impacts would occur.

e) The Project would generate approximately 736 residents within unincorporated portion of the Coachella Valley. Based on SCAG data, the population projections used to estimate emissions in the 2012 AQMP for year 2020 anticipated a population of 471,500 within unincorporated areas of the County. The Project would generate approximately 736 residents. The Project would account for approximately 1 percent of the anticipated increase of residents within the City between 2012 and 2020. [736 Project residents/ (471,500 -358,827 = 112,673 (the increase in residents in unincorporated Riverside County between 2012 and 2020) = 0.16.] This total is within the growth projections for the unincorporated Riverside County as adopted by SCAG. Impacts would be less than significant.

f) The Project could encourage additional residential developments in the area, but the development would have to be consistent with the General Plan; therefore, the Project would not induce substantial population growth.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

PUBLIC SERVICES Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities or the 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:

36. Fire Services	☐	☐	☒	☐

Source: Riverside County Fire Department Fire Stations. Riverside County General Plan Safety Element.

Findings of Fact:

a) The Riverside County Fire Department provides fire protection services within unincorporated Riverside County. The Riverside County Fire Department is administered under contract by Cal Fire, and participates in a Regional Integrated and Cooperative Fire Protection System. This system provides the surrounding areas with additional regional resources to respond to fire service calls when required. The nearest fire stations to the Project site are La Quinta PGA (Station 70, La Quinta), located at 54001 Madison Street, approximately 3.5 miles northwest of the Project site, and Thermal

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Fire Station (Station 39, Thermal) at 86911 58 Avenue, approximately 4.75 miles northeast of the Project site. The project would not directly physically alter existing facilities or result in an increase in demand for services that would require the construction of new facilitates. The Project is required to comply with County Ordinance No. 650 to provide for adequate fire protection resources. This is a standard condition of approval and is not considered mitigation under CEQA.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring is required.

37. Sheriff Services	☐	☐	☐	☒

Source: Riverside County Sheriff's Department, Thermal Sheriff's Station.

Findings of Fact:

a) Police protection services in the County of Riverside are provided by the Riverside County Sheriff's Department. The nearest Sheriff's Department to the Project site is the Thermal Sheriff's Station, located at 86625 Airport Boulevard, approximately 4.75 miles northeast of the Project site. The Thermal Sheriff Station serves the eastern half of the Coachella Valley, as well as the Project site. The Project would not directly physically alter existing facilities or result in an increase in demand for services that would require the construction of new facilitates. The Project is required to comply with County Ordinance No. 650 to provide for adequate sheriff services. This is a standard condition of approval and is not considered mitigation under CEQA.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring is required.

38. Schools	☐	☐	☒	☐

Source: Coachella Valley Unified School District "Schools."

Findings of Fact:

a) The Project site is located within the Coachella Valley Unified School District (CVUSD). The nearest schools to the Project site are Westside Elementary, located at 82225 Airport Boulevard in Thermal approximately 2.25 miles to the north, and the Coachella Valley High School, located at 83800 Airport Boulevard in Thermal approximately 2.75 miles northeast of the Project site. The Project is required to comply with School Mitigation Impact fees to provide adequate school services. This is a standard condition of approval and is not considered mitigation under CEQA. The Project would not physically alter existing facilities or result in the construction of new or physically altered facilities. Impacts would be less than significant.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Mitigation: No mitigation measures are required.

Monitoring: No monitoring is required.

39. Libraries	☐	☐	☒	☐

Source: Riverside County General Plan.

Findings of Fact:

a) The closest library to the Project site is the Coachella Valley Branch Library, located at 1538 7th Street in the City of Coachella approximately 5.60 miles to the northeast of the site. The Project is required to comply with County Ordinance No. 659 to provide adequate library services and would not create a significant incremental demand for library services. This is a standard condition of approval and is not considered mitigation under CEQA. The Project would not require the provision of new or altered governmental facilitates at this time.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring is required.

40. Health Services	☐	☐	☒	☐

Source: Riverside County General Plan.

Findings of Fact:

a) The Project site is located within an area served by the County Health centers. The closest health center to the Project site is Eisenhower Health Center, located at 45280 Steeley Drive in the City of La Quinta, approximately 8.5 miles northwest of the site. The Project would not physically alter existing facilities or result in an increase in demand for services that would require the construction of new or physically altered facilities. Impacts would be less than significant.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring is required.

RECREATION Would the project				
41. Parks and Recreation				
a) Would the project include recreational facilities or require the	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				
b) Would the project include the use of existing neighborhood or regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
c) Is the project located within a Community Service Area (CSA) or recreation and park district with a Community Parks and Recreation Plan (Quimby fees)?	☐	☐	☒	☐

Source: (a) Vista Soleada Specific Plan, December 2013. Riverside County Parks Lake Cahuilla County Park.

Findings of Fact:

a) The Project would include the construction 230 lots within the Project site. Due to the amount of lots, the Project would also include seven pocket parks within the interior of the Project site and an Equestrian Way Station located at the northeast corner. The nearest public park to the Project site is Lake Cahuilla County Park, located at 58075 Jefferson Street (La Quinta), approximately 3.5 miles northwest. Project implementation would not require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment. No impacts would occur.

b) The Project would include the construction of 230 residences with multiple pocket parks, citrus themed country lanes, and a 100 ft. wide perimeter grove of Medjool date palm trees within the Project site. The park space within the project would be for the residents and guests only. The Project would meet some of the residents needs for neighborhood parks and that the increase in use of other neighborhood and regional parks from the 736 residents being added to the unincorporated County population would not be substantial. The Project would therefore not result in significant physical deterioration of existing parks or other recreational facilities. Impacts would be less than significant. See response to Section 41(a) above.

c) All residential projects are required to pay parks and recreation fees to the Desert Recreation District which would mitigate impacts on use of existing neighborhood or regional parks. Payment of the park fees are required for new projects and would result in a less than significant impact. This is a standard condition of approval and is not considered mitigation under CEQA.

Mitigation: No mitigation measures are required.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Monitoring: No monitoring measures are required.

42. Recreational Trails	☐	☐	☐	☒

Source: Eastern Coachella Valley Area Plan, Figure-9 “Trails and Bikeway System”

Findings of Fact:

a) According to the Area Plan, the Project is located adjacent to the south of a Class I Bike Path/Regional Trail along Avenue 60. The Project would provide a 12-foot wide public equestrian multi-use trail along Avenue 60 to connect to the proposed regional trail system. The equestrian trail would also connect Avenue 60 along the eastern perimeter south to Avenue 61 and along the southern Project boundary. Impacts would be beneficial as the Project would provide a portion of the regional trail in the area.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring is required.

TRANSPORTATION/TRAFFIC Would the project

43. Circulation

a) Conflict with an applicable plan, ordinance or policy establishing a measure 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?	☐	☐	☒	☐
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	☐	☐	☒	☐

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
roads or highways?				
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?	☐	☐	☐	☒
d) Alter waterborne, rail or air traffic?	☐	☐	☐	☒
e) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?	☐	☐	☒	☐
f) Cause an effect upon, or a need for new or altered maintenance of roads?	☐	☐	☒	☐
g) Cause an effect upon circulation during the project's construction?	☐	☐	☒	☐
h) Result in inadequate emergency access or access to nearby uses?	☐	☐	☒	☐
i) Conflict with adopted policies, plans or programs regarding public transit, bikeways or pedestrian facilities, or otherwise substantially decrease the performance or safety of such facilities?	☐	☐	☒	☐

Source: (a) Urban Crossroads, Vista Soleada (TTM 36590) Traffic Impact Analysis, December 2013.

Findings of Fact:

a) Nine intersections were analyzed in the Traffic Impact Analysis, including the two Project entrance streets. The existing seven intersections operate at a level of service (LOS) A under Existing Conditions. The analyzed intersections are currently unsignalized.

The Project would generate 2,197 weekday daily trips with 175 trips in the AM Peak Hour and 232 trips in the PM Peak Hour. The nine intersections analyzed in the Traffic Impact Analysis, including the two Project entrances, would experience a slight increase in the delay at the each intersection. The LOS would remain LOS A under Existing Plus Project conditions. Intersection impacts would be less than significant.

The Project would provide 2 off-street parking spaces per dwelling unit and parking per Ordinance

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

360, Section 18.12 for the equestrian way station and rural market. The Project would provide for adequate parking and no impacts would occur.

b) The Construction Management Program (CMP) in effect in Riverside County was issued by the Riverside County Transportation Commission in December 2011. The nearest CMP-designated roadway is SR-111, approximately 6.5 miles east of the Project site. However as stated earlier, the proposed Project would not result in any increase to traffic during peak-hours and would not conflict with any Level of Service or travel demand measures established by the CMP. Impacts would be less than significant.

c) The closest airport to the Project site is Thermal Airport, approximately 3.5 miles to the northeast. According to the Area Plan, the Project site is located outside the airport influence policy area. Airplane takeoffs and landing are at a sufficient distance from the Project site and would not pose as a safety risk area and airline traffic would remain similar and no airline safety risks would occur.

d) The Project site is not located near a waterway or rail line and would not alter waterborne, rail, or air traffic. No impacts would occur. See response to Section 43(c), previously.

e) The Project would provide two gated entrances, roundabouts, and hammerhead intersections to minimize potential hazards as a result of the Project design features. The internal circulation system would be designed in accordance with County of Riverside guidelines and would provide adequate fire department access and widths. Line of sight for turning movements would be provided according to Caltrans and County of Riverside guidelines. Impacts would be less than significant.

f) The Project would construct Avenue 60 to its ultimate half-section width as an Arterial roadway (128-foot right-of-way) between the Project's westerly and easterly boundary. The Project would also construct Avenue 61 to its ultimate half-section width as a Collector roadway (76 foot right-of-way) between the Project's westerly and easterly boundary. Both entrances would be controlled by stop signs. The entrance at Avenue 60 would also provide one left turn lane and one right turn lane for the northbound approach and one left turn lane for the westbound approach. The entrance at Avenue 61 would provide one shared left-through-right turn lane for the southbound approach and one left turn lane for the eastbound approach. Impacts would be less than significant.

g) The Project would incorporate traffic control measures as a design feature which would minimize construction conflicts on Avenue 60, Avenue 61, and Jackson Street. Impacts would be less than significant.

h) The Project would provide two entrance streets, one which connects to Avenue 60 and one which connects to Avenue 61. These roadways connect to Monroe Street to the west and Jackson Street and Highway 86 to the east. Impacts on emergency access would be less than significant.

i) The Project would not conflict with adopted policies regarding alternative transportation. The Project would provide adequate internal pathways and connections to regional bike paths and trails. Impacts would be less than significant.

<u>Mitigation:</u> No mitigation measures are required.

<u>Monitoring:</u> No monitoring measures are required.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
44. Bike Trails	☐	☐	☐	☒

Source: Eastern Coachella Valley Area Plan, Figure-9 "Trails and Bikeway System"

Findings of Fact:

a) According to the Area Plan, a Class I Bike Path/Regional Trail is designated along Avenue 60 on the southern edge of the Project Site. The Project would provide a 12-foot wide public equestrian multi-use trail along Avenue 60 to connect to the proposed regional trail system. The equestrian trail would also connect Avenue 60 along the eastern perimeter south to Avenue 61 and along the southern Project boundary. Impacts would be beneficial as the Project would provide a portion of the regional trail in the area.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring is required.

UTILITY AND SERVICE SYSTEMS Would the project				
45. Water				
a) Require or result in the construction of new water treatment facilities or expansion of existing facilities, the construction of which would cause significant environmental effects?	☐	☐	☒	☐
b) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐

Source: (a) Riverside County Land Information System. (b) Coachella Valley Water District, 2010 Urban Water Management Plan, Table 3-10 and Table 3-19.

Findings of Fact:

a) The Project site is currently being farmed and is served by the Coachella Valley Water District (CVWD). The Project would not physically alter existing facilities or result in the construction of new or physically altered facilities. Any construction of new facilities required by the cumulative effects of the Project and surrounding projects would have to meet all applicable environmental standards.

b) Current water use on the site for farm operations equates to 6.27 acre-feet of water per acre per year

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

for two or three crops per year. Existing water use at the site totals 501.6 acre-feet per year with up to three crops. According to the CVWD 2010 Urban Water Management Plan (UWMP), average single family water demand equates to 448 gallons per day of potable water. Therefore, the Project would demand 115.4 acre-feet per year of potable water. The Project would result in a decrease in water use for the site by 386.2 acre-feet of potable water per year. According to the 2010 UWMP, the CVWD would have a surplus of urban water demand of 4,100 acre-feet in 2015 which would increase to 7,900 acre feet in 2035. Therefore, the reduction in water use on the site and the surplus in water supplies would result in a less than significant demand on potable water supplies.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

46. Sewer	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Require or result in the construction of new wastewater treatment facilities, including septic systems, or expansion of existing facilities, the construction of which would cause significant environmental effects?	☐	☐	☒	☐
b) Result in a determination by the wastewater treatment provider that serves or may service the project that it has adequate capacity to serve the project's projected demand in addition to the provider’s existing commitments?	☐	☐	☒	☐

Source: (a) Coachella Valley Water District, Coachella Valley Water Management Plan 2010 Update Final Report, January 2012.

Findings of Fact:

a) The Project is located within the Coachella Valley Water District (CVWD) sewer services area. The Project would connect the onsite sewer system to existing sewer facilities at the corner of Avenue 62 and Jackson Street. The potential impacts from the construction of the proposed sewer are analyzed throughout this environmental document including potential air quality and greenhouse gas emissions, hydrology and water quality, traffic, and cultural resources. Construction of the sewer pipelines would comply with existing regulations and County ordinances and would, therefore, result in less than significant impacts.

b) The closest wastewater treatment plant to the Project site is the CVWD Water Reclamation Plan

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

(WRP) 4 located in Thermal. The annual average flow to this facility is 4.75 million gallons per day (mgd) with a maximum capacity of 9.9 mgd. Assuming a 1 to 1 ratio in water use and wastewater generation, the Project would generate 448 gallons per day (gpd), or 0.10 mgd, of wastewater. As the average flow to WRP-4 is 4.75 mgd, the Project would result in 4.76 mgd to WRP-4 which would remain within the maximum capacity of treatment of wastewater for the plant. Project development would not require the construction or expansion of water treatment facilities. The Project would use of the existing wastewater collection system offsite. Upgrades and modifications to the existing onsite wastewater system would be undertaken when constructing the new community to comply with the requirements of the California Plumbing Code. Impacts would be less than significant.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

47. Solid Waste

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Is the project served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
b) Does the project comply with federal, state, and local statutes and regulations related to solid wastes including the CIWMP (County Integrated Waste Management Plan)?	☐	☐	☒	☐

Source: (a) CalRecycle, Solid Waste Information System. CalRecycle, Justification Diversion/Disposal Rate Summary.

Findings of Fact:

a) The Project would result in potential impacts to landfill capacity from the generation of solid waste during construction and operation. The closest landfill to the Project site is the Mecca II Sanitary Landfill, located at 95250 66th Avenue (Mecca), approximately 13 miles southeast of the Project site. Mecca is permitted to accept up to 400 tons per day. The next closest landfill to the Project site is the Oasis Sanitary Landfill, which accepts up to 450 tons per day of solid waste. In 2012, unincorporated Riverside County had an annual disposal rate of 4.5 pounds per person per day. In order to continue to meet the diversion statistics required by the State, unincorporated Riverside County has a target disposal rate of 6.9 pounds per person per day. The Project would generate 1.67 tons per day, or approximately 0.5 percent of the permitted maximum tonnage allowed at both the Mecca II Landfill and the Oasis Sanitary Landfill, respectively. This increase in solid waste would result in a negligible

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

increase in solid waste at these landfills. The Project would not alter existing facilities or result in the construction of new or physically altered facilities. Impacts would be less than significant.

b) The following federal and state laws and regulations govern solid waste disposal. The US EPA administers the Resource Conservation and Recovery Act of 1976 and the Solid Waste Disposal Act of 1965, which govern solid waste disposal. In the State of California, Assembly Bill (AB) 939 (Integrated Solid Waste Management Act of 1989; Public Resources Code 40050 et seq.) requires every California city and county to divert 50 percent of its waste from landfills by the year 2000 by such means as recycling, source reduction, and composting. In addition, AB 939 requires each county to prepare a countywide siting element specifying area for transformation or disposal sites to provide capacity for solid waste generate in the county that cannot be reduced or recycled for a 15 year period. AB 1327, the California Solid Waste Reuse and Recycling Access Act of 1991, requires local agencies ordinances mandating the use of recycle materials in development projects. The Project would also require a Waste Recycling Plan to identify the estimated quantity and location of recycling for construction and demolition debris generated by the Project.

The Project would be required to comply with all applicable laws and regulations governing solid waste, including those listed above. The Project would not affect the County of Riverside's ability to continue to meet the required AB 939 waste diversion requirements. For example, the Project would help the County achieve its source reduction, recycling and waste stream diversion goals for solid waste through the provision of recycling bins for each residential lot. Impacts would be less than significant.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

48. Utilities

Would the project impact the following facilities requiring or resulting in the construction of new facilities or the expansion of existing facilities; the construction of which could cause significant environmental effects?

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Electricity?	☐	☐	☒	☐
b) Natural Gas?	☐	☐	☒	☐
c) Communications systems?	☐	☐	☒	☐
d) Storm water drainage?	☐	☐	☒	☐
e) Street lighting?	☐	☐	☒	☐
f) Maintenance of public facilities, including roads?	☐	☐	☒	☐
g) Other governmental services?	☐	☐	☒	☐

Source:

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Findings of Fact:

a - g) The Project would construct potable water and sewer lines within Avenue 60, Avenue 61, and Jackson Street to connect to existing connections. All work would be contained within the public right-of-way and would not impact wildlife habitat or cultural resources. The air quality analysis included the construction of these utilities and determined that the impacts would be less than significant. Storm water drainage would be incorporated into the overall landscape and open space conceptual plans through use of BMPs and retention onsite. Drainage swales would transport storm water to retention areas located within the Project Site along the perimeter. Existing electrical poles traverse east to west along the southern frontage of Avenue 60 and along the northern frontage of Avenue 61. Compliance with the requirements of Imperial Irrigation District (IID) would ensure that potential impacts to utility systems are reduced to a non-significant level. These impacts are considered less than significant based on the availability of existing public facilities that support local systems. Impacts would be less than significant.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring is required.

49. Energy Conservation				
a) Would the project conflict with any adopted energy conservation plans?	☐	☐	☐	☒

Source:

Findings of Fact:

a) The Project would not conflict with any adopted energy conservation plans.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring is required.

OTHER				
50. Other:	☐	☐	☐	☒

Source:

Findings of Fact:

a) No other issues of potential concern have been identified.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Mitigation: No mitigation measures are required.

Monitoring: No monitoring is required.

MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
51. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐

Source:

Findings of Fact:

a) Implementation of the Project would not degrade the quality of the environment, substantially reduce the habitat of fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
52. Does the project have impacts which 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, other current projects and probable future projects)?	☐	☐	☒	☐

Source: Meridian Consultants, Technical Noise Report, January 2014. Urban Crossroads, Vista Soleada (TTM 36590) Traffic Impact Analysis, December 2013.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Findings of Fact:

b) Noise

A related projects list was developed for purposes of cumulative traffic impact analysis in consultation with planning and engineering staff from the County of Riverside and the City of La Quinta. Four single family development projects would be developed within the County of Riverside and four residential projects would be developed within the City of La Quinta. The related projects would generate a total of 9,918 net trip-ends per day on a typical weekday with 781 net weekday AM peak hour trips and 1,033 net weekday PM peak hour trips. Development of related projects as identified in the Traffic Impact Analysis would not result in a cumulative impact in terms of a substantial permanent increase in ambient noise levels. A substantial permanent increase is most likely to occur from an increase in noise levels due to roadway traffic. For the purposes of this analysis, an increase of 5 dBA at any roadway location is considered a significant impact, and if the resulting noise level would exceed the land use compatibility criteria, then an increase of 3 dBA is considered significant. In order to determine whether the Project would result in a cumulatively significant impact, the increase between existing conditions and future with Project conditions was determined. Refer to **Table 8, Cumulative With and Without Project Noise Levels (dBA CNEL) at 75 Feet from Roadway Centerline**, the Project contribution to these cumulative noise level increases would be 3.0 dBA or less dBA. Overall, the Project's contribution would not be considered to be cumulatively considerable and would be less than significant.

Table 8
Cumulative With and Without Project Noise Levels (dBA CNEL) at 75 Feet from Roadway Centerline

Roadway Segment	Existing	Cumulative Without Project	Cumulative With Project	Change Due to Project	Significant Impact?
58th Avenue between Jackson Street and Monroe Street	62.2	64.2	64.2	0.0	No
58th Avenue between Monroe Street and Madison Street	63.8	65.6	66.1	0.5	No
60th Avenue between Jackson Street and Driveway 1	59.2	60.6	61.9	1.3	No
60th Avenue between Driveway 1 and Monroe Street	59.2	60.6	63.6	3.0	No
60th Avenue between Monroe Street and Madison Street	64.5	65.0	65.4	0.4	No
61st Avenue between Jackson Street and Driveway 2	46.1	55.7	56.9	1.2	No

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Roadway Segment	Existing	Cumulative Without Project	Cumulative With Project	Change Due to Project	Significant Impact?
61st Avenue between Driveway 2 and Monroe Street	46.1	55.7	56.9	1.2	No
Jackson Street between 58th Avenue and 60th Avenue	61.6	62.7	63.6	0.9	No
Jackson Street between 60th Avenue and 61st Avenue	61.3	61.6	61.9	0.3	No
Jackson Street between 61st Avenue and 62nd Avenue	60.6	61.3	61.6	0.6	No
Monroe Street north of 58th Avenue	64.0	65.8	66.2	0.4	No
Monroe Street between 58th Avenue and 60th Avenue	61.3	64.5	65.9	1.4	No
Monroe Street between 60th Avenue and 61st Avenue	61.3	63.8	64.3	0.5	No
Monroe Street between 61st Avenue and 62nd Avenue	60.2	60.2	60.6	0.4	No
Madison Street north of 58th Avenue	67.2	68.2	68.4	0.2	No
Madison Street between 58th Avenue and 60th Avenue	64.7	65.4	65.8	0.4	No

Source: Refer to ***Appendix E*** *for Noise Modeling Results*

a) Traffic

The nine intersections analyzed in the Traffic Impact Analysis would result in a slight increase in LOS under Cumulative Plus Project conditions. The following intersections would maintain a LOS A: Madison Street/Avenue 60, Monroe Street/Avenue 60, Jackson Street/Avenue 60, both Project entrance streets, and Madison Street/Avenue 58. Monroe Street/Avenue 58 would decrease from LOS A to LOS B. Finally, the LOS would decrease from LOS A to LOS B at Monroe Street/Avenue 61 and Jackson Street/Avenue 61. Project traffic would not result in a cumulative considerable impact.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
53. Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Source: MSA Consulting, Vista Soleada Specific Plan, December 2013.

Findings of Fact:

a) The Project would not result in environmental effects which would cause substantial adverse effects on human beings, either directly or indirectly.

VI. EARLIER ANALYSES

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 as per California Code of Regulations, Section 15063 (c) (3) (D). In this case, a brief discussion should identify the following:

Earlier Analyses Used, if any:

A. County of Riverside General Plan

B. RCLIS – Riverside County Land Information System

C. General Biological Resources Assessment, prepared by James W. Cornett Ecological Consultants, dated November 2013.

D. Technical Air Quality & Greenhouse Gas Emission Report for the Vista Soleada Specific Plan, prepared by Meridian Consultants, dated January 2014.

E. Cultural Assessment, prepared by McKenna, et. al, dated December 2013

F. Geotechnical Engineering Report Proposed Vista Soleada Tentative Tract 36590, prepared by Earth Systems Southwest, dated September 2013.

G. Technical Noise Report, prepared by Meridian Consultants, dated January 2014

H. Vista Soleada (TTM 36590) Traffic Impact Analysis, prepared by Urban Crossroads, dated December 2014

I. GEO No. 1367, prepared by La Cresta Geotechnical, Inc., dated September 2004.

Location Where Earlier Analyses, if used, are available for review:

Location: County of Riverside Planning Department

4080 Lemon Street, 12^{th} Floor

Riverside, CA 92502

APPENDIX A

Technical Air Quality & Greenhouse Gas Emission Report for the Vista Soleada Specific Plan

Technical Air Quality & Greenhouse Gas Emission Report

for the

Vista Soleada Specific Plan

Prepared for

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March 2014

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Appendix

A CalEEMod Air Quality and Greenhouse Gas Emissions Files

1. INTRODUCTION

This report presents the air quality analysis for the Vista Soleada Specific Plan (Specific Plan) Project in the eastern Coachella Valley, California. The Project site is located within unincorporated Riverside County south of Avenue 60 and west of Monroe Street in the Vista Santa Rosa Policy Area, adjacent to the east of the City of La Quinta.

There is vacant land north of Avenue 60, vacant unimproved land in the City of La Quinta west of the Specific Plan site, a date farm packaging plant and a vacant residential building south of Avenue 61, and vacant land and some agricultural uses east of the Project site.

The Specific Plan Project is located in the Salton Sea Air Basin and is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). This report includes an analysis of emissions generated by the Specific Plan Project during construction and operation for criteria pollutants and includes an analysis of greenhouse gas emissions (GHG) that would be generated.

Specific Plan Description

The Project site is 80.9 acres in size and a development of 230 residences, six private parks, citrus themed country lanes, and a 100-foot wide perimeter grove of Medjool date palm trees is proposed. Opportunity sites for a small rural market and equestrian way station are also proposed as these features are encouraged by the Vista Santa Rosa Land Use Conceptual Plan. The Project would include an equestrian way facility in the northeastern portion of the site for public and private use and a small rural market in the southeastern portion of the site.

Residential density within the Project would average 2.8 dwelling units per gross acre (du/ac), consisting of 211 Citrus Village residential lots with a minimum size of 4,000 square feet (sq. ft.) and an average of 6,000 sq. ft. in the middle of the site and 19 Date Palm Estate lots ranging in size from 0.75 acres to 1 acre in size on the edges of the site on Avenue 60, along the eastern perimeter, and Avenue 61. The smaller lots abut similar-sized residential lots along the western boundary, transitioning to larger estate lots, then to the date palm buffer on the northern, southern, and eastern edges. Private parks for joint recreation/retention/community garden use are interspersed throughout the Project site to provide common open space and a convenient location for outdoor community gatherings and activities. An internal system of 3-foot-wide multiuse trails would be interspersed within the Project along the central spine road within citrus-themed yardscapes. Pedestrian pass-throughs are planned between residential lots at regular intervals to allow ample community access to parks and the perimeter public trail.

The two main entries to the Project site are connected by a central axis road with traffic circles at intersections. To achieve a rural character within the community, the Project proposes custom rural road sections and street standards with reduced centerline radii, hammerhead turnarounds rather than cul-de-sacs, traffic circles rather than standard T-intersections, and turf-lined drainage swales in place of concrete curb and gutter.

Utility improvements would extend from the Project site to the nearest existing utility connections. Potable water lines 18 inches in diameter would extend approximately 970 feet west from the eastern boundary of the equestrian way station within Avenue 60 and then 1,820 linear feet west from the southern entry, within Avenue 61, to existing 18-inch water mains. The sewer main would be 10 inches in diameter and extend east 3,430 linear feet within Avenue 61 and would connect to a proposed 15-inch sewer main within Jackson Street, which would extend 2,695 linear feet to the south to connect to an existing 33-inch sewer main at the corner of Jackson Street and Avenue 62.

2. AIR QUALITY & GREENHOUSE GAS EMISSION BACKGROUND

Air Quality

Stationary sources can be divided into two major subcategories: point and area sources. Point sources occur at a specific location and are often identified by an exhaust vent or stack at a facility. Area sources are widely distributed and can include such sources as residential and commercial water heaters, painting operations, lawn mowers, agricultural fields, parking lots, and some consumer products.

Mobile sources refer to emissions from motor vehicles, including tailpipe and evaporative emissions, and are classified as either on-road or off-road. On-road sources may be legally operated on roadways and highways. Off-road sources include aircraft, ships, trains, and self-propelled construction equipment.

Air pollutants can also be generated by the natural environment, such as when high winds suspend fine dust particles. The main source of pollutants near the Project area includes mobile emissions generated from on-road vehicles. Traffic-congested roadways and intersections have the potential to generate localized high levels of carbon monoxide (CO). Localized areas where ambient concentrations exceed state and/or federal standards are termed CO "hotspots".

The U.S. Environmental Protection Agency (EPA) is the federal agency responsible for setting the National Ambient Air Quality Standards (NAAQS). Air quality of a region is considered to be in attainment of the NAAQS if the measured ambient air pollutant levels are not exceeded more than once per year, except for ozone, particulate matter (PM10), and fine particulate matter (PM2.5) and those based on annual averages or arithmetic mean. The NAAQS for ozone, PM10, and PM2.5 are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. The California Air Resources Board (CARB) is the state agency responsible for setting the California Ambient Air Quality

Standards (CAAQS). Air quality of a region is considered to be in attainment of the CAAQS if the measured ambient air pollutant levels for ozone, CO, nitrogen dioxide (NO_2), sulfur dioxide (SO_2), PM10, PM2.5, and lead are not exceeded, and all other standards are not equaled or exceeded at any time in any consecutive 3-year period.

A brief description of the criteria pollutants is provided.

- Ozone (O3). O3 is a gas that is formed when volatile organic compounds (VOCs) and oxides of nitrogen (NOx), both byproducts of internal combustion engine exhaust and other sources that undergo slow photochemical reactions in the presence of sunlight. O3 concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable to the formation of this pollutant.

- Volatile organic compounds (VOCs). VOCs are compounds comprised primarily of atoms of hydrogen and carbon. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Adverse effects on human health are not caused directly by VOCs, but rather by reactions of VOCs to form secondary air pollutants, including O3. VOCs are also referred to as reactive organic compounds (ROCs) or reactive organic gases (ROGs). VOCs themselves are not "criteria" pollutants; however, they contribute to the formation of O3.

- Nitrogen dioxide (NO2). NO2 is a reddish-brown, highly reactive gas that is formed in the ambient air through the oxidation of nitric oxide (NO). NO2 is also a byproduct of fuel combustion. The principle form of NO2 produced by combustion is NO, but NO reacts quickly to form NO2, creating the mixture of NO and NO2, referred to as oxides of nitrogen (NOX). NO2 acts as an acute irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, however, NOX is only potentially irritating. NO2 absorbs blue light, the result of which is a reddish-brown cast to the atmosphere and reduced visibility.

- Carbon monoxide (CO). CO is a colorless, odorless gas produced by the incomplete combustion of fuels. CO concentrations tend to be the highest during the winter morning, with little to no wind, when surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines, unlike ozone, and because motor vehicles operating at slow speeds are the primary source of CO in the basin, the highest ambient CO concentrations are generally found near congested transportation corridors and intersections.

- Sulfur dioxide (SO2). SO2 is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant mainly as a result of burning high–sulfur-content fuel oils and coal and from chemical processes occurring at chemical plants and refineries. When SO2 oxidizes in the atmosphere, it forms sulfates (SO4).

- Respirable particulate matter (PM10). PM10 consists of extremely small, suspended particles or droplets 10 microns or smaller in diameter. Some sources of PM10, like pollen and windstorms, are naturally occurring. However, in populated areas, most PM10 is caused by road dust, diesel soot, combustion products, the abrasion of tires and brakes, and construction activities.

- Fine particulate matter (PM2.5). PM2.5 refers to particulate matter that is 2.5 micrometers or smaller in size. The sources of PM2.5 include fuel combustion from automobiles, power plants, wood burning, industrial processes, and diesel-powered vehicles such as buses and trucks. These fine particles are also formed in the atmosphere when gases such as SO2, NOx, and VOCs are transformed in the air by chemical reactions.

- Lead (Pb). Pb occurs in the atmosphere as particulate matter. The combustion of leaded gasoline is the primary source of airborne lead in the basin. The use of leaded gasoline is no longer permitted for on-road motor vehicles, so most such combustion emissions are associated with off-road vehicles, such as racecars, that use leaded gasoline. Other sources of Pb include the manufacturing and recycling of batteries, paint, ink, ceramics, ammunition, and secondary lead smelters.

For evaluation purposes, the SCAQMD has divided its territory into 36 source receptor areas (SRA) with operating monitoring stations in most of the SRAs. These SRAs are designated to provide a general representation of the local meteorological, terrain, and air quality conditions within the particular geographical area.

The Specific Plan site, which is located in the Coachella Valley, California, is within the Salton Sea Air Basin. The Salton Sea Air Basin is comprised of a portion of the SCAQMD, which consists of the central portion of Riverside County (the Coachella Valley) and the Imperial County Air Pollution Control District, which has jurisdiction over all of Imperial County.

The Specific Plan site is within SRA 30 within the Salton Sea Air Basin. SCAQMD operates an air monitoring station in SRA 30 in the City of Indio. **Table 1, Air Quality Monitoring Summary,** summarizes published monitoring data from 2010 through 2012, the most recent 3-year period available. The data shows that, during the past few years, SRA 30 has exceeded the ozone and PM10 standards.

The EPA and the CARB 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”. Federal nonattainment areas are further designated as marginal, moderate, serious, severe, or extreme as a function of deviation from standards.

Table 1
Air Quality Monitoring Summary

Air Pollutant	Averaging Time (Units)	2010	2011	2012
Ozone (O_3)	Max 1 hour (ppm)	0.100	0.099	0.102
	Days > CAAQS threshold (0.09 ppm)	6	3	2
	Max 8 hour (ppm)	0.087	0.090	0.089
	Days > CAAQS threshold (0.07 ppm)	19	19	43
	Days > NAAQS threshold (0.075 ppm)	45	42	24
Carbon monoxide (CO)	Max 1 hour (ppm)	0.8	0.96	ND[a]
	Days > CAAQS threshold (20 ppm)	0	0	0
	Days > NAAQS threshold (35 ppm)	0	0	0
	Max 8 hour (ppm)	0.56	0.65	0.5
	Days > CAAQS threshold (9.0 ppm)	0	0	0
	Days > NAAQS threshold (9 ppm)	0	0	0
Nitrogen dioxide (NO_2)	Mean (ppm)	0.009	0.008	0.0078
	Max 1 hour (ppm)	0.0046	0.0045	0.0045
	Days > CAAQS threshold (0.18 ppm)	0	0	0
Sulfur dioxide (SO_2)	Max 24 hour (ppm)	0.005	0.001	ND[b]
	Days > CAAQS threshold (0.04 ppm)	0	0	0
	Days > NAAQS threshold (0.14 ppm)	0	0	0
Suspended particulate matter (PM10)	Mean ($\mu g/m^3$)	28.8	32.6	29.5
	24 hour ($\mu g/m^3$)	107	375.9	124
	Days > CAAQS threshold (50 $\mu g/m^3$)	4	3	7
	Days > NAAQS threshold (150 $\mu g/m^3$)	0	2	0
Fine particulate matter (PM2.5)	Mean ($\mu g/m^3$)	6.8	7.1	7.6
	24 hour ($\mu g/m^3$)	16.0	35.4	20
	Days > NAAQS threshold (35 $\mu g/m^3$)	0	0	0

Source: South Coast Air Quality Management District, "Historical Data by Year," http://www.aqmd.gov/smog/historicaldata.htm (2013).
Note: > = exceed; CAAQS = California Ambient Air Quality Standard; max = maximum; mean = annual arithmetic mean; $\mu g/m^3$ = micrograms per cubic meter; ND = no data; NAAQS = National Ambient Air Quality Standard; ppm = parts per million.
[a] One hour CO is not reported.
b Sulfur dioxide was not monitored at this station.

The current attainment designations for the Salton Sea Air Basin are shown in **Table 2, Salton Sea Air Basin Attainment Status**. The Salton Sea Air Basin is currently designated as being in nonattainment for the federal ozone, carbon monoxide, nitrogen dioxide, lead, PM10, and PM2.5 and unclassified for the federal sulfur dioxide, nonattainment for the State ozone, nitrogen dioxide, lead, PM10 and PM2.5 standards. Areas where air pollution levels persistently exceed the state or national ambient air quality standards may be designated "nonattainment”. A Severe 15 nonattainment designation indicates an area in nonattainment has 15 years to attain the standard.

Table 2
Salton Sea Air Basin Attainment Status

Pollutant	State Status	National Status
Ozone (O_3)	Extreme Nonattainment	Severe 15 Nonattainment
Carbon monoxide (CO)	Attainment	Serious Nonattainment
Nitrogen dioxide (NO_2)	Attainment	Nonattainment
Sulfur dioxide (SO_2)	Attainment	Attainment
Lead (Pb)	Attainment	Unclassified/Attainment
Suspended particulate matter (PM10)	Nonattainment	Serious Nonattainment
Fine particulate matter (PM2.5)	Unclassified	Unclassified/Attainment

Sources: CARB, “Area Designations Maps/State and National,” http://www.arb.ca.gov/desig/adm/adm.htm (last updated April 22, 2013). EPA, The Green Book Nonattainment Areas for Criteria Pollutants, http://www.epa.gov/air/oaqps/greenbk/index.html (last updated December 5, 2013).

Sensitive Receptors

Individuals who are sensitive to air pollution include children, the elderly, and persons with preexisting respiratory or cardiovascular illness. For purposes of analysis, the SCAQMD considers a sensitive receptor to be a location where a sensitive individual could remain for 24 hours, such as residences, hospitals, or convalescent facilities. Commercial and industrial facilities are not included in the definition because employees do not typically remain on site for 24 hours. However, when assessing the impact of pollutants with 1-hour or 8-hour standards (such as NO_2 and CO), commercial and/or industrial facilities would be considered sensitive receptors for those purposes.

The Specific Plan site is bound on the south by Avenue 61, on the west by an approved residential subdivision, on the north by Avenue 60, and on the east by agricultural fields. The closest sensitive receptor to the Project site is the approved residential subdivision to the east, approximately 25 meters (75 feet) from the Specific Plan site.

Valley Fever/Hantavirus

Other public health risks associated with fugitive dust that are of concern in the region are valley fever (formally known as coccidioidomycosis) and hantavirus pulmonary syndrome.[1] Valley fever is an infectious disease caused by the fungus coccidioides immitis. Infection is caused by inhalation of coccidioides immitis spores that have become airborne when dry, dusty soil or dirt is disturbed by wind, construction, farming, or other activities. The valley fever fungus tends to be found at the base of hillsides, in virgin, undisturbed soil and is found in the southwestern United States and parts of Mexico. In its primary form, symptoms appear as a mild upper respiratory infection, acute bronchitis, or pneumonia. The most common symptoms are fatigue, cough, chest pain, fever, rash, headache, and joint aches, although 60 percent of people infected are asymptomatic and do not seek medical attention. In the remaining 40 percent, symptoms range from mild to severe. Risk groups include construction and agricultural workers who engage in activities that disturb soils in areas with this disease. There is no vaccine for valley fever, but it is treatable with a variety of oral and injectable anti-fungal agents.

Hantavirus is a rare, but occasionally fatal, respiratory disease associated with a dustborne virus (Sir Nombre virus) transmitted to humans by breathing dust contaminated with the feces or saliva of wild rodents, especially the deer mouse, in dry land habitats of the southwestern United States.[2] The Coachella Valley Mosquito and Vector Control District (CVMVCD) maintains a wild rodent surveillance program with permanent stations at Whitewater Canyon Road and the Palm Springs Tramway that routinely monitors blood samples from rodents trapped at these sites for hantavirus.[3]

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1 State of California, Resources Agency, *Salton Sea Ecosystem Restoration Program Draft Environmental Impact Report*, Chapter 14 – Hazards, Hazardous Waste, and Public Health, (2006) 14–17.

2 State of California, 2006.

3 State of California, 2006.

Greenhouse Gas Emissions

Gases that trap heat in the atmosphere are GHGs. The effect is analogous to the way a greenhouse retains heat. Common GHGs include water vapor, CO_2, methane, nitrous oxides, chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, O_3, and aerosols. Natural processes and human activities emit GHGs. The presence of GHGs in the atmosphere affects the Earth's temperature. Without the natural greenhouse effect, the average temperature at Earth's surface would be below the freezing point of water.[4] However, 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.

The global warming potential (GWP) is the potential of a gas or aerosol to trap heat in the atmosphere. The GWP compares the amount of heat trapped by a certain mass of the gas in question to the amount of heat trapped by a similar mass of CO_2. A GWP is calculated over a specific time interval, commonly 20, 100, or 500 years. GWP is expressed as a factor of CO_2 (whose GWP is standardized to 1). For example, the 100-year GWP of methane is 21, which means that if the same mass of methane and CO_2 were introduced into the atmosphere, methane will trap 21 times more heat than the CO_2 over the next 100 years.[5] Of these two primary sources of GHG, CO_2 would be generated by sources associated with the Specific Plan, while methane would not be generated in any substantial amount.

Individual GHG compounds have varying GWP and atmospheric lifetimes. The calculation of the CO_2 equivalent is a consistent methodology for comparing GHG emissions, since it normalizes various GHG emissions to a consistent metric. Methane's warming potential of 21 indicates that methane has a 21 times greater warming affect than CO_2 on a molecule per molecule basis. A CO_2 equivalent is the mass emissions of an individual GHG multiplied by its GWP.

Emissions Inventory and Trends

California is the second largest contributor of GHGs in the United States and the 16th largest in the world.[6] In 2011, California produced 448.11 million metric tons of carbon dioxide equivalents

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4 California Environmental Protection Agency, Climate Action Team, *Climate Action Team Report to Governor Schwarzenegger and the California Legislature* (March 2006), www.climatechange.ca.gov/climate_action_team /reports/index.html.

5 Intergovernmental Panel on Climate Change (2007).

6 California Energy Commission, *Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004, Staff Final Report, CEC-600-2006-013-SF* (December 2006).

($MMTCO_2e$),[7] including imported electricity and excluding combustion of international fuels and carbon sinks or storage. The 2004 California GHG inventory was approximately 7 percent of U.S. emissions. The major source of GHGs in California is transportation, contributing to 41 percent of the State's total GHG emissions.[8] Electricity generation (both in and out of State) is the second largest source, contributing to 22 percent of the State's GHG emissions.[9]

Riverside County's 2008 inventory amounted to 7,102,319 MTCO2e community-wide and 237,085 MTCO2e from municipal operations.[10]

3. AIR QUALITY & GREENHOUSE GAS EMISSION STANDARDS

Air Quality Standards

Federal

At the federal level, the EPA is responsible for the implementation of portions of the Clean Air Act (CAA) dealing with certain mobile sources of air emissions and other requirements. Charged with handling global, international, national, and interstate air pollution issues and policies, the EPA sets national vehicle and stationary source emission standards, oversees the approval of all State Implementation Plans,[11] provides research and guidance for air pollution programs, and sets NAAQS. The NAAQS for six common air pollutants (O_3, PM10 and PM2.5, NO_2, CO, Pb, and SO_2) shown in **Table 3, Criteria Air Pollutants**, were identified from provisions of the Clean Air Act of 1970.

The NAAQS were set to protect public health, including that of sensitive individuals. For this reason, the standards continue to change as more medical research is available regarding the health effects of the criteria pollutants. The primary NAAQS define the air quality considered necessary, with an adequate

7 CARB, *California Greenhouse Gas Inventory for 2000-20011 by Category as Defined in the 2008 Scoping Plan* (August 1, 2013) http://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_scopingplan_00-11_2013-08-01.pdf.

8 California Energy Commission (2006).

9 California Energy Commission (2006).

10 County of Riverside, *Riverside County Climate Action Plan*, approved June 19, 2012.

11 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 NAAQS.

margin of safety, to protect the public health.[12] Other portions of the CAA, such as the portions dealing with stationary source requirements, are implemented by state and local agencies.

The 1990 amendments to the CAA identify specific emission reduction goals for areas not meeting the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and the incorporation of additional sanctions for failure to attain or to meet interim milestones. The sections of the CAA that are most applicable to the Project include Title I, Nonattainment Provisions, and Title II, Mobile Source Provisions.

The NAAQS were also amended in July 1997 to include an 8-hour standard for O_3 and to adopt a NAAQS for PM2.5. The NAAQS were amended in September 2006 to include an established methodology for calculating PM2.5, as well as revoking the annual PM10 threshold. The CAA includes the following deadlines for meeting the NAAQS within the South Coast Air Basin: (1) PM2.5 by the year 2014 and (2) 8-hour O_3 by the year 2023. Although the deadline for federal 1-hour O_3 standard has passed, the South Coast Air Basin has yet to attain those standards, but is continuing to implement the 2012 Air Quality Management Plan (AQMP) to attain these standards as soon as possible.

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12 EPA, "A Comprehensive Analysis of Biodiesel Impacts on Exhaust Emissions, EPA420-P-02-001" (October 2002). EPA, Office of Air and Radiation, "Nitrogen Oxides: Impact on Public Health and the Environment," www.epa.gov/ttn/oarpg/t1/reports/noxrept.pdf (1997). EPA, "Ozone and Your Health, EPA-452/F-99-003," www.epa.gov/air/ozonepollution/pdfs/health.pdf (1999). EPA, "Particle Pollution and your Health, EPA-452/F-03-001, http://epa.gov/pm/pdfs/pm-color.pdf (September 2003). EPA, "Health and Environmental Impacts of CO," http://www.epa.gov/airquality/carbonmonoxide/ health.html. EPA, "Fact Sheet, Proposed Revisions to the National Ambient Air Quality Standards for Nitrogen Dioxide," www.epa.gov/air/nitrogenoxides/pdfs/20090722fs.pdf (July 22, 2009).

Table 3
Criteria Air Pollutants

Air Pollutant	Averaging Time	CA Standard	National Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
Ozone (O_3)	1 hour 8 hour	0.09 ppm 0.070 ppm	— 0.075 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) risk to public health implied by 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; and (f) property damage.	O_3 is a photochemical pollutant as it is not emitted directly into the atmosphere, but is formed by a complex series of chemical reactions between VOC, NOx, and sunlight. O_3 is a regional pollutant that is generated over a large area and is transported and spread by the wind.	O_3 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).
Carbon monoxide (CO)	1 hour 8 hour	20 ppm 9.0 ppm	35 ppm 9 ppm	(a) Aggravation of angina pectoris (chest pain) and other 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; and (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, biomass). Sources include motor vehicle exhaust, industrial processes (metals processing and chemical manufacturing), residential wood burning, and natural sources.

Air Pollutant	Averaging Time	CA Standard	National Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
Nitrogen dioxide (NO_2)[b]	1 hour Annual	0.18 ppm 0.030 ppm	0.100 ppm 0.053 ppm	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) risk to public health implied by pulmonary and extrapulmonary biochemical and cellular changes and pulmonary structural changes; and (c) contribution to atmospheric discoloration.	During combustion of fossil fuels, oxygen reacts with nitrogen to produce NOx (NO, NO_2, NO_3, N2O, $N2O_3$, $N2O_4$, and $N2O_5$). NOx is a precursor to O_3, PM10, and PM2.5 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.
Sulfur dioxide (SO_2)	1 hour 3 hour 24 hour Annual	0.25 ppm — 0.04 ppm —	— 0.5 ppm 0.14 ppm 0.030 ppm	Bronchoconstriction accompanied by symptoms that 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 SO_2 levels. It is not clear whether the two pollutants act synergistically or one pollutant alone is the predominant factor.	SO_2 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 SO_2 and sulfur trioxide. Sulfuric acid is formed from SO_2, which can lead to acid deposition and can harm natural resources and materials. Although SO_2 concentrations have been reduced to levels well below State and national standards, further reductions are desirable because SO_2 is a precursor to sulfate and PM10.	Human-caused sources include fossil fuel combustion, mineral ore processing, and chemical manufacturing. Volcanic emissions are a natural source of SO_2. The gas can also be produced in the air by dimethylsulfide and hydrogen sulfide. SO_2 is removed from the air by dissolution in water, chemical reactions, and transfer to soils and ice caps. The SO_2 levels in the State are well below the maximum standards.
Particulate matter (PM10)	24 hour Mean	50 µg/m^3 20 µg/m^3	150 µg/m^3 —	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) declines in pulmonary function growth in children; and (c)	Suspended particulate matter is a mixture of small particles that consist of dry solid fragments, droplets of water, or solid cores with liquid	Stationary sources include fuel combustion for electrical utilities, residential space heating, and industrial processes; construction and
Particulate	24 hour	—	35 µg/m^3			

Air Pollutant	Averaging Time	CA Standard	National Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
matter (PM2.5)	Annual	12 µg/m^3	15.0 µg/m^3	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.	coatings. The particles vary in shape, size, and composition. PM10 refers to particulate matter that is 10 microns or less in diameter, (1 micron is 1-millionth of a meter). PM2.5 refers to particulate matter that is 2.5 microns or less in diameter.	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.
Sulfates	24 hour	25 µg/m^3	—	(a) Decrease in ventilatory function; (b) aggravation of asthmatic symptoms; (c) aggravation of cardiopulmonary disease; (d) vegetation damage; (e) degradation of visibility; and (f) property damage.	The sulfate ion is a polyatomic anion with the empirical formula SO42−. 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 SO_2. In California, the main source of sulfur compounds is the combustion of gasoline and diesel fuel.
Lead (Pb)[c]	30 day	1.5 µg/m^3	—	Pb accumulates in bones, soft tissue, and blood and can affect	Pb is a solid heavy metal that can exist in air pollution as an	Pb-ore crushing, Pb-ore smelting, and battery
	Quarter	—	1.5 µg/m^3			

Air Pollutant	Averaging Time	CA Standard	National Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
	Rolling 3-month average	—	0.15 µg/m^3	the kidneys, liver, and nervous system. It can cause impairment of blood formation and nerve conduction. The more serious effects of lead poisoning include behavior disorders, mental retardation, neurological impairment, learning deficiencies, and low IQs. Pb may also contribute to high blood pressure and heart disease.	aerosol particle component. An aerosol is a collection of solid, liquid, or mixed-phase particles suspended in the air. Pb was first regulated as an air pollutant in 1976. Leaded gasoline was first marketed in 1923 and was used in motor vehicles until around 1970. Pb concentrations have not exceeded State or national air quality standards at any monitoring station since 1982.	manufacturing are currently the largest sources of Pb 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. Pb can be removed from the atmosphere through deposition to soils, ice caps, oceans, and inhalation.
Vinyl chloride[c]	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. Epidemiological 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, the CARB 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. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites.

Air Pollutant	Averaging Time	CA Standard	National Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
Hydrogen sulfide (H2S)	1 hour	0.03 ppm	—	High levels of H2S can cause immediate respiratory arrest. It can irritate the eyes and respiratory tract and cause headaches, nausea, vomiting, and coughs. Long exposure can cause pulmonary edema.	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 H2S. Anthropogenic sources include the combustion of sulfur containing fuels (oil and coal).
Volatile organic compounds (VOC)	--	There are no State or national ambient air quality 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.	ROGs, or VOCs, are defined as any compound of carbon—excluding CO, CO_2, 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.

Air Pollutant	Averaging Time	CA Standard	National Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources

Sources: Effects: South Coast Air Quality Management District, "Final 2007 Air Quality Management Plan," www.aqmd.gov/aqmp/07aqmp/index.html (2007). California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, "Health Effects of Diesel Exhaust," http://oehha.ca.gov/public_info/facts/dieselfacts.html (2002). (OEHAA 2002). California Air Resources Board, "Vinyl Chloride," www.arb.ca.gov/research/aaqs/caaqs/vc/vc.htm (2009). (CARB 2009b). EPA, Technology Transfer Network, "Health Effects Notebook for Hazardous Air Pollutants," Air Toxics website, www.epa.gov/ttn/atw/hlthef/hapindex.html (April 5, 2010). (US EPA 2007); US EPA, Technology Transfer Network, "Benzene," Air Toxics website, www.epa.gov/ttn/atw/hlthef/benzene.html (2000). (US EPA 2000).

Sources: Standards: CARB, "California Greenhouse Gas Inventory for 2000-2009 by Category as Defined in the Scoping Plan," http://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_scopingplan_00-08_2010-05-12.pdf (October 26, 2011). (CARB 2010).

Sources: Properties and sources: EPA, Office of Air and Radiation, "Nitrogen Oxides: Impact on Public Health and the Environment," www.epa.gov/ttn/oarpg/t1/reports/noxrept.pdf (2007). (US EPA 1997). EPA, "Ozone and Your Health, EPA-452/F-99-003," www.epa.gov/air/ozonepollution/pdfs/health.pdf (1999). (US EPA 1999). EPA," A Comprehensive Analysis of Biodiesel Impacts on Exhaust Emissions, EPA420-P-02-001," (October 2002). (US EPA 2002); EPA, "Particle Pollution and your Health, EPA-452/F-03-001," http://epa.gov/pm/pdfs/pm-color.pdf (September 2003). (US EPA 2003a); EPA," Health and Environmental Impacts of CO," http://www.epa.gov/airquality/carbonmonoxide/health.html. (US EPA 2008); EPA,"Fact Sheet, Proposed Revisions to the National Ambient Air Quality Standards for Nitrogen Dioxide," www.epa.gov/air/nitrogenoxides/pdfs/20090722fs.pdf (July 22, 2009). (US EPA 2009d).

Notes: ppm = parts per million (concentration); µg/m^3 = micrograms per cubic meter; annual = annual arithmetic mean; 30-day = 30-day average; quarter = calendar quarter.

[a] *National 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 SO_2, 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.*

[b] *EPA established a new 1-hour NO_2 standard of 100 ppb or 188 µg/m^3, which became effective April 12, 2010. In addition to establishing an averaging time and level, the EPA also is setting a new "form" for the standard. The form is the air quality statistic used to determine if an area meets the standard. The form for the 1-hour NO_2 standard is the 3-year average of the 98th percentile of the annual distribution of daily maximum 1-hour average concentrations. This suite of standards will protect public health by limiting exposures to short-term peak concentrations of NO_2, which primarily occur near major roads, and by limiting community-wide NO_2 concentrations to levels below those that have been linked to respiratory-related emergency department visits and hospital admissions in the United States.*

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

State

The California Clean Air Act, signed into law in 1988, requires all areas of the state to achieve and maintain the CAAQS by the earliest practicable date. The CARB, a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both state and federal air pollution control programs within California. In this capacity, the CARB conducts research, sets state ambient air quality standards, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. The CARB establishes emissions standards for motor vehicles sold in California, consumer products, and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. **Table 3** includes the CAAQS currently in effect for each of the criteria pollutants as well as other pollutants recognized by the State. As shown in **Table 3** above, the CAAQS include more stringent standards than the NAAQS.

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 the NAAQS. The State Implementation Plan for California is administered by the CARB, which has overall responsibility for statewide air quality maintenance and air pollution prevention. The CARB also administers CAAQS for the 10 air pollutants designated in the California Clean Air Act. The 10 State air pollutants are the six NAAQS listed above (CO_2, CH_4, N_2O, HFC, PFC, and SF6) as well as visibility-reducing particulates[13], hydrogen sulfide, sulfates, and vinyl chloride.

CARB Regulation for In-Use Off-Road Diesel Vehicles. On July 26, 2007, the CARB adopted a regulation to reduce diesel particulate matter and NOx emissions from in-use (existing) off-road heavy-duty diesel vehicles in California. Such vehicles are typically used in construction, mining, and industrial operations. As similar types of diesel equipment will be used in the setup and break down phase of the Future Festivals, this regulation is relevant to this Project. The regulation imposed limits on idling, buying older off-road diesel vehicles, and selling vehicles beginning in 2008. It requires all vehicles to be reported to CARB and labeled in 2009; and then in 2010 begins gradual requirements to clean up their fleet by getting rid of older engines, using newer engines, and installing exhaust retrofits. The regulation requires equipment to be retrofitted or retired. The regulation takes effect in phases, requiring the largest fleets to comply by 2010, medium fleets by 2013, and smaller fleets by 2015.

13 Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt.

Local

The SCAQMD shares responsibility with CARB for ensuring that all state and federal ambient air quality standards are achieved and maintained throughout all of the Coachella Valley and the urban portions of Los Angeles, Riverside, and San Bernardino counties. The SCAQMD has jurisdiction over an area of approximately 10,743 square miles. This area includes all of Orange County and 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 Specific Plan lies within the jurisdiction of the SCAQMD and compliance with SCAQMD rules and guidelines is required. SCAQMD is responsible for controlling emissions primarily from stationary sources. SCAQMD maintains air quality monitoring stations throughout the Salton Sea Air Basin and the South Coast Air Basin. SCAQMD, in coordination with the Southern California Association of Governments (SCAG), is also responsible for developing, updating, and implementing the AQMP for the Salton Sea Air Basin as well as the South Coast Air Basin. An AQMP is a plan prepared and implemented by an air pollution district for a county or region designated as “nonattainment” of the national and/or California ambient air quality standards. The term “nonattainment area” is used to refer to an air basin in which one or more ambient air quality standards are exceeded.

The purpose of the 2003 AQMP is to lead the South Coast Air Basin and portions of the Salton Sea Air Basin under SCAQMD jurisdiction into compliance with the 1-hour ozone and PM_{10} national standards.[14] The goal of the 2007 AQMP is to lead the South Coast Air Basin into compliance with the national 8-hour ozone and $PM_{2.5}$ standards.

The 2003 AQMP also replaced the 1997 attainment demonstration for the federal CO standard and provided a basis for a maintenance plan for CO for the future. It also updated the maintenance plan for the federal NO_2 standard that the SCAB has met since 1992.[15] A subsequent AQMP for the basin was adopted by the SCAQMD on June 1, 2007.[16] The 2007 AQMP outlined a detailed strategy for meeting the national health-based standards for PM2.5 by 2015 and 8-hour O_3 by 2024 while accounting for and accommodating future expected growth. The 2007 AQMP incorporated significant new emissions inventories, ambient measurements, scientific data, control strategies, and air quality modeling. Most of

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14 South Coast Air Quality Management District (SCAQMD), Air Quality Management Plan, www.aqmd.gov/aqmp/AQMD03AQMP.htm, (2003), accessed September 23, 2012.

15 SCAQMD (2013, p. 1-1).

16 SCAQMD, “Final 2007 Air Quality Management Plan,” www.aqmd.gov/aqmp/07aqmp/index.html (2007).

the reductions were to be from mobile sources, which are currently responsible for about 75 percent of all smog and particulate forming emissions.

The SCAQMD approved the 2012 AQMP on December 7, 2012. 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. The 2012 AQMP outlines a comprehensive control strategy that meets the requirement for expeditious progress toward attainment with the 24-hour PM2.5 federal ambient air quality standard with all feasible control measures and demonstrates attainment of the standard by 2014. The 2012 AQMP is also an update to the 8-hour O_3 control plan with new emission reduction commitments from a set of new control measures, which implement the 2007 AQMP's Section 182 (e)(5) commitments.

The SCAQMD is responsible for limiting the amount of emissions that can be generated throughout the basin by various stationary, area, and mobile sources. Specific rules and regulations have been adopted by the SCAQMD Governing Board, which limit the emissions that can be generated by various uses/activities and that identify specific pollution reduction measures, which must be implemented in association with various uses and activities. These rules not only regulate the emissions of the federal and state criteria pollutants, but also toxic air contaminants (TACs) and acutely hazardous materials. The rules are also subject to ongoing refinement by SCAQMD.

Among the SCAQMD rules applicable to the Project are Rule 402 (Nuisance), Rule 403 (Fugitive Dust), and Rule 1113 (Architectural Coatings. Rule 402 prohibits discharge of quantities of air contaminants which may harm a considerable number of persons or to the public. Rule 403 requires the use of stringent best available control measures to minimize PM10 emissions during grading and construction activities. Rule 1113 will require reductions in the VOC content of coatings, with a substantial reduction in the VOC content limit for flat coatings in July 2008. Additional details regarding these rules and other potentially applicable rules are presented in the following.

SCAQMD Rule 402. This rule prohibits the discharge from any source whatsoever of 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.

SCAQMD Rule 403. This rule governs emissions of fugitive dust during construction and operation activities. Compliance with this rule is achieved through Best Management Practices. This may include application of water or chemical stabilizers to disturbed soils, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 miles per hour (mph), 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 1401. The proposed residential land uses may potentially emit trace amounts of TACs, but would not exceed the thresholds contained in SCAQMD Rule 1401 (New Source Review of Toxic Air Contaminants) and would not result in an incremental increase in cancer risk of 10 in 1 million or more or a Hazard Index of 1.0 or more. Diesel-fueled waste-hauling trucks would drive to and from the Project site resulting in emissions of diesel particulate matter. However, the number of trucks would be equal to that occurring in other similarly developed residential neighborhoods throughout the region. Residential land uses are not substantial sources of TACs as well. Therefore, the site is not expected to generate emissions of TACs that would exceed the SCAQMD's cancer risk threshold of 10 in 1 million or the noncancerous Hazard Index threshold of 1.0.

Toxic Air Contaminants (TACs). Projects that use hazardous materials or emit TACs have the potential to expose sensitive receptors to adverse health impacts. The residential land uses associated with the Project are not anticipated to use hazardous or acutely hazardous materials in appreciable quantities. Hazardous substances currently are regulated under the California Accidental Release Prevention (CalARP) Program. The CalARP Program satisfies the requirements of the Federal Risk Management Plan Program, and contains additional state requirements. The CalARP Program applies to regulated substances in excess of specific quantity thresholds. The majority of the substances have thresholds in the range of 100 to 10,000 pounds. The residential land uses associated with the Project may contain small, if any, amounts of these hazardous substances in household and commercial cleaners and other products. However, typical use of these products would not result in quantities at any one location that exceed the thresholds. Moreover, significant amounts of hazardous substances would typically be expected at industrial, manufacturing, and complex water or wastewater treatment land uses. Accordingly, the Project would not result in a significant impact with respect to hazardous materials.

CARB has determined that adverse health effects are generally elevated near heavily traveled roadways. The CARB guidance document, *Air Quality and Land Use Handbook*, recommends that lead agencies, where possible, avoid sitting new sensitive land uses within 500 feet of a freeway, an urban road with 100,000 vehicles per day, or a rural road with 50,000 vehicles per day. This recommendation is not mandated by State law, but only serves as a general guidance to lead agencies when considering land use projects. The *Air Quality and Land Use Handbook* states that it is up to lead agencies to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues.

Greenhouse Gas Emission Standards

State

AB 32. In 2006, the California State Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 focuses on reducing GHG emissions in California. GHGs, as defined under AB 32, include CO_2, CH_4, NO_2, HFCs, PFCs, and SF_6. AB 32 requires that GHGs emitted in California be reduced to 1990 levels by the year 2020. CARB is the state agency charged with monitoring and regulating sources of emissions of GHGs that cause global warming in order to reduce emissions of GHGs.

The CARB Governing Board approved the 1990 GHG emissions level of 427 $MMTCO_2E$ on December 6, 2007. Therefore, in 2020, emissions in California are required to be at or below 427 $MMTCO_2E$.

Under the current "business-as-usual" scenario, statewide emissions are increasing at a rate of approximately 1 percent per year.

- 1990: 427 $MMTCO_2E$
- 2004: 480 $MMTCO_2E$
- 2008: 495 $MMTCO_2E$
- 2020: 596 $MMTCO_2E$

Under AB 32, the CARB published its Final Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California.[17] The CARB 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 those early action measures, nine are considered discrete early action measures,[18] as they were adopted by CARB and enforceable by January 1, 2010. The CARB estimates that the 44 early action measures will result in reductions of at least 42 $MMTCO_2E$ by 2020, representing approximately 25 percent of the 2020 target.

CEQA is only mentioned once in the Early Action Measures report. The California Air Pollution Control Officer's Association suggested that CARB work with local air districts on approaches to review GHG

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17 CARB, "Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California Recommended for Board Consideration," www.arb.ca.gov/cc/ejac/ghg_eamcommitteelist.pdf (October 2007).

18 Discrete early actions are regulations to reduce GHG emissions adopted by the CARB Governing Board and enforceable by January 1, 2010.

impacts under the CEQA process, including significance thresholds for GHGs for projects and to develop a process for capturing reductions that result from CEQA mitigations. CARB's response to this recommendation in the report is as follows:

> *[T]he Governor's Office of Planning and Research is charged with providing statewide guidance on CEQA implementation. With respect to quantifying any reductions that result from project-level mitigation of GHG emissions, we would like to see air districts take a lead role in tracking such reductions in their regions.*[19]

The CARB approved the Climate Change Proposed Scoping Plan (Scoping Plan) in December 2008. The Scoping Plan:

> *[P]roposes a comprehensive set of actions designed to reduce overall GHG emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health.*[20]

As noted in the Scoping Plan, the projected total business-as-usual emissions for year 2020 (estimated as 506.8 $MMTCO_2E$) must be reduced by approximately 16 percent to achieve the CARB's approved 2020 emission target of 427 $MMTCO_2E$. The Scoping Plan identifies recommended measures for multiple GHG 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 GHG target include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards
- Achieving a statewide renewable 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 GHG emissions for regions throughout California and pursuing policies and incentives to achieve those targets

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19 CARB, "Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California Recommended for Board Consideration," www.arb.ca.gov/cc/ejac/ghg_eamcommitteelist.pdf (October 2007).

20 CARB, "Climate Change Scoping Plan (a framework for change as approved December 2008), http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf (December 2008).

- 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

- 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.[21] 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. "Uncapped" strategies include additional reductions that will not be subject to the cap-and-trade emissions requirements. They are provided as a margin of safety to help achieve required GHG emission reductions.

SB 375. SB 375 was signed into law by the Governor on September 30, 2008. According to SB 375, the transportation sector is the largest contributor of GHG emissions, which contributes to 40 percent of the total GHG emissions in California. Automobiles and light trucks alone contribute almost 30 percent. SB 375 indicates that GHGs from automobiles and light trucks can be reduced by new vehicle technology but significant reductions from changed land use patterns and improved transportation are necessary. 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) it requires metropolitan planning organizations to include sustainable community strategies in their regional transportation plans for reducing GHG emissions, (2) it aligns planning for transportation and housing, and (3) it creates specified incentives for the implementation of the strategies.

South Coast Air Quality Management District

In April 2008, the SCAQMD convened a GHG CEQA Significance Threshold Working Group in order to provide guidance to local lead agencies on determining the significance of GHG emissions identified in CEQA documents.[22] The goal of the working group is to develop and reach consensus on an acceptable

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21 The cap-and-trade program is a central element of AB 32 and covers major sources of GHG emissions in the State such as refineries, power plants, industrial facilities, and transportation fuels. The regulation includes an enforceable GHG cap that will decline over time. CARB will distribute allowances, which are tradable permits, equal to the emission allowed under the cap.

22 For more information see http://www.aqmd.gov/ceqa/handbook/GHG/GHG.html.

CEQA significance threshold for GHG emissions that would be utilized on an interim basis until CARB (or some other State agency) develops statewide guidance on assessing the significance of GHG emissions under CEQA.

Initially, SCAQMD staff presented the working group with a significance threshold that could be applied to various types of projects, such as residential, nonresidential, industrial, etc. In December 2008, staff presented the SCAQMD Governing Board with a significance threshold for stationary source projects where it is the lead agency. This threshold uses a tiered approach to determine a project's significance, with 10,000 metric tons of carbon dioxide equivalent ($MTCO_2E$) as a screening numerical threshold.

The SCAQMD has not announced when they expect to present a finalized version of these thresholds to the Governing Board. The SCAQMD also has adopted Rules 2700, 2701, and 2702 that address GHG reductions. These rules apply to boilers and process heaters, forestry, and manure management projects.

County of Riverside

The County of Riverside adopted a Climate Action Plan (CAP) for unincorporated areas in the County in 2012. The CAP establishes a programmatic approach to reducing the GHG emissions associated with the continued growth of the County and set a framework for a comprehensive plan that addresses the GHG impacts of future development and County operations. Through the CAP, the County has established goals and policies that incorporate environmental responsibility into its daily management of residential, commercial and industrial growth, education, energy and water use, air quality, transportation, waste reduction, economic development, and open space and natural habitats.

The CAP includes GHG inventories of community-wide and municipal sources based on the most recent data available for the year 2008. Sources of emissions include transportation, electricity and natural gas use, landscaping, water and wastewater pumping and treatment, and treatment and decomposition of solid waste.

Following the State's adopted AB 32 GHG reduction target, Riverside County has set a goal to reduce emissions back to 1990 levels by the year 2020. This target was calculated as a 15 percent decrease from 2008 levels, as recommended in the AB 32 Scoping Plan. The estimated community-wide emissions for the year 2020, based on population and housing growth projections associated with the assumptions used in the proposed General Plan Update, are 10,268,937 MTCO2e. In order to reach the reduction target, Riverside County must offset this growth in emissions and reduce community-wide emissions to 6,036,971 MTCO2e by the year 2020.

The screening threshold set in the CAP is 3,000 million metric tons of carbon dioxide equivalents ($MTCO_2e$) for any project. If the project is below the screening threshold, GHG impacts would be less than significant. If the project exceeds the screening threshold, then two options are provided by the CAP to analyze potential cumulative GHG impacts from implementation of a project. They include the use of the County GHG Screening Table document or two air quality emission model runs comparing 2011 levels and Project build out levels, which result in a 25 percent reduction of GHG emissions from the 2011 model run.

4. METHODOLOGY

Air Quality Modeling

Short-term emissions of criteria air pollutants (e.g., CO, SO_X, PM10, and PM2.5) generated by project construction and ozone precursors (e.g., ROG and NO_X) were assessed in accordance with SCAQMD-recommended methods. Where quantification was required, these emissions were modeled using the CARB-approved California Emissions Estimator Model 2013.2.2 (CalEEMod) computer program as recommended by the SCAQMD. CalEEMod is designed to model construction emissions for land use development projects and allows for the input of project specific information. Project-generated emissions were modeled based on proposed land uses and general information provided in the draft Vista Soleada Specific Plan.

The construction emissions for the Project were calculated according to the *SCAQMD CEQA Air Quality Handbook* and construction emission factors contained in the CalEEMod. The emission calculations assume the use of standard construction practices, such as compliance with SCAQMD Rule 402 (Nuisance) and Rule 403 (Fugitive Dust), to minimize the generation of fugitive dust, which is mandatory for all construction projects. Emission modeling assumes construction to begin on or about January 2015. Operational emissions would be generated by both stationary and mobile sources as a result of normal day-to-day activities on the Project site after occupancy. Stationary emissions would be generated by the consumption of natural gas for space and water heating equipment. Mobile emissions would be generated by motor vehicles traveling to and from the Specific Plan site. The analysis of daily operational emissions has been prepared using the data and methodologies identified in the *SCAQMD CEQA Air Quality Handbook* and current motor vehicle emission factors in the CalEEMod model.

Project-generated emissions were modeled based on general information provided in the proposed project description and SCAQMD-recommended and default CalEEMod model settings to estimate reasonable worst-case conditions. Project-generated, regional area and mobile-source emissions of criteria air pollutants and ozone precursors were also modeled using the CalEEMod computer program. CalEEMod allows land use selections that include project location specifics and trip generation rates.

CalEEMod accounts for area-source emissions from the use of natural gas, landscape maintenance equipment, and consumer products and from mobile-source emissions associated with vehicle trip generation.

Potential localized impacts were evaluated by first comparing the estimated emissions compared to the LST defined by the SCAQMD. Although the Specific Plan Site is much larger than 5 acres, if the amount of localized emissions was below the LST threshold for a 5 acre site, this would indicate the thresholds would not be exceeded during the construction and operation of the Specific Plan site.

Other air quality impacts (i.e., CO, TACs, and odors) were assessed in accordance with methodologies recommended by SCAQMD.

Specific Plan design features include, but are not limited to, the following:

- Expanded trail system
- Use low VOC cleaning supplies and indoor/outdoor paint supplies
- Install high efficiency lighting
- Exceed Title 24 Nonresidential Building energy requirements by 15 percent
- Use of high efficiency appliances
- Use of only natural gas fireplace
- Water conservation strategy to reduce water demand by 20 percent
- Install low flow appliances for faucets, toilets, and showers
- Installation of water efficient irrigation system
- Provide water efficient landscape with reduced turf area
- Recycle onsite solid waste generation by 55 percent

Greenhouse Gas Emission Modeling

For modeling purposes, the Specific Plan Project was assumed to be operational in 2020 and would result in direct annual emissions of GHGs during operation. Construction emissions were amortized over a 30-year operation period. Operational emissions would be generated by both area and mobile sources because of normal day-to-day activities. Area source emissions would be generated by the consumption of natural gas for space and water heating devices. Area source emissions are based on emission factors contained in the CalEEMod model. Mobile emissions would be generated by the motor vehicles traveling to and from the Specific Plan area. Trip generation rates provided in the traffic report for the Specific Plan were used to estimate the mobile source emissions.

The Vista Soleada Specific Plan would also result in indirect GHG emissions due to electricity demand, water consumption and waste generation. The emission factor for CO_2 due to electrical demand from Imperial Irrigation District was selected in the CalEEMod model. Electricity consumption was based on default data found in CalEEMod for the respective land use types. In addition to electrical demand, the Specific Plan would also result in indirect GHG emissions due to water consumption, wastewater treatment and solid waste generation.

Cumulative Methodology

The following approach has been developed by SCAQMD staff as a possible means to determine the cumulative significance of a land use project.[23] This approach is consistent with the AQMP which contains performance standards and emission reduction targets necessary to attain the federal and state air quality standards. This approach is not mandatory under CEQA, and SCAQMD staff is available to consult on the preparation of a cumulative impact analysis:

- Reduce the rate of growth in vehicle miles traveled (VMT) and trips
- 1% per year (or 18% over 18 years to the year 2010) reduction in project emission (ROC, NOx, CO, PM10, SOx) or
- 1.5 average vehicle ridership (AVR), or average vehicle occupancy (AVO) if a transportation project (not applicable for this project).

The applicable methodology can be used to determine potential cumulative air quality impacts.

Data Summary

The Specific Plan air emissions are reported in relation to the ambient concentrations of the six primary criteria pollutants (O_3, CO, NO_2, SO_2, PM10, and PM2.5) identified by the SCAQMD. The GHG emissions are reported in $MTCO_2e$/year.

Several pollutants listed in **Table 3** are not addressed in this analysis. Visibility-reducing particles are not addressed in this analysis because particulate matter is addressed, and particulate matter represents the primary visibility reducing particles that would be generated by the Specific Plan. The Project would

23 South Coast Air Quality Management District, CEQA Air Quality Handbook, (April 1993), Section 9.5, page 9-12.

also not generate or expose nearby residents to vinyl chloride because the Project would not involve the type of chemical processes that create this pollutant. The Project also would not result in exposure of nearby residents to hydrogen sulfide because it would not be generated in any substantial quantity. There is also no generation of hydrogen sulfide or usage in the vicinity of the Project Site.

5. MODELING RESULTS

Air Quality

The maximum daily emissions during Project construction are listed in **Table 4, Maximum Construction Emissions (pounds/day).** The analysis assumes that all construction equipment and activities would occur continuously over the day and that activities would overlap. In reality, this would not occur as most equipment would operate only a fraction of each workday and many of the activities would not overlap on a daily basis. Therefore, **Table 4** represents a conservative scenario for construction activities.

Table 4
Maximum Construction Emissions
(pounds/day)

Source	ROG	NOx	CO	SOx	PM10	PM2.5
Maximum summer emissions	40.12	29.90	76.25	0.13	9.38	5.06
Maximum winter emissions	39.32	29.92	70.04	0.12	9.38	5.06
SCAQMD threshold	75	100	550	150	150	55
Threshold exceeded?	***No***	***No***	***No***	***No***	***No***	***No***

CO, carbon monoxide; NOx, nitrogen oxides; PM10, particulate matter less than 10 microns; PM2.5, particulate matter less than 2.5 microns; ROG, reactive organic gases; SOx, sulfur oxides.
*Note: Refer to Air Quality Modeling Results in **Appendix A.***

Based on the modeling, construction of the Project would result in a maximum unmitigated daily emissions of 42.57 pounds/day of reactive organic gases (ROG), 79.18 pounds/day of nitrogen oxide (NOx), 73.67 pounds/day of carbon monoxide (CO), 0.13 pounds/day of sulfur oxides (SOx), 25.73 pounds/day of particulate matter less than 10 microns (PM10), and 13.71 pounds/day of fine particulate matter less than 2.5 microns (PM2.5). All criteria air pollutants would be below the SCAQMD construction thresholds. Modeling included the use of SCAQMD standard construction practices including Rule 403 (Fugitive Dust) and required use of Tier 3 engines in off-road vehicles, as well as additional dust control measures, that would be required to further reduce emissions during construction. As shown in **Table 4**, the Project would result in maximum daily emissions of 40.12

pounds/day of ROG, 29.92 pounds/day of NOx, 76.25 pounds/day of CO, 0.13 pounds/day of SOx, 9.38 pounds/day of PM10, and 5.06 pounds/day of PM2.5.

The maximum daily operational emissions are based on the development of all the proposed land uses on the Specific Plan site. The results presented in **Table 5, Maximum Operational Emissions (pounds/day)**, are compared to the SCAQMD established operational significance thresholds. For the Coachella Valley, the mass daily thresholds for operation are the same as the construction thresholds.

Table 5
Maximum Operational Emissions
(pounds/day)

Source	ROG	NOx	CO	SOx	PM10	PM2.5
Maximum summer emissions	57.70	19.84	103.45	0.17	11.32	3.60
Maximum winter emissions	56.24	21.22	104.96	0.16	11.32	3.60
SCAQMD threshold	75	100	550	150	150	55
Threshold exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

CO, carbon monoxide; NOx, nitrogen oxides; PM10, particulate matter less than 10 microns; PM2.5, particulate matter less than 2.5 microns; ROG, reactive organic gases; SOx, sulfur oxides.
Note: Refer to Air Quality Modeling Results in ***Appendix A.***

Based on the modeling, operation of the Specific Plan would result in maximum unmitigated daily emissions of 60.71 pounds/day of ROG, 22.20 pounds/day of NOx, 107.08 pounds/day of CO, 0.18 pounds/day of Sox, 11.89 pounds/day of PM10, and 3.78 pounds/day of PM2.5. All criteria air pollutants would be below the SCAQMD operation thresholds. As shown in **Table 5**, the Project would result in maximum daily emissions with incorporation of the project design features of 57.70 pounds/day of ROG, 21.22 pounds/day of NOx, 104.96 pounds/day of CO, 0.16 pounds/day of SOx, 11.32 pounds/day of PM10, and 3.60 pounds/day of PM2.5.

The Project-specific localized significance thresholds (LST) are shown in **Table 6, LST Worst-Case Emissions,** and are compared with the maximum daily on-site construction and operational emissions.

Table 6
LST Worst-Case Emissions
(pounds/day)

Source	NOx	CO	PM10	PM2.5
Construction				

Total mitigated maximum emissions	29.92	76.25	9.38	5.06
LST threshold	80	498	14	8
Threshold exceeded?	**No**	**No**	**No**	**No**
Operational				
Area/energy emissions	1.95	19.8	0.51	0.50
LST threshold	304	2,292	4	2
Threshold exceeded?	**No**	**No**	**No**	**No**

CO, carbon monoxide; LST, localized significance threshold; NOx, nitrogen oxides; PM10, particulate matter less than 10 microns; PM2.5, particulate matter less than 2.5 microns.
Note: Refer to Air Quality Modeling Results in ***Appendix A.***

NOx and CO would be below the SCAQMD localized significance thresholds without implementation of the SCAQMD standard construction practices including Rule 403 and the required use of Tier 3 engines. PM10 and PM2.5 would exceed the localized significance thresholds during construction without standard construction practices and Tier 3 engines. **Table 6** includes the implementation of standard construction practices and use of the required Tier 3 engines. As indicated in **Table 6**, the Project would not exceed the localized significance thresholds during construction and operation.

Greenhouse Gas Emissions

The annual net GHG emissions associated with the operation of the Specific Plan are provided in **Table 7, Estimated Greenhouse Gas Emissions**. The sum of the direct and indirect emissions associated with the year Specific Plan is compared with the Riverside County CAP screening threshold for residential projects of 3,000 $MTCO_2e$/year. The Specific Plan would exceed the screening threshold for residential projects.

Table 7
Estimated Greenhouse Gas Emissions

GHG Emissions Source	Emissions ($MTCO_2e$/year)
Construction	154.3
Area Sources	157.8
Energy	1,395.2
Mobile Sources	1,923.8
Waste	60.3
Water	243.6
Subtotal	**3,935.0**

$MTCO_2e$ = metric tons of carbon dioxide emissions.
Source: CalEEMod.
*Notes: Emissions calculations are provided in **Appendix A.** Totals in table may not appear to add exactly due to rounding in the computer model calculations.*
The emissions incorporate the Project design features which reduce energy usage, water usage, and solid generation.

Since the Project would exceed the GHG screening threshold, additional modeling was conducted to determine consistency with the Riverside County CAP. **Table 8, 2011 Estimated Greenhouse Gas Emissions**, provides the modeling results of the Project in the year 2011.

Table 8
2011 Estimated Greenhouse Gas Emissions

GHG Emissions Source	Emissions ($MTCO_2e$/year)
Construction	199.5
Area Sources	157.8
Energy	1,544.2
Mobile Sources	2,595.3
Waste	142.6
Water	309.6
Subtotal	**4,949.1**

$MTCO_2e$ = metric tons of carbon dioxide emissions.
Source: CalEEMod.
*Notes: Emissions calculations are provided in **Appendix A.** Totals in table may not appear to add exactly due to rounding in the computer model calculations.*

6. SUGGESTED MITIGATION MEASURES

The Specific Plan may potentially pose a risk for construction work crews to be exposed to valley fever fungus and Hantavirus. While no threshold exists to evaluate the significance of potential valley fever and Hantavirus impacts, the following mitigation measure would reduce valley fever and Hantavirus risk during construction.

AQ-1: Prior to grading permit issuance, the construction contractor shall prepare a Work Plan for review and approval by the applicable County Building and Safety Department and County Department of Public Health that includes the following measures, where feasible, to reduce valley fever and Hantavirus risk during construction:

- For construction activity involving substantial soil disturbance activity, preferentially assign persons with positive coccidioidin skin tests (since those with positive tests can be considered immune to reinfection of valley fever) to perform the work.
- Hire crews from local populations when and where possible, since it is more likely that they have been previously exposed to the fungus (coccidioides immitis) and are therefore immune.
- Consult with staff from the Coachella Valley Mosquito and Vector Control District to ascertain whether the wild rodent surveillance program has identified risks posed by the Hantavirus in areas under construction. Construction activity shall be limited in areas identified as a risk and workers shall be notified of the findings.
- Require crews to use respirators during project clearing, grading, and excavation operations in accordance with California Division of Occupational Safety and Health regulations.
- Require that the cabs of grading and construction equipment be air-conditioned.
- Preferentially assign crews to work upwind from excavation sites to the greatest extent possible. This measure does not apply to persons with positive coccidioidin skin tests (since those with positive tests can be considered immune to reinfection of valley fever).
- Pave or apply sufficient water or environmentally safe dust control agents on all construction roads.
- Where acceptable to the fire department, control weed growth by mowing instead of discing, thereby leaving the ground undisturbed and with a mulch covering.

- During rough grading and construction, the access way into the project site from adjoining paved roadways should be paved or treated with water or environmentally safe dust control agents.

7. CONCLUSION

Air Quality

Air Quality Management Plan Consistency

The 2012 Air Quality Management Plan (AQMP) was prepared by the SCAQMD to accommodate growth, to reduce the high levels of pollutants within the areas under the jurisdiction of SCAQMD, to return clean air to the region, and to minimize the impact on the economy. Projects that are considered consistent with the AQMP would not interfere with attainment because this growth is included in the projections utilized in the formulation of the AQMP. Therefore, projects, uses, and activities that are consistent with the applicable assumptions used in the development of the AQMP would not jeopardize attainment of the air quality levels identified in the AQMP, even if they exceed the SCAQMD's recommended daily emissions thresholds.

Demographic growth forecasts for various socioeconomic categories (e.g., population, housing, employment), developed by the Southern California Association of Governments (SCAG) for their 2012 Regional Transportation Plan (RTP) were used to estimate future emissions within the 2012 AQMP (refer to the 2012 AQMP, Chapter 3). Projects that are consistent with the growth projections are considered consistent with the AQMP. The Project would result in population growth for the region. According to the California Department of Finance estimates, the current (2013) population within the unincorporated areas of Riverside County is 358,827 residents. Based on SCAG data, the population projections used to estimate emissions in the 2012 AQMP for year 2020 anticipated a population of 471,500 within unincorporated areas of the County. The Project would generate approximately 736 residents. The Project would account for approximately 1 percent of the anticipated increase of residents within the City between 2012 and 2020 (736 Project residents/471,500 – 358,827 = 112,673 [the increase in residents in unincorporated Riverside County between 2012 and 2020] = 0.16). This total is within the growth projections for the unincorporated Riverside County as adopted by SCAG. Because the SCAQMD has incorporated these same projections into the AQMP, the Project would be consistent with the projections in the 2012 AQMP.

Criteria Air Pollutants

Based on the modeling and analysis presented in **Table 4**, construction of the Project would result in maximum unmitigated daily emissions of 42.57 pounds/day of ROG, 79.18 pounds/day of NOx, 73.67 pounds/day of CO, 0.13 pounds/day of SOx, 25.73 pounds/day of PM10, and 13.71 pounds/day of PM

2.5. Based on **Table 4**, maximum construction emissions do not exceed SCAQMD thresholds for criteria pollutants. With implementation of standard construction practices required by the SCAQMD and Tier 3 engines, the Project would result in maximum daily emissions of 40.12 pounds/day of ROG, 29.92 pounds/day of NOx, 76.25 pounds/day of CO, 0.13 pounds/day of SOx, 9.38 pounds/day of PM10, and 5.06 pounds/day of PM2.5.Therefore, impacts caused by construction emissions would be less than significant.

Based on the modeling and analysis presented in **Table 5**, operation of the Specific Plan would result in maximum unmitigated daily emissions of 60.71 pounds/day of ROG, 22.20 pounds/day of NOx, 107.08 pounds/day of CO, 0.18 pounds/day of SOx, 11.89 pounds/day of PM10, and 3.78 pounds/day of PM 2.5. As shown in **Table 5**, maximum operational emissions do not exceed SCAQMD thresholds for criteria pollutants. Furthermore, the Project would result in maximum daily emissions with incorporation of the project design features of 57.70 pounds/day of ROG, 21.22 pounds/day of NOx, 104.96 pounds/day of CO, 0.16 pounds/day of SOx, 11.32 pounds/day of PM10, and 3.60 pounds/day of PM2.5.Therefore, impacts caused by operational emissions are would be less than significant.

The Project site is located on a site that is currently being farmed, with the nearest sensitive receptor being the approved residential subdivision east of the site in the City of La Quinta. While the Project Site is within a 1-mile radius of a sensitive receptor, findings indicate that emissions would be well below the SCAQMD localized significance thresholds. As indicated in **Table 6,** the construction of the Project would result in emissions below the localized significance thresholds. As such, the Project would result in a less than significant impact on the future sensitive receptors located east of the Project site.

Odors

As shown in **Table 6**, the construction of the Project would result in emissions below the localized significance thresholds. According to the SCAQMD, while almost any source may emit objectionable odors, some land uses will be more likely to produce odors because of their operation. Land uses that are more likely to produce odors, include agriculture, chemical plants, composting operations, dairies, fiberglass molding, landfills, refineries, rendering plants, rail yards, and wastewater treatment plants. The Project does not contain any active manufacturing activities and would convert current agricultural land to residential land uses. Therefore, objectionable odors would not be emitted by the residential uses.

Any unforeseen odors generated by the Project will be controlled in accordance with SCAQMD Rule 402 (Nuisance). Rule 402 prohibits the discharge of air contaminants that cause "injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, 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." Failure to comply with Rule 402 could subject the offending facility to possible fines and/or operational limitations in an approved odor control or odor abatement plan.

Toxic Air Contaminants

The Project would not locate sensitive land uses along a rural road with 50,000 vehicles per day. An analysis of the traffic report for the Project indicated average daily trips much less than the 50,000 limit for rural roads. For these reasons, no significant impacts are anticipated with respect to TACs.

CO Hotspot

The SCAQMD suggests that localized CO impacts be evaluated at intersections due to increases in project-related off-site mobile sources. The SCAQMD recommends performing a localized CO impacts analysis for intersections that change from level of service (LOS) C to D as a result of the project and for all intersections rated D or worse where the project increases the volume-to-capacity ratio by 2 percent or more. According to the Project traffic impact analysis prepared by Urban Crossroads, all nine intersections operate at a LOS A under existing conditions. The nine intersections analyzed in the Traffic Impact Analysis, including the two Project entrances, would experience a slight increase in the delay at the each intersection. The LOS would remain LOS A under Existing Plus Project conditions for all nine intersections. Therefore, no Project intersection falls under the SCAQMD's criteria requiring a more detailed localized CO impact analysis. As a result, no significant Project-related impacts would occur relative to future CO concentrations.

Agricultural Operations

As proposed in the Specific Plan, the land uses would be compatible with existing agricultural operations that will remain on the lands adjacent to the Specific Plan site. The Project will incorporate buffers along ongoing off-site agricultural operations that may be proximate to development. The proposed buffers, as designed, are 100 feet from the neighboring agricultural operations. Additionally, the buffers include substantial vegetation to provide for absorption of drift spray. The impacts from drift spray would be less than significant.

Valley Fever

Other public health risks associated with fugitive dust that are of concern in the region are valley fever (coccidioidomycosis) and Hantavirus pulmonary syndrome. Implementation of the suggested mitigation measures would result in less than significant impacts during construction.

Cumulative Analysis

The Project is located within the Coachella Valley and would add 2,197 ADT to the area, or an average of 43,940 vehicle miles traveled (VMT). The Project would also add an additional 736 residents to the County. The daily cumulative increase within unincorporated areas attributable to the Riverside County General Plan would total 18,333,486 VMT[24] and the remaining population between 2020 and 2012 of 112,673 residents.[25] The VMT ratio would be 0.0.0024 and the population ratio would be 0.0065. If the VMT ratio is less than the population ratio, then cumulative air quality impacts would be less than significant. Because the VMT ratio is less than the population ratio, the Specific Plan would result in less than significant cumulative air quality impacts.

In addition to the cumulative significance methodologies contained in *CEQA Air Quality Handbook*, the SCAQMD staff has suggested that the emissions-based thresholds be used to determine if a project's contribution to regional cumulative emissions is cumulatively considerable. Individual projects that exceed the SCAQMD-recommended daily thresholds for project-specific impacts would be considered to cause a cumulatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment. As presented previously in **Table 4** and **Table 5**, construction and operation of the Project would not result in daily emissions that exceed the thresholds of significance recommended by the SCAQMD. Furthermore, the Project was determined to be consistent with the AQMP as discussed previously. Therefore, the Project would not generate a cumulatively considerable contribution to air pollutant emissions during Project construction or operation.

Greenhouse Gas Emissions

The screening threshold set in the Riverside County (CAP) is 3,000 $MTCO_2e$ for any project. If the project is below the screening threshold, GHG impacts would be less than significant. If the project exceeds the screening threshold, then two options are provided by the CAP to analyze potential cumulative GHG impacts from implementation of a project. They include the use of the County GHG Screening Table document or two air quality emission model runs comparing 2011 levels and Project build out levels, which result in a 25 percent reduction of GHG emissions from the 2011 model run.

24 Riverside County General Plan Draft EIR, Section 4.5, Air Quality, Table 4.5.P, September 2003.

25 SCAG, Adopted 2012 Growth Forecast, 2012. (2020 population: 471,500 – 2012 population: 358,827 = 112,673 remaining population between 2020 and 2012.)

As indicated in **Table 7**, the proposed Specific Plan would result in 3,935.0 MTCO2e per year which exceeds the 3,000 $MTCO_2e$ per year screening threshold. As presented in **Table 8**, the year 2011 Specific Plan modeling results in 4,949.1 MTCO2e per year. The sum of the direct and indirect emissions associated with the 2011 Project is compared to the direct and indirect emissions associated with the proposed Project. When the Specific Plan as proposed is compared to the year 2011 modeling results, the Specific Plan as proposed would result in 1,014.1 fewer MTCO2e per year when compared to Project 2011 GHG emission levels, a reduction of 25.8 percent. The Project would incorporate required water conservation measures and energy conservation measures into the design.

As previously indicated, Riverside County has set a goal to reduce emissions back to 1990 levels by the year 2020 consistent with AB 32. The Specific Plan would be consistent with the Riverside County CAP because the Project results in greater than a 25 percent reduction in GHG emissions when compared to year 2011 GHG emissions. Therefore, impacts would be less than significant.

APPENDIX B

General Biological Resources Assessment

GENERAL BIOLOGICAL RESOURCES ASSESSMENT

VISTA SOLEADA PROJECT (TTM 36590)

Located Within
SECTION 35, RANGE 7 EAST, TOWNSHIP 6 SOUTH
GPA # 01125 and Tract # 36590
Parcel 764-290-003
Riverside County, California

Prepared For:

MERIDIAN CONSULTANTS
860 Hampshire Road, Suite P
Westlake Village, California 91361
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Field Study and Report Completed By:

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November 4, 2013

EXECUTIVE SUMMARY

An intensive plant and animal survey was conducted on an 80-acre site located adjacent to the City of La Quinta, Riverside County, California. The entire project site is an active agricultural field. No sensitive or non-covered species were observed on the project site. Grading and development of the site will have no direct or indirect significant adverse impacts upon biological resources in the region.

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EXECUTIVE SUMMARY

A proposed residential subdivision in an unincorporated area adjacent to the City of La Quinta and totaling 80 acres necessitated a biological resource analysis and field surveys for non-covered species as indicated under the Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP).

The western burrowing owl, a non-covered species under the Migratory Bird Treaty Act, was not observed on or near the project site. However the burrowing owl is known to occur in the general region and could take up residence on the project site at any time. Therefore, a burrowing owl clearance survey should occur not more than 30 days prior to ground disturbance.

The loggerhead shrike, a non-covered State-Sensitive Species was not observed on the project site and no active or abandoned nests were found. In addition, no suitable nesting habitat for this species was found on the project site. Therefore, no future breeding surveys for this species are recommended.

Although the desert tortoise is a covered species under the CVMSHCP, clearance surveys for the tortoise can be required by the United State Fish & Wildlife Service prior to site disturbance. Field surveys, however, revealed no evidence of the desert tortoise within or adjacent to the project site and no suitable habitat for this species occurs on or near the project site. Therefore, no additional surveys for this species are recommended.

The federally endangered Casey’s June beetle is known to occur within the Coachella Valley and is not a covered species under the CVMSHCP. However, this species has not yet been found in the lower Coachella Valley. Therefore, Casey’s June beetle was determined not to occur on the project site and no further surveys or mitigation for this species are recommended or required.

The project site does not lie within a Conservation Area of the CVMSHCP.

Blue-line stream corridors (streams or dry washes) are not a covered habitat under the CVMSHCP. However, no such corridors were present and no botanical indicators of such corridors existed within the project boundaries. Therefore, there are no biological justifications for the requiring of streambed alteration permits from state or federal agencies.

Following the implementation of the required and recommended mitigation described in this report, development of the project site is not expected to have significant adverse impacts upon sensitive species or other biological resources in the region.

I. INTRODUCTION

On October 19, 2013, the firm of James W. Cornett - Ecological Consultants, Inc., was retained by Meridian Consultants to conduct a biological survey and analysis on an approximately 80-acre site located in an unincorporated area adjacent to the City of La Quinta, Riverside County, California. The project site encompassed a portion of Section 35, Range 7 East, Township 6 South (San Bernardino Baseline and Meridian). The regional location is shown in Figure 1, the area location in Figure 2, and the specific location with project boundaries is shown in Figure 3. Site photographs are shown in Figures 4-7.

This study was included as part of an environmental assessment mandated by the California Environmental Quality Act (CEQA) and Riverside County, California. The biological survey and impact analysis were designed to ascertain the impacts of development on the biological resources of the project site and immediate vicinity.

The specific purposes of the biological surveys and impact analyses are listed below.

1. Determine the vascular plant and vertebrate animal species that occur on, and immediately adjacent to, the project site.

2. Ascertain the presence of any plant or animal species given special status by federal or state governments or is not a covered species under the Coachella Valley Multiple Species Habitat Conservation Plan.

3. Ascertain the existence of other significant biotic elements, corridors or communities, particularly those not covered under the CVMSHCP.

4. Consider the site location as it relates to Conservation Areas as designated under the CVMSHCP.

5. If necessary and where feasible, recommend measures to mitigate significant adverse impacts of the project on any non-covered or special-status species, unique biotic elements or communities.

Figure 1. Regional Location

Figure 2. Area Location

Figure 3. Project Site (in red)

Figures 4-7. Project Site Images

Figure 4. View across site to northheast.

Figure 5. View across site to northwest.

Figure 6. View across site to southwest.

Figure 7. View across site to southeast.

II. SITE AND PROJECT DESCRIPTIONS

Climate

The project area lies within the confines of a geographical region known as the Colorado Desert (Jaeger, 1957). As is typical of this subdivision of the Sonoran Desert, annual rainfall averages less than five inches (National Climatic Center, 2012). Most precipitation falls during the winter and late spring with occasional summer storms accounting for approximately one fifth of the annual total. Winter days are mild, averaging 71 degrees Fahrenheit. Winter nights occasionally drop to near freezing. The month of July brings the hottest temperatures with daytime highs averaging 108 degrees F.

Physical Features

The elevation of the project site ranges from approximately 79 feet below sea level at the northwest corner of the project site declining to 88 feet below sea level in the southeast corner. Except for five-foot high berms that contain a small irrigation pond in the extreme northwest corner of the site, there is no topographical relief.

There are no naturally occurring springs or permanent aquatic habitats within the project site boundaries. No blue-line stream corridors (streams or dry washes) are shown on U.S. Geological Survey maps for the project site nor are there botanical indicators of such corridors. Thus, there appear to be no biological justifications for the requiring of streambed alteration permits from state or federal governments.

Soil characteristics are uniform over the entire site. Soil is composed of fine silt, the former lakebed of ancient Lake Cahuilla that occupied the area approximately five hundred years before present.

Surrounding Lands

To the east of the project site is an abandoned agricultural field overgrown with both native and introduced weed species.

To the north of the project site lies 60th Avenue and an active agricultural field.

To the south of the project site exists 61st Avenue and active agricultural area.

To the west of the project site lays an abandoned agricultural field presently overgrown with native and introduced weed species.

Existing Impacts

The project site is an active agricultural field that was plowed and planted as of October 31, 2013. No native vegetation communities exist on site.

Project Description

The entire project area is to be graded and residential units and paved access streets are to be constructed.

III. STUDY METHODS

Prior to the initiation of field work, reviews of the literature and institutional records were conducted to determine the biological resources that might exist within the general area and to determine the possible occurrence of special status species. Records, collections, websites and/or staff of the University of California at Riverside Herbarium, the Boyd Deep Canyon Desert Research Center and the Coachella Valley Association of Governments were consulted for specific information as to the occurrence of selected species. A California Department of Fish & Game Natural Diversity Database (updated, October, 2013) check was also reviewed.

Field surveys were initiated in October of 2013. Specific dates of biological surveys were October 22, 26, 27 and 30, 2013. A night survey were conducted on the evening of October 23, 2013.

Survey dates occurred in fall when most perennial species and most resident bird and mammal species would be observed. Survey dates did not include spring when most ephemeral plant and reptile species would be encountered. However, because no native plant communities existed on site it was concluded that no sensitive plant species were likely to occur on or near the project boundaries.

Because the project site was an active agricultural field, surveys were conducted by walking around the perimeter of the project site and using binoculars to examine the site interior. This technique was considered adequate since the site had been plowed and planted within a few days of the first survey on October 22. Surveys were also conducted 100 yards beyond all site boundaries but not within 100 feet of private residencies or posted private property.

Animal surveys were conducted simultaneously with plant surveys. In addition, forty live-animal traps (which capture animals unharmed) for large and small mammals were set around the perimeter of the project site for a twenty-four hour period on October 22 and 23, 2013. Both day and night live trapping was conducted.

In an effort to determine if large animal corridors existed on the project site special attention was given to observing and identifying animal tracks. In addition, sand sifting and smoothing was done on the unpaved perimeter roads that surrounded the project site so that tracks would be more prominent and identifiable. Road kills on surrounding paved roadways were also monitored on site visits.

Invertebrate sampling was conducted on the evening of October 22, 2013. Three Bioquip Light Traps were used for attracting and live-capturing flying insects. Black lights were the attracting mechanism with each trap powered by a 12-volt automobile battery. Traps were placed for maximum visibility.

Although scientific name changes occur as new discoveries are made in plant and animal taxonomy, the scientific names used in this report are taken from the standard and most available references describing the species found in the desert regions of Southern California—Bruce G. Baldwin's *The Jepson Manual* (Second Edition) published in 2012; D. P. Tibor's *Inventory of rare and endangered vascular plants of California* published in 2001; R. A. Stebbins' *A field guide to western reptiles and amphibians* published in 2003; Peterson's *Bird of North America* published in 2008; and E. W. Jameson's and H. J. Peeters' *California mammals* published in 2004. Plant common names used in this report are taken from Baldwin (2012), Jaeger (1969), Munz (1974) and Tibor (2001). Animal common names are taken from Stebbins (2003), Peterson (2008) and Jameson and Peeter (2004).

Fieldwork was conducted by James Cornett (M.S., biology). Plant identifications were made by Andrew Sanders (B.S.) and Mr. Cornett. Animal remains were identified by Robert Reynolds (B.S.) of LSA Associates (retired) and Mr. Cornett. The literature review was conducted by Terry Belknap (B.S.). The report was written by Mr. Cornett.

IV. PLANT SURVEY RESULTS

No native plant communities were found to exist within the project boundaries. The entire site is an active agricultural field.

A number of native and introduced weed species have established along the edges of the perimeter roads that encircle the project site. These invasive species are characterized by rapid growth and thrive when climax vegetation has been removed. Within the project area these species include Sahara mustard (*Brassica tournefortii*), shrub tamarisk (*Tamarix ramosissima*), Russian thistle (*Salsola tragus*), horseweed (*Conyza canadensis*), nettleleaf goosefoot (*Chenopodium murale)*, tumble pigweed (*Amaranthus albus*), Palmer amaranth (*Amaranthus palmeri*), common sunflower (*Helianthus annuus*), annual Sowthistle (*Sonchus oleraceus*), silverleaf nightshade (*Solanum elaeagnifolium*), London rocket (*Sisymbrium irio*), Schismus grass (*Schismus barbatus*), wild oat (*Avena fatua*), Bermuda grass (*Cynodon dactylon*) and Johnsongrass (*Sorghum halepense*). These species are found throughout the Colorado Desert wherever the natural vegetation has been removed.

Species native to the region found on or immediately adjacent to the project site included cattle spinach (*Atriplex polycarpa*), big saltbush (*Atriplex lentiformis*) and bush seepweed (*Suaeda nigra*).

The Inventory of Rare and Endangered Vascular Plants of California, published by the California Native Plant Society (2001), the *CNDDB Special Plant List* (2012) or the *Endangered, Threatened, and Rare Plants of California* (2012) does not list any sensitive plant species that exist in or immediately adjacent to an active agricultural field. No additional plant surveys are recommended.

A complete list of vascular plant species found within or near the project boundaries has been placed in Table 1 of the Appendix.

V. ANIMAL SURVEY RESULTS

The fauna of the project site and surrounding vicinity is composed of species typical of agricultural fields in the Colorado Desert subdivision of the Sonoran Desert as defined by Jaeger (1957).

Arthropods

Commonly encountered invertebrates on the site included the eleodes beetle (*Eleodes armata*), European house cricket (*Acheta domesticus*) and honey bee (*Apis mellifera*). Three insect species known to occur within the Coachella Valley have been placed on the California Department of Fish and Game's *Special Animals* list. They are the Coachella giant sand treader cricket (*Macrobaenetes valgum*), Coachella Valley Jerusalem cricket (*Stenopelmatus cahuilaensis*) and Coachella Valley grasshopper (*Spaniacris deserticola*). The United States Fish & Wildlife Service has listed as endangered a fourth insect species, Casey's June beetle, *Dinacoma caseyi*. (Casey's June beetle is not a covered species under the CVMSHCP.) None of these four insect species were detected during the surveys and have not been recorded in agricultural areas.

Amphibians

No amphibian species were detected on or near the project site. However, the use of Colorado River irrigation water in the region has transported two amphibian species, the Great Plains (*Bufo cognatus*) and Sonoran Desert (*Bufo alvarius*) toads into agricultural areas of the Coachella Valley. Neither of these two species is listed by wildlife regulatory agencies.

Reptiles

Four reptile species were observed on or immediately adjacent to the site: the side-blotched lizard (*Uta stansburiana*), desert spiny lizard (*Sceloporus magister*), gopher snake (*Pituophis melanoleucus*) and common whipsnake (*Masticophis flagellum*).

Effort was made to locate sign of the officially threatened desert tortoise (*Goperhus agassizi*). However, no evidence of any kind was found and no direct observations were made. The desert tortoise has never been found in agricultural areas. It is therefore concluded that this species does not currently occur within the project site and immediate vicinity.

An effort was made to locate the flat-tailed horned lizard, *Phrynosoma mcalli*. However, no individuals or sign were found. This species has never been associated with active or abandoned agricultural fields. Although the flat-tailed horned lizard was once proposed to be listed by the federal government as threatened, the proposal has been rescinded. The state government considers the flat-tailed horned lizard a Species of Special Concern. The flat-tailed horned lizard is a covered species under the CVMSHCP and specific mitigation for this species is not required even if it were to be present on a project site.

The officially threatened Coachella Valley fringe-toed lizard (*Uma inornata*) was not detected within the project boundaries. This species is only found in areas of loose, windblown sand. It has never been found in active agricultural areas. It is a covered species under the CVMSHCP.

Birds

Birds observed within the project boundaries included mourning dove (*Zenaida macroura*), Brewer's blackbird (*Euphagus cyanocephalus*), house finch (*Carpodacus mexicanus*), common raven (*Corvus corax*) and introduced house sparrow (*Passer domesticus*).

No observations of Le Conte's thrasher (*Toxostoma lecontei*) were recorded during the surveys. In the Coachella Valley this species is closely associated with golden cholla, an arborescent cactus that provides a nesting site for the thrasher. The cactus species is absent from the site and, therefore, it was concluded that the thrasher does not occupy the project site at this time.

The loggerhead shrike was not observed on or near the project site. No active or abandoned nests were found. Nonetheless, the species is likely resident in the project area. It is considered a Species of Special Concern by the state of California and therefore protected under CEQA. It is not a covered species under the CVMSHCP.

The officially protected and "non-covered" burrowing owl (*Athene cunicularia*) was not observed or detected on or near the site. Nevertheless, the habitat is considered suitable with friable soil and dozens of rodent burrows that can be enlarged and used as nesting burrows by the owl. One or more owls could establish a burrow and become a resident at any time, particularly around the perimeter of the site. The burrowing owl is a non-covered species and protected under the Migratory Bird Treaty Act of 1918.

The "covered" Yuma clapper rail (*Rallus longirostris yumanensis*) is known to inhabit freshwater canal marsh environments where cattails and rush are common. However, no such habitat for this species exists in or adjacent to the project site. The Yuma clapper rail is officially listed as endangered by the federal government and threatened by the state government.

Mammals

Detected mammals included the house mouse (*Mus musculus*), desert cottontail (*Sylvilagus audubonii)* and coyote (*Canis latrans*).

No individuals or evidence of the Coachella Valley round-tailed ground squirrel (*Spermophilus tereticaudus chlorus*) or Palm Springs little pocket mouse, *Perognathus longimembris bangsi*, were detected. The United States Fish & Wildlife Service has expressed concern regarding the status of these species. The absence of the ground squirrel and pocket mouse on the project site undoubtedly reflects the lack of suitable habitat. These species are normally found in relatively undisturbed localities where soils are coarse. Both are covered species under the CVMSHCP and specific mitigation is not required even had they been found on the project site.

Wildlife Corridors

Smoothing of unpaved road surfaces to yield tracks was done regularly to determine if important wildlife corridors existed on or through the site. The project site perimeter was sampled using this technique. Tracks of coyote and cottontail rabbit were found several times along the western edge of the project site. However, no regularly used wildlife corridors could be detected through either observation or sign.

A complete list of vertebrate species observed or detected on the project site can be found in Table 2 of the Appendix.

VI. FINDINGS AND RECOMMENDATIONS

An intensive plant and animal survey was conducted on and adjacent to the proposed project site. No sensitive or listed species or sensitive habitats were found. Nonetheless, the project site is located within the area covered by the Coachella Valley Multiple Species Habitat Conservation and Riverside County is a signatory to this plan. Therefore a per-acre mitigation fee must be paid to the County for future impacts to "covered" species found elsewhere in the plan area. The fee varies depending upon the use to which the land is put, total acreage of the project and density of residencies or commercial structures. Contact the Coachella Valley Association of Governments to determine current fees.

The remaining comments are restricted to those species not covered under the CVMSHCP.

Burrowing Owl

The burrowing owl was not observed or detected during the biological surveys. As stated previously, however, one or more burrowing owls can fly onto the site and take up residence at any time, particularly around the perimeter of the project site.

The federal Migratory Bird Act of 1918 prohibits harming the owl and therefore the U.S. Fish & Wildlife Service adheres to the rules and procedures approved by the Service and the California Department of Fish & Wildlife titled the "Staff Report on Burrowing Owl Mitigation" prepared by the California Department of Fish and Game on March 7, 2012. Survey procedures and mitigation, if necessary, for the owl are summarized below.

1. A preconstruction survey should take place not more than 30 days prior to project grading. The survey is to determine the location of any active burrows on and within 550 yards of an approved project site. If no active burrows are found in the survey area grading may commence. The clearance survey in this report is considered valid through December 20, 2013, and a second clearance survey is not necessary prior to that date.
2. If an active owl burrow is found during a future clearance survey, a biological monitor, with the authority to halt or redirect grading, should be present whenever grading or construction vehicles are present and operating on a project site. The function of the monitor is to protect burrowing owls that arrive on or near the project site after the clearance survey and during the construction period
3. The breeding season of the western burrowing owl is from February 1 through August 31 of each year. No construction disturbances of any kind should occur within 500 meters (550 yards) of an active burrow, if such a burrow is found during this time period. Thus grading should take place from September 1 through January 30 of each year to avoid restriction or cancellation of grading because of the discovery of resident burrowing owls during the breeding season.

4. Discovered resident owls present on or near the project site outside the breeding season can, in some instances, be relocated to other sites by a permitted biologist under the authorization of the California Department of Fish & Wildlife.

Casey's June Beetle

No evidence of the officially endangered Casey's June beetle was found. Thus far, this non-covered species has not been found east of Cathedral City. Therefore, no further surveys are recommended for this species and no mitigation is required or recommended.

Desert Tortoise

Although the desert tortoise is a covered species under the CVMSHCP, clearance surveys for the tortoise can be required by the United State Fish & Wildlife Service prior to site disturbance. The desert tortoise is known to occur in the Coachella Valley but is not currently known to be present on the valley floor and never on active or abandoned agricultural fields. Therefore, no additional surveys or actions regarding this species are necessary.

Loggerhead Shrike

The loggerhead shrike is a state Species of Special Concern and not covered under the CVMSHCP. However, this species was not detected during the field surveys and no suitable nesting habitat occurred within the project boundaries. Therefore, no additional surveys or further action regarding this species are necessary.

Conclusion

Development of the proposed project site should not have significant adverse impacts upon biological resources in the region providing a burrowing owl clearance survey is performed.

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VIII. CERTIFICATION STATEMENT

I, James W. Cornett, hereby certify that the statements furnished above and in the attached exhibits present the 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.

November 4, 2013 _______________________________________

Date Principal Investigator

APPENDIX

TABLE 1
PLANT SPECIES RECORDED
80-ACRE VISTA SOLEADA SITE

ANGIOSPERMAE – DICOTYLEDONES

AMARANTHACEAE – AMARANTH FAMILY
Amaranthus albus - Tumble Pigweed
Amaranthus palmeri - Palmer Amaranth

ASTERACEAE - SUNFLOWER FAMILY
Bebbia juncea - Sweet Bush
Conyza canadensis - Horseweed
Dicoria canescens - Desert Dicoria
Helianthus annuus – Common Sunflower
Palafoxia arida - Spanish Needle
Sonchus oleraceus - Annual Sowthistle
Stephanomeria exigua - Mitra

BORAGINACEAE - BORAGE FAMILY
Tiquilia plicata - Plicate Coldenia

BRASSICACEAE - MUSTARD FAMILY
Brassica tournefortii - Sahara Mustard
Sisymbrium irio – London Rocket

CHENOPODIACEAE - GOOSEFOOT FAMILY
Atriplex lentiformis - Big Saltbush
Atriplex polycarpa – Cattle Spinach
Chenopodium murale – Nettleleaf Goosefoot
Salsola tragus - Russian Thistle
Suaeda nigra - Bush Seepweed

EUPHORBIACEAE - SPURGE FAMILY
Chamaesyce polycarpa - Sand-mat

FABACEAE - PEA FAMILY
Prosopis glandulosa – Honey-pod mesquite

PORTULACACEAE – PURSLANE FAMILY
Portulaca oleracea – Common Purslane

SOLANACEAE - NIGHTSHADE FAMILY
Datura metaloides - Jimson Weed
Solanum elaeagnifolium - Silverleaf Nightshade

TAMARICACEAE - TAMARISK FAMILY
Tamarix aphylla - Athel Tree
Tamarix ramosissima – Shrub Tamarisk

ZYGOPHYLLACEAE - CALTROP FAMILY
Tribulus terrestris – Puncture Vine

ANGIOSPERMAE - MONOCOTYLEDONES

POACEAE - GRASS FAMILY
Avena fatua – Wild Oat
Bromus madritensis - Foxtail Grass
Cynodon dactylon – Bermuda Grass
Schismus barbatus - Abu-mashi
(*Sorghum halepense* - Johnsongrass

TABLE 2

EXPECTED BREEDING OR OBSERVED VERTEBRATES

80-ACRE VISTA SOLEADA SITE

AMPHIBIANS

Bufo alvarius – Sonoran Desert Toad ?
Bufo cognatus – Great Plains Toad ?

REPTILES

GEKKONIDAE - GECKOS
Coleonyx variegatus - Western Banded Gecko ?

IGUANIDAE – IGUANIDS
Dipsosaurus dorsalis - Desert Iguana *

PHRYNOSOMATIDAE – HORNED, SPINY, EARLESS LIZARDS
Sceloporus magister - Desert Spiny Lizard *
Urosaurus graciosus - Long Tailed Bush Lizard *
Uta stansburiana - Side Blotched Lizard *

TEIIDAE - WHIPTAILS
Cnemidophorus tigris - Western Whiptail *

COLUBRIDAE - COLUBRIDS
Arizona elegans - Glossy Snake *
Chionactis occipitalis - Western Shovel-nosed Snake ?
Lampropeltis getulus - Common Kingsnake
Masticophis flagellum - Coachwhip *
Pituophis melanoleucus - Gopher Snake *
Rhinocheilus lecontei - Long-nosed Snake

VIPERIDAE - VIPERS
Crotalus atrox – Western Diamondback Rattlesnake
Crotalus cerastes - Sidewinder

BIRDS

ANATIDAE – GEESE, SWANS AND DUCKS
Anas platyrhynchos – Mallard *

ARDEIDAE – BITTERNS, HERONS AND ALLIES
Egretta thula – Snowy Egret *

CHARADRIIDAE – PLOVERS
Charadrius vociferous – Killdeer *

ACCIPITRIDAE - OSPREY, HAWKS, EAGLES
Buteo jamaicensis - Red-Tailed Hawk *

FALCONIDAE - FALCONS
Falco sparverius - American Kestrel *

PHASIANIDAE - QUAIL
Callipepla gambelii - Gambel's Quail *

STRIGIDAE - TYPICAL OWLS
Athene cunicularia – Burrowing Owl ?
Bubo virginianus - Great Horned Owl *

COLUMBIDAE - PIGEONS AND DOVES
Columba livia - Rock Dove *
Zenaida asiatica - White-winged Dove *
Zenaida macroura - Mourning Dove *

CUCULIDAE - CUCKOOS
Geococcyx californianus - Greater Roadrunner *

CAPRIMULGIDAE - NIGHTJARS
Chordeiles acutipennis - Lesser Nighthawk *
Phalaenoptilus nuttallii - Common Poorwill ?

TROCHILIDAE - HUMMINGBIRDS
Calypte costae - Costa's Hummingbird *

TYRANNIDAE - TYRANT FLYCATCHERS
Sayornis saya - Say's Phoebe *

ALAUDIDAE – LARKS
Eremophila alpestris – Horned Lark *

CORVIDAE - CROWS AND JAYS
Corvus corax - Common Raven *

MIMIDAE - MOCKINGBIRDS AND THRASHERS
Mimus polyglottos - Northern Mockingbird *

REMIZIDAE - VERDIN
Auriparus flaviceps - Verdin *

STURNIDAE - STARLINGS
Sturnus vulgaris - European Starling *

ICTERIDAE – BLACKBIRDS AND ORIOLES
Euphagus cyanocephalus - Brewer's Blackbird *
Quiscalus mexicanus – Great-tailed Grackle *

EMBERIZIDAE - WOOD WARBLERS, SPARROWS
Passerella lincolnii - Lincoln's Sparrow *
Zonotrichia leucophrys – White-crowned Sparrow *

PLOCEIDAE - WEAVER FINCHES
Passer domesticus - House Sparrow *

FRINGILLIDAE - FINCHES
Carpodacus mexicanus - House Finch *

MAMMALS

PHYLLOSTOMATIDAE - LEAF-NOSED BATS
Macrotus californicus - California Leaf-nosed Bat ?

VESPERTILIONIDAE - EVENING BATS
Myotis californicus - California Myotis
Pipistrellus hesperus - Western Pipistrelle *

MOLOSSIDAE - FREE-TAILED BATS
Tadarida brasiliensis - Brazilian Free-tailed Bat

LEPORIDAE - HARES AND RABBITS
Sylvilagus audubonii - Audubon Cottontail *

SCIURIDAE - SQUIRRELS
Spermophilus beecheyi - California ground squirrel

CRICETIDAE - DEER MICE AND WOODRATS
Mus musculus - House Mouse *
Peromyscus maniculatus - Deer Mouse *

MUSTELIDAE - WEASELS AND SKUNKS
Mephitis mephitis – Striped Skunk

CANIDAE - FOXES, WOLVES, AND COYOTES
Canis latrans - Coyote *
Urocyon cinereoargenteus - Gray Fox

FELIDAE – CATS
Lynx rufus – Bobcat ?

* = Sign or individual observed on site
? = Possible occurrence on or near site; not detected during survey

APPENDIX C

Cultural Assessment
(*See Phase 1 Redacted Cultural Report included as Appendix C of the January 2018 Draft Supplemental EIR)*

APPENDIX D

Geotechnical Engineering Report

SABAL FINANCIAL GROUP, LP
4675 MAC ARTHUR COURT, SUITE 1550
NEWPORT BEACH, CA 92660

GEOTECHNICAL ENGINEERING REPORT
PROPOSED VISTA ASOLEADO
TENTATIVE TRACT 36590
NEAR AVENUE 60 AND MONROE STREET
THERMAL, RIVERSIDE COUNTY CALIFORNIA

September 17, 2013

File No.: 12161-01
Doc. No.: 13-09-722

Earth Systems
Southwest

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September 17, 2013

File No.: 12161-01
Doc. No.: 13-09-722

Sabal Financial Group, LP
4675 Mac Arthur Court, Suite 1550
Newport Beach, CA 92660

Attention: Mr. Jim Stockhausen

Project: **Proposed Vista Asoleado**
Tentative Tract 36590
Near Avenue 60 & Monroe Street
Thermal, Riverside County, California

Subject: **Geotechnical Engineering Report**

Earth Systems Southwest (Earth Systems) presents this Geotechnical Engineering Report prepared for the proposed residential project to be located west of Monroe Street and South of Avenue 60 in Thermal, Riverside County, California. This report presents our findings and recommendations for site grading and foundation design incorporating the information provided to our office. The site is suitable from a geotechnical standpoint for development; however, the site is not suitable from a geologic hazard perspective without further evaluation due to unclassified geologic lineaments which were observed to trend across the site. Preliminary recommendations for feasibility foundation design are provided in this report contingent on further lineament study. This report should stand as a whole and no part of the report should be excerpted or used to the exclusion of any other part.

This report completes our scope of services in accordance with our agreement SWP-13-111, dated July 12, 2013. Other services that may be required, such as further lineament study, plan review and grading observation, are additional services and will be billed according to our Fee Schedule in effect at the time services are provided. Unless requested in writing, the client is responsible for distributing this report to the appropriate governing agency or other members of the design team.

We appreciate the opportunity to provide our professional services. Please contact our office if there are any questions or comments concerning this report or its recommendations.

Respectfully submitted,
EARTH SYSTEMS SOUTHWEST

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Soil Classification System
Logs of Borings
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Laboratory Test Results

APPENDIX C
Tile Drain Maps

GEOTECHNICAL ENGINEERING REPORT PROPOSED VISTA ASOLEADO TENTATIVE TRACT 36590 NEAR AVENUE 60 AND MONROE STREET THERMAL, RIVERSIDE COUNTY, CALIFORNIA

Section 1 INTRODUCTION

1.1 Project Description

This geotechnical engineering report has been prepared for the proposed residential project to be located within undeveloped agricultural land south of Avenue 60 and west of Monroe Street in Thermal, Riverside County, California. The site is centered at approximate coordinates 33.6106°N/116.2258°W.

We understand that a residential development is proposed. We assumed that the proposed home structures will be one to two-story wood-frame construction with slabs-on-grade, are to be supported by conventional shallow continuous or spread footings, will have a maximum column load of 50 kips, and a maximum wall loading of 1.5 kips per linear foot. As the basis for the foundation recommendations, all loading is assumed to be dead plus actual live load. No preliminary design loading was provided by the structural engineer. If actual structural loading exceeds these assumed values, we will need to reevaluate the given recommendations. Below grade levels are not proposed. Site development will include clearing and grubbing of vegetation, site grading, building pad preparation, underground utilities, and concrete driveway and sidewalk placement. Based on existing site topography and ground conditions, site grading is expected to consist of fills on the order of 5 feet (excluding depth of over-excavation for buildings).

1.2 Site Description

The site is identified as Assessor's Parcel Number [APN] 764-290-003 which is approximately 80 acres. The site has a general elevation on the order of 81 to 88 feet <u>below</u> mean sea level. The site location is shown on Plate 1. The property boundaries are defined by Avenue 61 on the south; by Avenue 60 to the north, an unfinished (abandoned) residential tract to the west, and Orchid Court to the east.

The site is currently vacant agricultural land that was recently plowed. Planting and flood irrigation were being readied during our field exploration activities. Topographically the site is generally flat and level with drainage by sheetflow to the northeast; however, agricultural activities have laser leveled portions of the site for growing activities. A small retention basin is located at the northwest corner of the site.

No utilities or irrigation systems were readily apparent in the immediate vicinity of the planned project; however irrigation stub-ups and tile drains are present in the project vicinity. Onsite Coachella Valley Water District (CVWD) tile drains are presented on Plate 2. Other tile drains may be present, but may not be documented. The tile drain maps with drain elevations and survey are included with this report as provided by CVWD. Tile drains are on the order of 8 to 10 feet deep below the ground surface (actual elevation is presented on the attached tile drain maps). Evidence of past development was not observed on the site during our reconnaissance; however buried remnants, such as old foundations, slabs, or septic systems, may exist on the site.

1.3 Purpose and Scope of Services

The purpose for our services was to evaluate the site soil conditions and to provide professional opinions and recommendations regarding the proposed development of the site. The scope of services included:

1. A visual site assessment was made by our representative regarding surficially observed site conditions to evaluate for the occurrence of possible subsidence related differential distress. In addition, we reviewed our files and select published technical reports pertinent to the site vicinity.

2. A geologic lineament analysis was performed to evaluate the presence of observable geologic related lineaments on select historical photographs. As the site is being actively farmed, these lineaments are currently not visible on the ground surface. However, prior to final tract approval, the origin of the lineaments or potential hazards associated with the lineaments will need to be determined.

   Per the direction of Mr. Quill on July 12, 2013, exploration via geologic trenching to evaluate the origin of on-site lineaments or projected lineaments cannot be performed in the immediate future due to the lease agreements with the farmer and on-going field preparations and planting. However, we understand that these geologic studies will be postponed till sometime after harvest, but prior to final tract map approval. Those services are not a part of this scope of work.

3. Near-surface soil conditions were explored by means of drilling approximately 8 borings. The exploratory borings were accomplished using a truck-mounted drilling rig equipped with hollow-stem augers and mud rotary type techniques. The exposed soil profile were observed relative to soil and groundwater (if encountered) conditions. Samples of the surface and subsurface materials were collected at various intervals, logged by our representative, and returned to our laboratory. Two of the borings were drilled to 50 feet to define the location of the water table, identify soft/loose soils susceptible to liquefaction and induced dry sand settlement (which typically occurs in the upper 50 feet), and characterize the seismic induced differential settlement potential across the site. Advancing two 50 foot borings allowed us to better compare and contrast deep settlement potential and provide value engineering in regard to refined settlement potentials.

4. Laboratory testing was performed on selected soil samples obtained from the exploratory borings. Such testing included unit densities, moisture content, particle size analysis, consolidation/collapse potential, moisture-density relationship, Expansion Index, R-Value, Plasticity Index, and soil chemical analyses. These test results aided in the classification and

evaluation of the pertinent engineering properties of the various soils encountered at the site.

5. We conducted an engineering analysis of the data generated from the exploration and laboratory testing and prepared a written report presenting our findings and recommendations including the following:

   - A review of select geological and geotechnical literature pertaining to the project. This included a review of various hazard, fault, and geological maps prepared by the California Geological Survey, the U.S. Geological Survey, the County of Riverside, and other governmental agencies as they relate to the site.

   - A description of the proposed project including a site plan showing the approximate boring locations. The proposed boring locations were located in the field by hand-held GPS device (accurate to approximately 15 feet).

   - A description of subsurface site conditions encountered during our field exploration.

   - A description of the geologic setting and associated geology-related hazards, including liquefaction, hydro-collapse potential, subsidence, fissuring, seismicity and seismic settlement, ground shaking, flooding, and tsunamis.

   - A discussion of site conditions, including the excavation characteristics, estimated shrinkage, and geotechnical suitability of the site for the general type of construction proposed.

   - 2010 California Building Code seismic design values.

   - Recommendations for imported fill for use in compacted fills.

   - Recommendations for site grading and earthwork, including requirements for site preparation and specifications for placement of fill and utility trench backfill.

   - Recommendations to reduce the potential for liquefaction or other geologic related distress to structures.

   - General design criteria for the foundations of the proposed one to two-story residential structures, including bearing capacity, anticipated building addition settlement due to static foundation loading, and lateral resistance.

   - Recommendations for concrete slabs-on-grade as related to moisture vapor protection, modulus of subgrade reaction, and soil corrosivity.

   - Preliminary recommendations for pavement design.

Section 2
METHODS OF EXPLORATION AND TESTING

2.1 Field Exploration

Eight exploratory borings were drilled to depths ranging from about 19 to 51 feet below the existing ground surface to observe soil profiles and obtain samples for laboratory testing. The borings were drilled on August 1, 2013 using an 8-inch outside diameter hollow-stem auger and mud rotary type techniques to control hole caving and auger plugging. Augers were powered by a Mobile B61 truck-mounted drilling rig. The boring locations are shown on the boring location map, Plate 2, in Appendix A.

A representative from Earth Systems maintained a log of the subsurface conditions encountered and obtained samples for visual observation, classification and laboratory testing. Subsurface conditions encountered in the borings were categorized and logged in general accordance with the Unified Soil Classification System [USCS] and ASTM D 2487 and 2488 (current edition). Our typical sampling interval within the borings was approximately every 2½ to 5 feet to the full depth explored; however, sampling intervals were adjusted depending on the materials encountered onsite. Samples were obtained within the test borings using a Standard Penetration [SPT] sampler (ASTM D 1586) and a Modified California [MC] ring sampler (ASTM D 3550 with those similar to ASTM D 1586). The SPT sampler has a 2-inch outside diameter and a 1.38-inch inside diameter. The MC sampler has a 3-inch outside diameter and a 2.4-inch inside diameter.

Both the ring and SPT samplers were mounted on drill rod and driven using a rig-mounted 140-pound automatic hammer falling for a height of 30 inches. The number of blows necessary to drive either a SPT sampler or a MC type ring sampler within the borings was recorded.

Design parameters provided by Earth Systems in this report have considered an estimated 70% hammer efficiency. The number of blows necessary to drive either a SPT sampler or a MC type ring sampler within the borings was recorded. Since the MC sampler was used in our field exploration to collect ring samples, the N-values using the California sampler can be roughly correlated to SPT N-values using a conversion factor that may vary from about 0.5 to 0.7. In general, a conversion factor of approximately 0.63 from the recent study at the Port of Los Angeles (Zueger and McNeilan, 1998) is considered satisfactory. A value of 0.63 was applied in our calculations for this project.

Bulk samples of the soil materials were obtained from the drill auger cuttings, representing a mixture of soils encountered at the depths noted. Following drilling, sampling, and logging the borings were backfilled with native cuttings and a bentonite mix and tamped upon completion. Our field exploration was provided under the direction of a registered Geotechnical Engineer from our firm.

The final logs of the borings represent our interpretation of the contents of the field logs and the results of laboratory testing performed on the samples obtained during the subsurface exploration. The final logs are included in Appendix A of this report. The stratification lines represent the approximate boundaries between soil types, although the transitions may be gradational. In reviewing the boring logs and legend, the reader should recognize that the legend is intended as a guideline only, and there are a number of conditions that may influence the soil characteristics observed during drilling. These include, but are not limited to, the presence of cobbles or boulders, cementation, variations in soil moisture, presence of groundwater, and other factors. The logs present field blowcounts per 6 inches of driven embedment (or portion thereof) for a total driven depth attempted of 18 inches. The blowcounts on the logs are uncorrected (i.e. not corrected for overburden, sampling, etc.). Consequently, the user must correct the blowcounts per standard methodology if they are to be used for design and exercise judgment in interpreting soil characteristics, possibly resulting in soil descriptions that vary somewhat from the legend.

2.2 Laboratory Testing

Samples were reviewed along with field logs to select those that would be analyzed further. Those selected for laboratory testing include soils that would be exposed and used during grading and those deemed to be within the influence of the proposed structures. Test results are presented in graphic and tabular form in Appendix B of this report. The tests were conducted in general accordance with the procedures of the American Society for Testing and Materials [ASTM] or other standardized methods as referenced below. Our testing program consisted of the following:

- Density and Moisture Content of select samples of the site soils (ASTM D 2937 & 2216).
- Maximum density tests to evaluate the moisture-density relationship of typical soils encountered (ASTM D 1557).
- Particle Size Analysis to classify and evaluate soil composition. The gradation characteristics of selected samples were made by sieve analysis procedures (ASTM D 6913).
- Plasticity evaluation to classify and evaluate soil composition. (ASTM D 4318).
- Consolidation/Collapse Potential to evaluate the compressibility and hydroconsolidation (collapse) potential of the soil upon wetting (ASTM D 5333).
- Expansion index tests to evaluate the expansive nature of the soil. The samples were surcharged under 144 pounds per square foot at moisture content of near 50% saturation. The samples were then submerged in water for 24 hours and the amount of expansion recorded with a dial indicator (ASTM D 4829).
- Chemical Analyses (Soluble Sulfates and Chlorides (ASTM D 4327), pH (ASTM D 1293), and Electrical Resistivity/Conductivity (ASTM D 1125) to evaluate the potential for adverse effects of the soil on concrete and steel.
- R-Value testing to evaluate pavement support characteristics (CTM 301).

Section 3
DISCUSSION

3.1 Geologic Setting

Regional Geology: The site lies within the Coachella Valley, a part of the Colorado Desert geomorphic province. A significant feature within the Colorado Desert geomorphic province is the Salton Trough. The Salton Trough is a large northwest-trending structural depression that extends approximately 180 miles from the San Gorgonio Pass to the Gulf of California. Much of this depression in the area of the Salton Sea is below sea level.

The Coachella Valley forms the northerly part of the Salton Trough. The Coachella Valley contains a thick sequence of Miocene to Holocene sedimentary deposits. Mountains surrounding the Coachella Valley include the Little San Bernardino Mountains on the northeast, foothills of the San Bernardino Mountains on the northwest, and the San Jacinto and Santa Rosa Mountains on the southwest. These mountains expose primarily Precambrian metamorphic and Mesozoic granitic rocks. The San Andreas fault-zone within the Coachella Valley consists of the Garnet Hill fault, the Banning fault, and the Mission Creek fault that traverse along the northeast margin of the valley. A regional geologic map is presented as Plate 3.

Local Geology: The project site is located approximately 81 to 88 feet below mean sea level in the southwestern part of the Coachella Valley. The sediments within the valley consist of fine- to coarse-grained sands with interbedded clays and silts of aeolian (wind-blown), lacustrine (lake-bed), and alluvial (water-laid) origin. The site is within the high shoreline of ancient Lake Cahuilla. The depth to crystalline basement rock beneath the site is estimated to be in excess of 2,000 feet (Envicom, 1976).

The project site is located along the southwestern margin of the Coachella Valley southeast of La Quinta. Broad expanses of alluvium and ancient Lake Cahuilla lake beds underlie the site. Bedrock hills exist about 2.3 miles west of the site. Geologically, the site has been mapped as a mix of Holocene alluvial and lake bed deposits in excess of several hundred feet deep.

3.2 Lineament Evaluation

Mapping presented by the California Division of Mines and Geology (1994) indicates a buried fault along the southwest margin of the Coachella Valley trending in the immediate vicinity of the project site (see Plate 3). The fault is mapped as buried and queried and is assumed to represent the range front fault along the southwest margin of the subsiding valley. The project site is not within a currently mapped Alquist-Priolo Earthquake fault zone or County of Riverside fault zone.

Lineament analysis suggests several weak to strong vegetative and soil tonal lineaments in the immediate vicinity of the project site. These lineaments (see Plate 4) trend to the northwest and parallel the mapped buried fault as shown on the CGS Map Sheet 6 (Fault Activity Map of California). There are several northwest to southeast trending fissures about 2 to 3 miles northwest of the site where damage has occurred due to differential settlement. Residences, streets and golf course lakes have been adversely affected by these fissures, especially in the vicinity of eastern La Quinta. The lineaments in the vicinity of the Tentative Tract 36590 are considered weak and reflect soil color tonal variations and vegetative alignments. The proximal site lineaments trend in the same direction and towards known fissures in the eastern La Quinta area.

Lineament L-1 is weak in the immediate vicinity of the project site, but is continuous for 2 miles to the northwest, where the lineament is strong and corresponds to known subsidence, differential settlement, and structural damage. This lineament projects towards the western portion Tract 36234, but is not identified within the tract limits.

Lineament L-2 is a weak to strong southeast trending lineament originating just east of Lake Cahuilla in the vicinity of Avenue 58 and Madison Street. The lineament is represented by a strong presence of aligned vegetation and continues moderately to weakly at least to Monroe Street and possibly past Jackson Street. This lineament trends through Tract 36590.

Lineament L-3 is a strong lineament apparent on multiple photographs, especially the 1990 aerial in the vicinity of Monroe Street and Avenue 60. This lineament also trends through Tract 36590.

Lineament L-4 is within a zone of weak lineaments trending to the northeast of Tract 36590. These lineaments are weak soil color contrasts and vegetative alignments.

Multiple lineaments can be identified in the area surrounding the tract and were geologically field checked by walking portions of the site on July 25, 2013. No evidence of surface cracking was observed within the project limits, although the site was recently disced for preparation for planting. The asphalt pavement along Avenue 60 and Avenue 61 is cracked due to typical asphalt concrete shrinkage cracking. Cracking is typically perpendicular to parallel to the street orientation. Areas of intense cracking or differential settlement as observed in La Quinta within the pronounced fissure areas were not observed. However, diagonally oriented cracks were noted at the southeast corner of the site (Lineament 2) and to the east at the projected trend of Lineament 3. Also, a masonry wall at the south side of Avenue 61 near the southwest corner of the project shows evidence of tensional stress. This suggests that surface manifestations of tensional stress related to areal subsidence may be occurring or have occurred in the past in the immediate tract area. It should be noted that extensive observations have been made, in regards to potential tensional stresses for the Andalusia development located about one-half mile northwest of Tentative Tract 36590. At that location, masonry perimeter walls and hardscape do not show evidence of tensional stresses, which is probably indicative of the positive effects of localized groundwater recharge and suspension of subsidence due to groundwater overdrafting.

No direct evidence of fissuring was noted on the property, where accessible, or on readily available access routes along Avenue 60, Avenue 61, on the east and west margin farm roads, or along the perimeter berms of the irrigation pond at the northwest corner of the property.

The fissures noted near La Quinta (northwest of Tentative Tract 36590) are likely the result of tensional stresses associated with areal subsidence due to groundwater withdrawal. Regional studies by the United States Geologic Survey (2007 and 20010) suggest substantial subsidence in the La Quinta area, with a general northwest to southeast subsidence basin trend. Plate 6 depicts a portion of the USGS 2005 data with Tentative Tract 36590 located just southeast of the subsidence zone. The USGS 2009 data (Plate 5) suggests that the subsidence zone has propagated to the southeast with Tentative Tract 36590 situated at the south easterly margin of the primary subsidence zone. Margins of subsidence zones experience surface tensional stress and have a higher propensity for fissuring.

The presence of the damaging fissures in the east La Quinta area are not considered active faults, but rather the effects of differential settlement and aquifer compaction due to groundwater withdrawal. The pronounced settlement may also be the result of differential settlement of unequal depth of sediment over and adjacent to buried bedrock ridges now disguised by the broad Holocene alluvial and lacustrine geomorphic surfaces.

<u>Summary of Lines of Evidence for Lineament Sources</u>

- The project site is not located within a currently delineated Alquist-Priolo Earthquake fault zone or Riverside County delineated fault zone. This indicates that active faulting has not been defined by local or state agencies in the immediate proximity of the site.
- A buried and queried fault, as shown on the CGS Fault Activity Map-Map Sheet 6 (1994) is located in the immediate proximity of Tentative Tract 36590. This fault is not thought to be active or potentially active and is assumed to represent a fault along the southwest margin of the valley. Its location is highly conjectural.
- There is no geomorphic evidence to substantiate active faulting on the site, as the site is essentially flat and level.
- Multiple aerial photograph lineaments are observable on historical photographs (circa 1939 to 1990) that have a northwest to southeast trend and occur in the same proximal area as the CGS buried/queried fault mapped in the project vicinity.
- The stresses noted in the masonry wall near the southwest corner of the project (south side of Avenue 61) and diagonal cracking in pavement along Avenue 61 may be anecdotal evidence of tensional stresses in the project area, and happen to occur along projected lineament alignments.
- Fissures exist northwest of Tract 36234 in the vicinity of eastern La Quinta. Damage to streets, golf course lakes, and residences has occurred due to differential settlement associated with fissuring.
- The fissuring is reasonably assumed to be related to areal subsidence associated with groundwater withdrawal.
- Tentative Tract 36590 is located at the southeast margin of the La Quinta subsidence study area (USGS 2010) where it is postulated that tensional stresses may be greater resulting in the noted fissures and lineaments.
- The lineaments in the immediate proximity of the site and in La Quinta are not thought to be related to ancient Lake Cahuilla regression shorelines, as the fissures are oblique to the topographic contours. However, the lineaments are parallel to the La Quinta subsidence basin axis.

- It is reasonable that the subsidence and associated differential settlement as noted in the La Quinta area may be the result of deep sediment compaction along buried faults or deep bedrock steps, where there is a marked difference in thickness of the sediment column over bedrock. Per Biehler (1964), the project area is along a steep Bouger anomaly contour gradient along the southwest margin of the valley which suggests a rapidly increasing depth of sediments progressing to the northeast.

In summary, the lines of evidence suggest that subsidence, not active fault rupture is the probable genesis of the lineaments and associated fissuring. Therefore, it is our professional opinion that there are no active faults within the project limits.

However, the project is in an area of multiple lineaments that suggest the site is or could experience tensional stresses that might result in surface fissuring. To date no confirmation of the origin of the noted lineaments in the site area has been clearly determined and documented by submittal to the County geologist.

3.3 Soil Conditions

Mixed Holocene lacustrine, fluvial, alluvial, and aeolian soils are present and consist predominantly of interbedded sand with varying amounts of silt, and silts and clays with varying amounts of sand (Unified Soils Classification System symbols of, SM, ML, CL, and CH). Appendix A presents the Logs of the Borings which present greater detail.

The site lies within an area of moderate to high potential for wind and water erosion. Fine particulate matter (PM_{10}) can create an air quality hazard if dust is blowing. Watering the surface, planting grass or landscaping, or placing hardscape normally mitigates this hazard.

3.4 Groundwater

Free groundwater was encountered in the borings at approximately 25 feet below the ground surface. The historic depth to groundwater in the area is believed to be about 3 feet based on groundwater elevation contours (DWR Bulletin No. 108). As there is uncertainty in the accuracy of short-term water level measurements we have considered that historic high groundwater may have been 3 feet below the ground surface. Tile drains onsite were installed in 1960 and 1961 to control groundwater. Drains were on the order of 8 to 10 feet below the ground surface. Groundwater levels may fluctuate with precipitation, irrigation, drainage, water additions to nearby infiltration basins and farming, regional pumping from wells, and site grading. Groundwater can have a high salinity in the site area.

It is important to stress that future groundwater pumping or groundwater overdraft may result in significant lowering of the groundwater table. Currently, Coachella Valley Water District operates a groundwater recharge basin approximately 1½ miles west of the project site between Avenue 60 and 62, west of Madison Street. The pilot recharge basin in this location was operational in 1997 and was expanded in 2009. As groundwater is being introduced into the subsurface soils in the vicinity of the site, we reviewed CVWD's published documentation regarding the proposed amount of recharge. Based upon the *2010 Coachella Valley Water Management Plan Update Draft Report,* CVWD's projection is that groundwater levels in the vicinity of Recharge Basins would remain at least 30 feet below the surrounding ground surfaces to minimize the potential effects of groundwater introduction into developed areas (liquefaction, collapse, etc.). However, it is our opinion that with so many demands on the region's water system, it is impossible to predict the magnitude of groundwater withdrawl or introduction, and it may be prudent to re-evaluate this issue periodically as newly published data becomes available on CVWD's policies.

3.5 Aquifer Groundwater Data Evaluation

Hydrogeologic conditions in the vicinity of the site were evaluated using depth to groundwater data from wells within about two miles of the site obtained from the Coachella Valley Water District (CVWD) near the Andalusia development west of the site. The historic depth to groundwater measurements from a total of 17 wells from 12 separate locations were obtained and reviewed; 3 from north of the site, and 9 from south and west of the site. This is a fairly limited data-set for the size of the area being evaluated.

Consequently, it was not possible to construct cross-sections of the water table across the area of interest, and contour maps of the study area are based on such widely based data-points that they cannot be used to identify abrupt changes in the elevation of the groundwater. However, the initiation of groundwater recharge activities by CVWD at the new spreading basins southwest of the site is a unique circumstance that provides a basis for evaluating the uniformity of the aquifer in the site vicinity, and this was the focus of this evaluation.

The earliest measurement was from September 1965 and the most recent measurement was from July 2012. Measurements in nine of the wells start in 2009, and these wells are believed to have been installed to monitor changes associated with the new recharge basins. The close clustering and recent installation of those nine wells limited their usefulness for this study.

A review of underlying data was the basis for the following observations.

1. In 1965, the elevation of groundwater in the oldest well in the site vicinity was 74.5 feet below mean sea level [msl]. By August 2004, the groundwater elevation in that well was 163.3 feet below msl, a decline of 88.8 feet. As of June, 2012, the groundwater elevation in that well was 148.1 feet, a recovery of 15.2 feet but a net decline of 73.6 feet over a period of 47 years.

2. More recently installed wells had lower maximum declines, presumably because they represent only a portion of the historic record.

3. Groundwater levels have recovered in every well since recharge began, with the increase in groundwater elevation ranging from 15.2 to 72.3 feet. The smallest increase was in the well farthest northeast from the recharge basin, and the greatest increases were in the wells in the immediate vicinity of the recharge basin.

4. The groundwater elevation has recovered to the level it was in and around 1995.

5. Groundwater elevations across the breadth of the study area declined prior to recharge, and recovered due to recharge in a manner that suggests that the lateral movement of groundwater was not impeded. Consequently, a barrier to the lateral movement of groundwater was not inferred by this data.

3.6 Collapse/Consolidation Potential

Collapsible soil deposits generally exist in regions of moisture deficiency. Collapsible soils are generally defined as soils that have potential to suddenly decrease in volume upon increase in moisture content even without an increase in external loads. Soils susceptible to collapse include loess, weakly cemented sands and silts where the cementing agent is soluble (e.g. soluble gypsum, halite), valley alluvial deposits within semi-arid to arid climate, and certain granite residual soils above the groundwater table.

In arid climatic regions, granular soils may have a potential to collapse upon wetting. Collapse (hydroconsolidation) may occur when the soluble cements (carbonates) in the soil matrix dissolve, causing the soil to densify from its loose configuration from deposition.

The degree of collapse of a soil can be defined by the Collapse Potential [CP] value, which is expressed as a percent of collapse of the total sample using the Collapse Potential Test (ASTM Standard Test Method D 5333). Based on the Naval Facilities Engineering Command (NAVFAC) Design Manual 7.1, the severity of collapse potential is commonly evaluated by the following Table 1, Collapse Potential Values.

Table 1
Collapse Potential Values

Collapse Potential Value	Severity of Problem
0-1%	No Problem
1-5%	Moderate Problem
5-10%	Trouble
10-20%	Severe Trouble
> 20%	Very Severe Trouble

The project site is located in a geologic environment where the potential for collapsible soil exists. Although most soils at the site were below the groundwater based upon historic data, current sandy and silt soils were noted to be generally dry. The results of collapse potential tests performed on selected samples from different depths throughout the project site indicated a range of collapse potential on the order of 0.2 to 2.9 percent at an applied vertical stress of 2,000 psf. Collapse generally occurred in the dry soils with increased silt content. It is our opinion that the site soils have a moderate potential for collapse as the majority of site sandy soils were below the groundwater table (current and historic) and testing of soils above the groundwater table indicates a moderate collapse potential. Collapse related settlement is estimated to be on the order of 2 inches. Settlement generally occurs on an areal basis. As such, differential collapse related settlement is estimated to be on the order of ½ the total settlement at the surface (1 inch). The results of consolidation tests performed on selected fine grained samples from different depths throughout the project site indicated a low consolidation potential at typical applied foundation loads.

3.7 Expansive Soils

Expansive soils are characterized by their ability to undergo significant volume change (shrink or swell) due to variations in moisture content. Changes in soil moisture content can result from rainfall, landscape irrigation, utility leakage, roof drainage, perched groundwater, drought, or other factors, and may cause unacceptable settlement or heave of structures, concrete slabs supported-on-grade, or pavements supported over these materials. Depending on the extent and location below finished subgrade, expansive soils can have a detrimental effect on structures.

Based on our laboratory testing, the Expansion Index of the onsite soils is “very low” as defined by ASTM D 4829. Based upon the 2010 California Building Code and ASTM D 4318 test procedures for Plasticity Index, the onsite soils classified as USCS soil type ‘CL’, Lean Clay are also considered “expansive”; however the 2010 CBC does not provide a qualification for the degree of expansiveness. From our test results and significant silt content, it is our opinion that these ‘CL’ clays may have an expansion potential (Index) on the order of “low” as defined by ASTM D 4829. Based upon the Expansion Index and Plasticity Index testing performed, the onsite soils appear to be typically “very low” to “low” in Expansion Index. Of the samples tested for Plasticity, all samples tested in the CL/ML range indicating very low to low expansion potential. Samples of building pad soils should be tested during grading to confirm or modify these findings.

3.8 Corrosivity

Three samples of the near-surface soil within the site area were tested for potential to corrosion of concrete and ferrous metals. The tests were conducted in general accordance with the ASTM test methods to evaluate pH, resistivity, and water-soluble sulfate and chloride content. The test results are presented in Appendix B. These tests should be considered as only an indicator of corrosivity for the sample tested. Other earth materials found on site may be more, less, or of a similar corrosive nature. Water-soluble sulfates in soil can react adversely with concrete. ACI 318 provides the relationship between corrosivity to concrete and sulfate concentration, presented in the table below:

Table 2
Sulfate Corrosion Correlations

Water-Soluble Sulfate in Soil (ppm)	Corrosivity to Concrete
0-1,000	Negligible
1,000 – 2,000	Moderate
2,000 – 20,000	Severe
Over 20,000	Very Severe

In general, the lower the pH (the more acidic the environment), the higher the soil corrosivity will be with respect to ferrous structures and utilities. As soil pH increases above 7 (the neutral value), the soil is increasingly more alkaline and less corrosive to buried steel structures, due to protective surface films, which form on steel in high pH environments. A pH between 5 and 8.5 is generally considered relatively passive from a corrosion standpoint. High chloride levels tend to reduce soil resistivity and break down otherwise protective surface deposits, which can result in corrosion of buried steel or reinforced concrete structures. Soil resistivity is a measure of how easily electrical current flows through soils and is the most influential factor. Based on the findings of studies presented in ASTM STP 1013 titled "Effects of Soil Characteristics on Corrosion" (February, 1989), the approximate relationship between soil resistivity and soil corrosivity was developed as shown in Table 3.

Table 3
Resistivity Corrosion Correlations

Soil Resistivity (Ohm-cm)	Corrosivity to Ferrous Metals
0 to 900	Very Severely Corrosive
900 to 2,300	Severely Corrosive
2,300 to 5,000	Moderately Corrosive
5,000 to 10,000	Mildly Corrosive
10,000 to >100,000	Very Mildly Corrosive

Test results (presented in Appendix B) show a pH value of 8 to 8.3, chloride content of 72 to 290 ppm, sulfate content of 459 to 653 ppm, and resistivity of 12 to 820 Ohm-cm. Although Earth Systems does not practice corrosion engineering, the corrosion values from the soil tested are normally considered as being very severely corrosive to buried metals and as possessing a "negligible" exposure to sulfate attack for concrete as defined in American Concrete Institute (ACI) 318, Section 4.3. The above values can potentially change based on several factors, such as importing soil from another job site and the quality of construction water used during grading and subsequent landscape irrigation. As such, we recommend an engineer competent in corrosion mitigation review these results and design corrosion protection appropriately.

3.9 Geologic Hazards

Geologic hazards that may affect the region include seismic hazards (ground shaking, surface fault rupture, soil liquefaction, and other secondary earthquake-related hazards), slope instability, flooding, ground subsidence, and erosion. A discussion follows on the specific hazards to this site.

3.9.1 Seismic Hazards

Seismic Sources: Several active faults or seismic zones lie within 60 miles of the project site. The primary seismic hazard to the site is strong ground shaking from earthquakes along the San Andreas and San Jacinto faults.

Surface Fault Rupture: The project site does not lie within a currently delineated State of California, *Alquist-Priolo* Earthquake Fault Zone (Bryant, 2007) or Riverside County fault zone (Riverside County Land Information System). Well-delineated fault lines cross through this region as shown on California Geological Survey [CGS] maps (Jennings, 1994); however, no active faults are mapped in the immediate vicinity of the site. Therefore, active fault rupture is unlikely to occur at the project site. While fault rupture would most likely occur along previously established fault traces, future fault rupture could occur at other locations.

On-site reconnaissance revealed a level disturbed surface. Much of the site area has been modified by agricultural activities. Using Google Earth web photographic resources (1996-2011), the sites appear to be extremely uniform with no obvious natural topographic features suggestive of active faulting. Anthropic lineaments pertain to plow patterns, roadways, and power lines.

Historic Seismicity: The project site is in an area of relatively high historic seismic activity. Approximately 35 magnitude 5.5 or greater earthquakes have occurred within 60 miles of the project since 1872.

Six historic seismic events (5.9 M or greater) have significantly affected the Coachella Valley in the last 100 years. They are as follows:

- *Desert Hot Springs Earthquake* – On December 4, 1948, a magnitude 6.5 M_L (6.0M_W) earthquake occurred east of Desert Hot Springs. This event was strongly felt in the Coachella area.
- *Palm Springs Earthquake* – A magnitude 5.9 M_L (6.2M_W) earthquake occurred on July 8, 1986 in the Painted Hills, causing minor surface creep of the Banning segment of the San Andreas fault. This event was strongly felt in the Coachella area and caused structural damage, as well as injuries.
- *Joshua Tree Earthquake* – On April 22, 1992, a magnitude 6.1 M_L (6.1M_W) earthquake occurred in the mountains 9 miles east of Desert Hot Springs. Structural damage and minor injuries occurred in the Coachella Valley as a result of this earthquake.
- *Landers and Big Bear Earthquakes* – Early on June 28, 1992, a magnitude 7.5 M_S (7.3M_W) earthquake occurred near Landers, the largest seismic event in Southern California for

40 years. Surface rupture occurred just south of the town of Yucca Valley and extended some 43 miles toward Barstow. About three hours later, a magnitude 6.6 M_S (6.4M_W) earthquake occurred near Big Bear Lake. No significant structural damage from these earthquakes was reported in the Coachella area.

- *Hector Mine Earthquake* – On October 16, 1999, a magnitude 7.1M_W earthquake occurred on the Lavic Lake and Bullion Mountain faults north of Twentynine Palms. While this event was widely felt, no significant structural damage has been reported in the Coachella Valley.

Seismic Risk: While accurate earthquake predictions are not possible, various agencies have conducted statistical risk analyses. In 2002 and 2008, the California Geological Survey and the United States Geological Survey [USGS] completed probabilistic seismic hazard maps. We have used these maps in our evaluation of the seismic risk at the site. The recent Working Group of California Earthquake Probabilities [WGCEP, 2008] estimated a 59% conditional probability that a magnitude 6.7 or greater earthquake may occur between 2008 and 2038 along the southern segment of the San Andreas fault.

The primary seismic risk at the site is a potential earthquake along the San Andreas fault that is approximately three miles northeast of the site and is considered as a Type A fault per the CGS. Geologists believe that the San Andreas fault has characteristic earthquakes that result from rupture of each fault segment. The estimated characteristic earthquake is magnitude 7.7 for the Southern Segment of the fault (USGS, 2002). This segment has the longest elapsed time since rupture of any part of the San Andreas fault. The last rupture occurred about 1680 AD, based on dating by the USGS near Indio (WGCEP, 2008). This segment has also ruptured on about 1020, 1300, and 1450 AD, with an average recurrence interval of about 220 years. The San Andreas fault may rupture in multiple segments, producing a higher magnitude earthquake. Recent paleoseismic studies suggest that the San Bernardino Mountain Segment to the north and the Coachella Segment may have ruptured together in 1450 and 1690 AD (WGCEP, 1995). Other regional faults, including the San Jacinto fault located about 20 miles southwest of the site and the many active faults within the Mojave Desert to the north also can generate significant earthquake motions within the Coachella Valley.

3.9.2 Secondary Hazards

Secondary seismic hazards related to ground shaking include soil liquefaction, ground subsidence, tsunamis, and seiches.

Soil Liquefaction and Lateral Spreading: Liquefaction is the loss of soil strength from sudden shock (usually earthquake shaking), causing the soil to become a fluid mass. Liquefaction describes a phenomenon in which saturated soil loses shear strength and deforms as a result of increased pore water pressure induced by strong ground shaking during an earthquake. Dissipation of the excess pore pressures will produce volume changes within the liquefied soil layer, which can cause settlement. Shear strength reduction combined with inertial forces from the ground motion may also result in lateral migration (lateral spreading). Factors known to influence liquefaction include soil type, structure, grain size, relative density, confining pressure, depth to groundwater, and the intensity and duration of ground shaking. Soils most susceptible to liquefaction are saturated, loose sandy soils and low plasticity clay and silt. These soil types exist throughout the site area. The site is within a “high” liquefaction potential zone as identified by Riverside County (Riverside County Transportation and Land Management Agency land information website (RCLIS, August, 2013)).

In general, for the effects of liquefaction to be manifested at the surface, groundwater levels must be within 50 feet of the ground surface and the soils within the saturated zone must also be susceptible to liquefaction. Historic groundwater conditions are shallow in the site area at approximately 3 feet below the existing ground surface.

In the past decade, several concentrated efforts have been made to come up with a uniform guideline for liquefaction analyses. Youd et al. (2001) published general guidelines for liquefaction analyses, which presented consensus of a task committee comprised of more than 20 members from all over the United States. However, earthquakes in Turkey and Taiwan provided additional data to researchers, especially for low plasticity clays and silts, which resulted in significant modifications to liquefaction evaluation methods for these soils with higher fines contents whereby they may behave in a “sand like” liquefiable manner during a seismic event under certain circumstances related to the Plasticity Index (PI), Liquidity Index (LI) and sensitivity. If those circumstances are not met, the soils can be thought of as performing in a “clay like” manner and not be liquefiable. Some of these methods have been presented by Boulanger and Idriss (2006).

For fine grained soils, our liquefaction analysis considered the approaches recommended by Boulanger and Idriss (2006) for evaluating whether onsite fine-grained soils may behave in a “sand like” or “clay like” manner and Youd et al. (2001) for coarse grained soils. Based on the soil conditions observed and anticipated seismic shaking, we believe that the potential for liquefaction of certain fine grained soils may exist. As presented by Boulanger and Idriss (2006), *for practical purposes, fine grained soils can confidently be expected to exhibit clay-like behavior if they have PI ≥7. This criterion provides a slightly conservative interpretation of the likely transition interval and includes all CL soils by definition. If soil plots as a CL-ML, the PI criterion may be reduced to PI ≥5 and still be consistent with the available data. Fine grained soils that do not meet the above criteria should be considered as likely exhibiting sand-like behavior (i.e. liquefiable), unless shown otherwise through detailed in situ and laboratory testing.* As presented in Appendix B, the soils tested exhibited PI’s greater than 7 and less than 7, and therefore are “clay like”, with non liquefiable behavior, and also “sand like” with liquefiable behavior. Our liquefaction evaluation has considered these results.

We have used the data obtained from our deep borings at the site to evaluate the potential for liquefaction induced settlement. We estimated seismically induced settlements in general accordance with methods developed by Tokimatsu and Seed (1987), the 1996 NCEER and 1998 NCEER/NSF workshops on liquefaction, and considered information provided in *Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Liquefaction Hazards in California, published by Southern California Earthquake Center (SCEC)*, dated March 1999 and *Guidelines for Analyzing and Mitigating Seismic Hazards in California,* Special Publication 117A, published by California Geological Society (CGS), 2008. Our analysis incorporated multi-directional shaking and used a Design Earthquake ground motion of 0.4g (Site Specific S_{DS}/2.5 ground acceleration) associated with a magnitude 8.2 earthquake associated with a multi-segment rupture of the San Andreas fault. We used a groundwater depth of 3 feet. A factor of safety against liquefaction of 1.5 was used for evaluation.

The results of our analyses indicate that zones of soil liquefaction will occur within the observed sandy soils at various depths (see Appendix A). Total estimated seismic-induced settlement (dry and liquefaction) of the total soil columns (upper 50 feet) is on the order of 0.9 to 1.4 inches with groundwater at 3 feet. Total estimated seismic-induced settlement of the total soil columns (upper 50 feet) is on the order of 0.1 to 1.2 inches with current groundwater at 25 feet. Due to the depth of the liquefiable soils below the existing grades, it is our opinion that there is a low potential for loss of foundation bearing support from liquefied soils. Due to the general consistent soil strata based upon 8 borings at the site, it is estimated that seismic differential settlement is on the order of ½ of the total settlement (SP117A) and is approximately ¾ inches.

Additionally, it is our opinion that the potential for sand boil formation to relieve subsurface pore-water pressures generated during a seismic event is low in the sandy zones of site soils due to the depth of the liquefiable layers. The recommended remedial grading presented in subsequent sections of this report has been provided to reduce potential for structure distress should liquefaction of these soils occur.

The potential for liquefaction induced lateral spreading under the proposed project is considered low as no free-face or sloping ground conditions exist in the immediate vicinity of the project. As such the potential for lateral spreading is considered low.

The total seismically induced settlement is exclusive and independent of any static settlement that may occur from foundation loads. The potential for total and differential settlements is addressed in a later Section of this report. Typically, structural mitigation is acceptable when total settlements are small. Per SP117A (2008, page 54), *Youd (1989), citing data from Japan, suggests that structural mitigation may be acceptable where displacements of less than one foot horizontal and less than four inches vertical are predicted. Therefore, for this paper, large-scale ground displacements are defined as those that exceed 1-3 feet horizontally and 4-6 inches vertically.* The maximum settlement calculated for this site is approximately 1.4 inches. Therefore per SP117A (2008, page 54), this site does not qualify as having *large scale displacements*. We have combined recommendation for structural mitigation and soil remediation in later sections of this report.

<u>Subsidence</u>: The project site is within an "active" subsidence zone as designated by Riverside County (Riverside County Transportation and Land Management Agency land information website (RCLIS, March, 2012)). The site is within a USGS zone of subsidence monitoring in the Coachella Valley (Sneed, 2010) which indices that mapped subsidence has increased in size and area from 2005 to 2009 and now encompasses the site boundaries (see Plate 5). The USGS in conjunction with the CVWD has been performing periodic monitoring of the Coachella Valley with respect to the potential for areal subsidence since 1996. The initial report concerned monitoring conducted between 1996 and 1998 and was published in 2001. That report

indicated that subsidence exceeded the measuring error of +/- 40 millimeters at only half of the 14 measuring locations, indicating that "small amounts of land subsidence occurred at these monuments between 1996 and 1998". The amount of subsidence ranged up to about ¼-foot in three areas of Palm Desert, Indian Wells, and La Quinta.

In 2002, the USGS issued a follow-up to the 2001 report with data through 2000. Measurements of subsidence and/or uplift were relatively inconclusive in the lower portion of the Coachella Valley, with changes measuring less than 0.15 feet at most locations. Interferometric data for the Palm Desert, Indian Wells and La Quinta areas were similar to the data from 1996 to 1998.

In 2007, the USGS issued another follow-up report with data covering the period 1996 to 2005. This report indicated that up to about 1 foot of subsidence had occurred in the southern Coachella Valley between 2000 and 2005 (see Plate 6). Interferometric synthetic aperture radar (InSAR) measurements found subsidence rates of 0.01 to 0.02 feet per month in portions of Palm Desert, Indian Wells and La Quinta. Subsidence rates increased 2 to 4 times in these areas as compared to the 1996 to 2000 time period.

In October, 2010, the USGS presented a paper providing an update to the Coachella Valley monitoring program. The 2010 report did not include the same GPS-based measurements as the prior reports, but did provide InSAR data of the project area. The InSAR data is more qualitative than quantitative, so the absolute amount of subsidence cannot be derived from the information, but it suggests that the areas of subsidence in the Palm Desert, Indian Wells and La Quinta areas are getting larger and more pronounced. As the site area is currently within a groundwater recharge area, where groundwater levels are currently rising, the immediate causative factors for deep-seated subsidence may have been reduced or eliminated. The risk of fissuring or areal subsidence in the future is more a function of whether groundwater recharge continues and/or over-drafting stops, than geologic processes, and therefore the risk cannot be predicted or quantified from a geotechnical perspective.

<u>Slope Instability</u>: The site is relatively flat desert. Therefore, potential hazards from slope instability, landslides, or debris flows are considered low.

<u>Flooding</u>: The project site is within an "X" FEMA flood risk zone and also zone "D" "area of undermined flood risk". The project site is in an area where sheet flooding and erosion could occur. Appropriate project design, construction, and maintenance can minimize the sheet flooding potential. Lake Cahuilla, although a water storage facility with more than the 50-acre feet of storage capacity does not fall under the purview of the Division of Dam Safety because it is not impounded by an artificial barrier (dam) and as such has no inundation potential.

Seismic induced sloshing of pool water and lake water is possible during seismic events. Vertical run up heights are estimated to not exceed four to five feet for future residential pools or golf course lakes. Due to the site being far inland, flood potential from tsunamis is considered nil.

Erosion Potential: The project is located in an area where seasonal rainfall and runoff can be intense. Shallow exposed soils are moderately to highly susceptible to erosion.

Seismic Hazard Zones: The site lies in a "high" liquefaction potential zone designated by the Riverside County Land Information System (http://www3.tlma.co.riverside.ca.us/pa/rclis/). This portion of Riverside County has not been mapped by the California Seismic Hazard Mapping Act (Ca. PRC 2690 to 2699). The project is also located within a designated Riverside County "active" subsidence area.

Section 4
CONCLUSIONS

The following is a summary of our conclusions and professional opinions based on the data obtained from a review of selected technical literature and the site evaluation.

General:

- From a geotechnical perspective the site is suitable for the proposed development contingent on the outcome of further required geologic evaluation due to unclassified lineaments onsite. Preliminary recommendations for feasibility grading and foundation design are provided in this report contingent on the further lineament study indicating the onsite lineaments are benign. If the lineaments are found to be not benign, then the foundations recommendations presented within are considered to be not valid, and further foundation recommendations will be required.

Geotechnical Constraints and Mitigation:

- The primary geologic hazard relative to site development is severe ground shaking and associated liquefaction from earthquakes originating on local or regional faults. In our opinion, a major seismic event originating on local segments of the San Andreas or San Jacinto faults can be the most likely causes of significant earthquake activity at the site within the estimated design life of the proposed facility. Other earthquakes may also affect the site.

- Site soils are generally very low to low in Expansion Index; however, the area is known for potentially more expansive soils. Area specific testing should be performed once pad grade is reached.

- Aerial photograph lineaments in the immediate project area are in line with known surface fissures located several miles to the northwest. The genesis of the lineaments in the immediate site area has not been determined.

- We consider another geotechnical constraint for development of this site, as identified by our study, to be the potential for liquefaction induced ground settlement. It is our opinion that to construct the proposed tract, site soil improvement techniques will be required to reduce the potential distress to the proposed structures should liquefaction and differential settlement occur. The recommendations presented are intended to reduce the magnitude and severity of potential liquefaction induced differential settlement distress to the proposed structures, such that the estimated ground settlement presented within can be accommodated in structural design.

  We have combined two accepted methods of reducing localized differential settlement (reinforced foundations and soil densification) which are recommended in SP117A (2008, page 57) and *Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Liquefaction in California*, Martin and Lew, 1999.

- The recommendations presented within do not address post-earthquake performance in regard to flatwork, site perimeter walls, utilities, etc. It is our opinion that it is not practically feasible nor standard of care to mitigate or reduce the potential for the occurrence of liquefaction and settlement across the whole site due to the potential shallow nature of the groundwater and the susceptible nature of the site soils. The manifestation and effect of liquefaction may generally affect the flatwork, pavement, site perimeter walls, basins, etc. through differential settlement of the liquefied soils after seismic shaking. Due to the minor estimated liquefaction settlement, these effects may cause localized distress to the portions of the site where liquefaction occurs. It is our opinion that it may not be economically feasible or cost effective to implement engineering measures to mitigate the potential effects of liquefaction. It is our opinion that the effects of liquefaction and related distress will most likely require repair to portions of the site flatwork/pavement/etc. after a major seismic event generally in the form of re-leveling, repairing, or rebuilding. Selective design utilizing less sensitive fencing, etc. can also reduce the impact of liquefaction and settlement.

- The underlying geologic condition for seismic design is Site Class F due to liquefaction potentials. A qualified professional should design any permanent structure constructed on the site. The *minimum* seismic design should comply with the 2010 edition of the California Building Code.

- The upper soils were found to be relatively non-uniform silty sands, clays, and silts which are unsuitable in their present condition to support structures, fill, and hardscape. The soils within the building and structural areas will require moisture conditioning, over-excavation, and recompaction to improve bearing capacity and reduce the potential for differential settlement. Soils can be readily cut by normal grading equipment.

- Other geologic hazard potentials, including fault rupture, tsunamis, seiches and slope instability are considered low on this site.

- Site soils should be reviewed by a corrosion engineer, see Section 3.8.

- The InSAR data provided by the USGS (2010) suggests that the subsidence areas indicated may be progressing into the site. It is our opinion that, based upon the groundwater dataset evaluated, that groundwater level contours have been relatively uniform in the site area between 1996 and 2012, suggesting that if settlement should occur, it could occur on an areal basis and not be confined to one particular area of the site. At this time, the dataset does not suggest that the pumping that is occurring within and surrounding the site is creating differential groundwater conditions beneath the site and in fact indicates a recharge condition. Groundwater overdraft is occurring in the Coachella Valley on a regional level and must be addressed ultimately on a regional level through decreased pumping and increased recharge. It is important to stress that increased pumping and continued groundwater overdraft may lead to increased subsidence related settlement which is impossible to predict given the current level of information. However, based upon current trends, pumping levels have been generally uniform. If differential pumping occurs, subsidence and the damaging effects of differential settlement occur. As the degree of continued groundwater pumping, pumping patterns, and their combined effect on the potential settlement of the overlying soils is unknown, it may be prudent to reevaluate this issue periodically as newly published USGS data becomes available.

Section 5
RECOMMENDATIONS

Prior to final project approval, additional geologic studies are recommended, including subsurface exploration by trenching and geologic logging to establish if possible the presence or absence of fissure-like features at or proximal to the observed aerial photograph lineaments. Due to the presence of tile drains, the exploration trenches will only be able to extend to just above the tile drain alignments. Careful siting of the trenches will be required to avoid tile drains and drain trench backfill.

SITE DEVELOPMENT AND GRADING

5.1 Site Development – Grading

A representative of Earth Systems Southwest [Earth Systems] should observe site clearing, grading, and the bottoms of excavations before placing fill. Local variations in soil conditions may warrant increasing the depth of recompaction and over-excavation.

Proper geotechnical observation and testing during construction is imperative to allow the geotechnical engineer the opportunity to verify assumptions made during the design process and to verify that our geotechnical recommendations have been properly interpreted and implemented during construction and is required by the 2010 California Building Code. Therefore, we recommend that Earth Systems be retained during the construction of the proposed improvements to provide testing and observe compliance with the design concepts and geotechnical recommendations, and to allow design changes in the event that subsurface conditions or methods of construction differ from those assumed while completing our previous study. Additionally, the California Building Codes requires the testing agency to be employed by the project owner or representative (i.e. architect) to avoid a conflict of interest if employed by the contractor.

Clearing and Grubbing: At the start of site grading, existing vegetation, trees, large roots, pavement, foundations, irrigation systems, non-engineered fill, high expansive clay soils, septic systems, construction debris, trash, and underground utilities should be removed from the proposed building pad and improvement areas. Areas disturbed during demolition and clearing should be properly backfilled and compacted as described below. Oversize material, trash, debris, vegetation (greater than 1% organic content), etc. should be removed prior to use as engineered fill.

Septic systems, leach fields, undocumented fill, and buried utilities may be located in the vicinity of the planned structures and within other areas of the project site. As part of the demolition plan for the project, it is recommended these structures be located and identified for proper abandonment.

All buried structures which are removed should have the resultant excavation backfilled with soil compacted as engineered fill described herein or with a minimum 2-sack sand slurry approved by the project geotechnical engineer. Abandoned utilities should be removed entirely (by chasing), or pressure-filled with concrete or grout and be capped. Abandoned utilities should not extend under building limits. Any tile drain system at the site should be removed from under the site and redirected. It is our experience in the site area that soil loss into old tile drains has caused subsurface voids to develop and settlement has occurred. Complete removal is recommended. Crushing in place or pressure filling is not recommended for tile drains unless remote or direct observation of the crushing or pressure filling can be accomplished.

Subsequent to stripping and grubbing operations, areas to receive fill should be stripped of loose or soft earth materials until a uniform, firm subgrade is exposed, as evaluated by the geotechnical engineer or geologist. Prior to the placement of fill or subsequent to cut, the existing surface soils within the building pads and improvement areas should be over-excavated as recommended below:

Dust control should also be implemented during construction. Site grading should be in strict compliance with the requirements of the South Coast Air Quality Management District [SCAQMD].

Building Pad Preparation: Because of the relatively non-uniform and under-compacted nature of the site soils and liquefaction potential, we recommend recompaction of soils in the building areas.

The existing soils within the building pad and foundation areas should be over-excavated to a minimum depth of 5 feet below existing grade, finished grade, or a minimum of 2 feet below the footing level (whichever is lower). The over-excavation should extend for 15 feet beyond the outer edge of exterior footings and include any covered walkway areas, patio areas, etc. where possible. The bottom of the uncompacted sub-excavation should be at least 85% relative compaction (ASTM D 1557) at the location tested otherwise deeper removals may be required. The approved bottom of the sub-excavation should then be scarified, moisture-conditioned, and recompacted to at least 90% relative compaction (ASTM D 1557) for an additional depth of one foot. Engineered fill compacted to at least 90% relative compaction (ASTM D 1557) should then be placed to finished grade.

Compaction should be verified by testing. Where compaction of the resultant excavation bottom is difficult or not achievable due to these loose or soft soils, this recommendation may be reviewed and revised by the project geotechnical engineer. Alternative techniques to stabilize the bottom may be required (such as placing gravel and punching it into the soft soil, drying, etc.).

Auxiliary Structures Subgrade Preparation: Auxiliary structures, such as fence or retaining walls (with foundations), trash enclosures, etc., should have the foundation subgrade prepared similar to the building pad recommendations given above but the lateral extent of the over-excavation needs to extend only 2 feet beyond the exterior face of the footing. Perimeter or fence/walls should be constructed of lightweight material, such as chain-link, wood, or wrought iron/aluminum/steel to reduce the potential for damage during a seismic event.

Pavement Area Preparation: In street, drive, and permanent parking areas, the subgrade should be over-excavated, scarified, moisture conditioned, and compacted to at least

90% relative compaction (ASTM D 1557) for a depth of at least 36 inches below existing grade or finish grade (whichever is deeper), with the upper 1 foot compacted to at least 95% relative compaction. Compacted fill should be placed to finish subgrade elevation. Compaction should be verified by testing.

Subgrade Preparation: In non structural areas to receive fill or hardscape, the subgrade should be scarified, moisture-conditioned, and compacted to at least 90% relative compaction (ASTM D 1557) for a depth of two feet below finished subgrade or two feet below the existing grade, whichever is deeper. Compaction should be verified by testing.

All over-excavations should extend to a depth where the project geologist, engineer or his representative has deemed the exposed soils as being suitable for receiving compacted fill.

The materials exposed at the bottom of excavations should be observed by a geotechnical engineer or geologist from our office prior to the placement of any compacted fill soils. Additional removals may be required as a result of observation and/or testing of the exposed subgrade subsequent to the required over-excavation.

Engineered Fill Soils: The native soil is suitable for use as engineered fill provided it is free of significant organic or deleterious matter, and oversize rock. Within areas to receive foundations and slabs-on-grade the fill should be “very low” to “low” in expansion potential.

All fill should be placed in maximum 8-inch lifts (loose thickness) and compacted to at least 90 percent relative compaction in general accordance with ASTM D 1557 (current edition). In parking and drive areas the upper one foot of subgrade and aggregate base should be compacted to a minimum of 95 percent relative compaction. Compaction should be verified by testing. In general, rocks larger than 6 inches in greatest dimension should be removed from fill or backfill material (fill or backfill should be soil and not consist predominately or significantly of rock). All soils should be moisture conditioned prior to application of compactive effort. Moisture conditioning of soils refers to adjusting the soil moisture to or just above optimum moisture content. If the soils are overly moist so that instability occurs, or if the minimum recommended compaction cannot be readily achieved, it may be necessary to aerate to dry the soil to optimum moisture content or use other means to address soft soils.

Soils which are found to have expansive potential greater than “low” will require differing compaction and moisture conditioning requirements which should be provided on a case by case basis for each specific building location.

A program of compaction testing, including frequency and method of test, should be developed by the project geotechnical engineer at the time of grading. Acceptable methods of test may include Nuclear methods such as those outlined in ASTM D 6938 (Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods) or correlated hand-probing.

Shrinkage: Based upon 16 in-place soil densities in the upper 6 feet of soil, and two maximum density curves, assuming an average 93% compaction for fill placement, we calculate the shrinkage limits as 3 to 19% with a mean shrinkage of 12 percent. One standard deviation from the mean is 5%. Shrinkage and construction related subsidence are highly dependent on and may vary with contractor methods for compaction. Losses from site clearing, oversize material, and removal of existing site improvements may affect earthwork quantity calculations and should be considered.

5.2 Excavations and Utility Trenches

Excavations should be made in accordance with OSHA requirements. Using the OSHA standards and general soil information obtained from the field exploration, classification of the near surface on-site soils will likely be characterized as Type C. Actual classification of site specific soil type per OSHA specifications as they pertain to trench safety should be based on real-time observations and determinations of exposed soils by the contractors *Competent Person* (as defined by OSHA) during grading and trenching operations. Due to some dry cohesionless site soil encountered caving and running surficial soils should be anticipated.

Our site exploration and knowledge of the general area indicates there is a moderate potential for caving and slaking of site excavations (overexcavation areas, utilities, footings, etc.). Where excavations over 4 feet deep are planned lateral bracing or appropriate cut slopes of 1½:1 (horizontal/vertical) should be provided. No surcharge loads from stockpiled soils or construction materials should be allowed within a horizontal distance measured from the top of the excavation slope and equal to the depth of the excavation. Soils are susceptible to caving such that shallower excavated slopes may be required for site safety.

Excavations which parallel structures, pavements, or other flatwork, should be planned so that they do not extend into a plane having a downward slope of 1.5:1 (horizontal: vertical) from the bottom edge of the footings, pavements, or flatwork. Shoring or other excavation techniques may be required where these recommendations cannot be satisfied due to space limitations or foundation layout. Where overexcavation will be performed adjacent to existing structures, ABC slot cutting techniques may be used. The width of the slot cuts will depend on the soils encountered at the point of excavation (slot cut widths are generally no greater than 5 to 8 feet).

<u>Shoring</u>: Shoring may be required where soil conditions, space or other restrictions do not allow a sloped excavation. A braced or cantilevered shoring system may be used.

A temporary cantilevered shoring system should be designed to resist an active earth pressure equivalent to a fluid weighing 55 pounds per cubic foot (pcf). Braced or restrained excavations above the groundwater table should be designed to resist a uniform horizontal equivalent soil pressure of 65 pounds per cubic foot (pcf). The values provided above assume a level ground surface adjacent to the top of the shoring and do not include a factor of safety.

Fifty percent of an areal surcharge placed adjacent to the shoring may be assumed to act as a uniform horizontal pressure against the shoring. Special cases such as combinations of slopes and shoring or other surcharge loads may require an increase in the design values recommended above. These conditions should be evaluated by the project geotechnical engineer on a case-by-case basis.

The wall pressures above the groundwater do not include hydrostatic pressures; it is assumed that drainage will be provided. If drainage is not provided, shoring extending below the groundwater level should be evaluated on a case-by-case basis.

Cantilevered shoring must extend to a sufficient depth below the excavation bottom to provide the required lateral resistance. We recommend required embedment depths be determined using methods for evaluating sheet pile walls and based on the principles of force and moment equilibrium.

For this method, the allowable passive pressure against shoring, which extends below the level of excavation, may be assumed to be equivalent to a fluid weighing 250 pcf. Additionally, we recommend a factor of safety of at least 1.2 be applied to the calculated embedment depth and that passive pressure be limited to 1,500 psf.

The contractor should be responsible for the structural design and safety of all temporary shoring systems. The contractor should carefully review the boring logs in this report, and perform their own assessment of potential construction difficulties, and methods should be selected accordingly. The method of excavation and support is ultimately left to the contractor with guidance and restrictions provided by the designer and owner. We recommend that existing structures be monitored for both vertical and horizontal movement.

A representative from our firm should be present during all site demolition, and clearing and grading operations to monitor site conditions; substantiate proper use of materials; evaluate compaction operations; and verify that the recommendations contained herein are met.

Utilities and Trenches: Backfill of utilities within roads or public right-of-ways should be placed in conformance with the requirements of the governing agency (water district, public works department, etc.). Utility trench backfill within private property should be placed in conformance with the provisions of this report. In general, service lines extending inside of property may be backfilled with native soils compacted to a minimum of 90% relative compaction per ASTM D 1557. Backfill operations should be observed and tested to monitor compliance with these recommendations. The trench bottom should be in a firm condition prior to placing pipe, bedding, or fill.

Under pavement sections, the upper 12 inches of trench backfill soil below the pavement section should be compacted to at least 95% relative compaction (ASTM D 1557). Backfill materials should be brought up at substantially the same rate on both sides of the pipe or conduit. Reduction of the lift thickness may be necessary to achieve the above recommended compaction. Mechanical compaction is recommended; ponding or jetting should be avoided.

In general, coarse-grained sand and/or gap graded gravel (i.e. ¾-inch rock or pea-gravel, etc.) should not be used for pipe/conduit or trench zone backfill due to the potential for soil migration into the relatively large void spaces present in this type of material and water seepage along trenches backfilled with coarse-grained sand and/or gravel. Loss of soil may cause damaging settlement. NOTE: Rocks greater than 3 inches in diameter should not be incorporated within utility trench backfill.

Utilities connections which tie into the structures should be flexible and designed to accommodate at least 2 inches of vertical offset at the transition from the overexcavated and remediated pads to other areas of the site.

5.3 Slope Stability of Graded Slopes

Onsite slope construction is anticipated to be minimal (less than 10 feet in height). Slopes protected against erosion should be constructed at 2:1 (horizontal:vertical) or flatter inclinations. Compacted fill should be placed at near optimum moisture content and compacted to a minimum 90% of the maximum dry unit weight, as measured in relation to ASTM D 1557 test procedures.

5.3.1 Surficial Slope Failures

All slopes will be exposed to weathering, resulting in decomposition of surficial earth materials, thus potentially reducing shear strength properties of the surficial soils. In addition, these slopes become increasingly susceptible to rodent burrowing.

As these slopes deteriorate, they can be expected to become susceptible to surficial instability such as soil slumps, erosion, soil creep, and debris flows. Development areas immediately adjacent to ascending or descending slopes should address future surficial sloughing of soil material. Such measures may include debris fences, liners, catchment areas or walls, ditches, soil planting or other techniques to contain soil material.

Operation and maintenance inspections should be done after a significant rainfall event and on a time-based criteria (annually or less) to evaluate distress such as erosion, slope condition, rodent infestation burrows, etc. Inspections should be recorded and photographs taken to document current conditions. The repair procedure should outline a plan for fixing and maintaining surficial slope failures, erosional areas, gullies, animal burrows, etc. Repair methods could consist of excavating and infilling with compacted soil erosional features, track walking the slope faces with heavy equipment, as determined by the type and size of repair. These repairs should be performed in a prompt manner after their occurrence. Design slope inclinations should be maintained and a maintenance program should include identifying areas where slopes begin to steepen.

5.4 Shallow Foundations

In our professional opinion, foundations for the structures proposed (as presented within) can be supported on reinforced foundations bearing in properly prepared and compacted soils placed as recommended in Section 5.1. The recommendations that follow are based on “very low” and “low” expansion category soils in the upper 6 feet of subgrade. During remedial grading of building pads, the soil expansion potential should be verified and foundation recommendations confirmed or modified, based on the site specific Expansion Index at each building site.

Soils which are found to be more expansive than a "low" Expansion Index may require differing foundation requirements which should be provided on a case by case basis for each specific building location.

Foundation design is the responsibility of the Structural Engineer, considering the structural loading and the geotechnical parameters given in this report. A representative of Earth Systems should observe foundation excavations before placement of reinforcing steel or concrete. Loose soil or construction debris should be removed from footing excavations before placement of concrete.

<u>Bearing Capacity – Shallow Foundations for Buildings</u>: The minimum footing depths presented below should be maintained below the lowest adjacent grade (lowest adjacent grade = lowest grade within 2 feet laterally). Allowable soil bearing pressures are given below for foundations bearing on recompacted soils as described in Section 5.1. Allowable bearing pressures are net (weight of footing and soil surcharge may be neglected). We utilized a factor-of-safety of 3.0 on ultimate bearing values for determining allowable bearing values.

- Reinforced foundations, 12-inch minimum width and 18-inch minimum depth below grade:

  1,500 psf for dead plus design live loads.

- Isolated pad foundations, 24 x 24-inch minimum in plan, 18 inch minimum embedment:

  1,500 psf for dead plus design live loads.

<u>All pad foundations and isolated foundations should be tied to the main foundations system utilizing grade beams.</u>

An average modulus of subgrade reaction, k, of 150 pounds per cubic inch (pci) can be used to design footings and slabs founded upon compacted fill. At a minimum, ACI Section 4.3, Table 4.3.2 should be followed for recommended cement type, water cement ratio, and compressive strength or as recommended by the project corrosion engineer.

<u>Minimum Foundation Reinforcement</u>: Minimum reinforcement should be provided by the structural engineer to accommodate the settlement potentials presented within; however we recommend a minimum of four #4 bars, two placed at the top of the footing and two placed at the bottom. The amount of concrete cover specified by the structural engineer should consider the site corrosive soil conditions.

<u>Bearing Capacity and Passive Pressure – Wind and Seismic Increases</u>: A one-third (⅓) increase in the bearing and passive pressures may be used when calculating resistance to wind or seismic loads. The allowable bearing values indicated are based on the structure types described in this report. If the structures are different from that described, the geotechnical engineer must reevaluate the allowable bearing values and the grading requirements.

5.4.1 Estimated Settlements for Shallow Foundations

Expected Static Settlement: Estimated total static settlement should be less than 1/2-inch, based on footings founded on firm soils as recommended. Differential static settlement between exterior and interior bearing members should be less than 1/4 inch. Total settlement due to liquefaction is estimated to be on the order of 0.9 to 1.4 inches with differential settlement estimated to be on the order of about 3/4 inch. Collapse differential settlement is estimated to be on the order of 1 inch. As such, considering both static and seismic settlement applied over a typical foundation distance of 40 feet, we recommend the structural engineer design for an angular distortion of 1:240 (2 inches in 40 feet). Settlement will not result in the complete loss of soil support, but will be manifested as a tilting of the structure over the applied distance. Pad footings should not be isolated, but should be part of the wall foundation or else connected by grade beams.

5.5 Slabs-on-Grade

Subgrade: Concrete slabs-on-grade and flatwork should be supported by compacted soil placed in accordance with Section 5.1 of this report.

Vapor Retarder: In areas of moisture-sensitive floor coverings or exposed interior slabs, an appropriate vapor retarder should be installed to reduce moisture transmission from the subgrade soil to the slab.

For these areas, a vapor retarder (minimum 10-mil thickness) should underlie the floor slabs. If a Class A vapor retarder (ASTM E 1745) is specified, the retarder can be placed directly on low expansive soil and the retarder should be covered with a minimum of 2 inches of *clean* sand.

Clean sand is defined as well or poorly-graded sand (ASTM D 2488) of which less than 3% passes the No. 200 sieve. The site soils do not fulfill the criteria to be considered clean sand. The sand should be lightly moistened just prior to placing the concrete. Low-slump concrete should be used to help reduce the potential for concrete shrinkage. The effectiveness of the membrane is dependent upon its quality, the method of overlapping, its protection during construction, and the successful sealing of the membrane around utility lines and at joints. Capillary breaks (if any) should consist of a minimum of 4 inches of open/gap-graded gravel.

The following minimum slab recommendations are intended to address geotechnical concerns such as potential variations of the subgrade and are not to be construed as superseding any structural design. A design engineer should be retained to provide building specific systems to handle subgrade moisture to ensure compliance with SB800 with regards to moisture and moisture vapor.

Slab Thickness and Reinforcement: Due to the magnitude of potential settlement, we recommend a stiffened slab be utilized. The stiffened may consist of waffle or post tensioned slabs which are designed to accommodate angular distortions on the order of 1:240 (inch/inch). Differential movement is not expected to result in a complete unsupported loss of subgrade support, but, rather a tilting of the structure.

Slab thickness and reinforcement of slabs-on-grade are contingent on the recommendations of the structural engineer or architect in accordance with the requirements of the 2010 CBC and the requirements of the current editions of American Concrete Institute (ACI) 224, 302, and 360. Based upon our findings, a modulus of subgrade reaction of approximately 150 pounds per cubic inch can be used in concrete slab design for the expected compacted subgrade. ACI Section 4.3, Table 4.3.2 should be followed for recommended cement type, water cement ratio, and compressive strength or as recommended by the project corrosion engineer.

Concrete slabs and flatwork should be a minimum of 4 inches thick (actual, <u>not</u> nominal). Reinforced or post-tensioned slabs may be required depending on the results of structural analysis; however, we recommend all exterior slabs (such as patios) be reinforced, at a minimum, with #3 reinforcing bar, spaced 16 inches on center, both directions. Concrete floor slabs may either be monolithically placed with the foundations or doweled after footing placement. The amount of concrete cover specified by the structural engineer should consider the site corrosive soil conditions.

The thickness given is not intended to supersede any structural requirements provided by the structural engineer. The project inspector should continually observe all reinforcing steel in slabs during placement of concrete to check for proper location within the slab.

<u>Control Joints</u>: Control joints should be provided in all regular concrete slabs-on-grade at a maximum spacing of 36 times the slab thickness (12 feet maximum on-center, each way) as recommended by American Concrete Institute [ACI] guidelines. All joints should form approximately square patterns to reduce the potential for randomly oriented shrinkage cracks. Control joints in the slabs should be tooled at the time of the concrete placement or saw cut (¼ of slab depth) as soon as practical but not more than 8 hours from concrete placement.

Construction (cold) joints should consist of thickened butt joints with ½-inch dowels at 18 inches on center or a thickened keyed-joint to resist vertical deflection at the joint. All control joints in exterior flatwork should be sealed to reduce the potential of moisture or foreign material intrusion. These procedures will reduce the potential for randomly oriented cracks, but may not prevent them from occurring.

<u>Curing and Quality Control</u>: The contractor should take precautions to reduce the potential of curling of slabs in this arid desert region using proper batching, placement, and curing methods. Curing is highly affected by temperature, wind, and humidity.

Quality control procedures *may* be used, including trial batch mix designs, batch plant inspection, and on-site special inspection and testing. Curing should be in accordance with ACI recommendations contained in ACI 211, 304, 305, 308, 309, and 318.

<u>Sidewalks</u>: For sidewalks, 6x6 10/10 welded wire fabric may be used as reinforcement. Sidewalks should be at least 4 inches in actual thickness. If clay soil pockets are encountered, they should be removed and replaced with sandier soils which have a lower expansion potential. Fiber mix may be used if finished correctly.

A minimum concrete gap of three (3) inches should be provided around the steel reinforcing fabric and the edge of the formwork. Reinforcing steel should be placed at mid-height within the sidewalk and placed upon centralizers rather than lifted into place during placement. Flat sheets should be used instead of rolls, as rolls do not allow for accurate locating of the fabric at mid height of the slab. Where the reinforcing steel does not have adequate cover, it will corrode and can fracture the cured concrete and produce unsightly rust discoloration when exposed to the corrosive site soils and landscape water. Fabric should be overlapped at least 6 inches at joints. Additionally, the concrete should be vibrated during placement. Concrete should be wet cured with burlap or plastic and not allowed to dry out to minimize surface cracking. Control joints should be provided in all concrete slabs-on-grade at a maximum spacing of approximately 4 to 10 feet. All joints should form approximately square patterns to reduce the potential for randomly oriented, contraction cracks. Contraction joints in the slabs should be tooled at the time of the pour or saw cut (¼ of slab depth (1 inch for a 4 inch slab)) within 8 hours of concrete placement. Construction (cold) joints should consist of thickened butt joints with one-half inch dowels at 18-inches on center or a thickened keyed-joint to resist vertical deflection at the joint.

5.6 Seismic Design Criteria

This site is subject to strong ground shaking due to potential fault movements along the San Andreas and San Jacinto or other regional faults. Engineered design and earthquake-resistant construction increase safety and allow development of seismic areas. The *minimum* seismic design should comply with the 2010 edition of the California Building Code and ASCE 7-05 using the seismic coefficients given in the table below.

In developing site specific seismic design criteria, the characteristics of the earth units underlying the site are an important input to evaluate the site response at a given site. Based on the results of our 2013 field exploration at the site, the project site is underlain by medium dense/stiff silty alluvium, lacustrine, and sand deposits. The site is liquefiable. A site response analysis is typically required for liquefiable sites meeting the definition of site class F*;* however, we have classified this site as Site Class D as allowed in ASCE 7-05 Section 11.4.7. This section permits the determination of a site class in accordance with Section 20.3, with the corresponding values of Fa and Fv determined from Tables 11.4-1 and 11.4.2, such that a site-response analysis is not required to determine the spectral accelerations for liquefiable soils if the structure being designed has a fundamental period of vibration equal to or less than 0.5 seconds and the foundation soils are not subject to bearing failure from liquefaction. The site soils are not subject to liquefaction induced bearing failure. The D characterization is defined as a soil profile consisting of stiff soil with shear wave velocities (Vs) between 180 and 360 m/s or SPT N =15 to 50 in the top 30 meters. Based upon blow count correlations of our deep borings at the site to shear wave velocity, the estimated Vs for this site is approximately 224 m/s. Calculation data is presented in Appendix A.

2010 CBC (ASCE 7-05) Seismic Parameters

http://geohazards.usgs.gov/designmaps/us/application.php (July 11, 2013 update)

Site Class:	F
Maximum Considered Earthquake [MCE] Ground Motion	
Short Period Spectral Response S_s:	1.50 g
1 second Spectral Response, S_1:	0.60 g
Site Coefficient, F_a:	1.00
Site Coefficient, F_v:	1.50
Design Earthquake Ground Motion	
Short Period Spectral Response, S_{DS}	1.00 g
1 second Spectral Response, S_{D1}	0.60 g

The intent of the CBC lateral force requirements is to provide a structural design that will resist collapse to provide reasonable life safety from a major earthquake, but may experience some structural and nonstructural damage. A fundamental tenet of seismic design is that inelastic yielding is allowed to adapt to the seismic demand on the structure. In other words, *damage is allowed*. The CBC lateral force requirements should be considered a *minimum* design. The owner and the designer may evaluate the level of risk and performance that is acceptable. Performance based criteria could be set in the design. The design engineer should exercise special care so that all components of the design are fully met with attention to providing a continuous load path. An adequate quality assurance and control program is urged during project construction to verify that the design plans and good construction practices are followed. This is especially important for sites lying close to the major seismic sources.

Actual accelerations may be more or less than estimated. Vertical accelerations are typically ⅓ to ⅔ of the horizontal accelerations, but can equal or exceed the horizontal accelerations, depending upon local site effects and amplification.

5.7 Lateral Earth Pressures

Frictional and Lateral Coefficients:

- Resistance to lateral loads (including those due to wind or seismic forces) may be provided by frictional resistance between the bottom of concrete foundations and the underlying soil, and by passive soil pressure against the foundations. An allowable coefficient of friction of 0.30 may be used between cast-in-place concrete foundations and slabs and the underlying soil. An allowable coefficient of friction of 0.25 may be used between pre-cast or formed concrete foundations and slabs and the underlying soil.

- Allowable passive pressure may be taken as equivalent to the pressure exerted by a fluid weighing 250 pounds per cubic foot (pcf). Vertical uplift resistance may consider a soil unit weight of 100 pounds per cubic foot. The upper 1-foot of soil should not be considered when calculating passive pressure unless confined by overlying asphalt concrete pavement or Portland cement concrete slab. The soils pressures presented have considered onsite fill soils. Testing or observation should be performed during grading by the soils engineer or his representative to confirm or revise the presented values.

- Passive resistance for thrust blocks bearing against firm natural soil or properly compacted backfill can be calculated using an equivalent fluid pressure of 250 pcf. The maximum passive resistance should not exceed 1,500 psf.

- Friction and soil pressure values (resistance) presented above are considered to have a factor of safety of 1.5 in relation to ultimate values (factor of safety = 1). The above values are not permitted to be increased by 1/3 due to short term loads such as wind or seismic forces.

- The passive resistance of the subsurface soils will diminish or be non-existent if trench sidewalls slough, cave, or are over widened during or following excavations. If this condition is encountered, our firm should be notified to review the condition and provide remedial recommendations, if warranted.

5.8 Site Drainage and Maintenance

Positive drainage in native soils should be maintained away from the structures (5% for 5 feet minimum) to prevent ponding and subsequent saturation of the foundation soils. Gutters and downspouts in conjunction with a 1 to 2% paved or hardscape grade should be considered as a means to convey water away from foundations if increased fall is not provided.

Drainage should be maintained for paved areas. Water should not pond on or near paved areas or foundations. The following recommendations are provided in regard to site drainage and structure performance:

- In no instance should water be allowed to flow or pond against structures, slabs or foundations or flow over unprotected slope faces. Adequate provisions should be employed to control and limit moisture changes in the subgrade beneath foundations or structures to reduce the potential for soil saturation. Landscape borders should not act as traps for water within landscape areas. Potential sources of water such as piping, drains, broken sprinklers, etc, should be frequently examined for leakage or plugging. Any such leakage or plugging should be immediately repaired.

- It is highly recommended that landscape irrigation or other sources of water be collected and conducted to an approved drainage device. Landscaping and drainage grades should be lowered and sloped such that water drains to appropriate collection and disposal areas. All runoff water should be controlled, collected, and drained into proper drain outlets. Control methods may include curbing, ribbon gutters, 'V' ditches, or other suitable containment and redirection devices.

- Due to the fine grained nature of the onsite soils, infiltration rates of the soils may be very slow. Area specific infiltration rate testing may be justified.

- Maintenance of drainage systems and infiltration structures can be the most critical element in determining the success of a design. They must be protected and maintained from sediment-laden water both during and after construction to prevent clogging of the surficial soils any filter medium. The potential for clogging can be reduced by pre-treating structure inflow through the installation of maintainable forebays, biofilters, or sedimentation chambers. In addition, sediment, leaves, and debris must be removed from inlets and traps on a regular basis.

- The drainage pattern should be established at the time of final grading and maintained throughout the life of the project. Additionally, drainage structures should be maintained (including the de-clogging of piping, basin bottom scarification, etc.) throughout their design life. Maintenance of these structures should be incorporated into the facility operation and maintenance manual. Structural performance is dependent on many drainage-related factors such as landscaping, irrigation, lateral drainage patterns and other improvements.

- It is expected that basin soils will be graded with heavy, construction grade earth moving equipment which can compact soils during grading. Compacted soils have a reduced inability to infiltrate water. As such, we recommend leaving basin bottom soils in a native, undisturbed or scarified condition to maintain infiltration rates.

5.9 Streets and Driveways

A Traffic Index [TI] of 5 (or less) and 7 were used to facilitate the design of asphalt concrete pavements for onsite drive area improvements. Pavement section design has considered as a design element adequate section to support typical 80,000 lb fire trucks. If pavers are to be used, specific recommendations should be provided on a case-by-case basis.

The TI's assumed above should be reviewed by the project Civil Engineer to evaluate the suitability for this project. All design should be based upon an appropriately selected traffic index. Changes in the traffic indices will affect the corresponding pavement section. Various combinations of asphalt concrete (flexible pavement) and Portland cement concrete (rigid pavement are presented in the following tables. <u>Subsequent to roadway subgrade construction, the actual roadway sections presented below should be verified by R-Value testing of actual roadway subgrade materials exposed at grade</u>.

Table 4
Preliminary Flexible Pavement Section Recommendations

R-Value Subgrade Soils - 57 (tested) Design Method – CALTRANS

Traffic Index	Asphalt Concrete Thickness (in.)	Riverside County Asphalt Concrete Thickness (in.)	Aggregate Base Thickness (in.)	Riverside County Aggregate Base Thickness (in.)
5 or less (Automobile Parking/Non-Mainline Drives)	3	3**	4	6**
7 (Mainline Drives/Entries)	4	4**	4-1/2	6**

** Where used for County roads, Riverside County requires the listed minimum sections to be used.

Should the actual traffic category vary from those assumed and listed above, these sections should be modified. The above pavement sections are contingent on the recommendations below.

- Pavement Area Preparation: In street, drive, and permanent parking areas, subsequent to stripping and grubbing, and the removal of debris and deleterious materials, the subgrade should be over-excavated, scarified, moisture conditioned, and compacted to at least 90% relative compaction (ASTM D 1557) for a depth of 36 inches below existing grade or finish grade (whichever is deeper), with the upper 1-foot of subgrade compacted to at least 95% relative compaction. Compacted fill should be placed to finish subgrade elevation. Compaction should be verified by testing.

- All over-excavations should extend to a depth where the project geologist, engineer or his representative has deemed the exposed soils as being suitable for receiving compacted fill. The materials exposed at the bottom of excavations should be observed by a geotechnical engineer or geologist from our office prior to the placement of any compacted fill soils. Additional removals may be required as a result of observation and/or testing of the exposed subgrade subsequent to the required over-excavation.

- The upper 12 inches of subgrade soils beneath the asphalt concrete (and any aggregate base) and conventional PCC pavement section should be compacted to a minimum of 95% relative compaction (ASTM D 1557).

- Subgrade soils and aggregate base should be in a stable, non-pumping condition at the time of placement and compaction. Exposed subgrades should be proof-rolled to verify the absence of soft or unstable zones.

- Subgrade soils should be compacted at or slightly over optimum moisture content.

- Aggregate base materials should be compacted at near optimum moisture content to at least 95% relative compaction (ASTM D 1557) and should conform to Caltrans Class II criteria.

- All curbs separating pavement from landscaped areas should extend at least 6 inches into the subgrade soils to reduce the potential for movement of moisture into the aggregate base layer (this reduces the risk of pavement failures due to subsurface water originating from landscaped areas). The curbing acts as a moisture cut-off barrier.

- Subgrade soils and base materials should be in a stable, non-pumping condition at the time of asphalt concrete placement and compaction.

- Asphalt concrete paving and placement methods should conform to the Caltrans or the Standard Specification for Public Works referred to in the ("Green Book").

- Portland cement concrete placement and curing should, at a minimum, be in accordance with the American Concrete Institute [ACI] recommendations contained in ACI 211, 304, 305, 308, 309, and 318.

- Within the structural pavement section areas, positive drainage (both surface and subsurface) should be provided. In no instance should water be allowed to pond on the pavement, especially at joints between curb/gutters and the pavement section. Roadway performance depends greatly on how well runoff water drains from the site. Saturated subgrade soils and base will lead to premature roadway failure. This drainage should be maintained both during construction and over the entire life of the project.

- Existing street repair subsequent to utility installation should follow the guidelines of Riverside County Ordinance 461 (*Road Improvement Standards and Specifications*), Standard 818 as a minimum.

- Where new roadways will be installed against existing roadways or the roadway is repaired after utility installation, the repaired asphalt concrete pavement section should be designed and constructed to have at least the pavement and aggregate base section as the original pavement section thickness (for both AC and base), the minimum section specified by Riverside County Standard 818, or upon the newly calculated pavement sections presented within, whichever is greater.

- Proper methods, such as hot-sealing or caulking, should be employed to limit water infiltration into the pavement base course and/or subgrade at construction/expansion joints and/or between existing and reconstructed pavement sections (if any). Water infiltration could lead to premature pavement failure.

- To reduce the potential for detrimental settlement, excess soil material, and/or fill material removed during any footing or utility trench excavation, should not be spread or placed over compacted finished grade soils unless subsequently compacted to at least 95% of the maximum dry unit weight, as evaluated by ASTM D 1557 test procedure, at near optimum moisture content, if placed under areas designated for pavement.

- Asphaltic concrete should be Caltrans or "Greenbook", ½-in. or ¾-in. grading or as dictated by Riverside County guidelines and compacted to a minimum of 95% of the 75-blow Marshall density (ASTM D 1559) or equivalent.

- The appropriate pavement design section depends primarily on the shear strength of the subgrade soil exposed after grading and anticipated traffic over the useful life of the pavement. R-value testing or confirmation observation should be performed during grading to verify and/or modify the preliminary pavement sections presented within this report. Pavement designs assume that heavy construction traffic will not be allowed on base cap or finished pavement sections.

Section 6
LIMITATIONS AND ADDITIONAL SERVICES

6.1 Uniformity of Conditions and Limitations

Our findings and recommendations in this report are based on selected points of field exploration, laboratory testing, and our understanding of the proposed project. Conditions will vary between or beyond the points explored. The nature and extent of these variations may not become evident until construction. Variations in soil or groundwater may require additional studies, consultation, and possible revisions to our recommendations.

Final grading and foundation plans were not available for our review prior to the preparation of this report, and therefore, the recommendations presented within may change pending a review of the final grading and foundation plans. Recommendations presented in this report should not be extrapolated to other areas or be used for other projects without our prior review.

The planning and construction process is an integral design component with respect to the geotechnical aspects of this project. Because geotechnical engineering is an inexact science due to the variability of natural processes and because we sample only a small portion of the soil and material affecting the performance of the proposed structure, unanticipated or changed conditions can be disclosed during demolition and construction. Proper geotechnical observation and testing during construction is imperative to allow the geotechnical engineer the opportunity to verify assumptions made during the design process and to verify that our geotechnical recommendations have been properly interpreted and implemented during construction. Therefore, we recommend that Earth Systems be retained during the construction of the proposed improvements to observe compliance with the design concepts and geotechnical recommendations, and to allow design changes in the event that subsurface conditions or methods of construction differ from those assumed while completing this commission. If we are not accorded the privilege of performing this review, we can assume no responsibility for misinterpretation of our recommendations. The above services can be provided in accordance with our current Fee Schedule.

Our evaluation of subsurface conditions at the site has considered subgrade soil and groundwater conditions present at the time of our study. The influence(s) of post-construction changes to these conditions such as introduction or removal of water into or from the subsurface will likely influence future performance of the proposed project. It should be recognized that definition and evaluation of subsurface conditions are difficult. Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of the subsurface conditions due to the limitation of data from field studies. The availability and broadening of knowledge and professional standards applicable to engineering services are continually evolving.

As such, our services are intended to provide the Client with a source of professional advice, opinions and recommendations based on the information available as applicable to the project location, time of our services, and scope. If the scope of the proposed construction changes from that described in this report, the conclusions and recommendations contained in this report are not considered valid unless the changes are reviewed, and the conclusions of this report are modified or approved in writing by Earth Systems.

Findings of this report are valid as of the issued date of the report. However, changes in conditions of a property can occur with passage of time, whether they are from natural processes or works of man, on this or adjoining properties. In addition, changes in applicable standards occur, whether they result from legislation or broadening of knowledge. Accordingly, findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of one year.

This report is issued with the understanding that the owner or the owner's representative has the responsibility to bring the information and recommendations contained herein to the attention of the architect and engineers for the project so that they are incorporated into the plans and specifications for the project. The owner or the owner's representative also has the responsibility to verify that the general contractor and all subcontractors follow such recommendations. It is further understood that the owner or the owner's representative is responsible for submittal of this report to the appropriate governing agencies.

As the Geotechnical Engineer of Record for this project, Earth Systems has striven to provide our services in accordance with generally accepted geotechnical engineering practices in this locality at this time. No warranty or guarantee, express or implied, is made. This report was prepared for the exclusive use of the Client and the Client's authorized agents.

Earth Systems should be provided the opportunity for a general review of final design and specifications in order that earthwork and foundation recommendations may be properly interpreted and implemented in the design and specifications. If Earth Systems is not accorded the privilege of making this recommended review, we can assume no responsibility for misinterpretation of our recommendations. The owner or the owner's representative has the responsibility to provide the final plans requiring review to Earth Systems' attention so that we may perform our review.

Any party other than the client who wishes to use this report shall notify Earth Systems of such intended use. Based on the intended use of the report, Earth Systems may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release Earth Systems from any liability resulting from the use of this report by any unauthorized party.

Although available through Earth Systems, the current scope of our services does not include an environmental assessment or an investigation for the presence or absence of wetlands, hazardous or toxic materials in the soil, surface water, groundwater, or air on, below, or adjacent to the subject property.

6.2 Additional Services

This report is based on the assumption that a program of client consultation, construction monitoring, and testing will be performed during the final design and construction phases to check compliance with these recommendations. Maintaining Earth Systems as the geotechnical consultant from beginning to end of the project will provide continuity of services. *The geotechnical engineering firm providing tests and observations shall assume the responsibility of Geotechnical Engineer of Record.*

Construction monitoring and testing would be additional services provided by our firm. The costs of these services are not included in our present fee arrangements, but can be obtained from our office. The recommended review, tests, and observations include, but are not necessarily limited to the following:

- Consultation during the final design stages of the project.
- A review of the building and grading plans to observe that recommendations of our report have been properly implemented into the design.
- Observation and testing during site preparation, grading, and placement of engineered fill.
- Special Inspection for concrete, masonry, steel during construction.
- Consultation as needed during construction.

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Appendices as cited are attached and complete this report.

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Aerial Photographs:

Google Earth

1996, 2002, & 2011

Whittier College-Fairchild Collection
Flight: C-6060
Frames: WR 339-342
Date: 10/4/1939
Scale: 1”=1500’

Whittier College-Fairchild Collection
Flight: C-22386
Frames: 1:105 and 1:106
Date: 01/17/1956
Scale: 1”=2000’

Whittier College-Fairchild Collection
Flight: C-23800
Frames: 2-214 to 2-216
Date: 03/10/1960
Scale: 1”=1500’

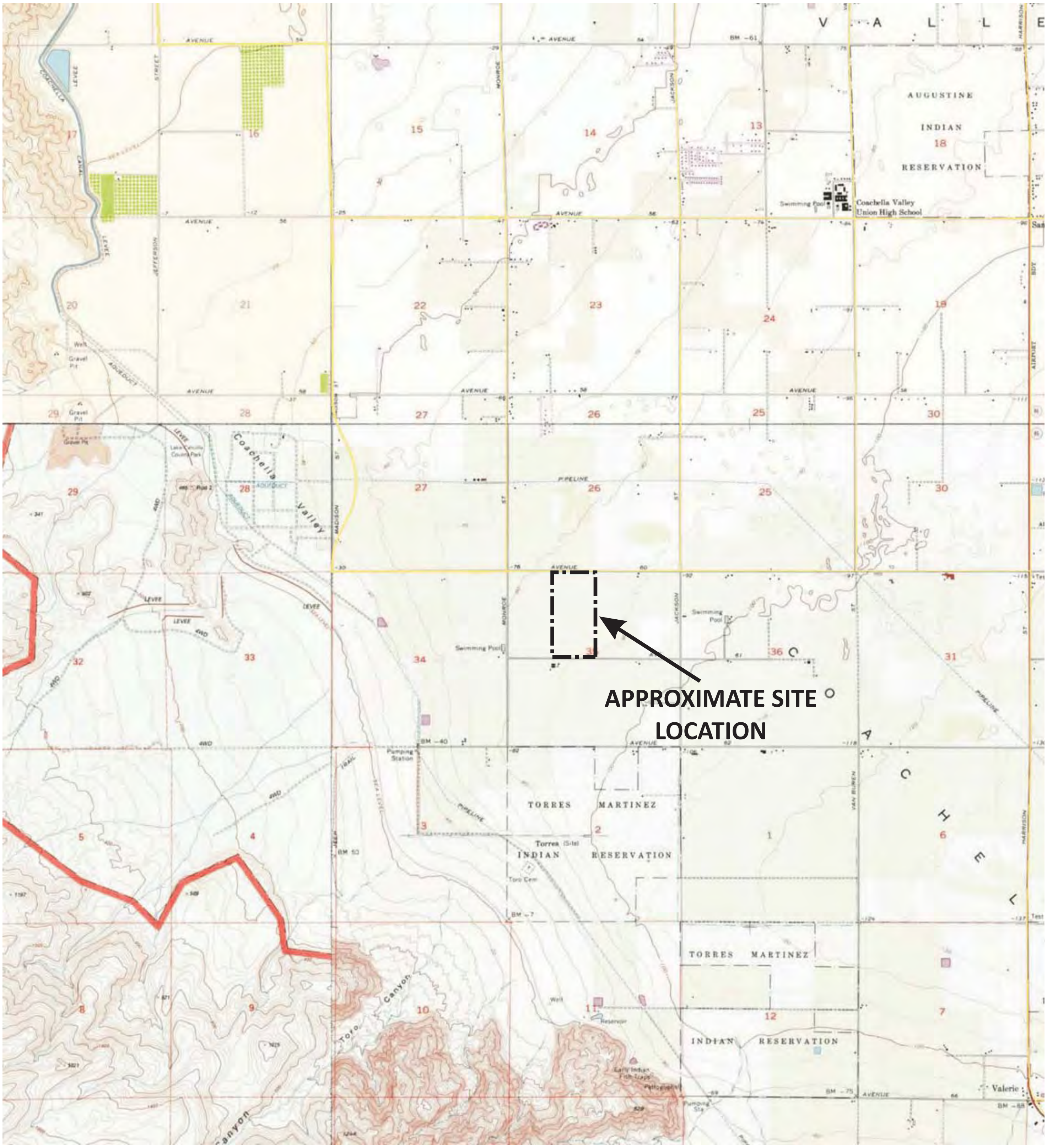
Riverside County Flood Control District
Frames: 780
Date: 06/20/1974
Scale: 1”=2120’

Riverside County Flood Control District
Frames: 637-638
Date: 12/15/1983
Scale: 1”=1900’

Riverside County Flood Control District
Frames: 15-86 & 15-87
Date: 04/09/1990
Scale: 1”=1800’

APPENDIX A

Plate 1 – Site Location Map
Plate 2 – Boring Location Map with Tile Drain Overlay
Plate 3 – Regional Geologic Map
Plate 4 – Aerial Photograph with Lineaments
Plate 5 – USGS Subsidence Map (2009)
Plate 6 – USGS Subsidence Map (2005)
Terms and Symbols Used on Boring Logs
Soil Classification System
Logs of Borings
Seismic Settlement Calculation
Site Class Estimator



Reference: Google Earth Satellite Image Overlay of USGS Topographic Maps, Coachella, CA

LEGEND

Approximate Site Location

Approximate Scale: 1" = 4,000’

0 4,000’ 8,000’

N

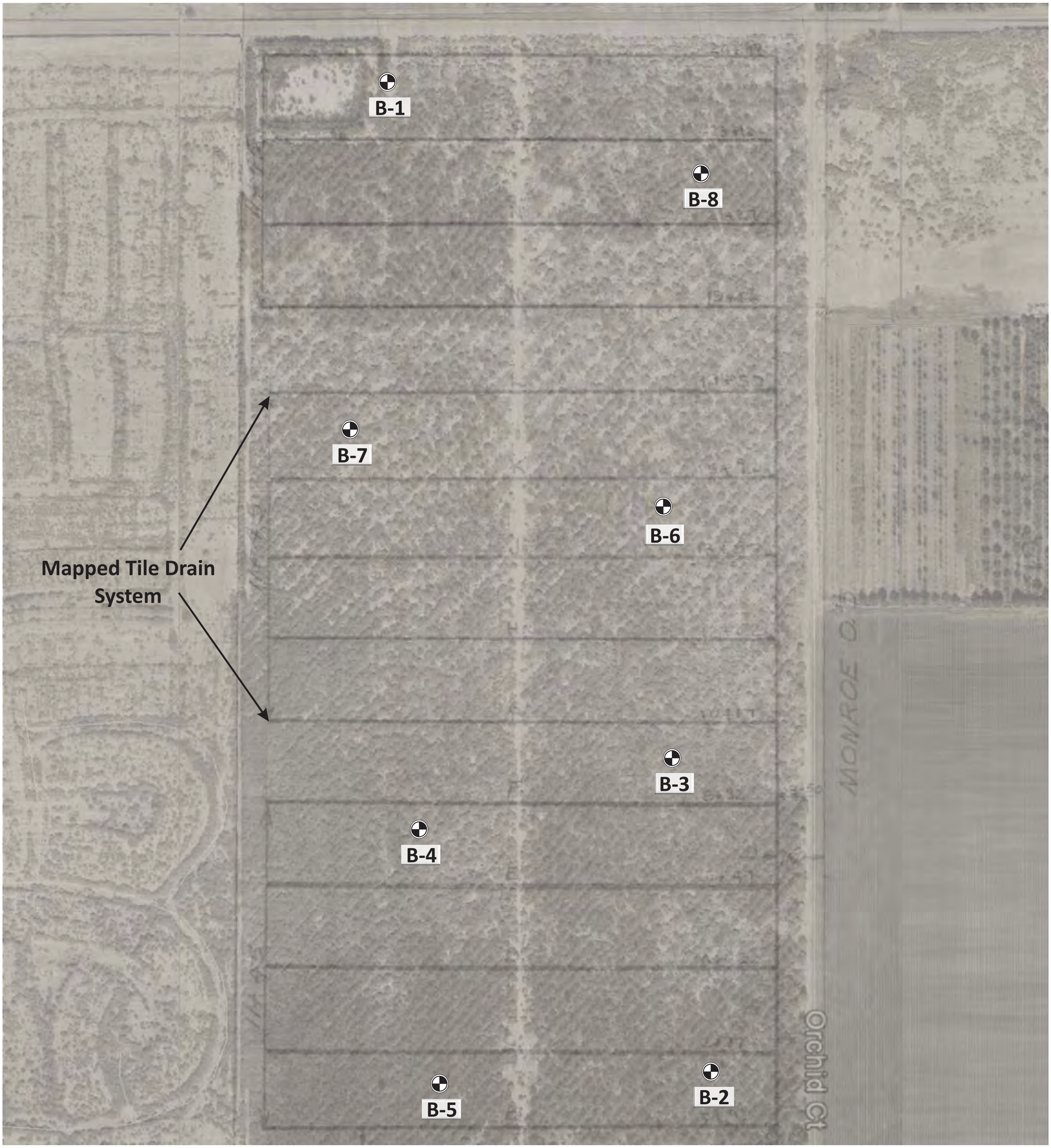
Plate 1
Site Location Map

Vista Asoleado - Tract 36590
Avenue 60 & Orchid Court
Thermal, Riverside County, California

Earth Systems
Southwest

9/17/13

File No.: 12161-01



Reference: Google Earth satellite image dated 11/26/2012, with Farm Tile Drainage System TD-300 overlay.

LEGEND

B-8 Approximate Boring Locations

Approximate Scale: 1" = 300’

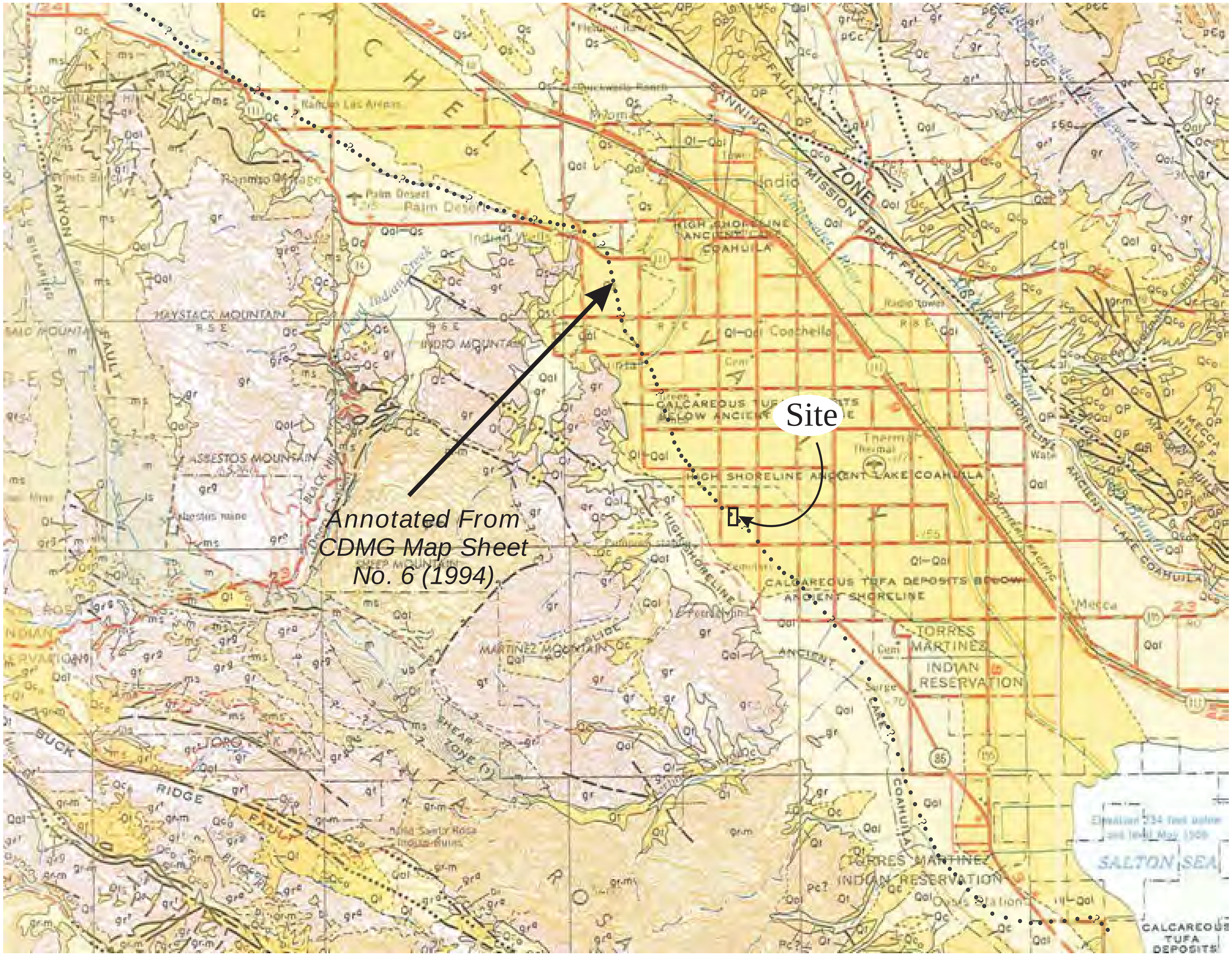
0 300’ 600’

Plate 2
Boring Location Map with Tile Drain Overlay

Vista Asoleado - Tract 36590
Avenue 60 & Orchid Court
Thermal, Riverside County, California

Earth Systems Southwest

9/17/13 | File No.: 12161-01



LEGEND

Qs - Quaternary Dunes Sand

Qal - Quaternary Alluvium

Ql - Quaternary Lake Deposits

Qc - Quaternary Pliestocene Nonmarine

Qp - Quaternary Plio-Pleistocene Nonmarine

Pc - Tertiary Undivide Pliocene Nonmarine

gr - Mesozoic Granitic Rock

Ms - Pre-Cretaceous Metamorphic Rock

- Fault: Dashed Where Approximate, Dotted Where Concealed, Queried Where Conjectural

Source: Geologic Atlas of California - Santa Ana Sheet (1985)

N

Approximate Scale: 1" = 4 Miles

Plate 3
Regional Geologic Map

Vista Asoleado - Tract 36590
Avenue 60 & Orchid Court on East Side
Thermal, Riverside County, California

Earth Systems Southwest

9/17/13	File No.: 12161-01

Source: Riverside County Flood Control District (1990)

Legend

Aerial Photograph Lineament Based On Various Photographs (1939-1990)

Scale 1" ≈ 1800'

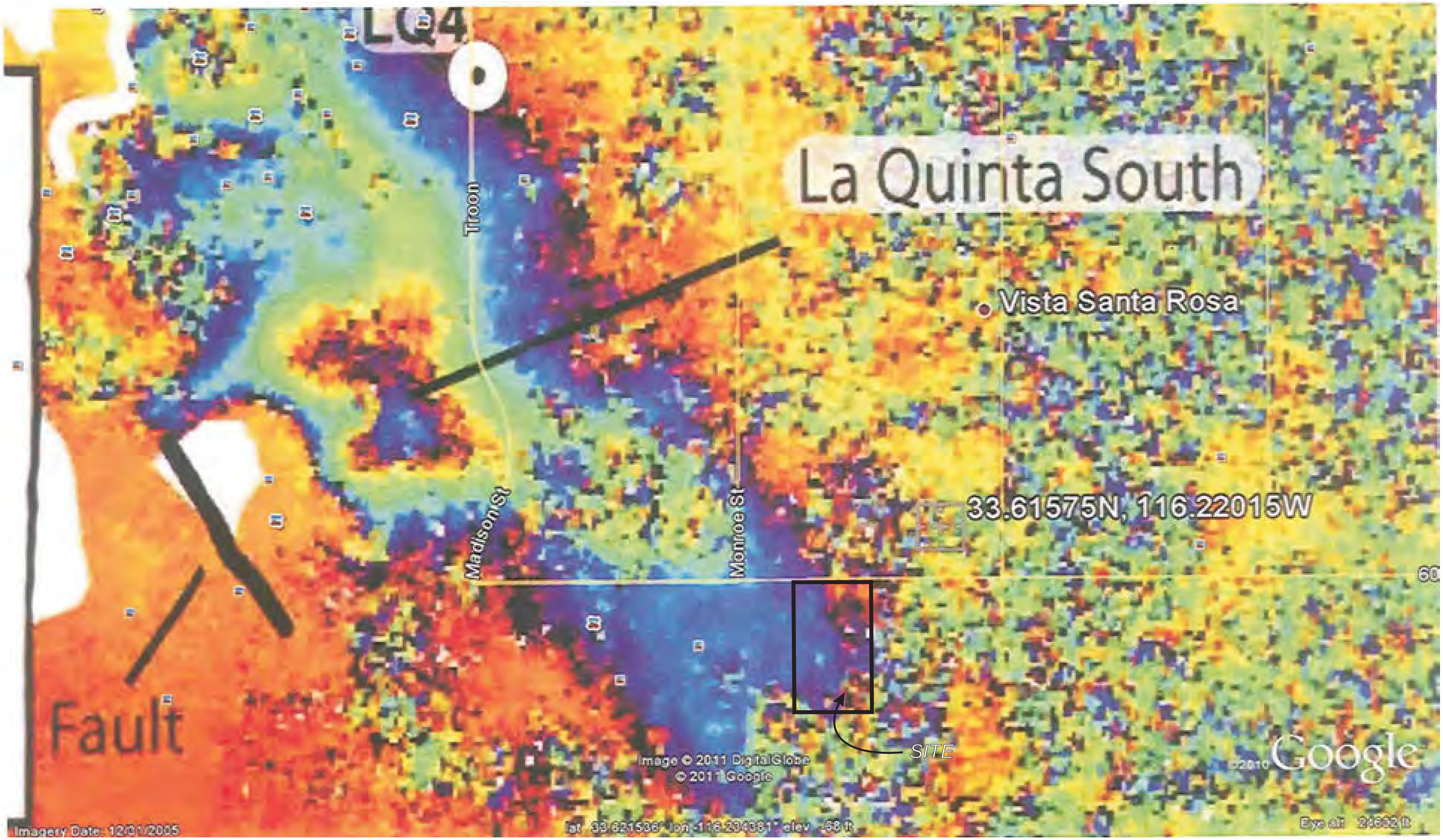
N

Plate 4
Aerial Photograph W/ Lineaments

Tentative Tract 36590-Vista Asoledo
60th Avenue & Orchid Court
La Quinta, Riverside County, California

Earth Systems Southwest

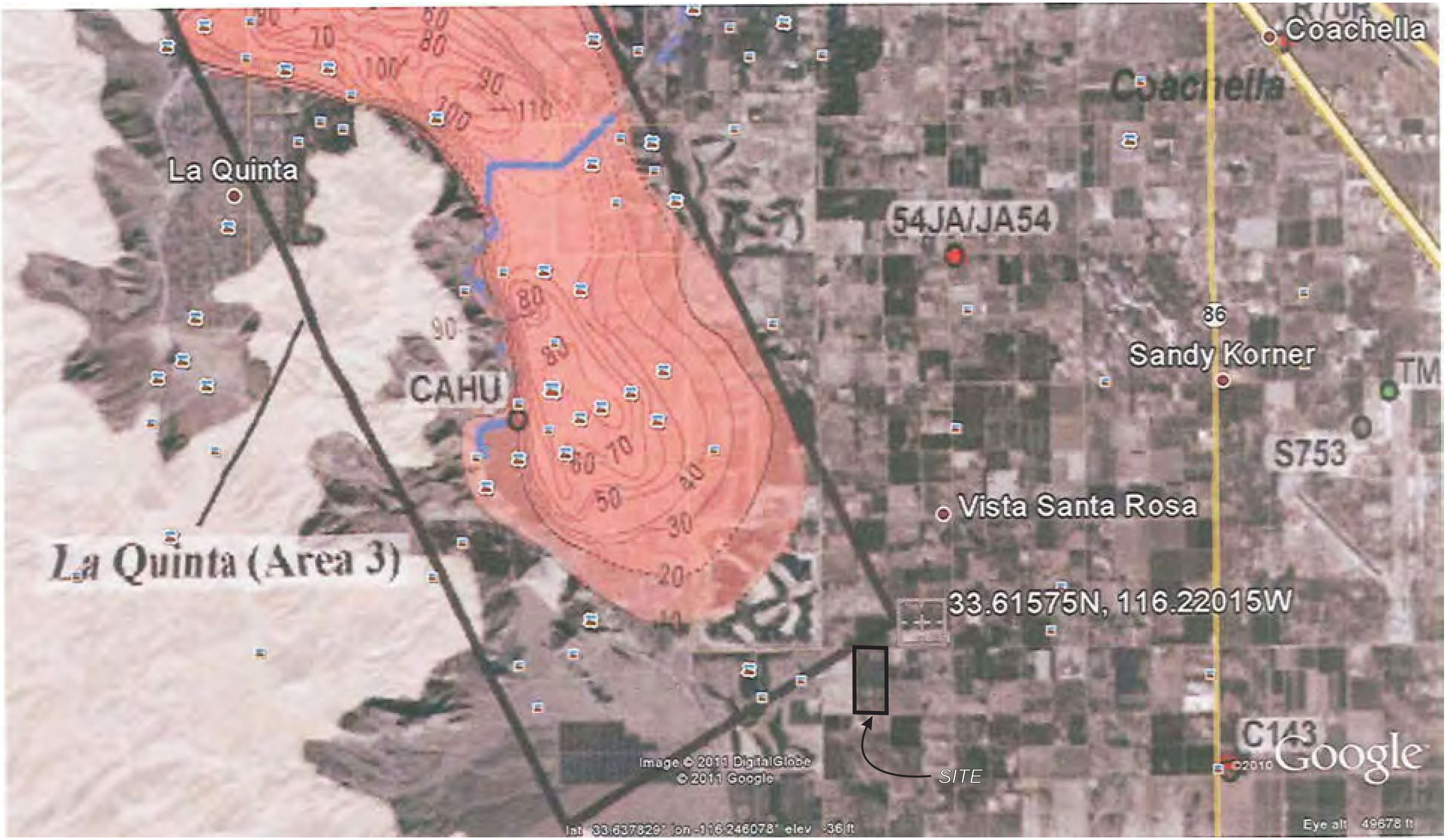
9/17/13	12161-01



Source: Sneed, Michelle, 2010, Measurements of land Subsidence Using Interferometry, Coachella Valley, California

N

Plate 5 USGS Subsidence Map (2009)	
Vista Asoleado - Tract 36590 Avenue 60 & Orchid Court Thermal, Riverside County, California	
Earth Systems Southwest	
9/17/13	File No.: 12161-01



Source: USGS Scientific Investigation Reort 2007-5251

N

Subsidence Contour Interval : 10 mm

Plate 6 USGS Subsidence Map (2005)	
Vista Asoleado - Tract 36590 Avenue 60 & Orchid Court Thermal, Riverside County, California	
Earth Systems Southwest	
9/17/13	File No.: 12161-01

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on ASTM Designations D 2487 and D 2488 (Unified Soil Classification System). Information on each boring log is a compilation of subsurface conditions obtained from the field as well as from laboratory testing of selected samples. The indicated boundaries between strata on the boring logs are approximate only and may be transitional.

SOIL GRAIN SIZE

U.S. STANDARD SIEVE

	12"		3"		3/4"		4		10		40		200			
BOULDERS		COBBLES		GRAVEL COARSE		GRAVEL FINE		SAND COARSE		SAND MEDIUM		SAND FINE		SILT		CLAY
	305		76.2		19.1		4.76		2.00		0.42		0.074		0.002	

SOIL GRAIN SIZE IN MILLIMETERS

RELATIVE DENSITY OF GRANULAR SOILS (GRAVELS, SANDS, AND NON-PLASTIC SILTS)

Very Loose	*N=0-4	RD=0-30	Easily push a 1/2-inch reinforcing rod by hand
Loose	N=5-10	RD=30-50	Push a 1/2-inch reinforcing rod by hand
Medium Dense	N=11-30	RD=50-70	Easily drive a 1/2-inch reinforcing rod with hammer
Dense	N=31-50	RD=70-90	Drive a 1/2-inch reinforcing rod 1 foot with difficulty by a hammer
Very Dense	N>50	RD=90-100	Drive a 1/2-inch reinforcing rod a few inches with hammer

*N=Blows per foot in the Standard Penetration Test at 60% theoretical energy. For the 3-inch diameter Modified California sampler,140-pound weight, multiply the blow count by 0.63 (about 2/3) to estimate N. If automatic hammer is used, multiply a factor of 1.3 to 1.5 to estimate N. RD=Relative Density (%). C=Undrained shear strength (cohesion).

CONSISTENCY OF COHESIVE SOILS (CLAY OR CLAYEY SOILS)

Very Soft	*N=0-1	*C=0-250 psf	Squeezes between fingers
Soft	N=2-4	C=250-500 psf	Easily molded by finger pressure
Medium Stiff	N=5-8	C=500-1000 psf	Molded by strong finger pressure
Stiff	N=9-15	C=1000-2000 psf	Dented by strong finger pressure
Very Stiff	N=16-30	C=2000-4000 psf	Dented slightly by finger pressure
Hard	N>30	C>4000	Dented slightly by a pencil point or thumbnail

MOISTURE DENSITY

Moisture Condition: *An observational term; dry, damp, moist, wet, saturated.*
Moisture Content: *The weight of water in a sample divided by the weight of dry soil in the soil sample expressed as a percentage.*
Dry Density: *The pounds of dry soil in a cubic foot.*

MOISTURE CONDITION

Dry.....................Absence of moisture, dusty, dry to the touch
Damp................Slight indication of moisture
Moist.................Color change with short period of air exposure (granular soil)
Below optimum moisture content (cohesive soil)
Wet....................High degree of saturation by visual and touch (granular soil)
Above optimum moisture content (cohesive soil)
Saturated..........Free surface water

RELATIVE PROPORTIONS

Trace............minor amount (<5%)
with/some......significant amount
modifier/and...sufficient amount to influence material behavior (Typically >30%)

PLASTICITY

DESCRIPTION	FIELD TEST
Nonplastic	A 1/8 in. (3-mm) thread cannot be rolled at any moisture content.
Low	The thread can barely be rolled.
Medium	The thread is easy to roll and not much time is required to reach the plastic limit.
High	The thread can be rerolled several times after reaching the plastic limit.

LOG KEY SYMBOLS

Bulk, Bag or Grab Sample

Standard Penetration Split Spoon Sampler (2" outside diameter)

Modified California Sampler (3" outside diameter)

No Recovery

GROUNDWATER LEVEL

Water Level (measured or after drilling)

Water Level (during drilling)

Terms and Symbols Used on Boring Logs

Earth Systems Southwest

MAJOR DIVISIONS			GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS *More than 50% of material is <u>larger</u> than No. 200 sieve size*	GRAVEL AND GRAVELLY SOILS *More than 50% of coarse fraction <u>retained</u> on No. 4 sieve*	CLEAN GRAVELS		GW	*Well-graded gravels, gravel-sand mixtures, little or no fines*
				GP	*Poorly-graded gravels, gravel-sand mixtures. Little or no fines*
		GRAVELS WITH FINES		GM	*Silty gravels, gravel-sand-silt mixtures*
				GC	*Clayey gravels, gravel-sand-clay mixtures*
	SAND AND SANDY SOILS *More than 50% of coarse fraction <u>passing</u> No. 4 sieve*	CLEAN SAND (Little or no fines)		SW	*Well-graded sands, gravelly sands little or no fines*
				SP	*Poorly-graded sands, gravelly sands, little or no fines*
		SAND WITH FINES (appreciable amount of fines)		SM	*Silty sands, sand-silt mixtures*
				SC	*Clayey sands, sand-clay mixtures*
FINE-GRAINED SOILS *More than 50% of material is <u>smaller</u> than No. 200 sieve size*	SILTS AND CLAYS	LIQUID LIMIT <u>LESS</u> THAN 50		ML	*Inorganic silts and very fine sands, rock flour, silty low 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*
		LIQUID LIMIT <u>GREATER</u> THAN 50		MH	*Inorganic silty, micaceous, or diatomaceous fine sand or silty soils*
				CH	*Inorganic clays of high plasticity, fat clays*
				OH	*Organic clays of medium to high plasticity, organic silts*
HIGHLY ORGANIC SOILS				PT	*Peat, humus, swamp soils with high organic contents*
VARIOUS SOILS AND MAN MADE MATERIALS					*Fill Materials*
MAN MADE MATERIALS					*Asphalt and concrete*

Soil Classification System

Earth Systems
Southwest

Earth Systems
Southwest
79-811B Country Club Drive, Bermuda Dunes, CA 92201
Phone (760) 345-1588 Fax (760) 345-7315

Boring No. B-1

Project Name: Vista Asoleado
Project Number: 12161-01
Boring Location: See Plate 2

Drilling Date: August 1, 2013
Drilling Method: 8" Hollow Stem Auger
Drill Type: Mobile B61 HDX w/Autohammer
Logged By: Rich Howe

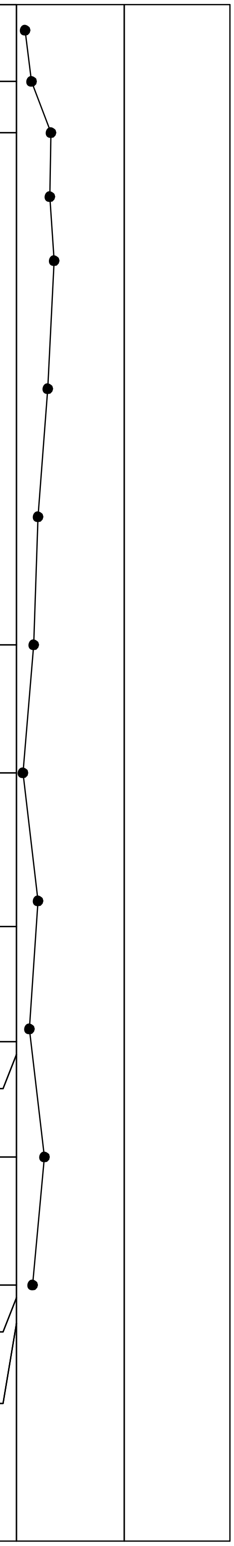
Description of Units

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradational.

Depth (Ft.)	Sample Type (Bulk / SPT / MOD Calif.)	Penetration Resistance (Blows/6")	USCS/Bedrock	Dry Density (pcf)	Moisture Content (%)	Description of Units
0	Bulk (0–5), MOD Calif.	3, 4, 4	SM			SILTY SAND: dark brown, loose, moist, fine grained sand
	MOD Calif.	6, 6, 8	ML	96	13	SILT: olive, stiff, moist, fine grained sand, SM in sampler tip
5	MOD Calif.	8, 15, 17	SM	102	3	SILTY SAND: olive gray, medium dense, damp, fine grained sand
	MOD Calif.	10, 13, 18		102	3	
10	MOD Calif.	11, 16, 19		105	2	olive gray to yellow brown
15	MOD Calif.	8, 12, 17		101	4	
20	SPT	4, 6, 7			6	
25	MOD Calif.	7, 8, 8	CL	94	28	SILTY CLAY: gray brown, stiff, wet
30	SPT	1, 2, 2	SM			SILTY SAND: olive to gray brown, loose, wet, fine grained sand
35	MOD Calif.	8, 10, 10		98	25	
			ML			SILT WITH CLAY: olive brown, very stiff, wet, trace fine grained sand, low plasticity
40	SPT	3, 4, 4	CH			FAT CLAY: olive, stiff, wet
			CL			SILTY CLAY: olive gray, stiff, wet
45	MOD Calif.	7, 12, 14	CL			CLAY WITH SILT: brown to olive brown, very stiff, wet
50	SPT	4, 5, 5	ML			SANDY SILT: olive, stiff, wet, fine grained sand
			CL			SILTY CLAY: olive brown to brown, stiff, wet, minor fat clay (CH) lenses
55						
60						

Total Depth 51 1/2 feet
Groundwater Encountered at 25 feet
No Refusal, Backfilled w/cuttings and Bentonite
Approximate -80 ft. Elevation

Graphic Trend
Blow Count Dry Density



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Phone (760) 345-1588 Fax (760) 345-7315

Boring No. B-2
Project Name: Vista Asoleado
Project Number: 12161-01
Boring Location: See Plate 2

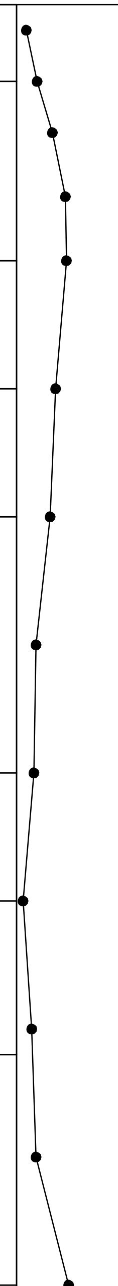
Drilling Date: August 1, 2013
Drilling Method: 8" Hollow Stem Auger
Drill Type: Mobile B61 HDX w/Autohammer
Logged By: Rich Howe

Description of Units

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradational.

Depth (Ft.)	Sample Type (Bulk / SPT / MOD Calif.)	Penetration Resistance (Blows/6")	USCS/Bedrock	Dry Density (pcf)	Moisture Content (%)	Description of Units
0	Bulk (0–5)		SM			SILTY SAND: olive, loose, damp, fine grained sand
	MOD Calif.	2, 4, 5				
	MOD Calif.	5, 7, 12	ML	95	14	SILT: dark brown, stiff, moist, trace fine grained sand
5	MOD Calif.	9, 14, 19		98	3	very stiff
	MOD Calif.	14, 20, 25		93	4	
10	MOD Calif.	15, 21, 26	SM	116	3	SILTY SAND: brown, dense, dry, fine grained sand, minor Silt (ML) lenses
15	MOD Calif.	12, 15, 21	ML	89	5	SILT WITH CLAY: yellow brown, very stiff, dry, slight plasticity
20	MOD Calif.	7, 12, 19	SM	104	7	SILTY SAND: gray brown, medium dense, moist, fine grained sand
25	SPT	4, 5, 7				
30	MOD Calif.	4, 8, 8	ML	97	27	SANDY SILT: gray brown, stiff, wet, fine grained sand
35	SPT	2, 2, 2	CL			SILTY CLAY: brown, firm, wet
40	MOD Calif.	4, 5, 9				
			SM			SILTY SAND: olive brown, medium dense, wet, fine grained sand
45	SPT	4, 5, 7				
50	MOD Calif.	14, 21, 27	SM/ML			SILTY SAND TO SANDY SILT: gray brown, dense, wet, fine grained sand
55						
60						

Graphic Trend
Blow Count Dry Density



Total Depth 51 1/2 feet
Groundwater Encountered at 25 feet
No Refusal, Backfilled w/cuttings and Bentonite
Approximate -88 ft. Elevation

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Phone (760) 345-1588 Fax (760) 345-7315

Boring No. B-3

Project Name: Vista Asoleado
Project Number: 12161-01
Boring Location: See Plate 2

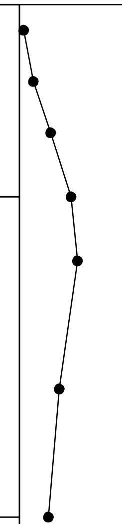
Drilling Date: August 1, 2013
Drilling Method: 8" Hollow Stem Auger
Drill Type: Mobile B61 HDX w/Autohammer
Logged By: Rich Howe

Description of Units

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradational.

Depth (Ft.)	Sample Type (Bulk / SPT / MOD Calif.)	Penetration Resistance (Blows/6")	Symbol	USCS/Bedrock	Dry Density (pcf)	Moisture Content (%)	Description of Units
0				SM			SILTY SAND: brown, very loose, dry, fine grained sand
1	MOD Calif.	1, 2, 2					
3	MOD Calif.	5, 6, 7			94	11	loose, damp
5	MOD Calif.	9, 12, 17			101	2	medium dense
7.5	MOD Calif.	11, 22, 26		ML	91	5	SANDY SILT: olive to dark brown, very stiff, dry, low plasticity, with some clay
10	MOD Calif.	20, 23, 31					hard
15	MOD Calif.	11, 15, 22					dark brown, very stiff
20	MOD Calif.	9, 13, 14		SM	106	3	SILTY SAND: yellow brown, medium dense, damp, fine grained sand

Graphic Trend
Blow Count Dry Density



Total Depth 21 1/2 feet
No Groundwater Encountered
No Refusal, Backfilled w/cuttings and Bentonite
Approximate -85 ft. Elevation

Earth Systems
Southwest
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Phone (760) 345-1588 Fax (760) 345-7315

Boring No. B-4

Project Name: Vista Asoleado
Project Number: 12161-01
Boring Location: See Plate 2

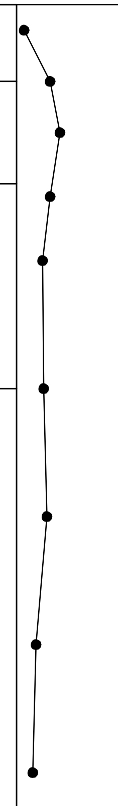
Drilling Date: August 1, 2013
Drilling Method: 8" Hollow Stem Auger
Drill Type: Mobile B61 HDX w/Autohammer
Logged By: Rich Howe

Description of Units

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradational.

Depth (Ft.)	Sample Type (Bulk / SPT / MOD Calif.)	Penetration Resistance (Blows/6")	USCS/Bedrock	Dry Density (pcf)	Moisture Content (%)	Description of Units
0–5	Bulk					
1	MOD Calif.	2, 3, 4	ML			SANDY SILT: brown, firm, moist, fine grained sand
3	MOD Calif.	6, 12, 19	SM	105	1	SILTY SAND: gray brown, medium dense, damp, fine grained sand
5	MOD Calif.	16, 18, 22		107	1	yellow brown to gray brown
7.5	MOD Calif.	9, 13, 18	ML	92	5	SILT: brown, very stiff, dry, low plasticity
10	MOD Calif.	7, 11, 13				
15	MOD Calif.	12, 12, 13	SM	96	3	SILTY SAND: yellow brown, medium dense, dry, fine grained sand
20	MOD Calif.	11, 13, 15		103	5	moist
25	MOD Calif.	5, 8, 10		102	23	olive, wet
30	MOD Calif.	6, 7, 8		101	22	

Graphic Trend
Blow Count Dry Density



Total Depth 31 1/2 feet
Groundwater Encountered at 25 feet
No Refusal, Backfilled w/cuttings and Bentonite
Approximate -84 ft. Elevation

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Phone (760) 345-1588 Fax (760) 345-7315

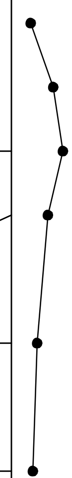
Boring No. B-5	Drilling Date: August 1, 2013
Project Name: Vista Asoleado	Drilling Method: 8" Hollow Stem Auger
Project Number: 12161-01	Drill Type: Mobile B61 HDX w/Autohammer
Boring Location: See Plate 2	Logged By: Rich Howe

Description of Units

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradational.

Depth (Ft.)	Sample Type (Bulk / SPT / MOD Calif.)	Penetration Resistance (Blows/6")	Symbol	USCS/Bedrock	Dry Density (pcf)	Moisture Content (%)	Description of Units
0				ML			SANDY SILT: olive, stiff, damp, fine grained sand
	MOD Calif.	4, 8, 10					
5	MOD Calif.	9, 13, 26			103	2	very stiff
	MOD Calif.	13, 22, 26		SM	97	1	SILTY SAND: yellow brown, medium dense, dry, fine grained sand
10	MOD Calif.	9, 18, 16		ML	96	7	SILT: olive brown, very stiff, dry, slight plasticity
15	MOD Calif.	7, 10, 14		SM			SILTY SAND: yellow brown, medium dense, damp, fine grained sand
20	MOD Calif.	7, 9, 11		ML			SANDY SILT: gray to yellow brown, medium dense, damp, fine grained sand

Graphic Trend
Blow Count Dry Density



Depth (Ft.): 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60

Total Depth 21 1/2 feet
No Groundwater Encountered
No Refusal, Backfilled w/cuttings and Bentonite
Approximate -87 ft. Elevation

Earth Systems
Southwest
79-811B Country Club Drive, Bermuda Dunes, CA 92201
Phone (760) 345-1588 Fax (760) 345-7315

Boring No. B-6

Project Name: Vista Asoleado
Project Number: 12161-01
Boring Location: See Plate 2

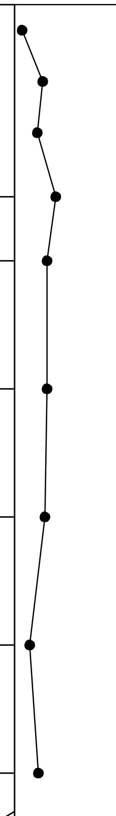
Drilling Date: August 1, 2013
Drilling Method: 8" Hollow Stem Auger
Drill Type: Mobile B61 HDX w/Autohammer
Logged By: Rich Howe

Description of Units

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradational.

Depth (Ft.)	Sample Type (Bulk / SPT / MOD Calif.)	Penetration Resistance (Blows/6")	USCS/Bedrock	Dry Density (pcf)	Moisture Content (%)	Description of Units
0	Bulk (0–5)		SM			SILTY SAND: gray brown, loose, moist, fine grained sand, trace clayey lenses
1	MOD Calif.	3, 3, 4				
3	MOD Calif.	8, 11, 15		100	19	medium dense
5	MOD Calif.	7, 10, 11		96	8	
7.5	MOD Calif.	9, 16, 22	ML	96	5	SILT: brown, very stiff, dry, low plasticity
10	MOD Calif.	10, 12, 18	ML			SANDY SILT: dark gray brown, very stiff, damp, fine grained sand
15	MOD Calif.	10, 14, 16	ML	104	6	SILT WITH CLAY: brown, very stiff, damp
20	MOD Calif.	7, 11, 17	SM	104	5	SILTY SAND: yellow brown, medium dense, moist, fine grained sand
25	MOD Calif.	3, 7, 7	CL	82	37	SILTY CLAY: brown to gray brown, stiff, wet
30	MOD Calif.	8, 9, 13	ML	108	22	SANDY SILT: dark gray brown, very stiff, wet, fine grained sand

Graphic Trend
Blow Count Dry Density



Total Depth 31 1/2 feet
Groundwater Encountered at 25 feet
No Refusal, Backfilled w/cuttings and Bentonite
Approximate -84 ft. Elevation

Earth Systems
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Phone (760) 345-1588 Fax (760) 345-7315

Boring No. B-7

Project Name: Vista Asoleado
Project Number: 12161-01
Boring Location: See Plate 2

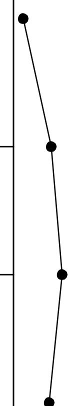
Drilling Date: August 1, 2013
Drilling Method: 8" Hollow Stem Auger
Drill Type: Mobile B61 HDX w/Autohammer
Logged By: Rich Howe

Description of Units

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradational.

Depth (Ft.)	Sample Type (Bulk / SPT / MOD Calif.)	Penetration Resistance (Blows/6")	USCS/Bedrock	Dry Density (pcf)	Moisture Content (%)	Description of Units
0			ML			SANDY SILT: dark gray brown, firm, moist, slight plasticity
	MOD Calif.	2, 4, 5		93	26	
	MOD Calif.	9, 14, 21	CL	104	6	SILTY CLAY: brown, very stiff, dry
	MOD Calif.	16, 21, 24	SM	104	1	SILTY SAND: yellow brown, medium dense, damp, fine grained sand
	MOD Calif.	10, 15, 18		104	1	

Graphic Trend
Blow Count Dry Density



Depth scale: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60

Total Depth 19 feet
No Groundwater Encountered
No Refusal, Backfilled w/cuttings and Bentonite
Approximate -82 ft. Elevation

Earth Systems
Southwest

79-811B Country Club Drive, Bermuda Dunes, CA 92201
Phone (760) 345-1588 Fax (760) 345-7315

Boring No. B-8
Project Name: Vista Asoleado
Project Number: 12161-01
Boring Location: See Plate 2

Drilling Date: August 1, 2013
Drilling Method: 8" Hollow Stem Auger
Drill Type: Mobile B61 HDX w/Autohammer
Logged By: Rich Howe

Description of Units

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradational.

Depth (Ft.)	Sample Type (Bulk / SPT / MOD Calif.)	Penetration Resistance (Blows/6")	USCS/Bedrock	Dry Density (pcf)	Moisture Content (%)	Description of Units
0			ML			SANDY SILT: olive, firm, moist, slight plasticity
2.5	MOD Calif.	4, 6, 6		98	23	
7.5	MOD Calif.	9, 13, 21	SM	110	2	SILTY SAND: dark gray brown, medium dense, damp, fine grained sand
12.5	MOD Calif.	6, 10, 13		102	3	medium dense
17.5	MOD Calif.	14, 17, 29		111	4	dense

Graphic Trend: Blow Count, Dry Density

Total Depth 19 feet
No Groundwater Encountered
No Refusal, Backfilled w/cuttings and Bentonite
Approximate -82 ft. Elevation

Boring No.	B-1	Project and Number	Vista Asoleado	
		ESSW Field Staff	RH	
		Drilling Company	Whitcomb	
		Drilling Method	8" HSA	

Site Latitude (North)	Degrees	Minutes	Seconds	Decimal (deg.)
				0.0000

Site Longitude (West)	Degrees	Minutes	Seconds	Decimal (deg.)
				0.0000

Date Drilled	**Ave. SPT N-value (blows/ft)**
8/1/2013	12
Hammer Weight (lbs)	**Ave. Shear Wave Velocity (ft/sec)****
140	699 (Upper 50 feet)
Hammer Drop (inches)	**Ave. Friction Angle (degrees)**
30	31
Energy Ratio (%)	**Soil Profile Type (Site Class)**
70	D
Borehole Correction (Cb)*	**Estimated Shear Wave Velocity ** Based on Depth Less than 100' (ft/sec)**
1	713 (Upper 100 feet)
*inside diameter of Hollow Stem Auger	
Sampler Liner Correction (Cs)	**Soil Profile Type (Site Class)****
1.2 Applied if SPT Sampler Used	D
1.0 Applied if Cal Sampler Used	
Rod Length Above Ground (ft)	
5	
Depth to Estimate Vs Over (ft)*	
100	

*Caltrans Estimation Method

Depth (ft)	Blow Count	Type of Sampler	d_i (feet)	N_{60} (blows/ft)	N_{60HE} (blows/ft)	V_{si**} (m/sec)	V_{si} (ft/sec)	Φ_i (degrees)	d_i/N_{60i}	d_i/V_{si}	d_i/Φ_i	Consistency if Coarse Grained	Consistency if Fine Grained
1.0	8	c	1.0	4.69	6.25	171.02	560.93	27.51	0.15991	0.00178	0.036349	Loose	Firm
3.0	14	c	2.0	8.21	10.94	201.15	659.77	29.60	0.18276	0.00303	0.067565	Loose	Stiff
5.0	32	c	2.0	18.76	25.01	255.64	838.51	33.36	0.07996	0.00239	0.059943	Medium Dense	Very Stiff
7.5	31	c	2.5	18.17	24.23	253.30	830.83	33.20	0.10317	0.00301	0.075293	Medium Dense	Very Stiff
10.0	35	c	2.5	23.25	27.36	262.37	860.59	33.83	0.09138	0.00290	0.073902	Medium Dense	Very Stiff
15.0	29	c	5.0	19.27	22.67	248.45	814.91	32.87	0.22057	0.00614	0.152118	Medium Dense	Very Stiff
20.0	13	s	5.0	17.29	15.17	221.12	725.27	30.98	0.32967	0.00689	0.16138	Medium Dense	Very Stiff
25.0	16	c	5.0	11.88	12.51	209.09	685.82	30.15	0.39979	0.00729	0.165832	Medium Dense	Stiff
30.0	4	s	5.0	5.60	4.67	157.10	515.29	26.55	1.07143	0.00970	0.188358	Loose	Firm
35.0	20	c	5.0	15.63	15.63	223.07	731.67	31.12	0.31983	0.00683	0.16068	Medium Dense	Very Stiff
40.0	8	s	5.0	11.20	9.33	192.08	630.01	28.97	0.53571	0.00794	0.172578	Medium Dense	Stiff
45.0	28	c	5.0	21.89	21.89	245.93	806.66	32.70	0.22845	0.00620	0.152925	Medium Dense	Very Stiff
50.0	10	s	5.0	14.00	11.67	204.92	672.13	29.86	0.42857	0.00744	0.167436	Medium Dense	Stiff
		Total:	50.0				Total:		4.15120	0.07154	1.63436		

**Caltrans Geotechnical Services Design Manual, Version 1.0, August 2009
using N60HE corrected only for Hammer Energy

Consistency classification based upon ASCE 1996

Spreadsheet Version 2.2.1, 2011: Prepared by Kevin L. Paul, PE, GE

BOREHOLE, SAMPLER, AND ROD CORRECTION FACTORS

Factor	Equipment Variables	Value
Borehole diameter factor, C_B	2.5 - 4.5 in (65 - 115 mm)	1.00
	6 in (150 mm)	1.05
	8 in (200 mm)	1.15
Sampling method factor, C_S	Standard sampler	1.00
	Sampler without liner	1.20
Rod length factor, C_R	10 - 13 ft (3 - 4 m)	0.75
	13 - 20 ft (4 - 6 m)	0.85
	20 - 30 ft (6 - 10 m)	0.95
	> 30 ft (> 10 m)	1.00

Adapted from Skempton (1986).

	Equipment variable	*Correction (%/100)*
	Donut Hammer	*0.50 to 1.00*
	Safety Hammer	*0.70 to 1.20*
Energy ratio (Skempton, 1986)	*Automatic-Trip Donut-type Hammer*	*0.80 to 1.30*

Boring No.	B-2	**Project and Number**	Vista Asoleado
		ESSW Field Staff	RH
		Drilling Company	Whitcomb
		Drilling Method	8" HSA

	Degrees	Minutes	Seconds	Decimal (deg.)
Site Latitude (North)				0.0000
Site Longitude (West)				0.0000

Date Drilled
8/1/2013

Ave. SPT N-value (blows/ft)
14

Hammer Weight (lbs)
140

Ave. Shear Wave Velocity (ft/sec)**
735 (Upper 50 feet)

Hammer Drop (inches)
30

Ave. Friction Angle (degrees)
31

Energy Ratio (%)
70

Soil Profile Type (Site Class)
D

Borehole Correction (Cb)*
1

*inside diameter of Hollow Stem Auger

Estimated Shear Wave Velocity **
Based on Depth Less than 100' (ft/sec)
758 (Upper 100 feet)

Soil Profile Type (Site Class)**
D

Sampler Liner Correction (Cs)
1.2 Applied if SPT Sampler Used
1.0 Applied if Cal Sampler Used

Rod Length Above Ground (ft)
5

Depth to Estimate Vs Over (ft)*
100

*Caltrans Estimation Method

BOREHOLE, SAMPLER, AND ROD CORRECTION FACTORS

Factor	Equipment Variables	Value
Borehole diameter factor, C_B	2.5 - 4.5 in (65 - 115 mm)	1.00
	6 in (150 mm)	1.05
	8 in (200 mm)	1.15
Sampling method factor, C_S	Standard sampler	1.00
	Sampler without liner	1.20
Rod length factor, C_R	10 - 13 ft (3 - 4 m)	0.75
	13 - 20 ft (4 - 6 m)	0.85
	20 - 30 ft (6 - 10 m)	0.95
	> 30 ft (> 10 m)	1.00

Adapted from Skempton (1986).

Depth (ft)	Blow Count	Type of Sampler	d_i (feet)	N_{60} (blows/ft)	N_{60HE} (blows/ft)	V_{si**} (m/sec)	V_{si} (ft/sec)	Φ_i (degrees)	d_i/N_{60i}	d_i/V_{si}	d_i/Φ_i	Consistency if Coarse Grained	Consistency if Fine Grained
1.0	9	c	1.0	5.28	7.04	176.96	580.43	27.92	0.14215	0.00172	0.035812	Loose	Firm
3.0	19	c	2.0	11.14	14.85	219.78	720.87	30.89	0.13467	0.00277	0.064746	Medium Dense	Stiff
5.0	33	c	2.0	19.35	25.80	257.94	846.03	33.52	0.07753	0.00236	0.059661	Medium Dense	Very Stiff
7.5	45	c	2.5	26.38	35.18	282.21	925.65	35.19	0.07107	0.00270	0.071038	Medium Dense	Very Stiff
10.0	47	c	2.5	31.23	36.74	285.79	937.40	35.44	0.06805	0.00267	0.070544	Dense	Hard
15.0	36	c	5.0	23.92	28.14	264.53	867.65	33.98	0.17768	0.00576	0.14716	Medium Dense	Very Stiff
20.0	31	c	5.0	23.02	24.23	253.30	830.83	33.20	0.20634	0.00602	0.150586	Medium Dense	Very Stiff
25.0	12	s	5.0	15.96	14.00	216.04	708.63	30.63	0.35714	0.00706	0.163228	Medium Dense	Very Stiff
30.0	16	c	5.0	12.51	12.51	209.09	685.82	30.15	0.39979	0.00729	0.165832	Medium Dense	Stiff
35.0	4	s	5.0	5.60	4.67	157.10	515.29	26.55	1.07143	0.00970	0.188358	Loose	Firm
40.0	14	c	5.0	10.94	10.94	201.15	659.77	29.60	0.45690	0.00758	0.168913	Medium Dense	Stiff
45.0	12	s	5.0	16.80	14.00	216.04	708.63	30.63	0.35714	0.00706	0.163228	Medium Dense	Very Stiff
50.0	48	c	5.0	37.52	37.52	287.54	943.14	35.56	0.13326	0.00530	0.140612	Dense	Hard
		Total:	50.0				Total:		3.65315	0.06800	1.589718		

**Caltrans Geotechnical Services Design Manual, Version 1.0, August 2009
using N60HE corrected only for Hammer Energy

Consistency classification based upon ASCE 1996

Spreadsheet Version 2.2.1, 2011: Prepared by Kevin L. Paul, PE, GE

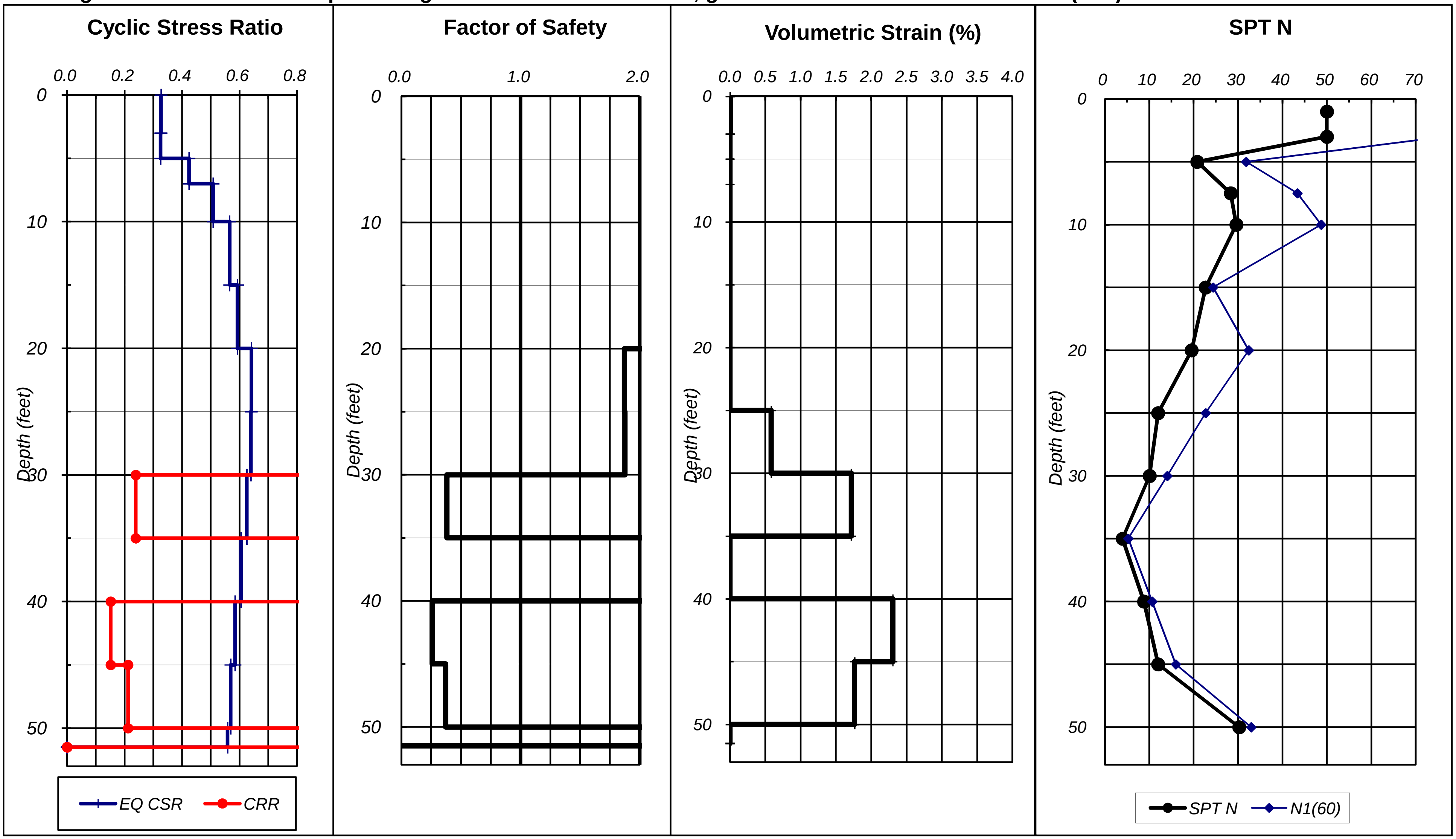
	Equipment variable	Correction (%/100)
Energy ratio (Skempton, 1986)	Donut Hammer	0.50 to 1.00
	Safety Hammer	0.70 to 1.20
	Automatic-Trip Donut-type Hammer	0.80 to 1.30

EARTH SYSTEMS - EVALUATION OF LIQUEFACTION POTENTIAL AND INDUCED SUBSIDENCE

Vista Asoleado **Project No: 12161-01** *1996/1998 NCEER Method*

Ground Compaction Remediated to 6 foot depth

Boring: B-2 **Earthquake Magnitude: 8.2** **PGA, g: 0.40** **Calc GWT (feet): 3**



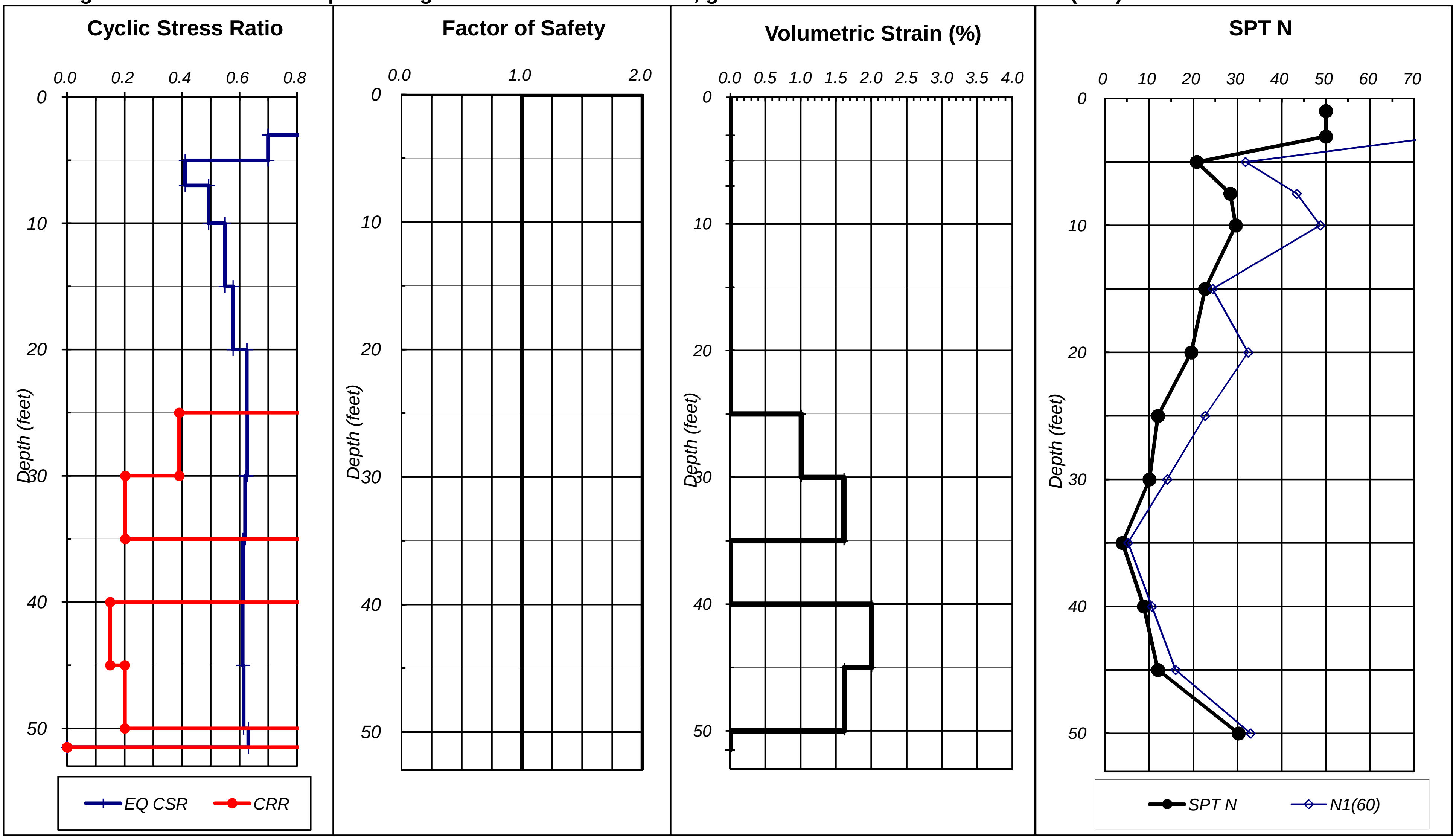
Total Thickness of Liquefiable Layers: 15.0 feet

Estimated Total Ground Subsidence: 1.4 inches

EARTH SYSTEMS - EVALUATION OF LIQUEFACTION POTENTIAL AND INDUCED SUBSIDENCE

Vista Asoleado **Project No: 12161-01** *Idriss & Boulanger Method, 2004*

Boring: B-2 **Earthquake Magnitude: 8.2** **PGA, g: 0.40** **Calc GWT (feet): 3.0**



Total Thickness of Liquefiable Layers: 20.0 feet **Min. Factor of Safety: 0.25** **Estimated Total Ground Subsidence: 3.7 inches**

[redacted]

APPENDIX B

Laboratory Test Results

File No.: 12161-01 September 17, 2013

Lab No.: 13-209

UNIT DENSITIES AND MOISTURE CONTENT ASTM D2937-04 & D2216-05

Job Name: Vista Asoleado

Sample Location	Depth (feet)	Unit Dry Density (pcf)	Moisture Content (%)	USCS Group Symbol
B1	3	96	13	ML
B1	5	102	3	SM
B1	7.5	102	3	SM
B1	10	105	2	SM
B1	15	101	4	SM
B1	20	---	6	SM
B1	25	94	28	CL
B1	35	98	25	SM
B2	3	95	14	ML
B2	5	98	3	ML
B2	7.5	93	4	ML
B2	10	116	3	SM
B2	15	89	5	ML
B2	20	104	7	SM
B2	30	97	27	ML
B3	3	94	11	SM
B3	5	101	2	SM
B3	7.5	91	5	ML
B3	20	106	3	SM

File No.: 12161-01 September 17, 2013

Lab No.: 13-209

UNIT DENSITIES AND MOISTURE CONTENT ASTM D2937-04 & D2216-05

Job Name: Vista Asoleado

Sample Location	Depth (feet)	Unit Dry Density (pcf)	Moisture Content (%)	USCS Group Symbol
B4	3	105	1	ML
B4	5	107	1	SM
B4	7.5	92	5	ML
B4	15	96	3	SM
B4	20	103	5	SM
B4	25	102	23	SM
B4	30	101	22	SM
B5	5	103	2	ML
B5	7.5	97	1	SM
B5	10	96	7	ML
B6	3	100	19	SM
B6	5	96	8	SM
B6	7.5	96	5	ML
B6	15	104	6	ML
B6	20	104	5	SM
B6	25	82	37	CL
B6	30	108	22	ML
B7	2.5	93	26	ML
B7	7.5	104	6	CL
B7	12.5	104	1	SM
B7	17.5	104	1	SM
B8	2.5	98	23	ML
B8	7.5	110	2	SM
B8	12.5	102	3	SM
B8	17.5	111	4	SM

File No.: 12161-01 September 17, 2013
Lab No.: 13-209

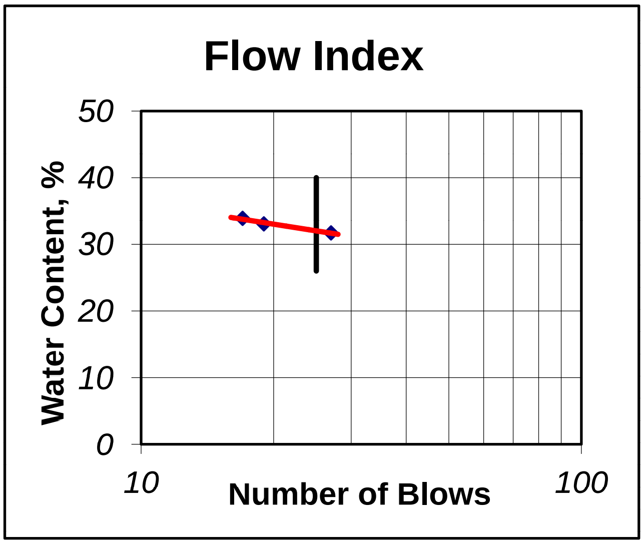
PLASTICITY INDEX

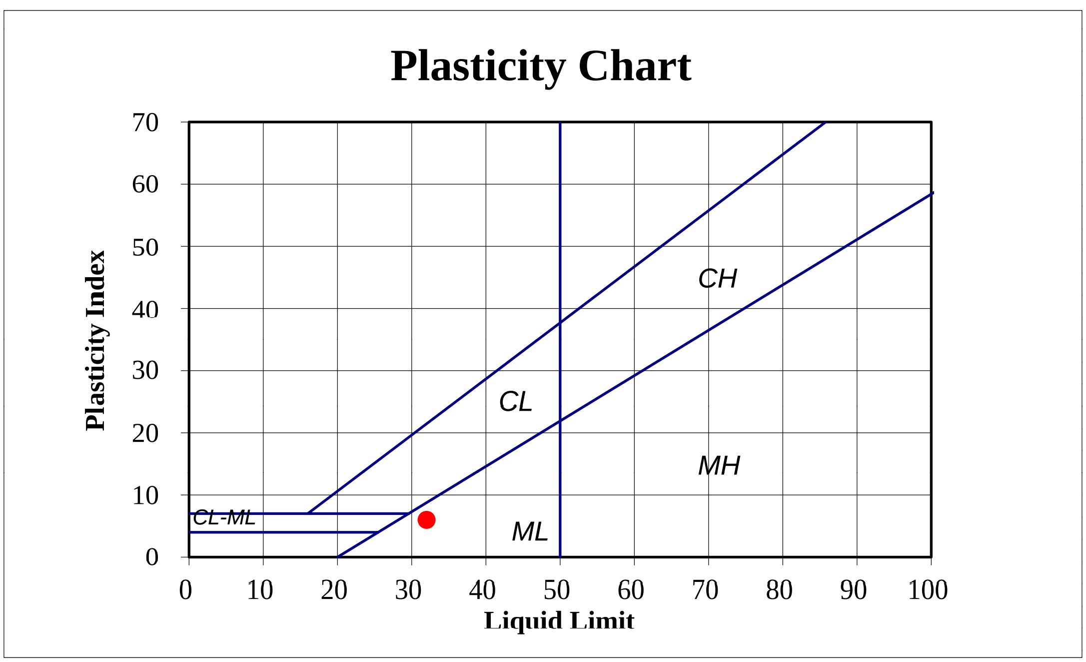
ASTM D 4318-05

Job Name: Vista Asoleado
Sample ID: B4 @ 7 1/2 feet
Soil Description: Silt (ML)

DATA SUMMARY **TEST RESULTS**

Number of Blows:	27	19	17	**LIQUID LIMIT**	**32**
Water Content, %	31.7	33.1	33.9	**PLASTIC LIMIT**	**26**
				PLASTICITY INDEX	**6**





File No.: 12161-01
Lab No.: 13-209

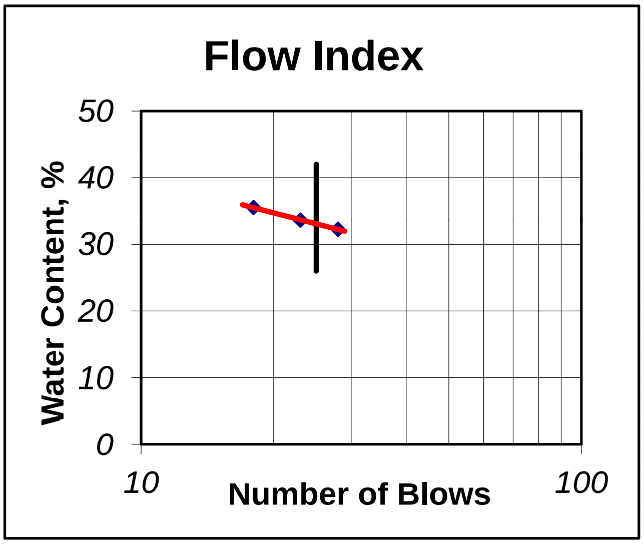
September 17, 2013

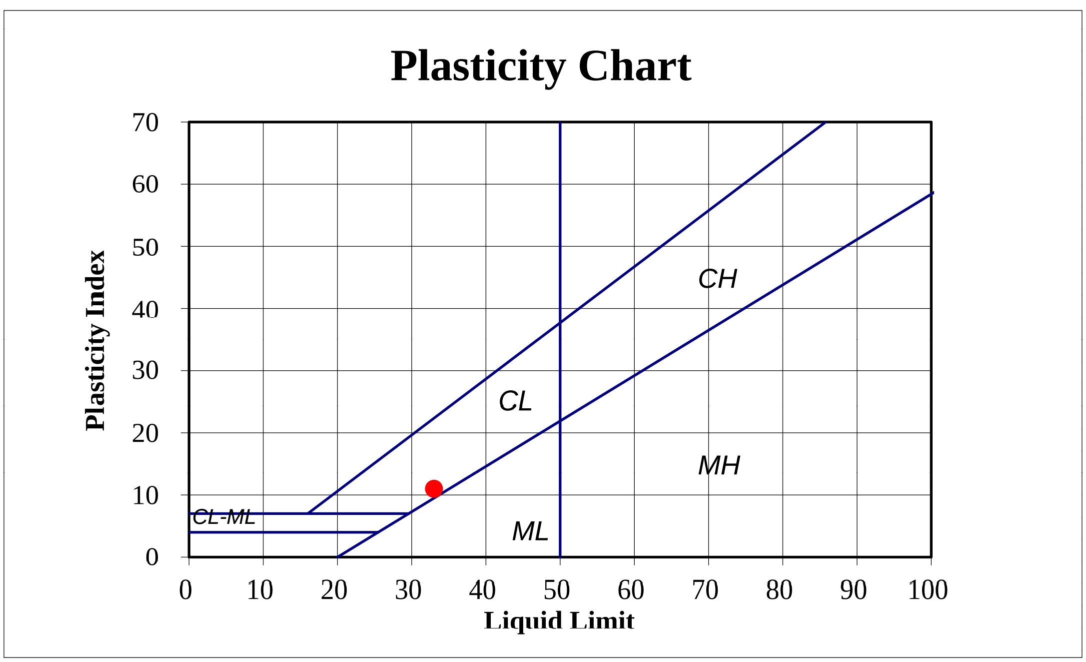
PLASTICITY INDEX

ASTM D 4318-05

Job Name: Vista Asoleado
Sample ID: B7 @ 7 1/2 feet
Soil Description: Silty Clay (CL)

DATA SUMMARY				**TEST RESULTS**	
Number of Blows:	28	23	18	**LIQUID LIMIT**	**33**
Water Content, %	32.3	33.6	35.5	**PLASTIC LIMIT**	**22**
				PLASTICITY INDEX	**11**





File No.: 12161-01 9/17/2013

Lab No.: 13-209

SIEVE ANALYSIS

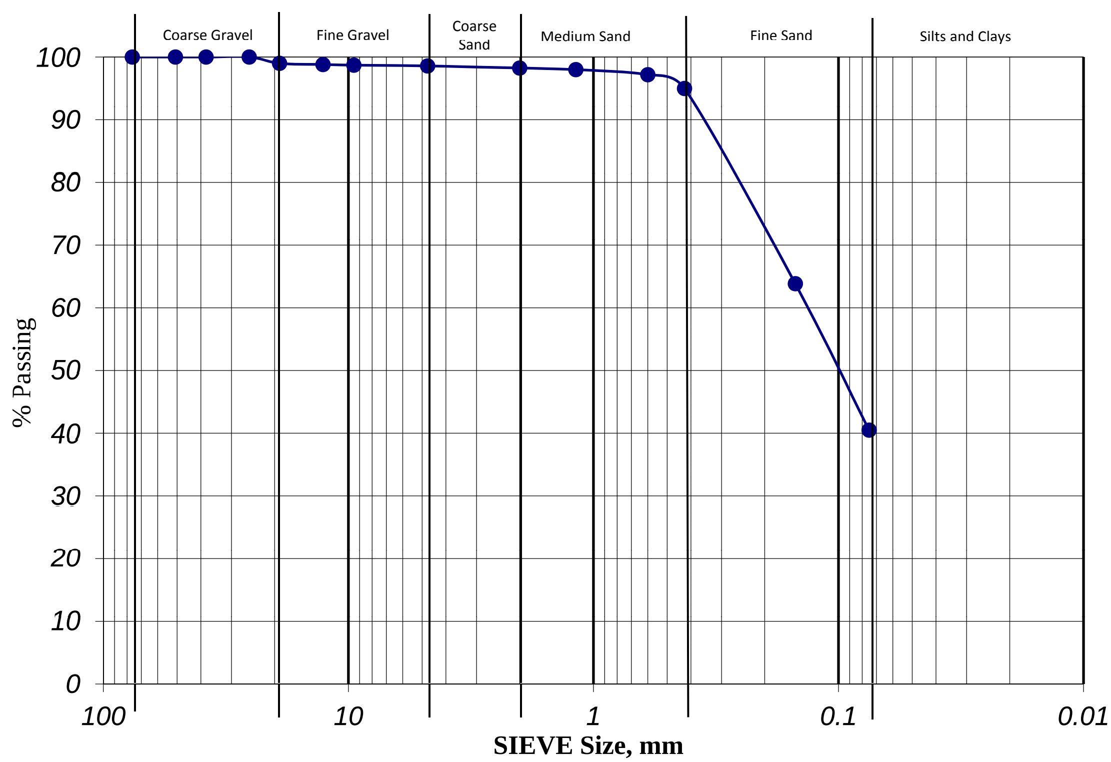
ASTM D6913-09

Job Name: Vista Asoleado

Sample ID: B1 @ 0-5 feet

Description: Silty Sand (SM)

Sieve Size	% Passing
3"	100
2"	100
1-1/2"	100
1"	100
3/4"	99
1/2"	99
3/8"	99
#4	99
#10	98
#16	98
#30	97
#40	95
#100	64
#200	40.5



% Coarse Gravel:	1	% Coarse Sand:	0				
% Fine Gravel:	0	% Medium Sand:	3	Cu:	NA		
		% Fine Sand:	54	Cc:	NA	Gradation	
% Total Gravel	1	% Total Sand	58	% Fines:	40	NA	

EARTH SYSTEMS SOUTHWEST

File No.: 12161-01 9/17/2013

Lab No.: 13-209

SIEVE ANALYSIS

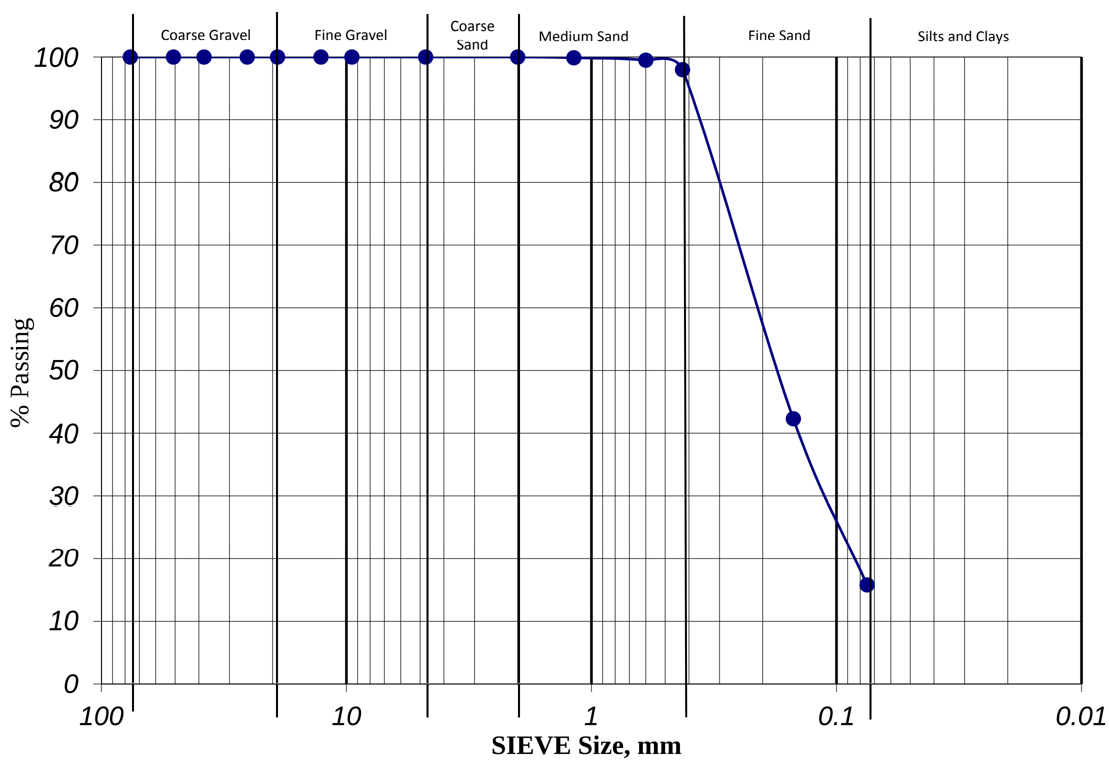
ASTM D6913-09

Job Name: Vista Asoleado

Sample ID: B1 @ 7 1/2 feet

Description: Silty Sand (SM)

Sieve Size	% Passing
3"	100
2"	100
1-1/2"	100
1"	100
3/4"	100
1/2"	100
3/8"	100
#4	100
#10	100
#16	100
#30	99
#40	98
#100	42
#200	15.8



% Coarse Gravel:	0	% Coarse Sand:	0				
% Fine Gravel:	0	% Medium Sand:	2	Cu:	NA		
		% Fine Sand:	82	Cc:	NA	Gradation	
% Total Gravel	0	% Total Sand	84	% Fines:	16	NA	

File No.: 12161-01 9/17/2013

Lab No.: 13-209

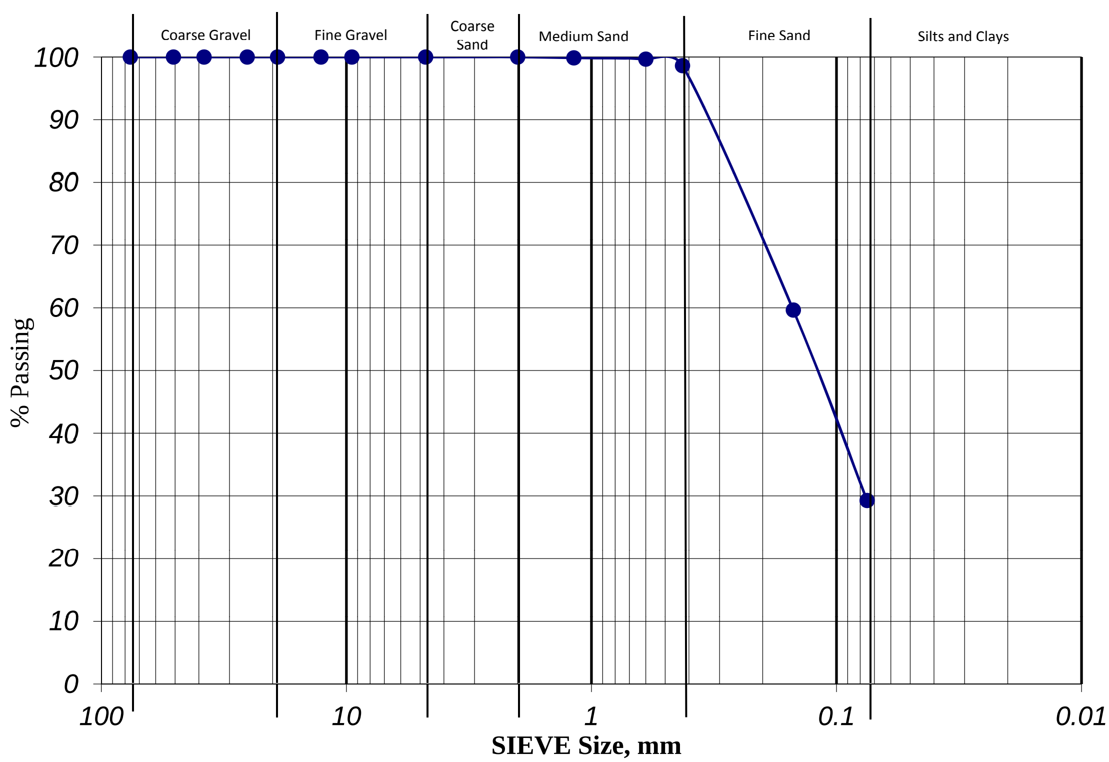
SIEVE ANALYSIS ASTM D6913-09

Job Name: Vista Asoleado

Sample ID: B4 @ 3 feet

Description: Silty Sand (SM)

Sieve Size	% Passing
3"	100
2"	100
1-1/2"	100
1"	100
3/4"	100
1/2"	100
3/8"	100
#4	100
#10	100
#16	100
#30	100
#40	99
#100	60
#200	29.3



% Coarse Gravel:	0	% Coarse Sand:	0			
% Fine Gravel:	0	% Medium Sand:	1	Cu:	NA	
		% Fine Sand:	69	Cc:	NA	Gradation
% Total Gravel	0	% Total Sand	71	% Fines:	29	NA

File No.: 12161-01 9/17/2013

Lab No.: 13-209

SIEVE ANALYSIS

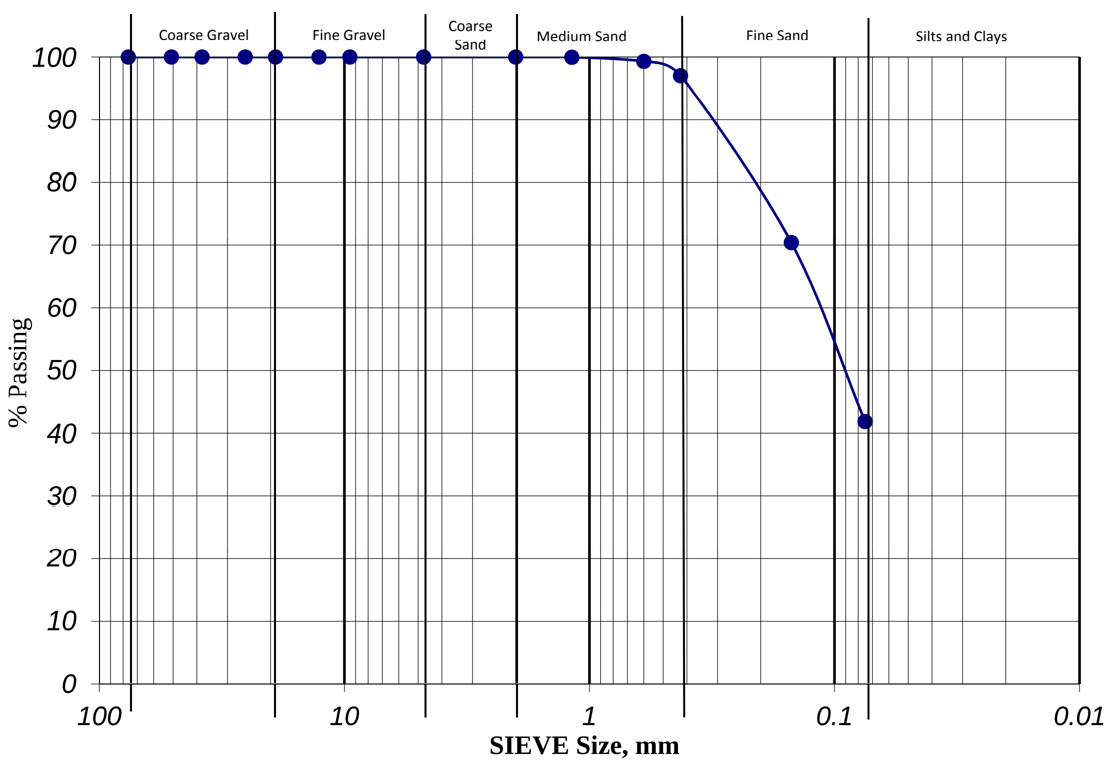
ASTM D6913-09

Job Name: Vista Asoleado

Sample ID: B6 @ 0-5 feet

Description: Silty Sand (SM)

Sieve Size	% Passing
3"	100
2"	100
1-1/2"	100
1"	100
3/4"	100
1/2"	100
3/8"	100
#4	100
#10	100
#16	100
#30	99
#40	97
#100	70
#200	41.9



% Coarse Gravel:	0	% Coarse Sand:	0				
% Fine Gravel:	0	% Medium Sand:	3	Cu:	NA		
		% Fine Sand:	55	Cc:	NA	Gradation	
% Total Gravel	0	% Total Sand	58	% Fines:	42	NA	

File No.: 12161-01 9/17/2013

Lab No.: 13-209

SIEVE ANALYSIS

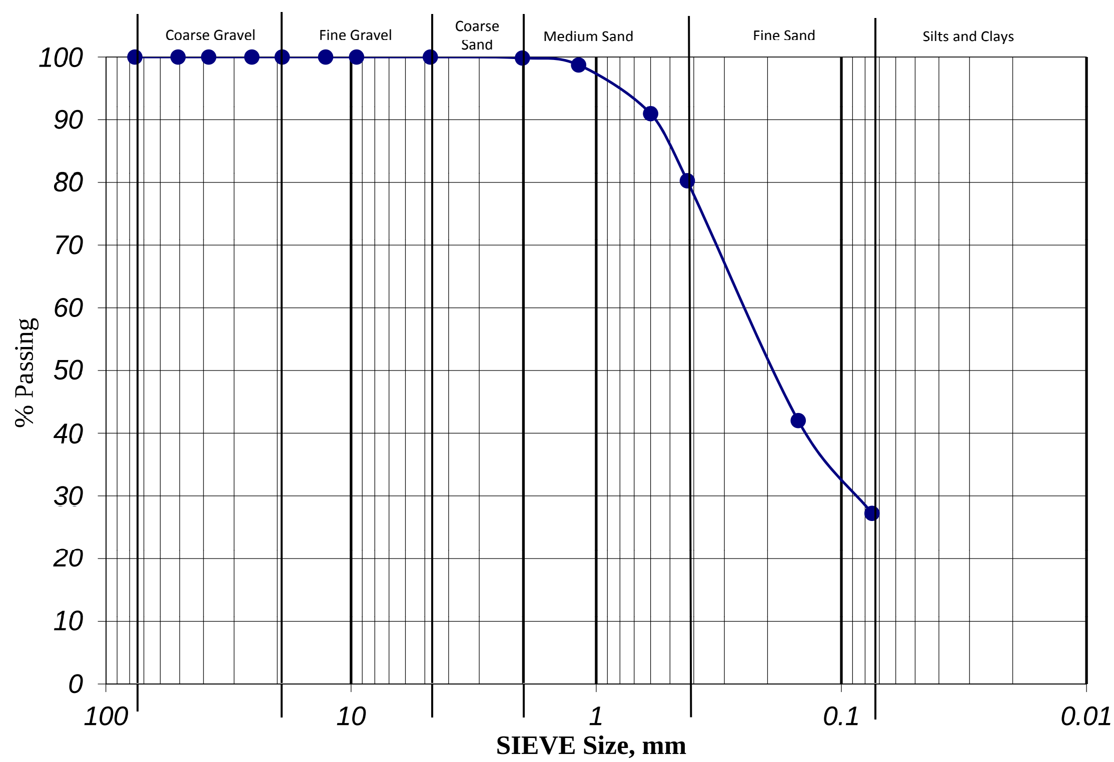
ASTM D6913-09

Job Name: Vista Asoleado

Sample ID: B8 @ 7 1/2 feet

Description: Silty Sand (SM)

Sieve Size	% Passing
3"	100
2"	100
1-1/2"	100
1"	100
3/4"	100
1/2"	100
3/8"	100
#4	100
#10	100
#16	99
#30	91
#40	80
#100	42
#200	27.2



% Coarse Gravel:	0	% Coarse Sand:	0				
% Fine Gravel:	0	% Medium Sand:	20	Cu:	NA		
		% Fine Sand:	53	Cc:	NA	Gradation	
% Total Gravel	0	% Total Sand	73	% Fines:	27	NA	

File No.: 12161-01
Job Name: Vista Asoleado
Lab Number: 13-209

September 17, 2013

AMOUNT PASSING NO. 200 SIEVE

ASTM D 1140-03a

Sample Location	Depth (feet)	Fines Content (%)	USCS Group Symbol
B1	20	19	SM
B2	5	62	ML
B2	10	34	SM
B2	25	33	SM
B2	30	60	ML
B3	3	47	SM

File No.: 12161-01 September 17, 2013

Lab No.: 13-209

CONSOLIDATION TEST

ASTM D 2435-04 & D 5333

Vista Asoleado
B-1 @ 7 1/2 feet

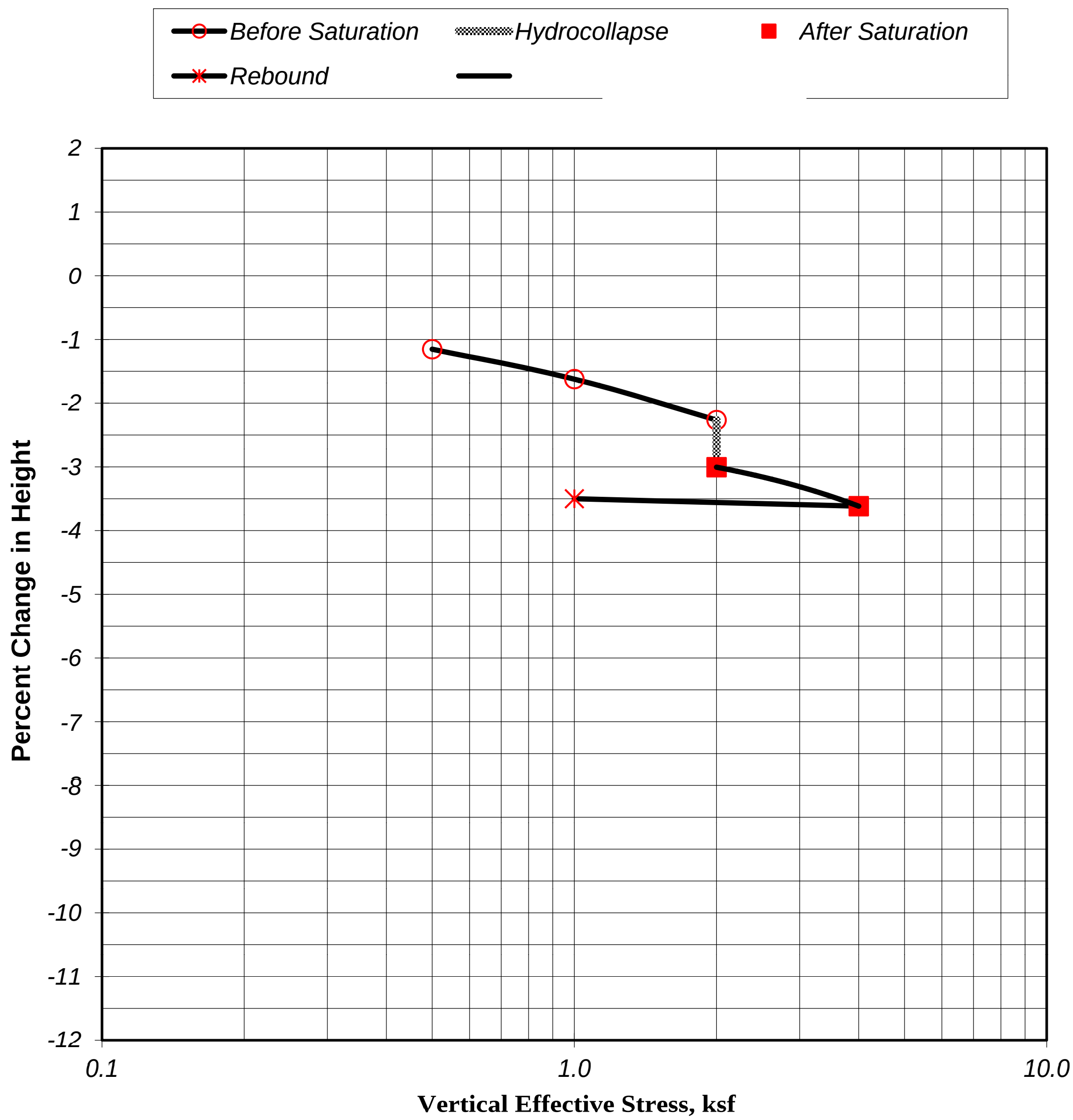
Silty Sand (SM)

Ring Sample

Initial Dry Density:	101.2 pcf
Initial Moisture, %:	2.5%
Specific Gravity (assumed):	2.67
Initial Void Ratio:	0.648

Hydrocollapse: 0.7% @ 2.0 ksf

% Change in Height vs Normal Presssure Diagram



File No.: 12161-01 September 17, 2013

Lab No.: 13-209

CONSOLIDATION TEST

ASTM D 2435-04 & D 5333

Vista Asoleado
B-2 @ 10 feet

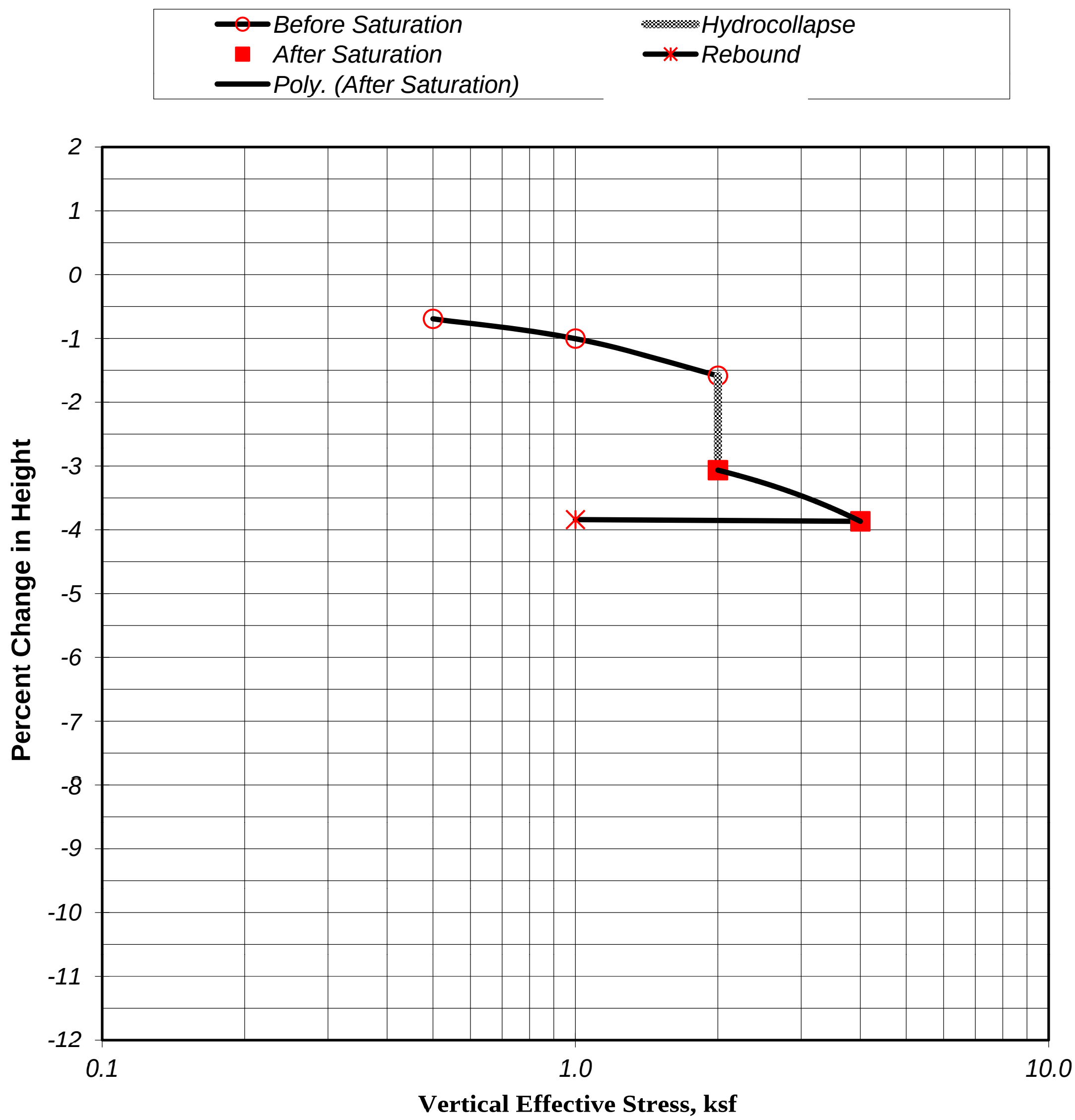
Silty Sand (SM)

Ring Sample

Initial Dry Density: 110.7 pcf
Initial Moisture, %: 3.4%
Specific Gravity (assumed): 2.67
Initial Void Ratio: 0.506

Hydrocollapse: 1.5% @ 2.0 ksf

% Change in Height vs Normal Presssure Diagram



File No.: 12161-01 September 17, 2013

Lab No.: 13-209

CONSOLIDATION TEST

ASTM D 2435-04 & D 5333

Vista Asoleado
B-2 @ 15 feet

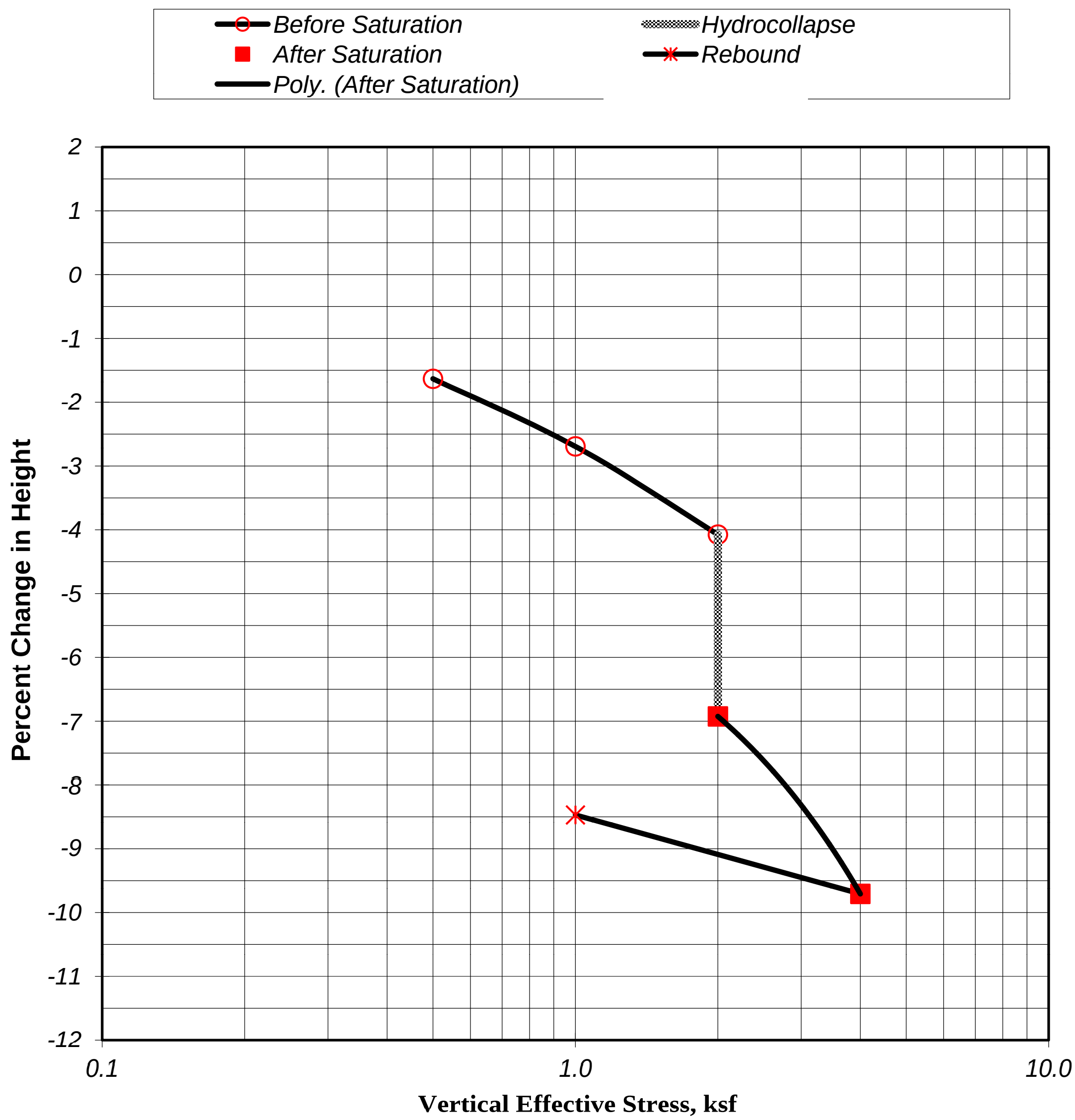
Silt with Clay (ML)

Ring Sample

Initial Dry Density:	102.8 pcf
Initial Moisture, %:	5.3%
Specific Gravity (assumed):	2.67
Initial Void Ratio:	0.622

Hydrocollapse: 2.9% @ 2.0 ksf

% Change in Height vs Normal Presssure Diagram



File No.: 12161-01 September 17, 2013

Lab No.: 13-209

CONSOLIDATION TEST

ASTM D 2435-04 & D 5333

Vista Asoleado
B-2 @ 20 feet

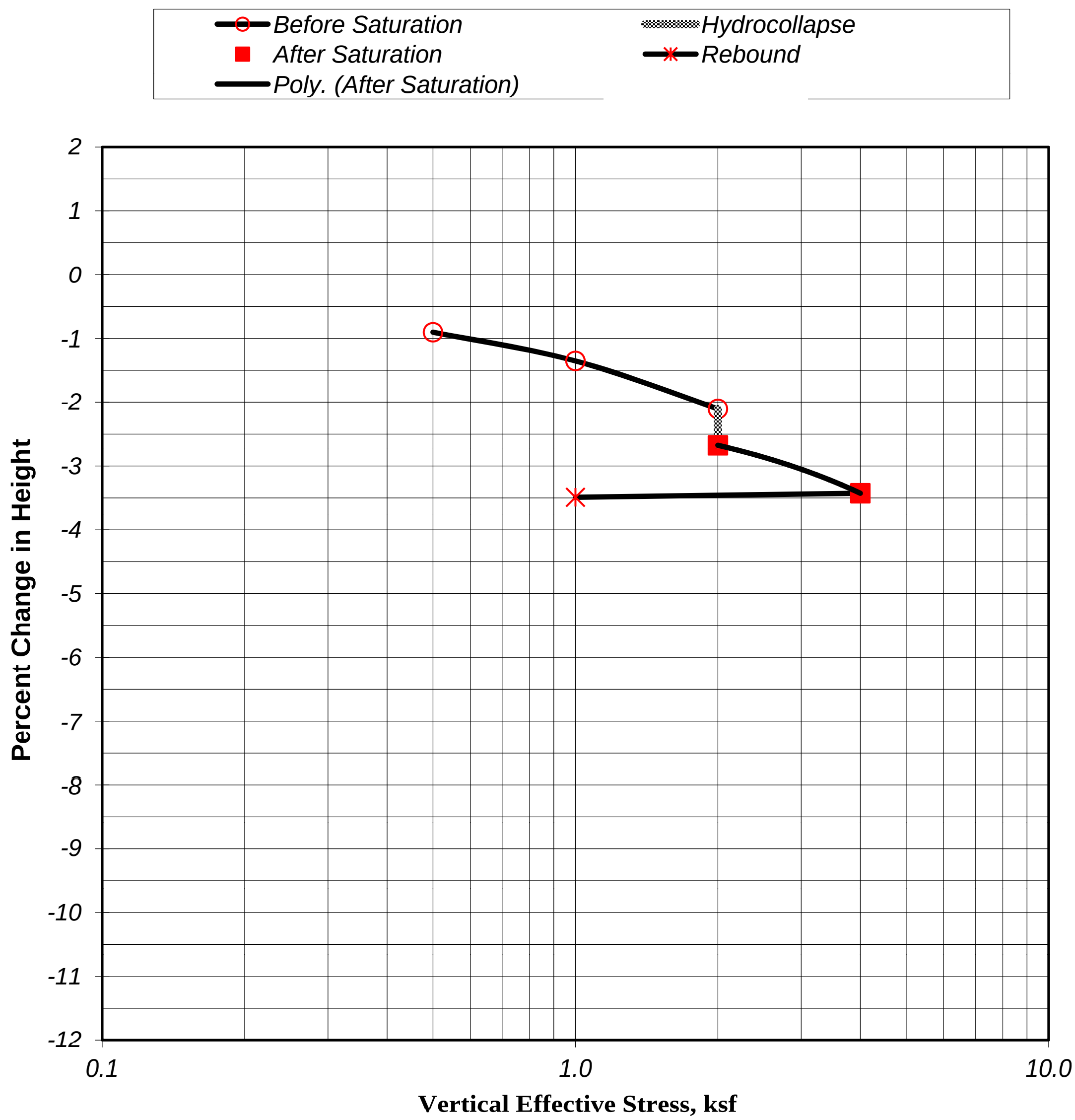
Silty Sand (SM)

Ring Sample

Initial Dry Density: 99.0 pcf
Initial Moisture, %: 7.1%
Specific Gravity (assumed): 2.67
Initial Void Ratio: 0.684

Hydrocollapse: 0.6% @ 2.0 ksf

% Change in Height vs Normal Presssure Diagram



File No.: 12161-01 September 17, 2013

Lab No.: 13-209

CONSOLIDATION TEST

ASTM D 2435-04 & D 5333

Vista Asoleado
B-3 @ 5 feet

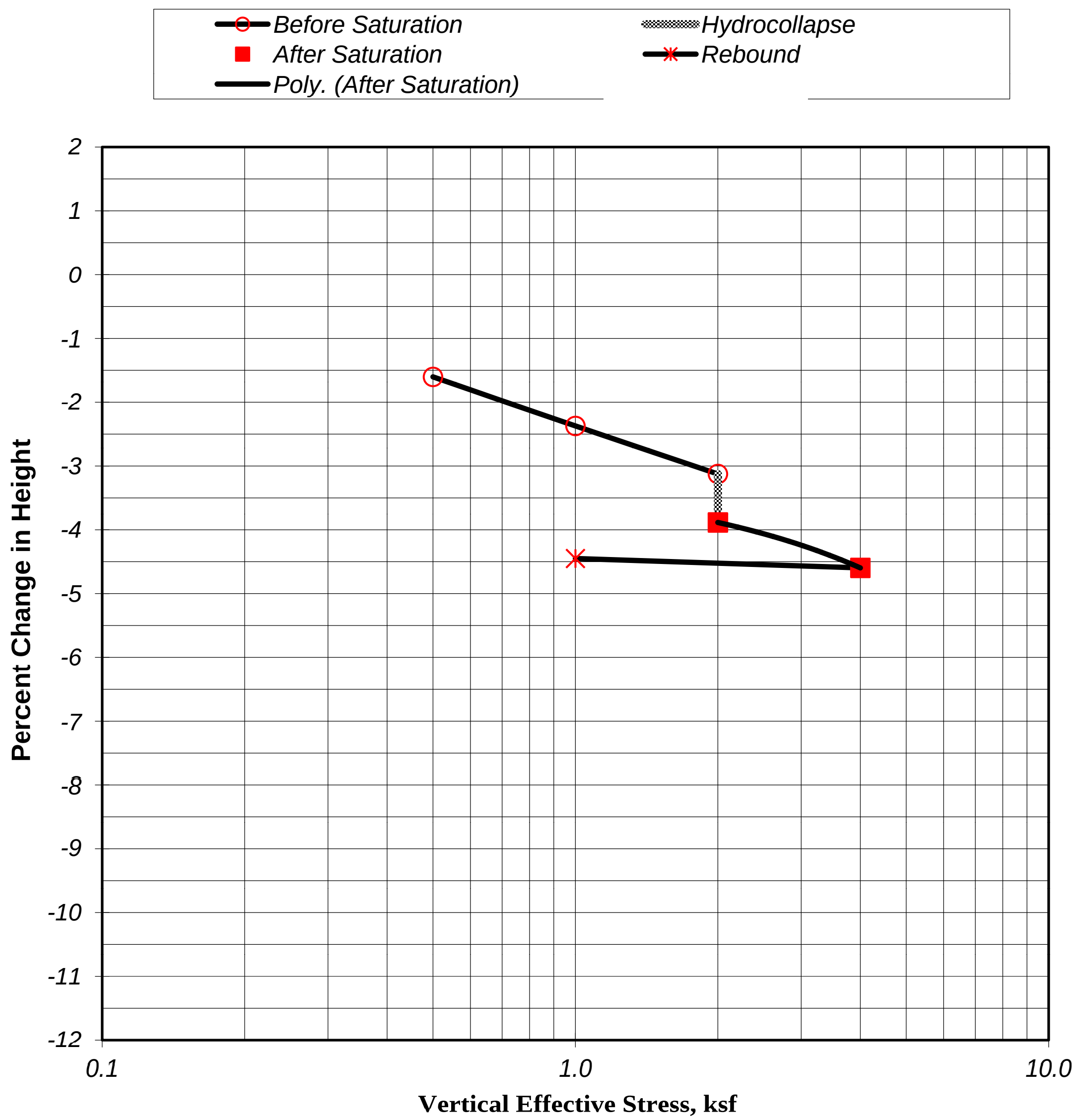
Silty Sand (SM)

Ring Sample

Initial Dry Density: 97.0 pcf
Initial Moisture, %: 1.7%
Specific Gravity (assumed): 2.67
Initial Void Ratio: 0.719

Hydrocollapse: 0.8% @ 2.0 ksf

% Change in Height vs Normal Presssure Diagram



File No.: 12161-01 September 17, 2013

Lab No.: 13-209

CONSOLIDATION TEST

ASTM D 2435-04 & D 5333

Vista Asoleado
B-4 @ 5 feet

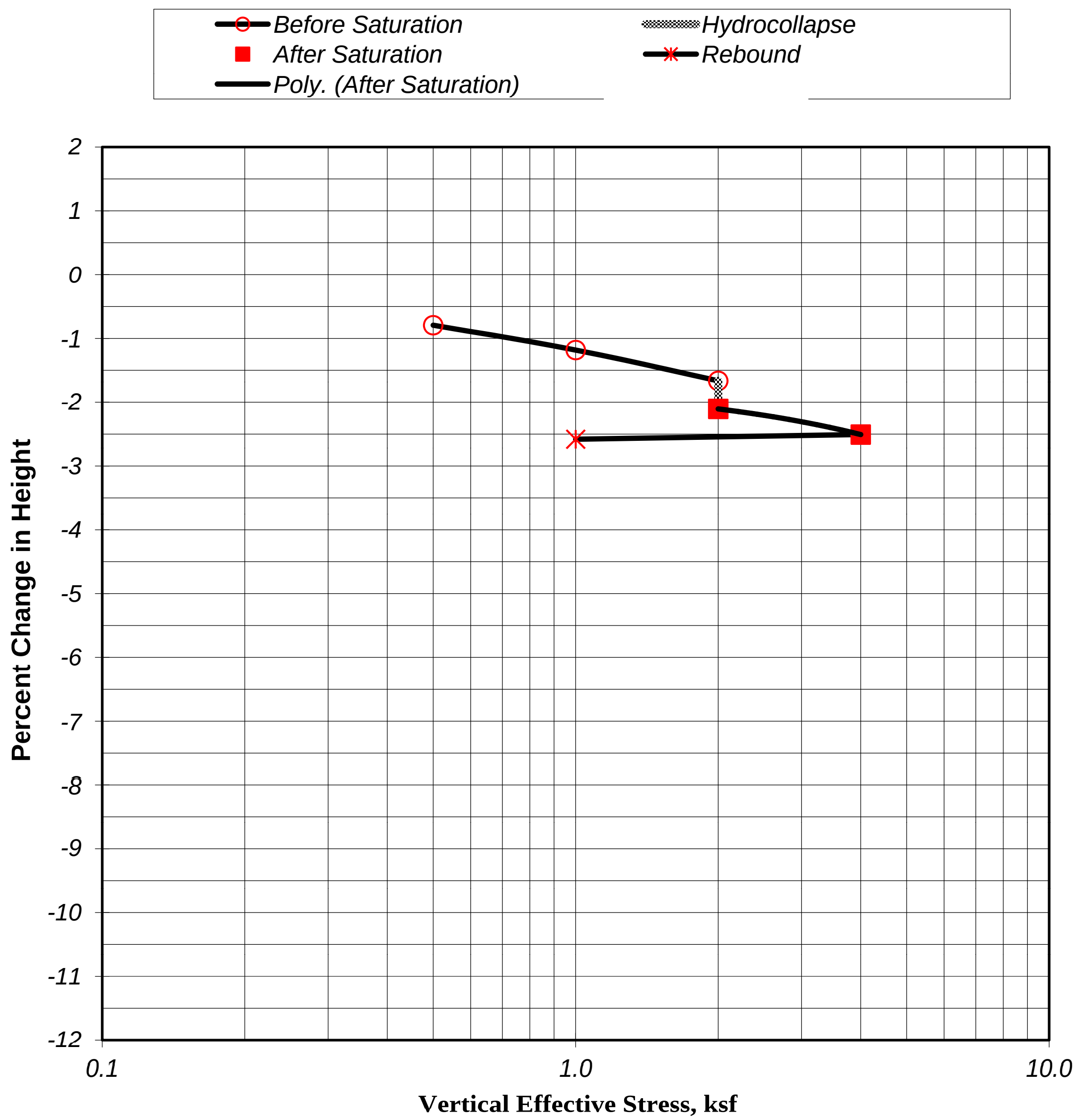
Silty Sand (SM)

Ring Sample

Initial Dry Density: 104.8 pcf
Initial Moisture, %: 1.1%
Specific Gravity (assumed): 2.67
Initial Void Ratio: 0.591

Hydrocollapse: 0.4% @ 2.0 ksf

% Change in Height vs Normal Presssure Diagram



File No.: 12161-01 September 17, 2013

Lab No.: 13-209

CONSOLIDATION TEST

ASTM D 2435-04 & D 5333

Vista Asoleado
B-4 @ 25 feet

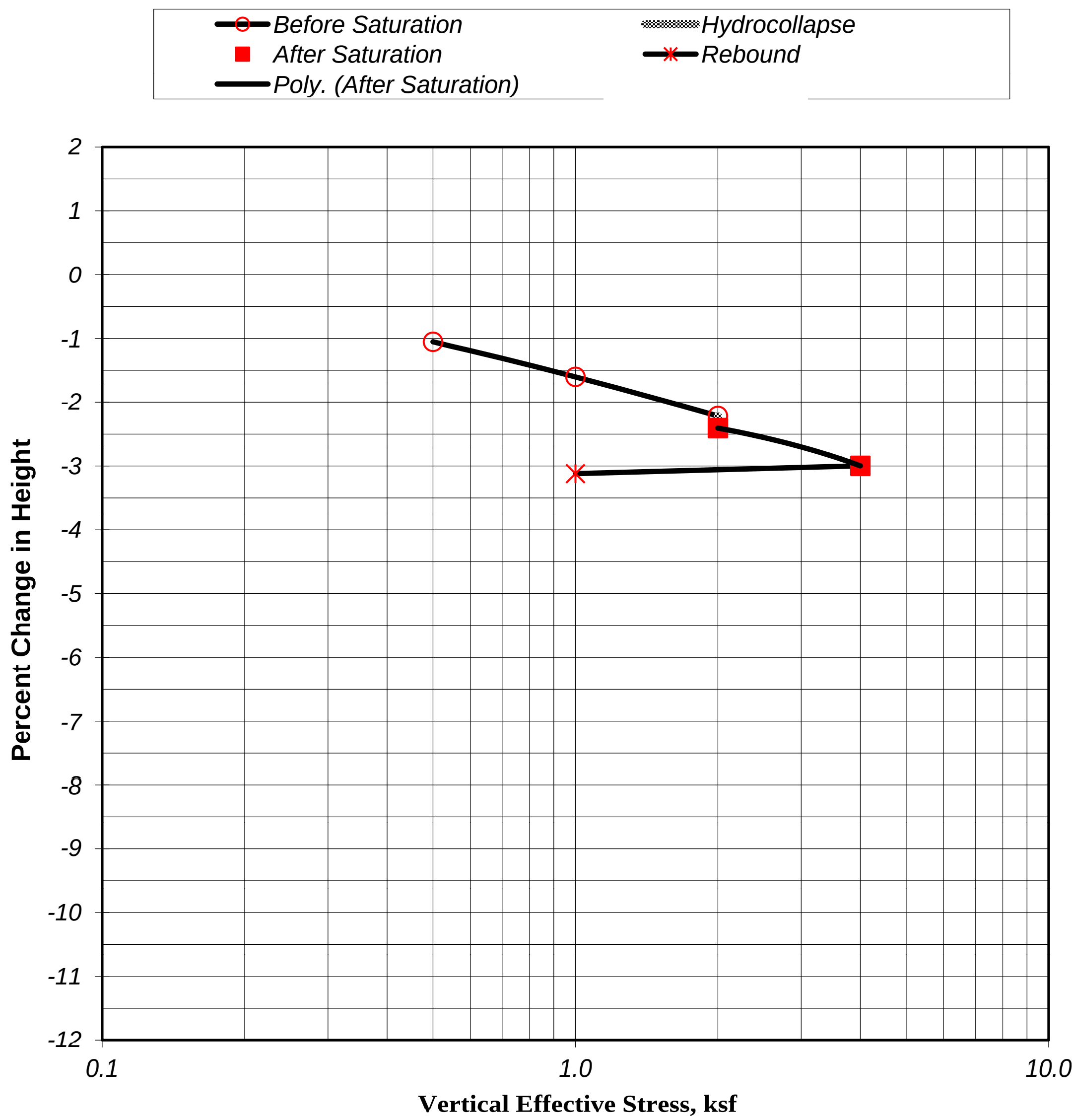
Silty Sand (SM)

Ring Sample

Initial Dry Density: 71.0 pcf
Initial Moisture, %: 23.3%
Specific Gravity (assumed): 2.67
Initial Void Ratio: 1.348

Hydrocollapse: 0.2% @ 2.0 ksf

% Change in Height vs Normal Presssure Diagram



File No.: 12161-01 September 17, 2013

Lab No.: 13-209

CONSOLIDATION TEST

ASTM D 2435-04 & D 5333

Vista Asoleado
B-5 @ 10 feet

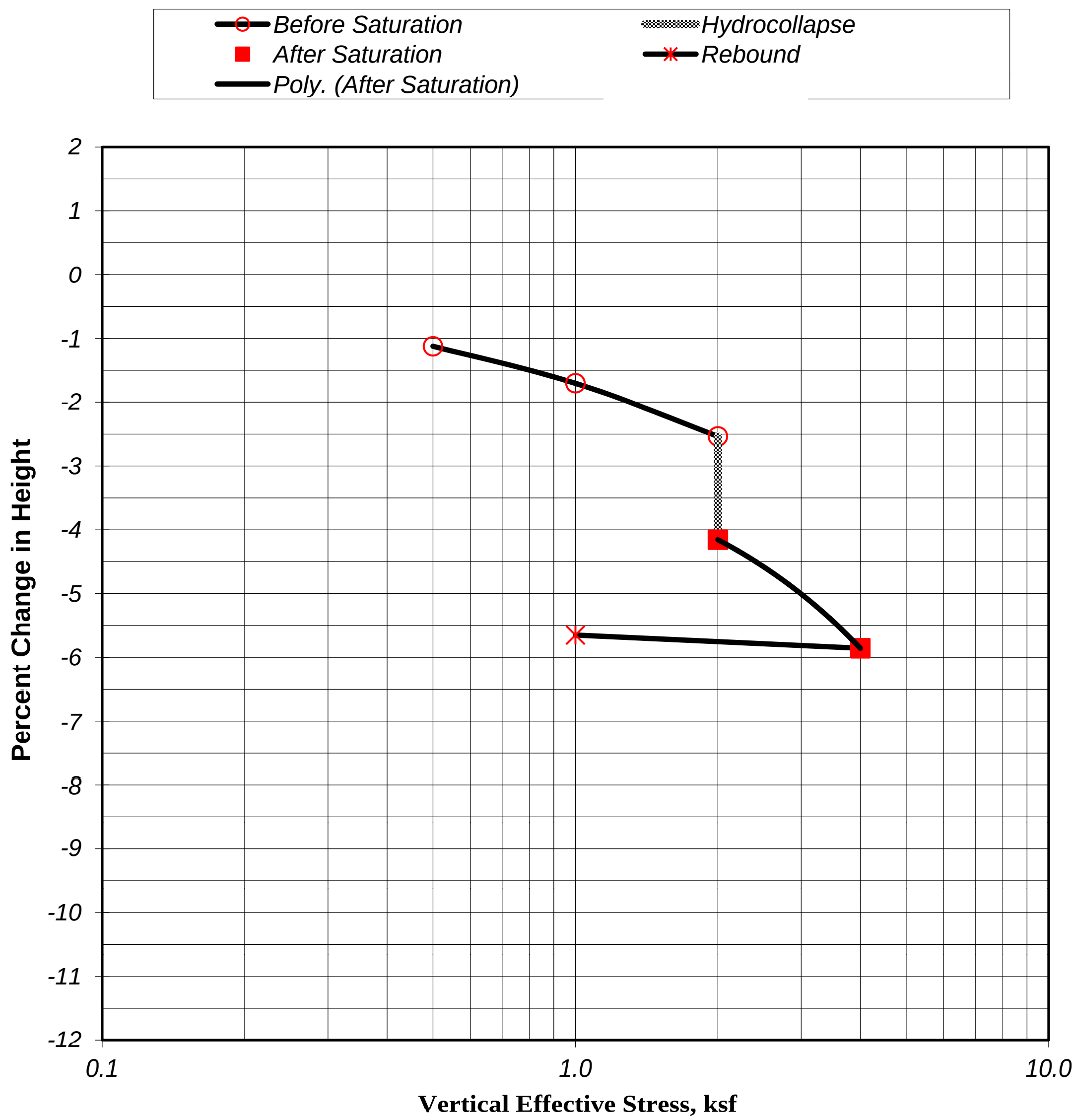
Silt (ML)

Ring Sample

Initial Dry Density:	92.8 pcf
Initial Moisture, %:	7.4%
Specific Gravity (assumed):	2.67
Initial Void Ratio:	0.795

Hydrocollapse: 1.6% @ 2.0 ksf

% Change in Height vs Normal Presssure Diagram



File No.: 12161-01 September 17, 2013

Lab No.: 13-209

CONSOLIDATION TEST

ASTM D 2435-04 & D 5333

Vista Asoleado
B-6 @ 5 feet

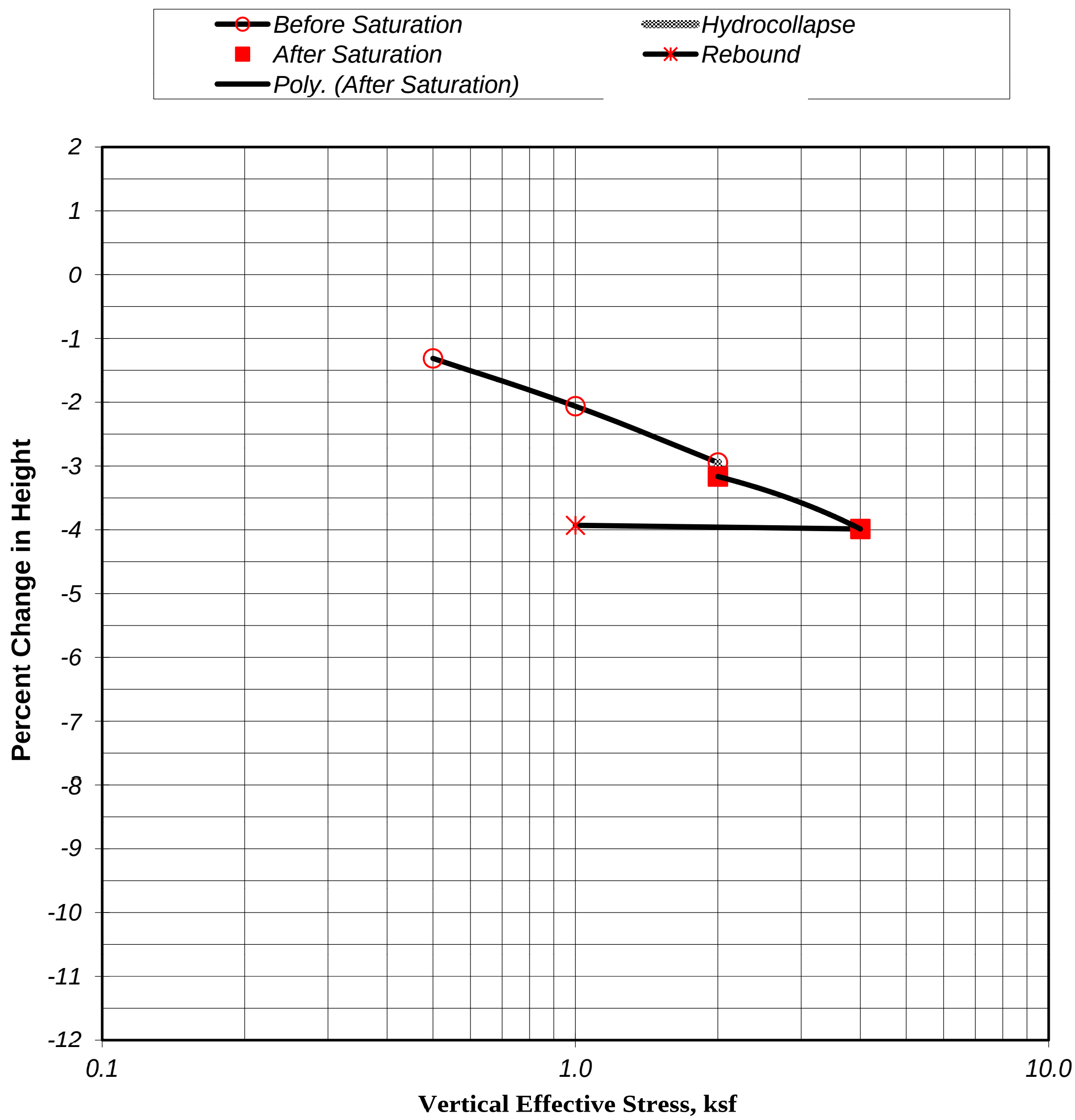
Silty Sand (SM)

Ring Sample

Initial Dry Density: 89.7 pcf
Initial Moisture, %: 7.9%
Specific Gravity (assumed): 2.67
Initial Void Ratio: 0.858

Hydrocollapse: 0.2% @ 2.0 ksf

% Change in Height vs Normal Presssure Diagram



File No.: 12161-01 September 17, 2013

Lab No.: 13-209

EXPANSION INDEX

ASTM D-4829-08a, UBC 18-2

Job Name: Vista Asoleado
Sample ID: B1 @ 0-5 feet
Soil Description: Silty Sand (SM)

Initial Moisture, %:	11.8
Initial Compacted Dry Density, pcf:	109.5
Initial Saturation, %:	59
Final Moisture, %:	18.7
Volumetric Swell, %:	0.1

Expansion Index, EI: 5 Very Low

Adjusted to EI at 50 % saturation according to Section 10.1.2 of ASTM D4829

EI	UBC Classification
0-20	Very Low
21-50	Low
51-90	Medium
91-130	High
>130	Very High

File No.: 12161-01 September 17, 2013

Lab No.: 13-209

EXPANSION INDEX

ASTM D-4829-08a, UBC 18-2

Job Name: Vista Asoleado
Sample ID: B6 @ 0-5 feet
Soil Description: Silty Sand (SM)

Initial Moisture, %:	10.5
Initial Compacted Dry Density, pcf:	109.1
Initial Saturation, %:	52
Final Moisture, %:	18.6
Volumetric Swell, %:	0.3

Expansion Index, EI: 4 Very Low

Adjusted to EI at 50 % saturation according to Section 10.1.2 of ASTM D4829

EI	UBC Classification
0-20	Very Low
21-50	Low
51-90	Medium
91-130	High
>130	Very High

File No.: 12161-01 September 17, 2013
Lab No.: 13-209

MAXIMUM DRY DENSITY / OPTIMUM MOISTURE

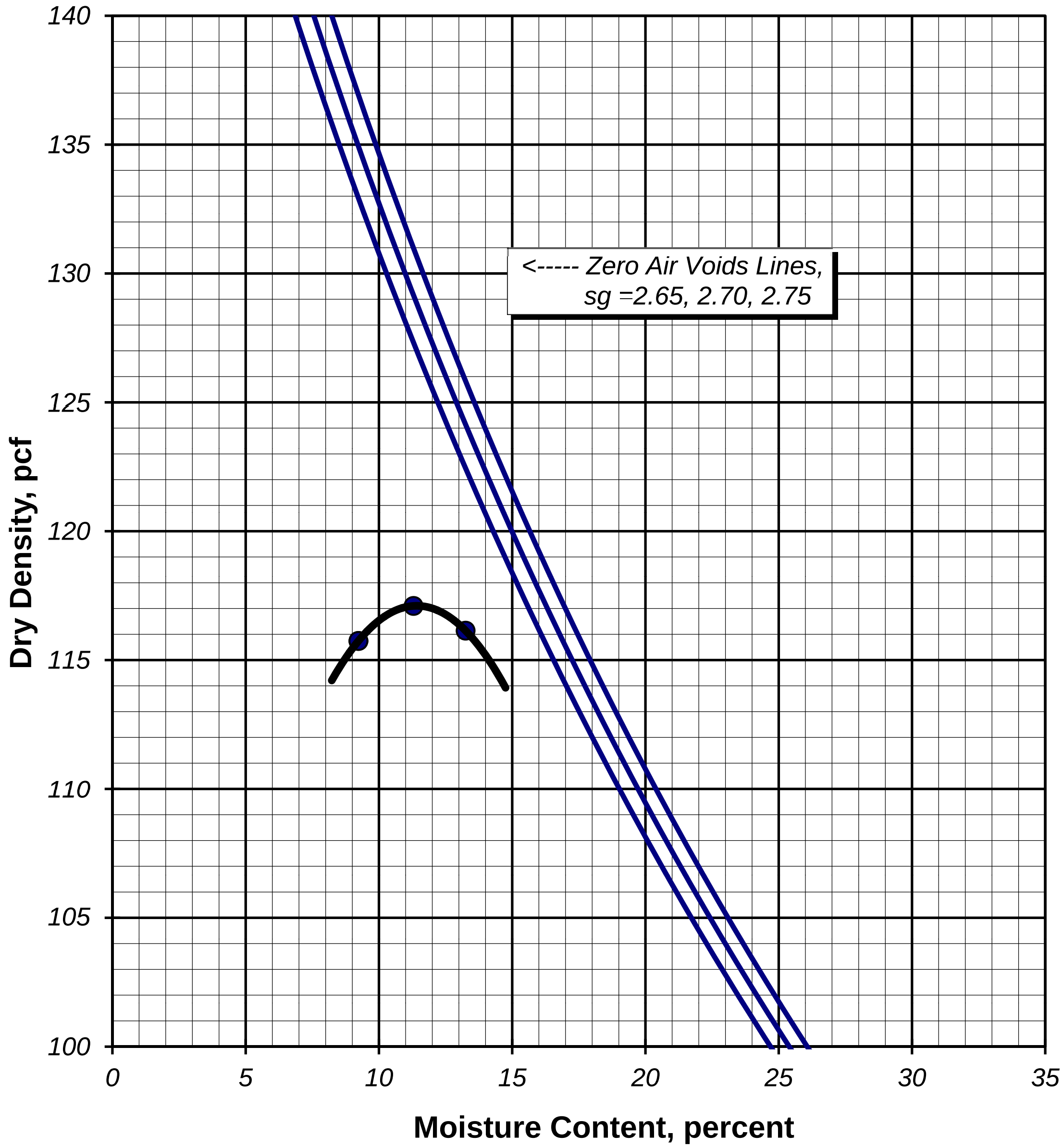
ASTM D 1557-12 (Modified)

Job Name: Vista Asoleado
Sample ID: 1
Location: B2 @ 0-5 feet
Description: Olive Brown Silty Fine Sand (SM)

Procedure Used: A
Preparation Method: Moist
Rammer Type: Mechanical
Lab Number: 13-209

Maximum Dry Density: 117.1 pcf
Optimum Moisture: 11.5%

Sieve Size	% Retained (Cumulative)
3/4"	0.0
3/8"	0.0
#4	0.0



File No.: 12161-01 September 17, 2013

Lab No.: 13-209

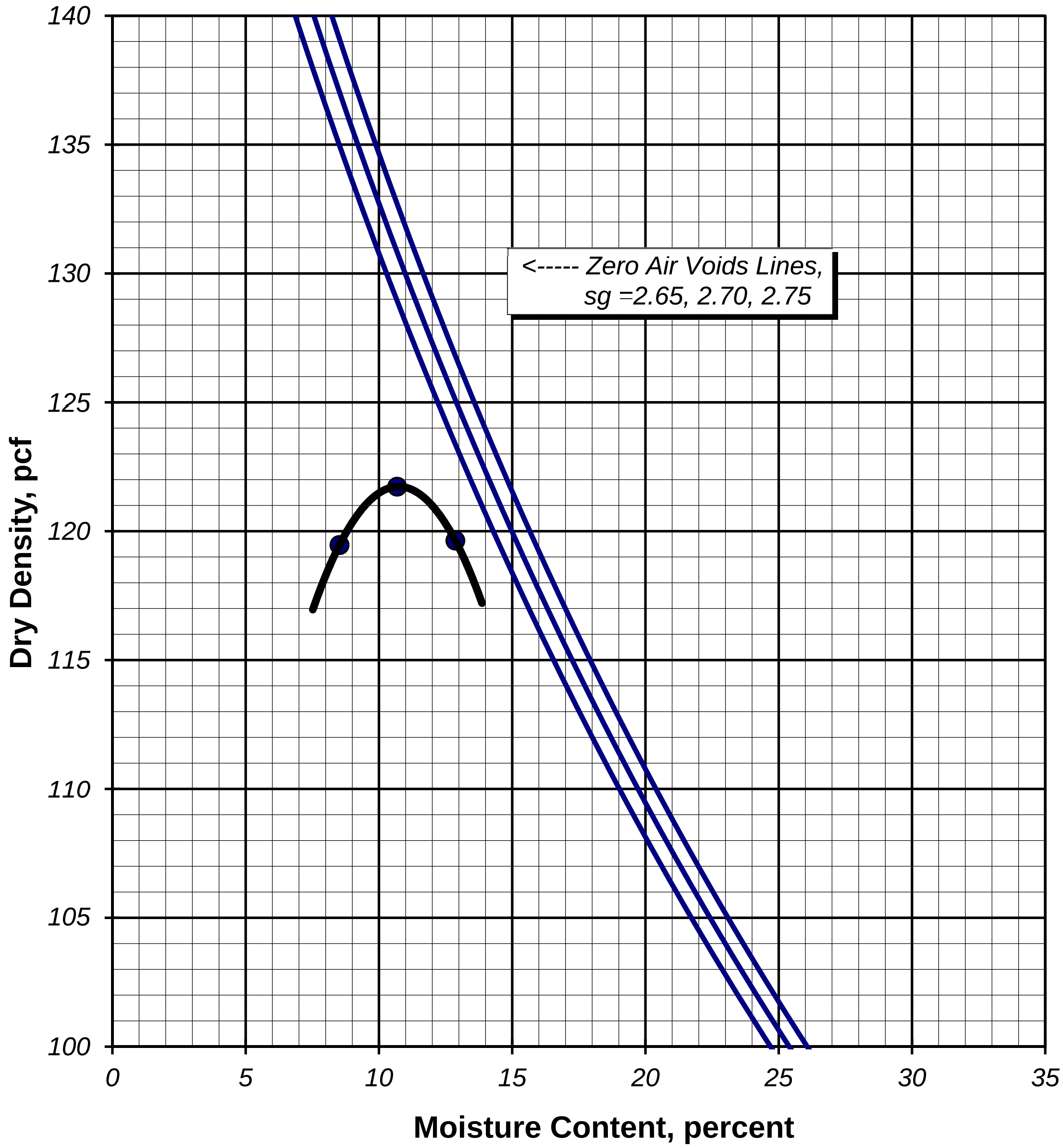
MAXIMUM DRY DENSITY / OPTIMUM MOISTURE ASTM D 1557-12 (Modified)

Job Name:	Vista Asoleado	Procedure Used:	A
Sample ID:	2	Preparation Method:	Moist
Location:	B6 @ 0-5 feet	Rammer Type:	Mechanical
Description:	Gray Brown Silty Fine Sand (SM)	Lab Number:	13-209

Maximum Dry Density: 121.8 pcf

Optimum Moisture: 10.8%

Sieve Size	% Retained (Cumulative)
3/4"	0.0
3/8"	0.0
#4	0.0



File No.: 12161-01 9/17/2013

Lab No.: 13-209

SOIL CHEMICAL ANALYSES

Job Name: Vista Asoleado
Job No.: 12161-01

Sample ID:	B1	B2	DF	RL
Sample Depth, feet:	0-5	0-5		
Sulfate, mg/Kg (ppm): (ASTM D 4327)	**587**	**459**	20	10.00
Chloride, mg/Kg (ppm): (ASTM D 4327)	**72**	**81**	20	4.00
pH, (pH Units): (ASTM D 1293)	**8.01**	**8.31**	1	---
Resistivity, (ohm-cm):	**253**	**12**	---	---
Conductivity, (μmhos-cm): (ASTM D 1125)	**3,960**	**855**	1	2.00

Note: Tests performed by Subcontract Laboratory:
Truesdail Laboratories, Inc.
14201 Franklin Avenue
Tustin, California 92780-7008 Tel: (714) 730-6462

DF: Dilution Factor
RL: Reporting Limit
N.D.: Not Detectable

General Guidelines for Soil Corrosivity

Chemical Agent	Amount in Soil	Degree of Corrosivity
Soluble Sulfates[1]	0 -1,000 mg/Kg (ppm) [0-.1%]	Low
	1,000 - 2,000 mg/Kg (ppm) [0.1-0.2%]	Moderate
	2,000 - 20,000 mg/Kg (ppm) [0.2-2.0%]	Severe
	> 20,000 mg/Kg (ppm) [>2.0%]	Very Severe
Resistivity[2]	0- 900 ohm-cm	Very Severely Corrosive
	900 to 2,300 ohm-cm	Severely Corrosive
	2,300 to 5,000 ohm-cm	Moderately Corrosive
	5,000-10,000 ohm-cm	Mildly Corrosive
	10,000+ ohm-cm	Progressively Less Corrosive

1 - General corrosivity to concrete elements. American Concrete Institute (ACI) Water Soluble Sulfate in Soil by Weight, ACI 318, Tables 4.2.2 - Exposure Conditions and Table 4.3.1 - Requirements for Concrete Exposed to Sulfate-Containing Solutions. ***It is recommended that concrete be proportioned in accordance with the requirements of the two ACI tables listed above (4.2.2 and 4.3.1). The current ACI should be referred to for further information.***

2 - General corrosivity to metallic elements (iron, steel, etc.). Although no standard has been developed and accepted by corrosion engineering organizations, it is generally agreed that the classification shown above, or other similar classifications, reflect soil corrosivity. Source: Corrosionsource.com. The classification presented is excerpted from ASTM STP 1013 titled "Effects of Soil Characteristics on Corrosion" (February, 1989)

File No.: 12161-01 9/17/2013

Lab No.: 13-209

SOIL CHEMICAL ANALYSES

Job Name: Vista Asoleado
Job No.: 12161-01

Sample ID:	B4		
Sample Depth, feet:	0-5	DF	RL
Sulfate, mg/Kg (ppm): (ASTM D 4327)	**653**	80	40.00
Chloride, mg/Kg (ppm): (ASTM D 4327)	**290**	80	16.00
pH, (pH Units): (ASTM D 1293)	**8.29**	1	---
Resistivity, (ohm-cm):	**820**	---	---
Conductivity, (μmhos-cm): (ASTM D 1125)	**1,220**	1	2.00

Note: Tests performed by Subcontract Laboratory:
Truesdail Laboratories, Inc.
14201 Franklin Avenue
Tustin, California 92780-7008 Tel: (714) 730-6462

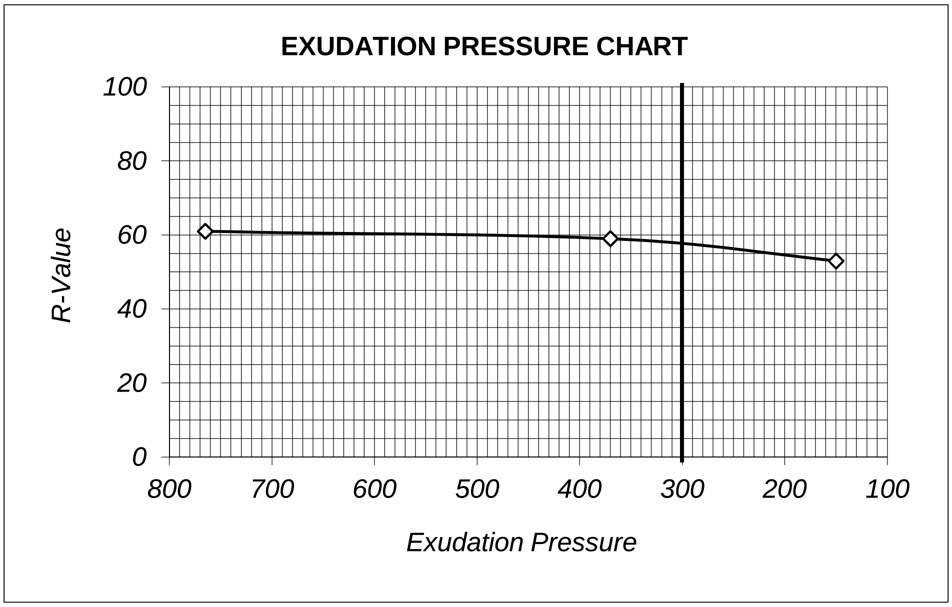
DF: Dilution Factor
RL: Reporting Limit
N.D.: Not Detectable

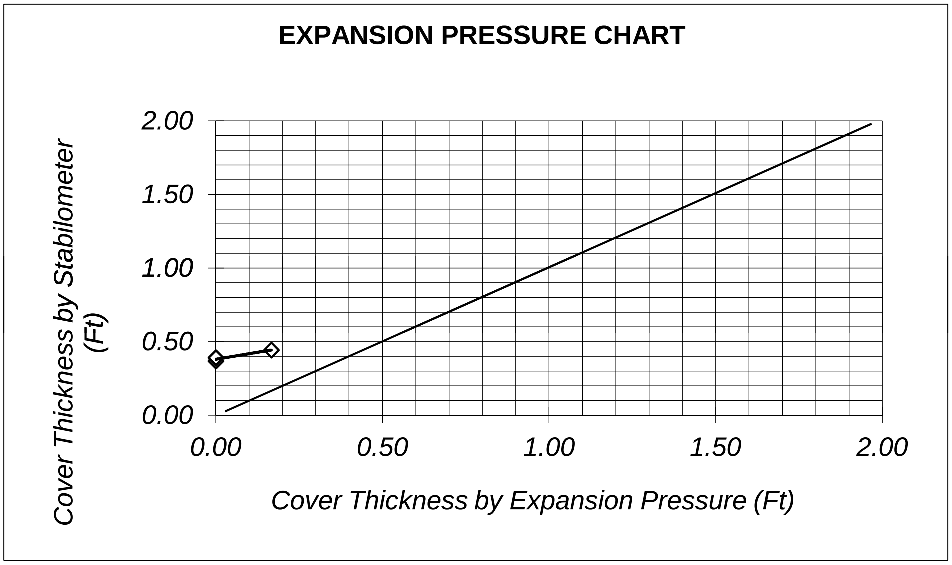
General Guidelines for Soil Corrosivity

Chemical Agent	Amount in Soil	Degree of Corrosivity
Soluble Sulfates[1]	0 -1,000 mg/Kg (ppm) [0-.1%]	Low
	1,000 - 2,000 mg/Kg (ppm) [0.1-0.2%]	Moderate
	2,000 - 20,000 mg/Kg (ppm) [0.2-2.0%]	Severe
	> 20,000 mg/Kg (ppm) [>2.0%]	Very Severe
Resistivity[2]	0- 900 ohm-cm	Very Severely Corrosive
	900 to 2,300 ohm-cm	Severely Corrosive
	2,300 to 5,000 ohm-cm	Moderately Corrosive
	5,000-10,000 ohm-cm	Mildly Corrosive
	10,000+ ohm-cm	Progressively Less Corrosive

1 - General corrosivity to concrete elements. American Concrete Institute (ACI) Water Soluble Sulfate in Soil by Weight, ACI 318, Tables 4.2.2 - Exposure Conditions and Table 4.3.1 - Requirements for Concrete Exposed to Sulfate-Containing Solutions. ***It is recommended that concrete be proportioned in accordance with the requirements of the two ACI tables listed above (4.2.2 and 4.3.1). The current ACI should be referred to for further information.***

2 - General corrosivity to metallic elements (iron, steel, etc.). Although no standard has been developed and accepted by corrosion engineering organizations, it is generally agreed that the classification shown above, or other similar classifications, reflect soil corrosivity. Source: Corrosionsource.com. The classification presented is excerpted from ASTM STP 1013 titled "Effects of Soil Characteristics on Corrosion" (February, 1989)





JOB NAME: *Vista Asoleado*
SAMPLE I. D.: *Boring B1@0-5*
SOIL DESCRIPTION: *Silty Fine Sand (SM)*

SPECIMEN NUMBER	A	B	C
EXUDATION PRESSURE	765	370	150
RESISTANCE VALUE	61	59	53
EXPANSION DIAL(0.0001")	0	0	5
EXPANSION PRESSURE (PSF)	0.0	0.0	21.7
% MOISTURE AT TEST	11.4	12.4	13.7
DRY DENSITY AT TEST	118.1	116.9	113.8

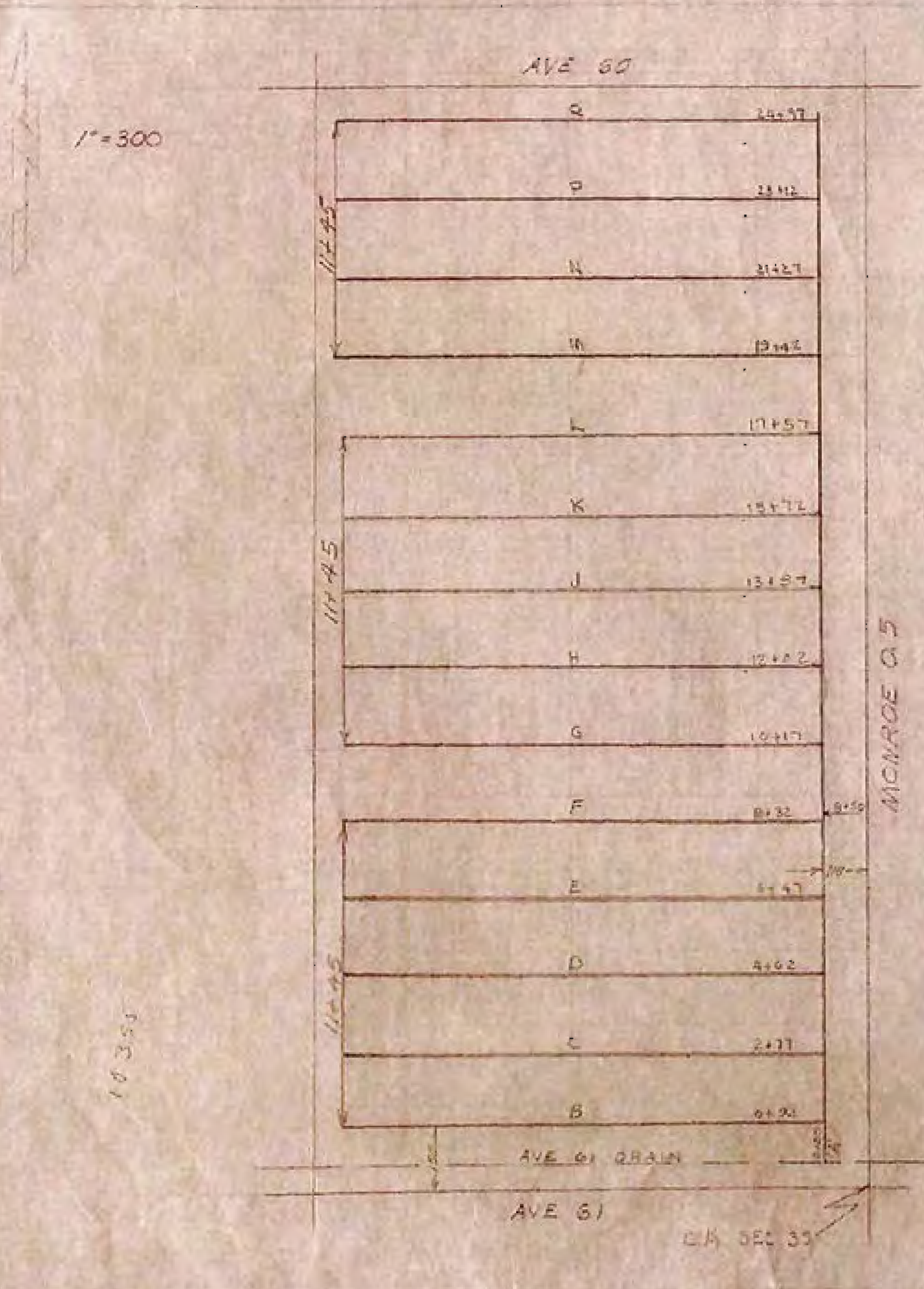
R-VALUE @ 300 PSI EXUDATION	57
R-VALUE by Expansion Pressure*	100

**Based on a Traffic Index of 5.0 and a Gravel Factor of 1.70*

Earth Systems Southwest

APPENDIX C

Tile Drain Maps



LINE NO.	OUTLET ELEV	SLOPE	STA	TO STA	SLOPE	STA	TO STA	SLOPE	STA TO STA
A	-98.00	0.0020	0+00	8+50					
B	-97.00	0.0020	0+00	11+45					
C	-96.60	0.0020	0+00	11+45					
D	-96.50	0.0025	0+00	8+00	0.0010	8+00	11+45		
E	-95.90	0.0015	0+00	11+45					
F	-96.00	0.0025	0+00	11+45					
		NOTE: The above tile installed by Co Val Concrete Pipe in Jan. 60							
A	-96.33	0.0022	8+50	25+05					
M	-93.00	0.0015	0+00	11+45					
N	-92.80	0.0020	0+00	11+45					
P	-92.30	0.0015	0+00	11+45					
Q	-91.90	0.0015	0+00	11+45					

NOTE: THE ABOVE INSTALLED BY CO VAL PIPE CO. IN JUNE 1961 M-2

LINE NO.	FOOTAGE STAKED	TILE INSTALLED			
A	850'	850'			
B	1145'				1145'
C	1145'				1145'
D	1145'				1145'
E	1145'				1145'
F	1145'				1145'
A	1455'	1655'			
M	1145'			1145'	
N	1145'			1145'	
P	1145'			1145'	
Q	1145'			1145'	

DATE STAKED
DATE INSTALLED
FIELD BOOK REF
DRAWING REF
INSTALLED BY

FARM TILE DRAINAGE SYSTEM
DAVID L. ARMSTRONG
E½ NW¼ SEC. 35 T6S R7E
PLAN & GRADE
EF
1/60 T[illegible]D

G	1145'	1145'	G	-95.80	0.0020	0+00	11+45
H	1145'	1145'	H	-95.30	0.0020	0+00	11+45
J	1145'	1145'	J	-95.00	0.0020	0+00	11+45
K	1145'	1145'	K	-94.50	0.0015	0+00	11+45
L	1145'	1145'	L	-94.10	0.0015	0+00	11+45

NOTE: THE ABOVE INSTALLED BY CO VAL PIPE CO. IN DEC. 1961 M-212

FARM TILE DRAINAGE SYSTEM
DAVID L. ARMSTRONG
E½ NW¼ SEC. 35 T6S R7E

BF

12/61 TD-300

G	1145'	1145'	G	-95.80	0.0020	0+00	11+45
H	1145'	1145'	H	-95.30	0.0020	0+00	11+45
J	1145'	1145'	J	-95.00	0.0020	0+00	11+45
K	1145'	1145'	K	-94.50	0.0015	0+00	11+45
L	1145'	1145'	L	-94.10	0.0015	0+00	11+45

NOTE: THE ABOVE INSTALLED BY CO VAL PIPE CO. IN DEC. 1961 M-212

FARM TILE DRAINAGE SYSTEM
DAVID L. ARMSTRONG
E½ NW¼ SEC. 35 T6S R7E
BF
12/61 TD-300

APPENDIX E

Technical Noise Report

Technical Noise Report

for the

Vista Soleada Specific Plan

Prepared for

Cal Thermal Real Estate, LLC
c/o Mr. Paul Quill
4675 MacArthur Ct., Suite 1550
Newport Beach, CA 92660

Prepared by

Meridian Consultants LLC
860 Hampshire Road, Suite P
Westlake Village, CA 91361

January 2014, revised May 2014

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Appendix

A Noise Modeling Calculations

1. INTRODUCTION

This report presents the noise analysis for the Vista Soleada Specific Plan (Specific Plan) Project in the eastern Coachella Valley, California **(Figure 1, Regional Location Map).**

The Noise Report analyzes short-term noise and groundborne vibration impacts associated with the Specific Plan Project; discusses the applicable federal, State, and local noise and vibration regulations, the applicable noise and vibration thresholds, the methodology used to analyze potential noise and vibration impacts, and the modeled roadway noise; and presents the existing monitored data results.

2. SPECIFIC PLAN DESCRIPTION

The Specific Plan Project proposes a rural, equestrian-themed residential project in the eastern Coachella Valley, California. The Project site is located within unincorporated Riverside County south of Avenue 60 and west of Monroe Street in the Vista Santa Rosa Policy Area, adjacent to the east of the City of La Quinta **(Figure 2, Local Vicinity Map).** The Project site is 80.9 acres in size and the Specific Plan would guide the development of 230 residences, six private parks, citrus-themed country lanes, and a 100-foot-wide perimeter grove of Medjool date palm trees **(Figure 3, Conceptual Site Plan).** Opportunity sites for a small rural market and equestrian way station are also proposed as these features are encouraged by the Vista Santa Rosa Land Use Conceptual Plan. The Project would include an equestrian way facility in the northeastern portion of the site for public and private use **(Figure 4, Conceptual Equestrian Way Station)** and a small rural market in the southeastern portion of the site.

Residential density within the Specific Plan site would average 2.8 dwelling units per gross acre (du/ac), consisting of 211 Citrus Village residential lots with a minimum size of 4,000 square feet (sq. ft.) and an average of 6,000 sq. ft. in the middle of the site and 19 Date Palm Estate lots ranging in size from 0.75 acres to 1 acre on the edges of the site on Avenue 60, along the eastern perimeter, and Avenue 61. The smaller lots abut similarly sized residential lots along the western boundary, transitioning to larger estate lots, then to the date palm buffer on the northern, southern, and eastern edges. Private parks for joint recreation/retention/community garden use are interspersed throughout the Specific Plan site to provide common open space and a convenient location for outdoor community gatherings and activities. An internal system of 3-foot-wide multiuse trails would be interspersed within the site along the central spine road within citrus-themed yardscapes. Pedestrian pass-throughs are planned between residential lots at regular intervals to allow ample community access to parks and the perimeter public trail.

The two main entries to the Project site are connected by a central axis road with traffic circles at intersections. To achieve a rural character within the community, the Project proposes custom rural road sections and street standards with reduced centerline radii, hammerhead turnarounds rather than cul-de-sacs, traffic circles rather than standard T-intersections, and turf-lined drainage swales in place of concrete curbs and gutters.

Utility improvements would extend from the Project site to the nearest existing utility connections. Potable water lines 18 inches in diameter would extend approximately 970 feet west from the eastern boundary of the equestrian way station within Avenue 60 and then 1,820 linear feet west from the southern entry, within Avenue 61, to existing 18-inch water mains. The sewer main would be 10 inches in diameter and would extend east 3,430 linear feet within Avenue 61 and would connect to a proposed 15-inch sewer main within Jackson Street, which would extend 2,695 linear feet to the south to connect to an existing 33-inch sewer main at the corner of Jackson Street and Avenue 62 **(Figure 5, Conceptual Utilities Extension Plan).**

Topography

The Project site is approximately 81 acres in size and consists of farmland that is currently being used to grow carrots. The site is topographically flat and level at an elevation ranging from 81 to 88 feet below mean sea level.

Surrounding Uses

There is vacant land north of Avenue 60, vacant unimproved land in the City of La Quinta west of the Specific Plan site, a date farm packaging plant and a vacant residential building south of Avenue 61, and vacant land and some agricultural uses east of the Project site.

3. NOISE DESCRIPTORS

Fundamentals of Sound

Because the human ear does not respond uniformly to sounds at all frequencies, sound-pressure level alone is not a reliable indicator of loudness. For example, the human ear is less sensitive to low and high frequencies than to the medium frequencies that more closely correspond to human speech. In response to sensitivity of the human ear to certain sound frequencies, the A-weighted noise level, referenced in units of dB(A), was developed to better correspond with people's subjective judgment of sound levels.

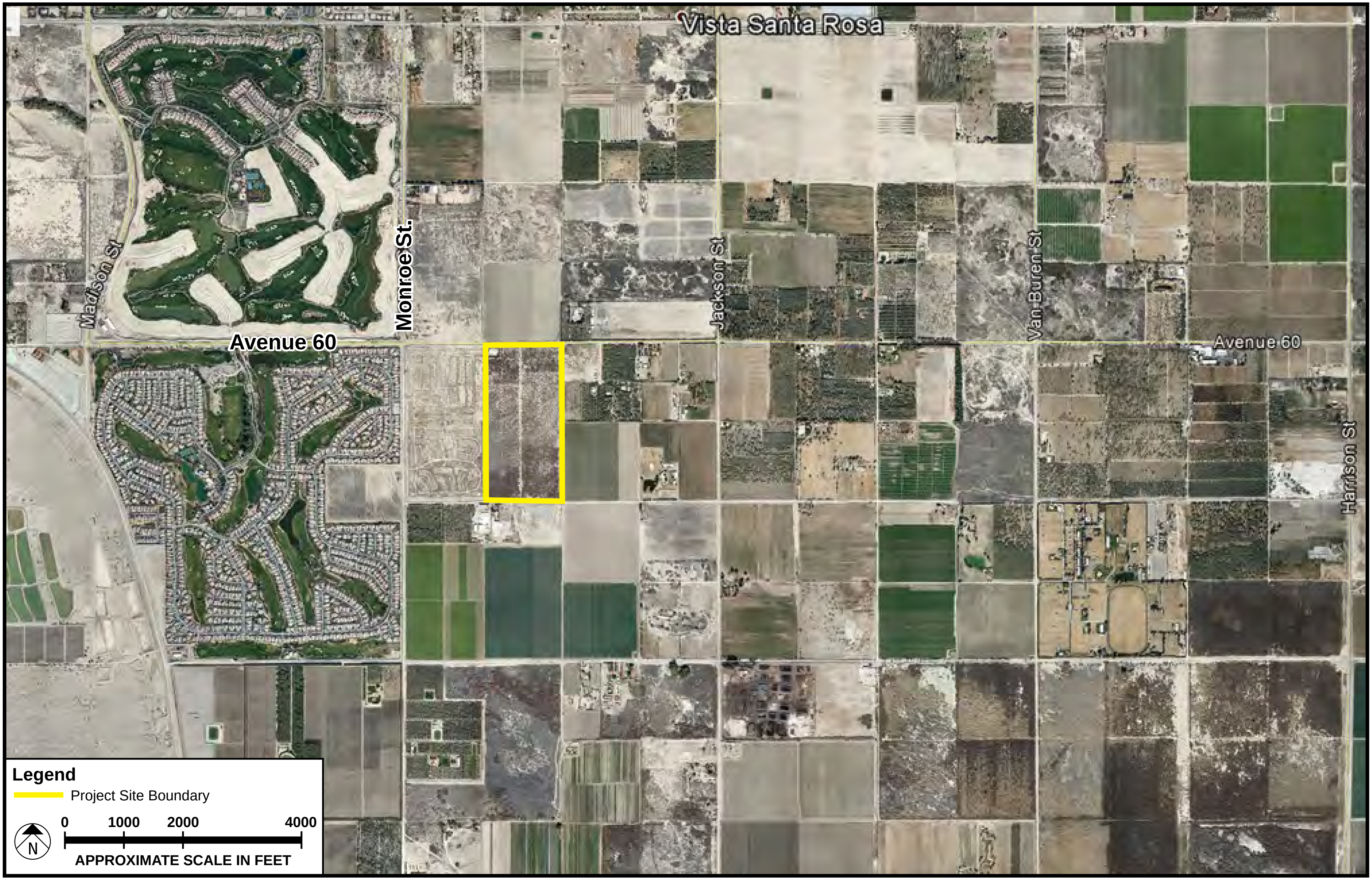
SOURCE: Google Earth - 2013; Meridian Consultants, LLC - November 2013

FIGURE 1

Meridian Consultants

Regional Location Map

043-001-13



SOURCE: Google Earth - 2013; Meridian Consultants, LLC - November 2013

FIGURE **2**

Meridian Consultants

Local Vicinity Map

043-001-13

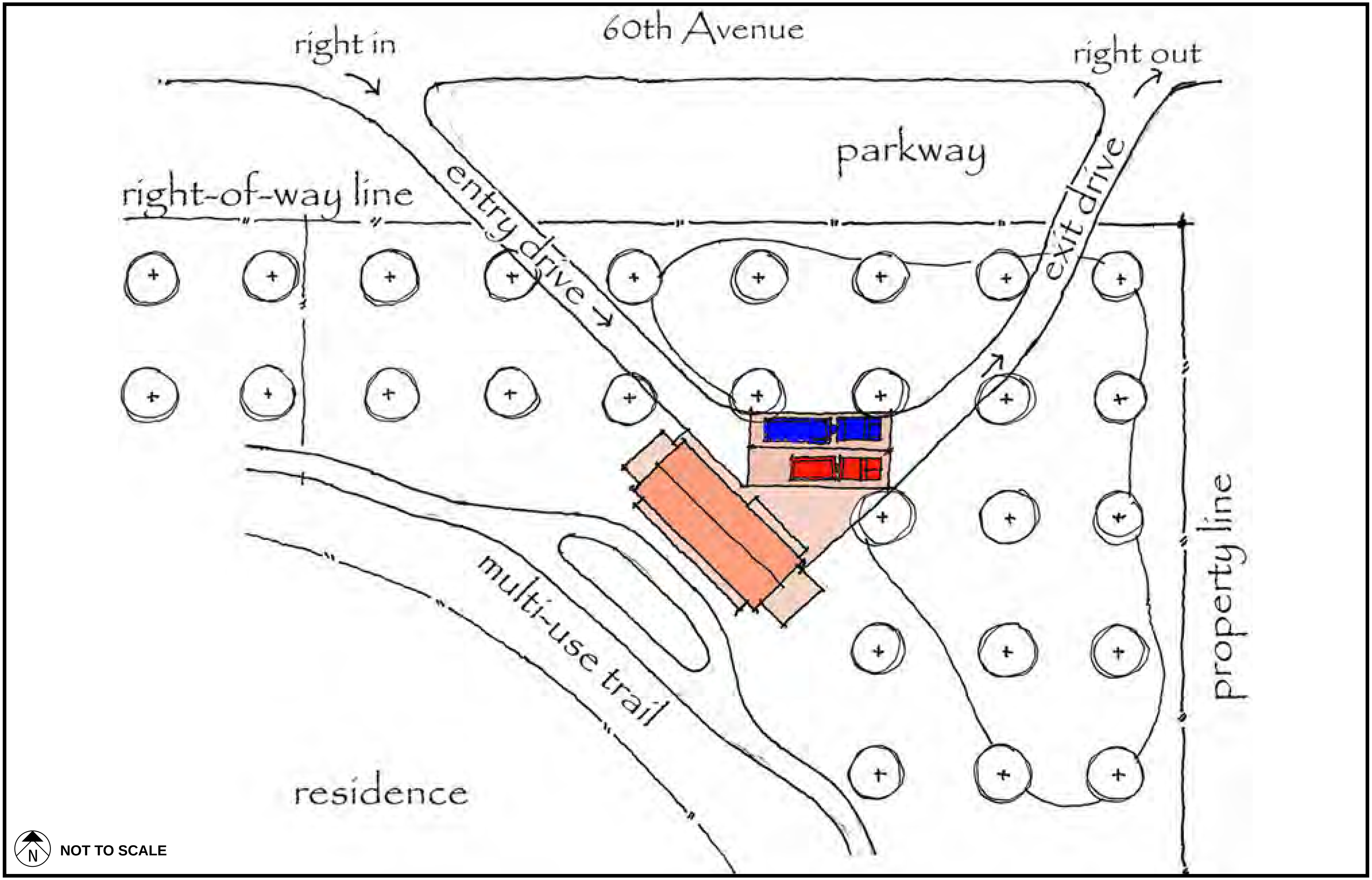
SOURCE: MSA Consulting, Inc.; Meridian Consultants – November 2013

FIGURE **3**

Conceptual Site Plan

Meridian Consultants

043-001-13



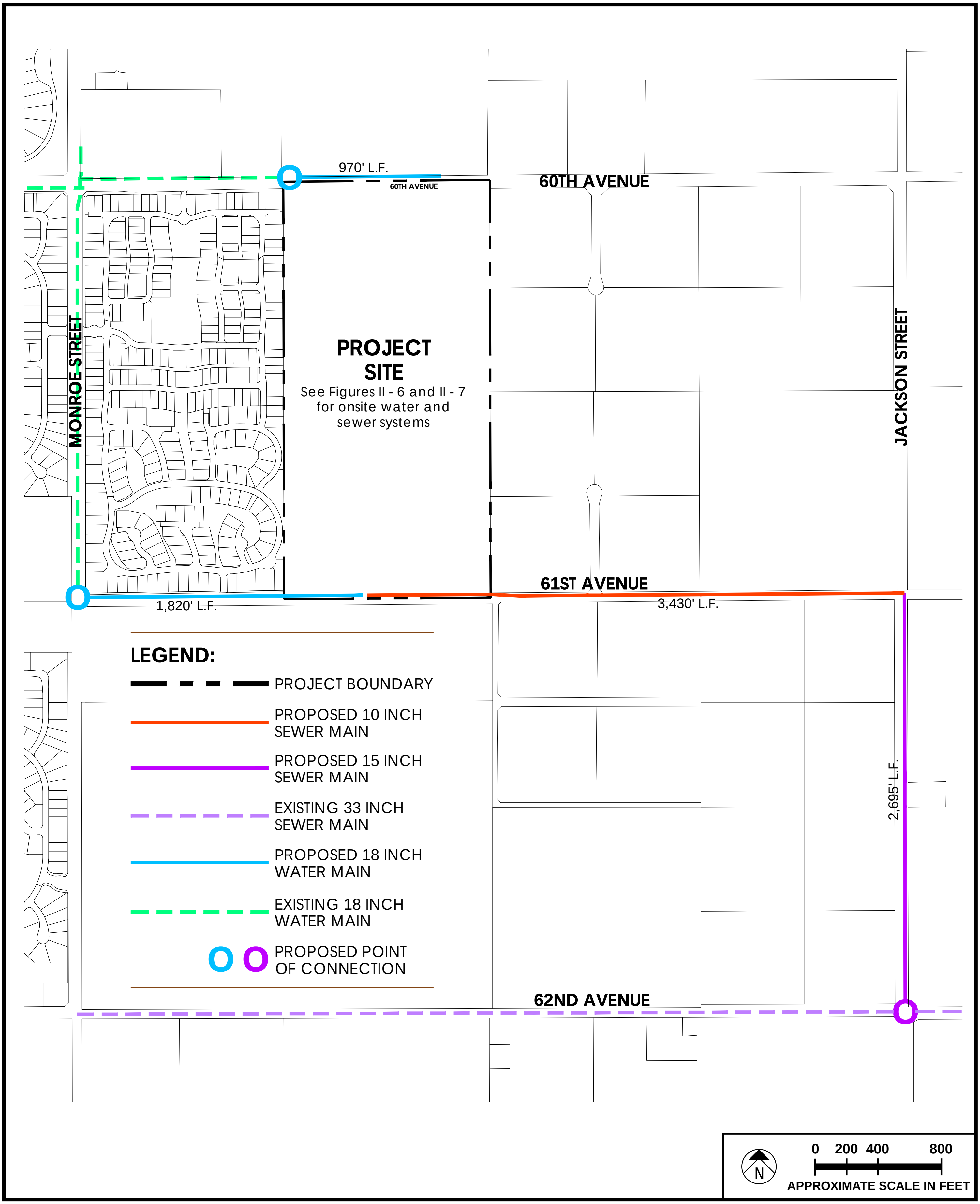
SOURCE: MSA Consulting, Inc.; Meridian Consultants – November 2013

FIGURE 4

Meridian Consultants

Conceptual Equestrian Way Station Plan

043-001-13



SOURCE: MSA Consulting, Inc. - Vista Soleada Specific Plan, December 2013.

FIGURE 5

Meridian Consultants

Conceptual Utilities Extension Plan

043-001-13

To support assessing a community reaction to noise, scales have been developed that average sound-pressure levels over time and quantifies the result in terms of a single numerical descriptor. Several scales have been developed that address community noise levels. The equivalent sound level (Leq) is the average A-weighted sound level measured over a given time interval. Leq can be measured over any period, but is typically measured for 1-minute, 15-minute, 1-hour, or 24-hour periods.

Table 1, Noise Descriptors, identifies various noise descriptors developed to measure sound levels over different periods of time.

Table 1
Noise Descriptors

Term	Definition
Decibel (dB)	The unit for measuring the volume of sound equal to 10 times the logarithm (base 10) of the ratio of the pressure of a measure sound to a reference pressure.
A-weighted decibel (dB[A])	A sound measurement scale that adjusts the pressure of individual frequencies according to human sensitivities. The scale accounts for the fact that the region of highest sensitivity for the human ear is between 2,000 and 4,000 cycles per second (hertz).
Hertz (Hz)	The frequency of the pressure vibration, which is measured in cycles per second.
Kilo hertz (kHz)	One thousand cycles per second.
Equivalent sound level (Leq)	The sound level containing the same total energy as a time varying signal over a given time period. The Leq is the value that expresses the time averaged total energy of a fluctuating sound level. Leq can be measured over any time period, but is typically measured for 1-minute, 15-minute, 1-hour, or 24-hour periods.
Community noise equivalent level (CNEL)	A rating of community noise exposure to all sources of sound that differentiates between daytime, evening, and nighttime noise exposure. These adjustments add 5 dB(A) for the evening, 7:00 PM to 10:00 PM, and add 10 dB(A) for the night, 10:00 PM to 7:00 AM. The 5- and 10-dB penalties are applied to account for increased noise sensitivity during the evening and nighttime hours. The logarithmic effect of adding these penalties to the 1-hour Leq measurements typically results in a CNEL measurement that is within approximately 3 dB(A) of the peak-hour Leq.[a]
Nighttime (Lnight)	Lnight is the average noise exposure during the hourly periods from 10:00 PM to 7:00 AM.

Term	Definition
Sound pressure level	The sound pressure is the force of sound on a surface area perpendicular to the direction of the sound. The sound pressure level is expressed in dB.
Ambient noise	The level of noise that is all encompassing within a given environment, being usually a composite of sounds from many and varied sources near to and far from the observer. No specific source is identified in the ambient.

a California Department of Transportation, Technical Noise Supplement; A Technical Supplement to the Traffic Noise Analysis Protocol, (Sacramento, California: November 2009, pp. N51–N54).

A doubling of sound energy results in a 3-dB(A) increase in sound, which means that a doubling of sound wave energy (e.g., doubling the volume of traffic on a roadway) would result in a barely perceptible change in sound level. In general, changes in a noise level of less than 3 dB(A) are not noticed by the human ear.[1] Changes from 3 to 5 dB(A) may be noticed by some individuals who are extremely sensitive to changes in noise. An increase of greater than 5 dB(A) is readily noticeable, while the human ear perceives a 10-dB(A) increase in sound level to be a doubling of sound volume.

Noise sources can generally be categorized in two types: (1) point sources, such as stationary equipment; and (2) line sources, such as a roadway. Sound generated by a point source typically diminishes (attenuates) at a rate of 6 dB(A) for each doubling of distance from the source to the receptor at acoustically hard sites and at a rate of 7.5 dB(A) at acoustically soft sites.[2] A hard, or reflective, site consists of asphalt, concrete, and very hard-packed soil, which does not provide any excess ground-effect attenuation. An acoustically soft or absorptive site is characteristic of normal earth and most ground with vegetation. As an example, a 60-dB(A) noise level measured at 50 feet from a point source at an acoustically hard site would be 54 dB(A) at 100 feet from the source and would be 48 dB(A) at 200 feet from the source. Noise from the same point source at an acoustically soft site would be 52.5 dB(A) at 100 feet and 45 dB(A) at 200 feet from the source. Sound generated by a line source typically attenuates at a rate of 3 dB(A) and 4.5 dB(A) per doubling of distance from the source to the receptor for hard and soft sites, respectively.[3] Noise levels generated by a variety of activities are shown

1 U.S. Department of Transportation, Federal Highway Administration, *Fundamentals and Abatement of Highway Traffic Noise* (Springfield, VA: Author, September 1980, p. 81).

2 U.S. Department of Transportation (September 1980, p. 97).

3 U.S. Department of Transportation (September 1980, p. 97).

in **Figure 6, Common Noise Levels**. Manmade or natural barriers can also attenuate sound levels, as illustrated in **Figure 7, Noise Attenuation by Barriers**.

Fundamentals of Vibration

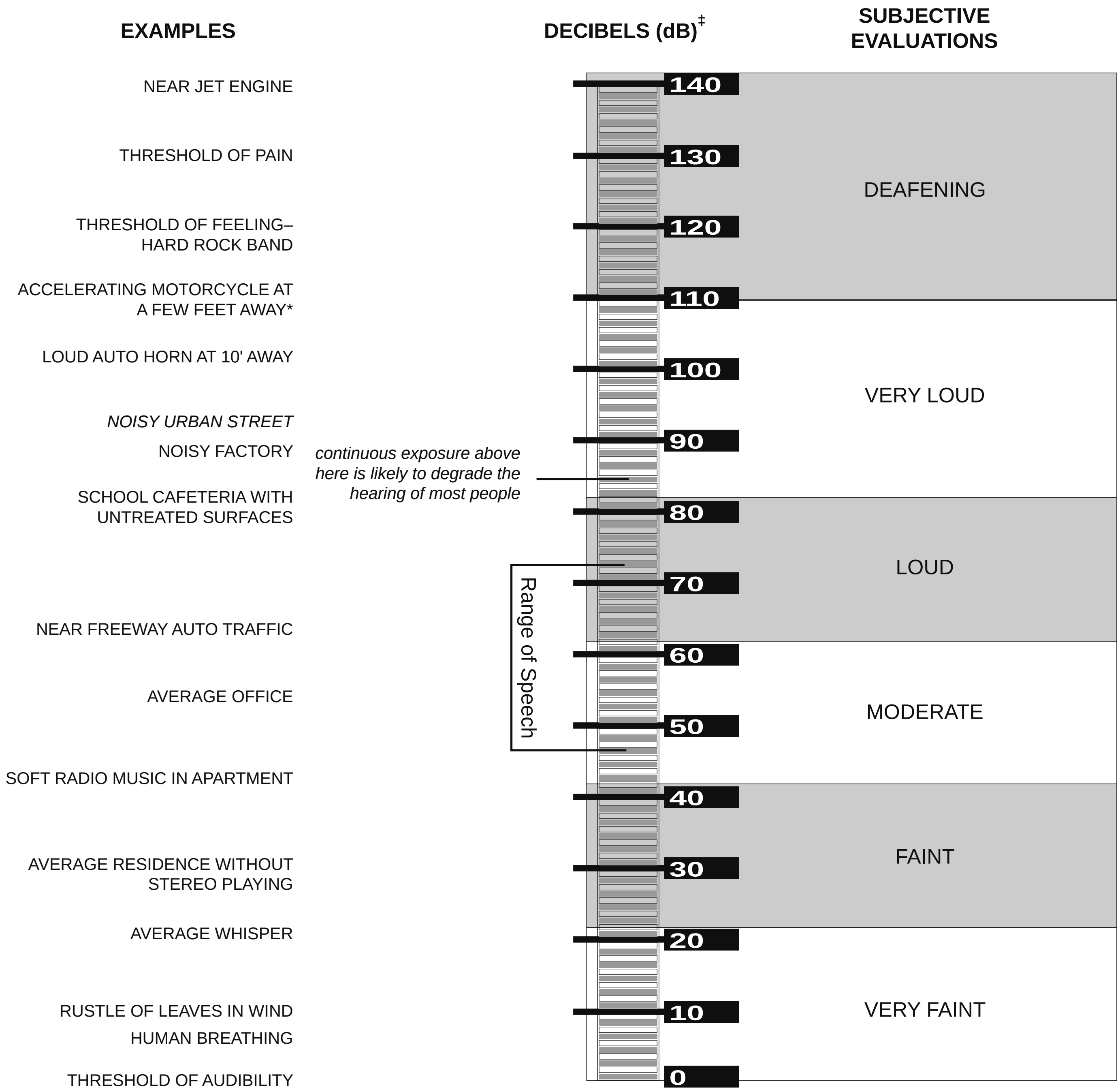
Vibration is commonly defined as an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. The peak particle velocity (PPV) or the root-mean-square (RMS) velocity is usually used to describe vibration amplitudes. PPV is defined as the maximum instantaneous peak of the vibration signal, while RMS is defined as the square root of the average of the squared amplitude of the signal. PPV is typically used for evaluating potential building damage, whereas RMS is typically more suitable for evaluating human response to groundborne vibration. The RMS vibration velocity level can be presented in inches per second or in VdB (a decibel unit referenced to 1 microinch per second). Commonly, groundborne vibration generated by manmade activities (i.e., road traffic, construction activity) attenuates rapidly with distance from the source of the vibration.

The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels for many people. Most perceptible indoor vibration is caused by sources within buildings such as the operation of mechanical equipment, the movement of people, or the slamming of doors. Typical outdoor sources of perceptible groundborne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the groundborne vibration from traffic is barely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration velocity, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings.

4. METHODOLOGY

Construction Scenario

The construction period for the Project is anticipated to consist of several phases and would last approximately 60 months. Phase I would involve the excavation of earth materials and replacement with properly compacted fill materials. Grading activities would involve the use of standard earth-moving equipment, such as drop hammer, dozers, loaders, excavators, graders, back hoes, pile drivers, dump trucks, and other related heavy-duty equipment, which would be stored on site during construction to minimize disruption of the surrounding land uses.



** NOTE: 50' from motorcycle equals noise at about 2000' from a four-engine jet aircraft.*

‡NOTE: dB are “average” values as measured on the A–scale of a sound–level meter.

FIGURE 6

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Common Noise Levels

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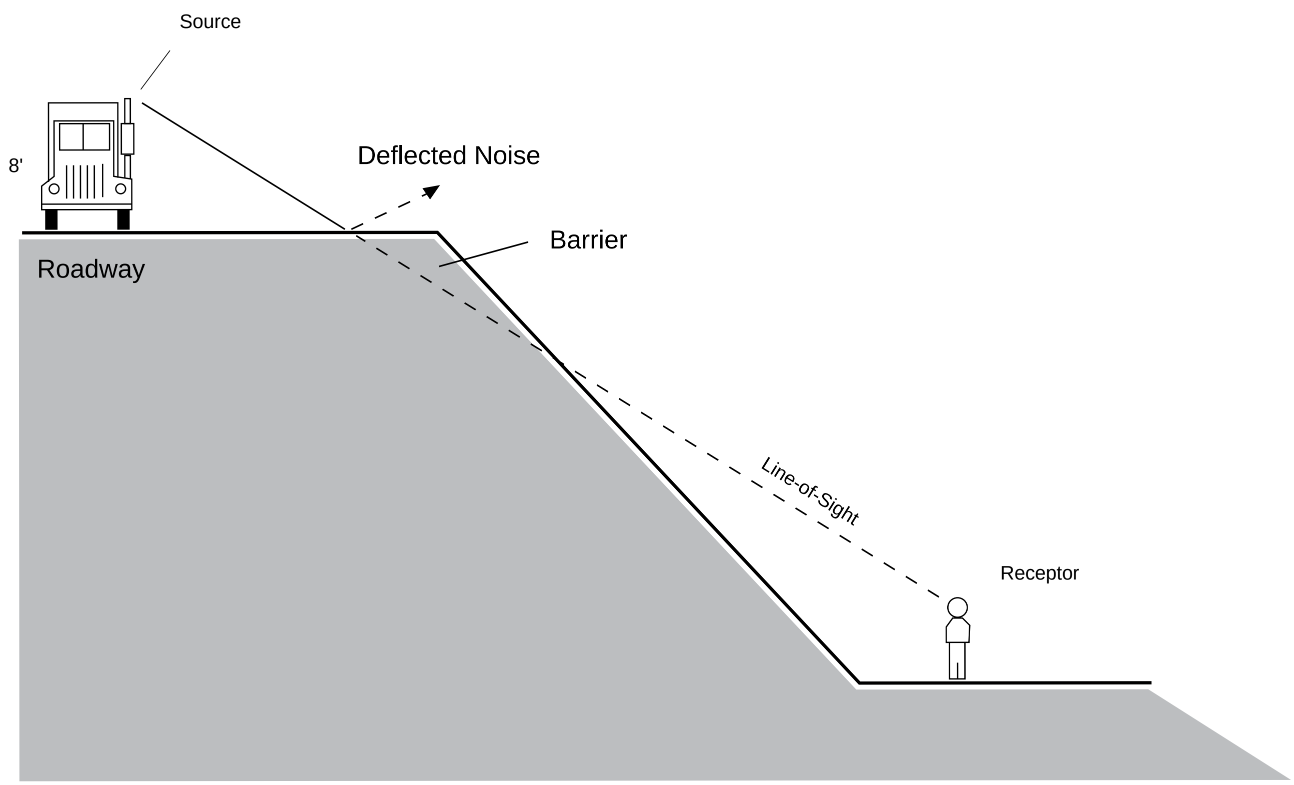
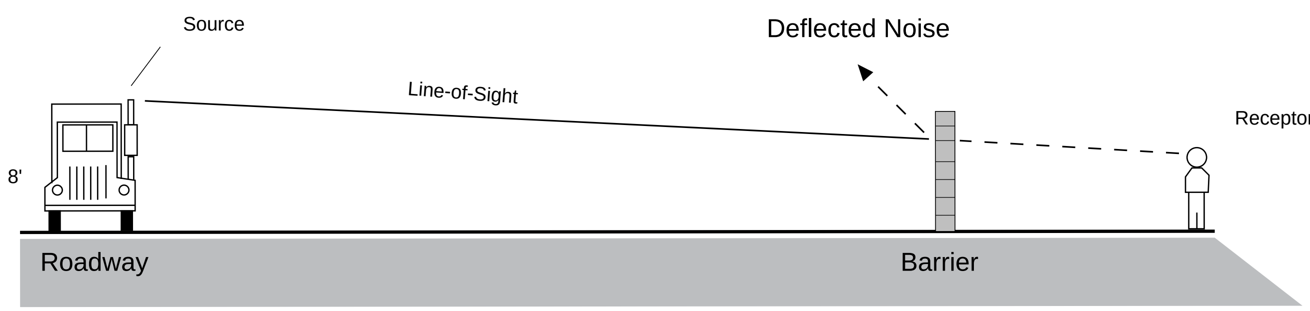


"Barrier Effect" Resulting from Differences in Elevation.



"Barrier Effect" Resulting from Typical Soundwall.

FIGURE 7

Meridian Consultants

Noise Attenuation by Barriers

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Phase II would consist of construction of the residential buildings and would involve finishing the structures. Above-grade construction activities would involve the use of standard construction equipment, such as hoists, cranes, mixer trucks, concrete pumps, laser screeds, and other related equipment.

Roadway Noise

In order to characterize the ambient roadway noise environment in the study area, noise prediction modeling was conducted based on vehicular traffic volumes along nearby roadway segments. Noise levels were modeled using the Federal Highway Administration (FHWA) Noise Prediction Model (FHWA-RD-77-108). This model calculates the average noise level in dB(A) CNEL along a given roadway segment based on traffic volumes, vehicle mix, average speeds, roadway geometry, and site conditions. It should be noted that the model calculates noise associated with a specific line source and the results characterize noise generated only by motor vehicle traffic along the specific roadway segment and do not reflect other noise sources in the Specific Plan area.

Average vehicle noise rates (energy rates) utilized in the FHWA Noise Prediction Model were modified to reflect average vehicle noise rates identified for the State of California by the California Department of Transportation. Data shows that California automobile noise is 0.8- to 1.0-dB(A) louder than national levels and that medium and heavy duty truck noise is 0.3- to 3-dB(A) quieter than national levels. Traffic volumes utilized as data inputs to the noise prediction model were calculated based on average daily trips provided by Vista Soleada (TTM 36590) Traffic Impact Analysis prepared by Urban Crossroads dated December 19, 2013, for roadway segments studied in the traffic impact analysis prepared for the Specific Plan. The 24-hour distribution was based on FHWA model default parameters. Avenue 60 and Avenue 61 would provide direct access to the Specific Plan site and, as such, a soft site was assumed for these segments.

The General Plan buildout year is assumed to be 2035 and roadway noise calculations were based on the average daily trips provided in the Traffic Impact Analysis. The traffic volumes for the existing traffic, project traffic, ambient traffic, cumulative traffic, and General Plan buildout traffic assumptions were calculated using the FHWA RD 77-108 Noise Prediction Model. Avenue 60 and Avenue 61 would provide direct access to the Specific Plan site. General Plan buildout assumes 32,700 average daily trips (ADTs) along Avenue 60 north of the site and 20,700 ADTs along Avenue 61. This number is higher than the calculated ADTs in the traffic study, but will be used as a conservative analysis. Calculation sheets and model outputs are provided in **Appendix A, Noise Modeling Calculations,** of this Noise study.

Ambient Noise Measurements

In addition to roadway noise modeling, noise level monitoring was conducted by Meridian Consultants on October 22, 2013, at six locations in and around the Specific Plan area. Noise level monitoring was conducted for 15-minute intervals at each location using a Larson Davis Model 831 Sound Level Meter. This meter satisfies the American National Standards Institute (ANSI) standard for general environmental noise measurement instrumentation. The ANSI specifies several types of sound-level meters according to their precision. Types 1, 2, and 3 are referred to as “precision,” “general-purpose,” and “survey” meters, respectively. Most measurements carefully taken with a Type 1 sound-level meter will have an error not exceeding 1 dB.

The sound-level meter used to conduct this monitoring is a Type 1 (precision) Larson Davis model 831 Sound Level Meter. This meter meets all requirements of ANSI S1.4-1983 and ANSI1.43-1997 Type 1 standards, as well as International Electrotechnical Commission (IEC) IEC61672-1 Ed. 1.0, IEC60651 Ed 1.2, and IEC60804 Type 1, Group X standards.

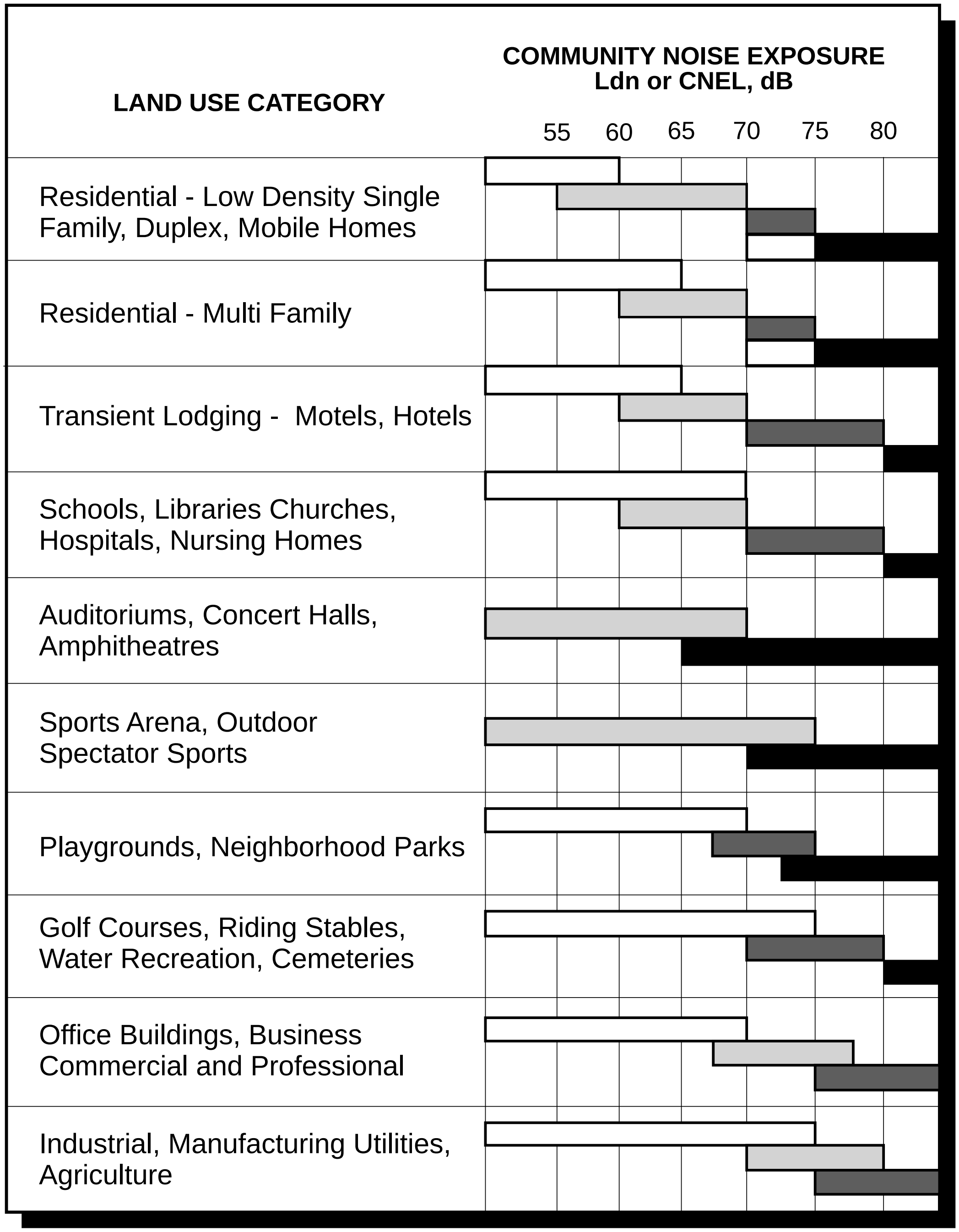
The sound-level meter was located approximately 5 feet above ground and was covered with a Larson Davis windscreen. The sound-level meter was field calibrated with an external calibrator prior to operation.

For the duration of the site visit, wind speeds were constant at less than 3 miles per hour (mph).

5. NOISE STANDARDS

State of California Noise Standards

The State of California, Office of Planning and Research has published, with regard to community noise exposure, recommended guidelines for land use compatibility. These guidelines rate land use compatibility in terms of being *normally acceptable, normally unacceptable,* and *clearly unacceptable*. Each jurisdiction is required to consider these guidelines when developing a General Plan Noise Element and when determining acceptable noise levels within its community. These guidelines are representative of various land uses that include residential, commercial/mixed-use, industrial, and public facilities. **Figure 8, Land Use Compatibility to Noise,** identifies the acceptable limit of noise exposure for various land use categories within the County. Noise exposure for single-family uses is “normally acceptable” when the CNEL at exterior residential locations is equal to or below 60 dB(A), “conditionally acceptable” when the CNEL is between 55 to 70 dB(A), and “normally unacceptable” when the CNEL exceeds 70 dB(A). These guidelines apply to noise sources such as vehicular traffic, aircraft, and rail movements.



NORMALLY ACCEPTABLE
Specified land use is satisfactory, based upon the assumption that any buildings involved are 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 the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

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

CLEARLY UNACCEPTABLE
New construction or development should generally not be undertaken.

SOURCE: California Governor's Office of Planning and Research, State of California General Plan Guidelines, Appendix C: Guidelines for the Preparation and Content of Noise Elements of the General Plan, October 2003.

FIGURE **8**

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Land Use Compatibility to Noise

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In addition, the California Commission of Housing and Community Development officially adopted interior noise standards in 1974. In 1988, the Building Standards Commission approved revisions to the standards (Title 24, Part 2, *California Code of Regulations*). As revised, Title 24 establishes an interior noise standard of 45 dB(A) CNEL for residential space.

Riverside County General Plan Noise Standards

The Noise Element of the Riverside County General Plan evaluates the existing and future noise environment and associated noise sources and sets goals, objectives, and policies to limit noise exposure and address specific noise sources in the County.[4] The Noise Element includes a series of policies. The definition of sensitive receptors and the relevant and applicable ordinance and development standards from the Noise Element are summarized in the following paragraphs.

Sensitive Receptors

Sensitive receptors identified in the Noise Element of the Riverside County include, but are not limited to, schools, hospitals, rest homes, long-term care facilities, hospitals, residences, places of worship, libraries, and passive recreation areas. The Noise Element discourages the construction of the sensitive receptors listed previously in areas in excess of 65 CNEL and contains policies that protect noise-sensitive land uses from noise emitted by outside sources and prevent new actions from generating adverse noise levels on adjacent properties. The Noise Element also considers the following land uses sensitive to vibration: hospitals, residential areas, concert halls, libraries, sensitive research operations, schools, and offices.

Operational Noise

The analysis shall determine the level of noise impacts based on the maximum acceptable interior and exterior noise standards for residential dwellings adopted in the Noise Element of the Riverside County General Plan, which are 45 and 65 dB(A) CNEL, respectively. Sound barriers are only required by the Riverside County General Plan such that there exists at least a 600 sq. ft. area of exterior space that is exposed to noise levels of 65 dB(A) CNEL or less when new development is proposed on residential parcels of 1 acre or greater.

Noise level increases are also addressed in the Noise Element of Riverside County. According to the Noise Element and the Riverside County General Plan Environmental Impact Report (EIR), if the future

4 Riverside County, *General Plan*, Noise Element (2003).

noise levels from an action result in an increase of 5 dB(A) CNEL or greater, the action would have a potential noise impact, and mitigation measures must be considered.

City of La Quinta

The Specific Plan site is bordered on the west by planned residential uses in the City of La Quinta. Like Riverside County, the City of La Quinta General Plan Noise Element includes the same standard land use compatibility criterion suggested by the State.

California Military Land Use Compatibility Analyst

The military uses airspace over the Project site for military training routes (MTRs). The type of aircraft that operate in these MTRs and the number of operations that occur on a daily basis varies based on training requirements and schedules. Information on the types of aircraft that use these MTRS for training purposes and scheduling and activity levels is not available due to military security. The California Military Land Use Compatibility Analyst[5] (CMLUCA) determines if the project has the potential to affect areas important to military readiness. *Government Code,* Sections 65352, 65404, 65940, and 65944, amended by Senate Bill 1462 (Kuehl 2004) requires local planning agencies to notify the military whenever a proposed development project or general plan amendment meets one or more of the following conditions:

- Is located within 1,000 feet of a military installation
- Is located within special use airspace
- Is located beneath a low-level flight path

6. EXISTING CONDITIONS

Ambient Noise Levels

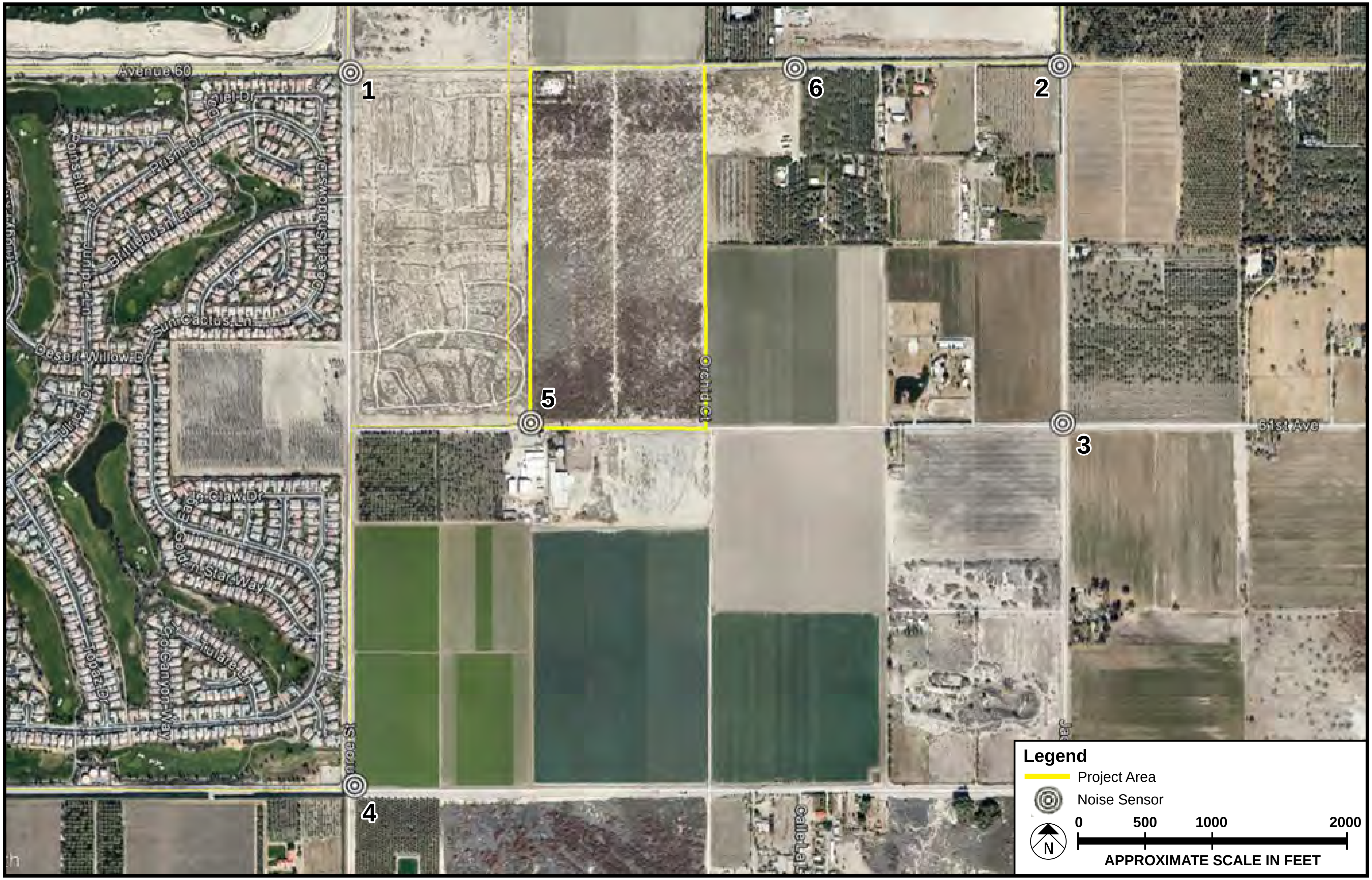
Short-term sound monitoring was conducted at five off-site locations and one on-site location in order to measure the ambient sound environment in the Specific Plan vicinity. (See **Appendix A.2** for the description of the locations.) Measurements were taken at 15-minute intervals at each location between the hours of 7:00 AM through 9:00 AM, as indicated in **Table 2, Ambient Noise Measurements**. **Figure 9, Noise Monitoring Locations,** depicts locations where ambient noise measurements were conducted.

5 California Military Land Use Compatibility Analyst, http://cmluca.projects.atlas.ca.gov (January 14, 2014).

Table 2
Ambient Noise Measurements

Location Number/Description		Time Period	dB(A) Leq	Noise Sources
1	Southeast corner of Avenue 60 and Monroe Street	7:00:11 AM–7:15:19 AM	61.7	Medium traffic area
2	Southwest corner of Avenue 60 and Jackson Street	7:20:24 AM–7:35:36 AM	62.7	Medium traffic area, truck exhaust, roosters in the background
3	Northwest corner of Avenue 61 and Jackson Street	7:39:49 AM–7:55:02 AM	66.8	High traffic area
4	Northeast corner of Avenue 62 and Monroe Street	8:01:19 AM–8:16:20 AM	55.4	Low traffic area
5	Southwest boundary of the Project site along Avenue 61	8:26:07 AM–8:41:09 AM	48.0	Low traffic area, birds chirping in background, large sound pops
6	Approximately 570 feet east of northeast boundary of the Project site along Avenue 62	8:46:43 AM–9:01:46 AM	58.4	High traffic area, large sound pops

Note: dB(A) = A-weighted decibels; Leq = equivalent sound level.



SOURCE: MSA Consulting, Inc.; Meridian Consultants – November 2013

FIGURE **9**

Meridian Consultants

Noise Monitoring Locations

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Roadway Noise

The existing noise environment for the roadways in the Specific Plan area was determined by calculating noise levels based on average daily trips determined in the traffic analysis conducted for this environmental document. The noise modeling effort was accomplished using the FHWA Highway Traffic Noise Model (TNM). The results of the noise modeling are provided in **Table 3, Existing Roadway Noise Levels**. As shown, roadway noise levels range from a low of 46.1 to a high of 67.2 dBA CNEL at 75 feet from roadway centerline.

Table 3
Existing Roadway Noise Levels

Roadway Segment	Noise Level in dB(A) CNEL at 75 Feet From Roadway Centerline
58th Avenue between Jackson Street and Monroe Street	62.2
58th Avenue between Monroe Street and Madison Street	63.8
60th Avenue between Jackson Street and Driveway 1	59.2
60th Avenue between Driveway 1 and Monroe Street	59.2
60th Avenue between Monroe Street and Madison Street	64.5
61st Avenue between Jackson Street and Driveway 2	46.1
61st Avenue between Driveway 2 and Monroe Street	46.1
Jackson Street between 58th Avenue and 60th Avenue	61.1
Jackson Street between 60th Avenue and 61st Avenue	61.3
Jackson Street between 61st Avenue and 62nd Avenue	60.6
Monroe Street north of 58th Avenue	64.0
Monroe Street between 58th Avenue and 60th Avenue	61.3
Monroe Street between 60th Avenue and 61st Avenue	61.3
Monroe Street between 61st Avenue and 62nd Avenue	60.2
Madison Street north of 58th Avenue	67.2
Madison Street between 58th Avenue and 60th Avenue	64.7

Source: Refer to ***Appendix A.1*** *for Modeling Results.*
Note: dB(A) = A-weighted decibels; CNEL = community noise equivalent level.

Vibration Conditions

Based on field observations, the primary source of existing groundborne vibration in the vicinity of the Specific Plan site is vehicle traffic on local roadways. According to the Federal Transit Administration (FTA),[6] typical road traffic–induced vibration levels are unlikely to be perceptible by people. Trucks and buses typically generate groundborne vibration velocity levels of approximately 63 VdB (at a 50-foot distance), and these levels could reach 72 VdB when trucks and buses pass over bumps in the road. A vibration level of 72 VdB is above the 60 VdB level of perceptibility.

7. IMPACT ANALYSIS

Construction Noise

Equipment used during the construction phases would generate both steady-state and episodic noise that would be heard both on and off the Specific Plan site. Noise levels generated during construction would primarily affect the vacant residential building adjacent to the Project site to the south and residential uses west of Monroe Street. Construction activities associated with the Project could occur at approximately 200 feet from the vacant residential building. Noise levels generated during each of the Project phases are presented in **Table 4, Typical Maximum Noise Levels for Construction Phases**. Equipment estimates used for the analysis for grading and building construction noise levels are representative of worse-case conditions, since it very unlikely that all the equipment contained on site would operate simultaneously.

Table 4
Typical Maximum Noise Levels for Construction Phases

	Approximate Leq dB(A) Without Noise Attenuation			
Construction Phase	**25 Feet**	**50 Feet**	**100 Feet**	**200 Feet**
Clearing	90	84	78	72
Excavation	94	88	82	78
Foundation/conditioning	94	88	82	78
Laying subbase, paving	85	79	73	67

Source: U.S. Department of Transportation, Construction Noise Handbook, Chapter 9.0 (August 2006).
Note: db(A) = A-weighted decibels; Leq = equivalent sound level.

6 Federal Transit Administration, *Transit Noise and Vibration Impact Assessment* (2004).

Private construction projects located within 0.25 mile from an inhabited dwelling are exempt from the County's noise standards provided that construction does not occur between the hours of 6:00 PM and 6:00 AM during the months of June through September, and that construction does not occur between the hours of 6:00 PM and 7:00 AM during the months of October through May. The Project would adhere to this requirement and implement several mitigation measures to alleviate construction noise. Potential construction impacts would be reduced to less than significant.

In addition to equipment-generated noise associated with construction activities, construction traffic would generate noise along access routes to the proposed development areas. The major pieces of heavy equipment would be moved on to the development only one time for each construction activity (e.g., demolition, grading). In addition, daily transportation of construction workers and the hauling of materials both on and off the Specific Plan site are expected to cause increases in noise levels along study area roadways, although noise levels from such trips would be less than peak hour noise levels generated by Project trips during Project operation. Average daily trips associated with construction activities would not result in a doubling of trip volumes along study area roadways. Given that it takes a doubling of average daily trips on roadways to increase noise by 3 dB(A), the noise level increases associated with construction vehicle trips along major arterials in the County of Riverside and City of la Quinta would be less than 3 dB(A).

Construction Vibration

The primary source of vibration during construction would be the use of scrapers, bulldozers, a motor grader, and water and pickup trucks. The closest construction activity to a sensitive receptor is estimated to be approximately 200 feet from the existing vacant building to the south. Generally, problems with groundborne vibration from construction sources are localized to areas within approximately 100 feet of the vibration source. Using data provided in the FTA's *Transit Noise and Vibration Impact Assessment* (May 2006) and *Caltrans Transportation and Construction-Induced Vibration Guidance Manual* (June 2004), it was estimated that the vibration level at these nearest residences to the south would be less than the 0.1 inch per second (in/sec) and would not exceed the 0.2 in/sec threshold for residential structures, and below the level of potential risk for architectural damage to normal buildings.

Specific Plan Roadway Noise

Vehicular noise can potentially affect the Specific Plan site, as well as land uses located along the studied roadway system. Based on the distribution of traffic volumes, noise modeling was conducted for the roadways analyzed in the traffic study. The results of the modeled weekday roadway noise levels are provided in **Table 5, Existing With and Without Project Noise Levels (dB[A] CNEL) at 75 Feet From Roadway Centerline**.

Table 5
Existing With and Without Project Noise Levels (dB[A] CNEL) at 75 feet From Roadway Centerline

Roadway Segment	Existing	Existing +Project	Change Due to Project	Significant Impact?
58th Avenue between Jackson Street and Monroe Street	62.2	62.2	0.0	No
58th Avenue between Monroe Street and Madison Street	63.8	64.5	0.7	No
60th Avenue between Jackson Street and Driveway 1	59.2	61.0	1.8	No
60th Avenue between Driveway 1 and Monroe Street	59.2	63.0	3.8	No
60th Avenue between Monroe Street and Madison Street	64.5	65.0	0.5	No
61st Avenue between Jackson Street and Driveway 2	46.1	52.1	8.0	No
61st Avenue between Driveway 2 and Monroe Street	46.1	52.1	8.0	No
Jackson Street between 58th Avenue and 60th Avenue	61.6	63.0	1.4	No
Jackson Street between 60th Avenue and 61st Avenue	61.3	61.6	0.3	No
Jackson Street between 61st Avenue and 62nd Avenue	60.6	61.3	0.7	No
Monroe Street north of 58th Avenue	64.0	64.8	0.8	No
Monroe Street between 58th Avenue and 60th Avenue	61.3	63.6	2.5	No
Monroe Street between 60th Avenue and 61st Avenue	61.3	62.2	0.9	No
Monroe Street between 61st Avenue and 62nd Avenue	60.2	60.2	0.0	No
Madison Street north of 58th Avenue	67.2	67.5	0.3	No
Madison Street between 58th Avenue and 60th Avenue	64.7	65.1	0.4	No

*Source: Refer to **Appendix A.1** for Modeling Results.*
Note: dB(A) = A-weighted decibels; CNEL = community noise equivalent level.

Cumulative Roadway Noise

Refer to **Table 6, Cumulative With and Without Project Noise Levels (dB[A] CNEL) at 75 Feet From Roadway Centerline,** the Specific Plan's contribution to these cumulative noise level increases would be 3.0 dB(A) or less.

Table 6
Cumulative With and Without Project Noise Levels (dB[A] CNEL) at 75 Feet From Roadway Centerline

Roadway Segment	Existing	Cumulative Without Project	Cumulative With Project	Change Due to Project	Significant Impact?
58th Avenue between Jackson Street and Monroe Street	62.2	64.2	64.2	0.0	No
58th Avenue between Monroe Street and Madison Street	63.8	65.6	66.1	0.5	No
60th Avenue between Jackson Street and Driveway 1	59.2	60.6	61.9	1.3	No
60th Avenue between Driveway 1 and Monroe Street	59.2	60.6	63.6	3.0	No
60th Avenue between Monroe Street and Madison Street	64.5	65.0	65.4	0.4	No
61st Avenue between Jackson Street and Driveway 2	46.1	55.7	56.9	1.2	No
61st Avenue between Driveway 2 and Monroe Street	46.1	55.7	56.9	1.2	No
Jackson Street between 58th Avenue and 60th Avenue	61.6	62.7	63.6	0.9	No
Jackson Street between 60th Avenue and 61st Avenue	61.3	61.6	61.9	0.3	No
Jackson Street between 61st Avenue and 62nd Avenue	60.6	61.3	61.6	0.6	No
Monroe Street north of 58th Avenue	64.0	65.8	66.2	0.4	No
Monroe Street between 58th Avenue and 60th Avenue	61.3	64.5	65.9	1.4	No
Monroe Street between 60th Avenue and 61st Avenue	61.3	63.8	64.3	0.5	No
Monroe Street between 61st Avenue and 62nd Avenue	60.2	60.2	60.6	0.4	No
Madison Street north of 58th Avenue	67.2	68.2	68.4	0.2	No
Madison Street between 58th Avenue and 60th Avenue	64.7	65.4	65.8	0.4	No

*Source: Refer to **Appendix A.4** for Noise Modeling Results.*
Note: dB(A) = A-weighted decibels; CNEL = community noise equivalent level.

General Plan Buildout

Refer to **Table 7, General Plan Buildout With and Without Project Noise Levels (dB[A] CNEL) at 75 Feet From Roadway Centerline,** the Specific Plan's contribution to these cumulative noise level increases would be 3.0 dB(A) or less.

Table 7

General Plan Buildout With and Without Project Noise Levels (dB[A] CNEL) at 75 Feet From Roadway Centerline

Roadway Segment	Existing	GP Without Project	GP With Project	Change Due to Project	Significant Impact?
58th Avenue between Jackson Street and Monroe Street	62.2	72.9	72.9	0.0	No
58th Avenue between Monroe Street and Madison Street	63.8	70.4	70.6	0.2	No
60th Avenue between Jackson Street and Driveway 1	59.2	74.4	74.6	0.2	No
60th Avenue between Driveway 1 and Monroe Street	59.2	74.4	74.6	0.2	No
60th Avenue between Monroe Street and Madison Street	64.5	71.8	71.9	0.1	No
61st Avenue between Jackson Street and Driveway 2	46.1	68.4	68.6	0.2	No
61st Avenue between Driveway 2 and Monroe Street	46.1	68.4	68.4	0.0	No
Jackson Street between 58th Avenue and 60th Avenue	61.6	75.6	75.7	0.1	No
Jackson Street between 60th Avenue and 61st Avenue	61.3	72.4	72.4	0.2	No
Jackson Street between 61st Avenue and 62nd Avenue	60.6	72.2	72.2	0.0	No
Monroe Street north of 58th Avenue	64.0	75.5	75.6	0.1	No
Monroe Street between 58th Avenue and 60th Avenue	61.3	75.6	75.8	0.2	No
Monroe Street between 60th Avenue and 61st Avenue	61.3	74.0	74.0	0.0	No
Monroe Street between 61st Avenue and 62nd Avenue	60.2	73.4	73.4	0.0	No
Madison Street north of 58th Avenue	67.2	75.9	75.9	0.0	No
Madison Street between 58th Avenue and 60th Avenue	64.7	75.1	75.1	0.0	No

Source: Refer to ***Appendix A.4*** *for Noise Modeling Results.*
Note: dB(A) = A-weighted decibels; CNEL = community noise equivalent level.

Residential Noise

Future residents located on the Project site, as well as off-site uses, including nearby sensitive receptors, may experience noise due to an increase in human activity within the area from people living on the premises and utilizing the on-site amenities including common open space and trail areas. Potential residential-type noise sources include people talking, doors slamming, stereos, and other noises associated with human activity. These noise sources are not unique and generally contribute to the ambient noise levels experienced in all residential areas. Noise levels for residential areas are typically between 48 to 52 dB(A) CNEL.

8. SUGGESTED MITIGATION

The following mitigation measures are provided to reduce noise impacts due to construction equipment to less than significant.

N-1 All construction activity shall be conducted in accordance with County of Riverside Noise Ordinance 847 indicating that construction activity does not occur between the hours of 6:00 PM and 6:00 AM during the months of June through September, and that construction activity does not occur between the hours of 6:00 PM and 7:00 AM during the months of October through May.

N-2 The following construction best management practices (BMPs) shall be implemented to reduce construction noise levels:

- Ensure that construction equipment is properly muffled according to industry standards and be in good working condition.
- Place noise-generating construction equipment and locate construction staging areas away from sensitive uses, where feasible.
- Schedule high noise-producing activities between the hours of 8:00 AM and 5:00 PM to minimize disruption on sensitive uses.
- Implement noise attenuation measures to the extent feasible, which may include, but are not limited to, temporary noise barriers or noise blankets around stationary construction noise sources.
- Use electric air compressors and similar power tools rather than diesel equipment, where feasible.

- Turn off construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, when not in use for more than 30 minutes.
- Clearly post construction hours, allowable workdays, and the phone number of the job superintendent at all construction entrances to allow for surrounding owners to contact the job superintendent. If the City or the job superintendent receives a complaint, the superintendent shall investigate, take appropriate corrective action, and report the action taken to the reporting party.

N-3 Construction staging areas along with the operation of earth-moving equipment within the Project area shall be located as far away from vibration- and noise-sensitive sites as possible.

9. CONCLUSION

The County of Riverside Noise Element and Ordinance has a land use compatibility guidelines for community noise. Among the various land uses, schools and single-family/multifamily residential uses are generally unacceptable in areas between 65 and 75 dB(A) CNEL and are conditionally acceptable in areas between 65 and 70 dB(A) CNEL. Recreational land uses, such as open space areas with horseback riding trails, are generally acceptable in areas up to 65 dB(A) CNEL and generally unacceptable in areas between 65 and 70 dB(A) CNEL.

For the purposes of this analysis, an increase of 5 dB(A) at off-site roadway locations containing sensitive uses is considered a significant impact, and if the resulting noise level would exceed the land use compatibility criteria, then an increase of 3 dB(A) is considered significant. As presented in **Table 3,** traffic on roadways surrounding the proposed Project generate noise levels within an acceptable range.

As shown in **Table 5,** no significant changes in CNEL would result from the proposed Project to the majority of the roadway locations based on these criteria. A few roadway locations, however, would exceed these criteria: 61st Avenue between Jackson Street and Driveway 2 (8.0 dB[A]), and 61st Avenue between Driveway 2 and Monroe Street (8.0 dB[A]). These increases are primarily due to these roadways carrying minimal traffic volumes under existing conditions. Because these increases would not result in noise compatibility guidelines being exceeded, impacts are also considered to be less than significant.

As shown in **Table 6,** no significant changes in CNEL greater than 5 dBA would result from the proposed Project to the majority of the roadway locations based on these criteria. Impacts would be less than significant.

As shown in **Table 7**, no significant changes in CNEL would result from the proposed Project to all of the roadway locations based on these criteria. The resulting roadway calculations for General Plan buildout indicated that noise levels along Avenue 60 between Jackson Street and Monroe Street would be 74.6 dBA CNEL 75 feet from the center of the roadway assuming soft site. Noise levels along Avenue 61 between Jackson Street and Monroe Street would be 68.6 dBA CNEL 75 feet from the center of the roadway also assuming soft site conditions.

Line sources, such as traffic, attenuate 3 dBA over hard surfaces and 4.5 dBA over soft surfaces for every doubling of distance. The nearest face of a proposed residence to Avenue 60 would be located approximately 310 feet south of the center of the roadway. The right-of-way for Avenue 60 would extend 110 feet south of the center of the roadway with a 100 foot Date Palm Orchard with dense vegetation south of the edge of the southern right-of-way. Roadway noise levels 150 feet from the centerline of Avenue 60 would be 70.1 dBA CNEL. Roadway noise levels 300 feet from the centerline of Avenue 60 would be 65.6 dBA CNEL. Furthermore, the 100-foot landscape buffer could attenuate noise levels up to 3.0 dBA which would result in 62.6 dBA CNEL 300 feet south of the center of Avenue 60.

Roadway noise levels generated along Avenue 60 at the rear of the nearest residence would be 62.6 dBA CNEL, lower than the exterior standard of 65 dBA CNEL required by the Riverside County General Plan Noise Element. Furthermore, standard construction requirements would reduce interior noise levels by 20 dBA with windows closed. Interior noise levels would be 42.6 dBA CNEL which would be below the 45 dBA CNEL interior noise level standard.

Roadway noise levels along Avenue 61 would be 68.6 dBA CNEL 75 feet from the center of the roadway. The nearest residence would be 300 feet north of the center of Avenue 61. Roadway noise levels 300 feet from the centerline of Avenue 61 would be 59.6 dBA CNEL. Exterior noise levels would be below the 65 dBA CNEL exterior and, with standard construction techniques, interior noise levels would be 39.6 dBA CNEL, below the 45 dBA interior noise standards required by the Riverside County General Plan.

APPENDIX A

Noise Modeling Calculations

Vista Soleada
Existing

ROADWAY NAME / Segment	Number of Lanes in Each Direction	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor (1)	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	CNEL at 75 Feet	Distance to Contour: 75 CNEL	70 CNEL	65 CNEL	60 CNEL
ROADWAY NAME												
58th between Jackson and Monroe	4	0	1,600	40	0	3.0%	5.0%	62.2	-	-	-	124
58th between Monroe and Madison	4	0	2,300	40	0	3.0%	5.0%	63.8	-	-	-	178
60th between Jackson and Dwy 1	8	16	800	40	0	3.0%	5.0%	59.2	-	-	-	-
60th between Dwy 1 and Monroe	8	16	800	40	0	3.0%	5.0%	59.2	-	-	-	-
60th between Monroe and Madison	4	0	2,700	40	0	3.0%	5.0%	64.5	-	-	-	208
61st between Jackson and Dwy 2	4	0	100	40	0	1.8%	0.7%	46.1	-	-	-	-
61st between Dwy 2 and Monroe	4	0	100	40	0	1.8%	0.7%	46.1	-	-	-	-
Jackson between 58th and 61st	4	16	1,400	40	0	3.0%	5.0%	61.6	-	-	-	109
Jackson between 60th and 61st	4	16	1,300	40	0	3.0%	5.0%	61.3	-	-	-	101
Jackson between 61st and 62nd	4	16	1,100	40	0	3.0%	5.0%	60.6	-	-	-	86
Monroe north of 58th	4	16	2,400	40	0	3.0%	5.0%	64.0	-	-	-	185
Monroe between 58th and 60th	4	16	1,300	40	0	3.0%	5.0%	61.3	-	-	-	101
Monroe between 60th and 61st	4	16	1,300	40	0	3.0%	5.0%	61.3	-	-	-	101
Monroe between 61st and 62nd	4	16	1,000	40	0	3.0%	5.0%	60.2	-	-	-	78
Madison north of 58th	4	16	5,000	40	0	3.0%	5.0%	67.2	-	-	123	382
Madison between 58th and 60th	4	16	2,800	40	0	3.0%	5.0%	64.7	-	-	-	216
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Notes:

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site, such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such, as heavily vegetated ground cover.

"-" = contour is located within the roadway lanes or within 75 feet of the roadway centerline.

Noise levels and distances to contours do not assume any natural or constructed barriers that may attenuate noise.

24-Hour Traffic Distribution for Roadways Designated as "Major," "Arterial" Highways or "Expressways" by Riverside County

Source: Riverside County Department of Public Health, 15 January 2004.

	Weighted Traffic Distribution (%): Day	Evening	Night	Totals	Riverside County Traffic Distribution: Day	Evening	Night	Totals
Auto	75.54%	14.02%	10.43%	100.00%	69.50%	12.90%	9.60%	92.00%
Medium-Duty Trucks	48.00%	2.00%	50.00%	100.00%	1.44%	0.06%	1.50%	3.00%
Heavy-Duty Trucks	48.00%	2.00%	50.00%	100.00%	2.40%	0.10%	2.50%	5.00%

Notes to Modeler: This model is for roadways designated as "major," "arterial" highways or "expressways by Riverside County." For roadways designated as "secondary," "collectors," or smaller, use the traffic distribution shown below. Vehicle mix for medium- and heavy-duty trucks was provided by Riverside County. Obtain traffic volumes from the traffic engineer. For state and federal highways, obtain percentages and traffic distribution data from the Caltrans website. Column H under Notes: should total 100%.

Vista Soleada
Existing plus Project

ROADWAY NAME Segment	Number of Lanes in Each Direction	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor (1)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	Distance from Center of Roadway: CNEL at 75 Feet	DISTANCE TO CONTOUR: 75 CNEL	70 CNEL	65 CNEL	60 CNEL
ROADWAY NAME												
58th between Jackson and Monroe	4	0	1,600	40	0	3.0%	5.0%	62.2	-	-	-	124
58th between Monroe and Madison	4	0	2,700	40	0	3.0%	5.0%	64.5	-	-	-	208
60th between Jackson and Dwy 1	8	16	1,200	40	0	3.0%	5.0%	61.0	-	-	-	94
60th between Dwy 1 and Monroe	8	16	1,900	40	0	3.0%	5.0%	63.0	-	-	-	147
60th between Monroe and Madison	4	0	3,000	40	0	3.0%	5.0%	65.0	-	-	-	231
61st between Jackson and Dwy 2	4	0	400	40	0	1.8%	0.7%	52.1	-	-	-	-
61st between Dwy 2 and Monroe	4	0	400	40	0	1.8%	0.7%	52.1	-	-	-	-
Jackson between 58th and 60th	4	16	1,900	40	0	3.0%	5.0%	63.0	-	-	-	147
Jackson between 60th and 61st	4	16	1,400	40	0	3.0%	5.0%	61.6	-	-	-	109
Jackson between 61st and 62nd	4	16	1,300	40	0	3.0%	5.0%	61.3	-	-	-	101
Monroe north of 58th	4	16	2,900	40	0	3.0%	5.0%	64.8	-	-	-	223
Monroe between 58th and 60th	4	16	2,200	40	0	3.0%	5.0%	63.6	-	-	-	170
Monroe between 60th and 61st	4	16	1,600	40	0	3.0%	5.0%	62.2	-	-	-	124
Monroe between 61st and 62nd	4	16	1,000	40	0	3.0%	5.0%	60.2	-	-	-	78
Madison north of 58th	4	16	5,400	40	0	3.0%	5.0%	67.5	-	-	133	412
Madison between 58th and 60th	4	16	3,100	40	0	3.0%	5.0%	65.1	-	-	77	238
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Notes:

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site, such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such, as heavily vegetated ground cover.

"-" = contour is located within the roadway lanes or within 75 feet of the roadway centerline.

Noise levels and distances to contours do not assume any natural or constructed barriers that may attenuate noise.

24-Hour Traffic Distribution for Roadways Designated as "Major," "Arterial" Highways or "Expressways" by Riverside County

Source: Riverside County Department of Public Health, 15 January 2004.

	Weighted Traffic Distribution (%): Day	Evening	Night	Totals	Riverside County Traffic Distribution: Day	Evening	Night	Totals
Auto	75.54%	14.02%	10.43%	100.00%	69.50%	12.90%	9.60%	92.00%
Medium-Duty Trucks	48.00%	2.00%	50.00%	100.00%	1.44%	0.06%	1.50%	3.00%
Heavy-Duty Trucks	48.00%	2.00%	50.00%	100.00%	2.40%	0.10%	2.50%	5.00%

Notes to Modeler: This model is for roadways designated as "major," "arterial" highways or "expressways by Riverside County." For roadways designated as "secondary," "collectors," or smaller, use the traffic distribution shown below. Vehicle mix for medium- and heavy-duty trucks was provided by Riverside County. Obtain traffic volumes from the traffic engineer. For state and federal highways, obtain percentages and traffic distribution data from the Caltrans website. Column H under Notes: should total 100%.

Vista Soleada
Existing plus Ambient plus Cumulative

ROADWAY NAME / Segment	Number of Lanes in Each Direction	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor (1)	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	Distance from Center of Roadway: CNEL at 75 Feet	DISTANCE TO CONTOUR: 75 CNEL	70 CNEL	65 CNEL	60 CNEL
ROADWAY NAME												
58th between Jackson and Monroe	4	0	2,500	40	0	3.0%	5.0%	64.2	-	-	-	193
58th between Monroe and Madison	4	0	3,500	40	0	3.0%	5.0%	65.6	-	-	86	269
60th between Jackson and Dwy 1	8	16	1,100	40	0	3.0%	5.0%	60.6	-	-	-	86
60th between Dwy 1 and Monroe	8	16	1,100	40	0	3.0%	5.0%	60.6	-	-	-	86
60th between Monroe and Madison	4	0	3,000	40	0	3.0%	5.0%	65.0	-	-	-	231
61st between Jackson and Dwy 2	4	0	900	40	0	1.8%	0.7%	55.7	-	-	-	-
61st between Dwy 2 and Monroe	4	0	900	40	0	1.8%	0.7%	55.7	-	-	-	-
Jackson between 58th and 60th	4	16	1,800	40	0	3.0%	5.0%	62.7	-	-	-	140
Jackson between 60th and 61st	4	16	1,400	40	0	3.0%	5.0%	61.6	-	-	-	109
Jackson between 61st and 62nd	4	16	1,300	40	0	3.0%	5.0%	61.3	-	-	-	101
Monroe north of 58th	4	16	3,600	40	0	3.0%	5.0%	65.8	-	-	89	276
Monroe between 58th and 60th	4	16	2,700	40	0	3.0%	5.0%	64.5	-	-	-	208
Monroe between 60th and 61st	4	16	2,300	40	0	3.0%	5.0%	63.8	-	-	-	178
Monroe between 61st and 62nd	4	16	1,000	40	0	3.0%	5.0%	60.2	-	-	-	78
Madison north of 58th	4	16	6,300	40	0	3.0%	5.0%	68.2	-	-	154	479
Madison between 58th and 60th	4	16	3,300	40	0	3.0%	5.0%	65.4	-	-	82	254
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Notes:

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site, such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such, as heavily vegetated ground cover.

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Medium-Duty Trucks	48.00%	2.00%	50.00%	100.00%	1.44%	0.06%	1.50%	3.00%
Heavy-Duty Trucks	48.00%	2.00%	50.00%	100.00%	2.40%	0.10%	2.50%	5.00%

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Vista Soleada
Existing plus Ambient plus Cumulative plus Project

ROADWAY NAME / Segment	Number of Lanes in Each Direction	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor (1)	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	CNEL at 75 Feet	Distance to Contour: 75 CNEL	70 CNEL	65 CNEL	60 CNEL
ROADWAY NAME												
58th between Jackson and Monroe	4	0	2,500	40	0	3.0%	5.0%	64.2	-	-	-	193
58th between Monroe and Madison	4	0	3,900	40	0	3.0%	5.0%	66.1	-	-	96	299
60th between Jackson and Dwy 1	8	16	1,500	40	0	3.0%	5.0%	61.9	-	-	-	117
60th between Dwy 1 and Monroe	8	16	2,200	40	0	3.0%	5.0%	63.6	-	-	-	170
60th between Monroe and Madison	4	0	3,300	40	0	3.0%	5.0%	65.4	-	-	82	254
61st between Jackson and Dwy 2	4	0	1,200	40	0	1.8%	0.7%	56.9	-	-	-	-
61st between Dwy 2 and Monroe	4	0	1,200	40	0	1.8%	0.7%	56.9	-	-	-	-
Jackson between 58th and 61st	4	16	2,200	40	0	3.0%	5.0%	63.6	-	-	-	170
Jackson between 60th and 61st	4	16	1,500	40	0	3.0%	5.0%	61.9	-	-	-	117
Jackson between 61st and 62nd	4	16	1,400	40	0	3.0%	5.0%	61.6	-	-	-	109
Monroe north of 58th	4	16	4,000	40	0	3.0%	5.0%	66.2	-	-	99	307
Monroe between 58th and 60th	4	16	3,700	40	0	3.0%	5.0%	65.9	-	-	91	284
Monroe between 60th and 61st	4	16	2,600	40	0	3.0%	5.0%	64.3	-	-	-	201
Monroe between 61st and 62nd	4	16	1,100	40	0	3.0%	5.0%	60.6	-	-	-	86
Madison north of 58th	4	16	6,600	40	0	3.0%	5.0%	68.4	-	-	162	502
Madison between 58th and 60th	4	16	3,600	40	0	3.0%	5.0%	65.8	-	-	89	276
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Notes:

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site, such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such, as heavily vegetated ground cover.

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Medium-Duty Trucks	48.00%	2.00%	50.00%	100.00%	1.44%	0.06%	1.50%	3.00%
Heavy-Duty Trucks	48.00%	2.00%	50.00%	100.00%	2.40%	0.10%	2.50%	5.00%

Notes to Modeler: This model is for roadways designated as "major," "arterial" highways or "expressways by Riverside County." For roadways designated as "secondary," "collectors," or smaller, use the traffic distribution shown below. Vehicle mix for medium- and heavy-duty trucks was provided by Riverside County. Obtain traffic volumes from the traffic engineer. For state and federal highways, obtain percentages and traffic distribution data from the Caltrans website. Column H under Notes: should total 100%.

Vista Soleada
General Plan without Project

ROADWAY NAME / Segment	Number of Lanes in Each Direction	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor (1)	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	CNEL at 75 Feet	Distance to Contour: 75 CNEL	70 CNEL	65 CNEL	60 CNEL
ROADWAY NAME												
58th between Jackson and Monroe	4	0	18,600	40	0	3.0%	5.0%	72.9	-	144	448	1,392
58th between Monroe and Madison	4	0	11,100	40	0	3.0%	5.0%	70.6	-	87	270	837
60th between Jackson and Dwy 1	4	16	32,700	40	0.5	3.0%	5.0%	74.4	-	148	318	686
60th between Dwy 1 and Monroe	4	16	32,700	40	0.5	3.0%	5.0%	74.4	-	148	318	686
60th between Monroe and Madison	4	0	32,700	40	0	3.0%	5.0%	75.3	81	251	781	2,427
61st between Jackson and Dwy 2	4	0	20,700	40	0.5	1.8%	0.7%	68.4	-	-	126	271
61st between Dwy 2 and Monroe	4	0	20,700	40	0.5	1.8%	0.7%	68.4	-	-	126	271
Jackson between 58th and 60th	4	16	35,400	40	0	3.0%	5.0%	75.7	87	272	844	2,624
Jackson between 60th and 61st	4	16	16,800	40	0	3.0%	5.0%	72.4	-	130	405	1,260
Jackson between 61st and 62nd	4	16	16,000	40	0	3.0%	5.0%	72.2	-	124	386	1,200
Monroe north of 58th	4	16	34,400	40	0	3.0%	5.0%	75.6	85	264	821	2,551
Monroe between 58th and 60th	4	16	36,000	40	0	3.0%	5.0%	75.8	89	276	859	2,668
Monroe between 60th and 61st	4	16	24,300	40	0	3.0%	5.0%	74.0	-	188	583	1,812
Monroe between 61st and 62nd	4	16	21,000	40	0	3.0%	5.0%	73.4	-	163	505	1,569
Madison north of 58th	4	16	37,400	40	0	3.0%	5.0%	75.9	92	287	891	2,770
Madison between 58th and 60th	4	16	31,300	40	0	3.0%	5.0%	75.1	77	241	748	2,324
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Distance from Center of Roadway

Notes:

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site, such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such, as heavily vegetated ground cover.

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	Weighted Traffic Distribution (%): Day	Evening	Night	Totals	Riverside County Traffic Distribution: Day	Evening	Night	Totals
Auto	75.54%	14.02%	10.43%	100.00%	69.50%	12.90%	9.60%	92.00%
Medium-Duty Trucks	48.00%	2.00%	50.00%	100.00%	1.44%	0.06%	1.50%	3.00%
Heavy-Duty Trucks	48.00%	2.00%	50.00%	100.00%	2.40%	0.10%	2.50%	5.00%

Notes to Modeler: This model is for roadways designated as "major," "arterial" highways or "expressways by Riverside County." For roadways designated as "secondary," "collectors," or smaller, use the traffic distribution shown below. Vehicle mix for medium- and heavy-duty trucks was provided by Riverside County. Obtain traffic volumes from the traffic engineer. For state and federal highways, obtain percentages and traffic distribution data from the Caltrans website. Column H under Notes: should total 100%.

Vista Soleada
General Plan with Project

ROADWAY NAME Segment	Number of Lanes in Each Direction	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor (1)	Vehicle Mix Medium Trucks	Heavy Trucks	Distance from Center of Roadway CNEL at 75 Feet	DISTANCE TO CONTOUR 75 CNEL	70 CNEL	65 CNEL	60 CNEL
ROADWAY NAME												
58th between Jackson and Monroe	4	0	18,600	40	0	3.0%	5.0%	72.9	-	144	448	1,392
58th between Monroe and Madison	4	0	11,100	40	0	3.0%	5.0%	70.6	-	87	270	837
60th between Jackson and Dwy 1	6	18	33,800	40	0.5	3.0%	5.0%	74.6	-	151	326	701
60th between Dwy 1 and Monroe	6	16	34,100	40	0.5	3.0%	5.0%	74.6	-	152	327	705
60th between Monroe and Madison	4	0	14,800	40	0	3.0%	5.0%	71.9	-	115	358	1,112
61st between Jackson and Dwy 2	3	0	22,000	40	0.5	1.8%	0.7%	68.6	-	-	131	282
61st between Dwy 2 and Monroe	4	0	21,000	40	0.5	1.8%	0.7%	68.4	-	-	127	274
Jackson between 58th and 60th	4	16	35,400	40	0	3.0%	5.0%	75.7	87	272	844	2,624
Jackson between 60th and 61st	4	16	16,800	40	0	3.0%	5.0%	72.4	-	130	405	1,260
Jackson between 61st and 62nd	4	16	16,000	40	0	3.0%	5.0%	72.2	-	124	386	1,200
Monroe north of 58th	4	16	34,400	40	0	3.0%	5.0%	75.6	85	264	821	2,551
Monroe between 58th and 60th	4	16	36,000	40	0	3.0%	5.0%	75.8	89	276	859	2,668
Monroe between 60th and 61st	4	16	24,300	40	0	3.0%	5.0%	74.0	-	188	583	1,812
Monroe between 61st and 62nd	4	16	21,000	40	0	3.0%	5.0%	73.4	-	163	505	1,569
Madison north of 58th	4	16	37,400	40	0	3.0%	5.0%	75.9	92	287	891	2,770
Madison between 58th and 60th	4	16	31,300	40	0	3.0%	5.0%	75.1	77	241	748	2,324
					.	.	.		.	.	.	
.....												

Notes:

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site, such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such, as heavily vegetated ground cover.

"-" = contour is located within the roadway lanes or within 75 feet of the roadway centerline.

Noise levels and distances to contours do not assume any natural or constructed barriers that may attenuate noise.

24-Hour Traffic Distribution for Roadways Designated as "Major," "Arterial" Highways or "Expressways" by Riverside County

Source: Riverside County Department of Public Health, 15 January 2004.

	Weighted Traffic Distribution (%) Day	Evening	Night	Totals	Riverside County Traffic Distribution Day	Evening	Night	Totals
Auto	75.54%	14.02%	10.43%	100.00%	69.50%	12.90%	9.60%	92.00%
Medium-Duty Trucks	48.00%	2.00%	50.00%	100.00%	1.44%	0.06%	1.50%	3.00%
Heavy-Duty Trucks	48.00%	2.00%	50.00%	100.00%	2.40%	0.10%	2.50%	5.00%

Notes to Modeler: This model is for roadways designated as "major," "arterial" highways or "expressways by Riverside County." For roadways designated as "secondary," "collectors," or smaller, use the traffic distribution shown below. Vehicle mix for medium- and heavy-duty trucks was provided by Riverside County. Obtain traffic volumes from the traffic engineer. For state and federal highways, obtain percentages and traffic distribution data from the Caltrans website. Column H under Notes: should total 100%.

APPENDIX F

Traffic Impact Analysis

Vista Soleada (TTM 36590)
Traffic Impact Analysis

County of Riverside, California

December 19, 2013

41 Corporate Park, Suite 300
Irvine, CA 92606

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VISTA SOLEADA (TTM 36590)
TRAFFIC IMPACT ANALYSIS
COUNTY OF RIVERSIDE, CALIFORNIA

December 19, 2013

JN: 08773-04 Report
MW:JK:JC

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VISTA SOLEADA (TTM 36590) PROJECT
TRAFFIC IMPACT ANALYSIS
COUNTY OF RIVERSIDE, CALIFORNIA

1.0 INTRODUCTION

This report presents the results of the traffic impact analysis (TIA) for the proposed Vista Soleada Tentative Tract Map No. 36590 ("Project"), which is generally located south of 60th Avenue and 0.25 miles east of Monroe Street in the unincorporated area of Riverside County, adjacent to the City of La Quinta, in the community area of Vista Santa Rosa.

A preliminary site plan for the proposed Project is shown on Exhibit 1-1. Exhibit 1-2 provides an illustrative plan for the overall Project, and Exhibit 1-3 shows the potential equestrian way station which is located at the northeast corner of the Project. The 76-acre Project is characterized by multiple pocket parks, citrus themed country lanes and a 100' wide perimeter grove of date palm trees. Residential density within the project averages approximately 3 dwelling units per gross acre (du/ac), consisting of 211 residential lots (min. 4,000 s.f., avg. 6,000 s.f.) at the core of the project and 19 estate lots (¾-1 acre) that surround them.

The purpose of this traffic impact analysis is to evaluate the potential impacts to traffic and circulation associated with the development of the proposed Project, and recommend improvements to mitigate impacts considered significant in comparison to established regulatory thresholds.

Urban Crossroads, Inc. has prepared this traffic analysis in accordance with the *County of Riverside Traffic Impact Analysis Guidelines* *(dated April 2008)* and City of La Quinta's *Engineering Bulletin #06-13* *(dated June 29, 2012)*. In addition, through coordination with County of Riverside and City of La Quinta staff, Urban Crossroads, Inc. has discussed key traffic impact study assumptions to ensure that that the jurisdictional requirements are addressed in the report. These assumptions include, but are not limited to, analysis locations, ambient growth, cumulative project traffic and analysis scenarios. The findings and the recommendations in this report adhere to current acceptable engineering practices and reflect Urban Crossroads Inc.'s professional engineering judgment.

1.1 PROJECT OVERVIEW

The proposed Project is to consist of 230 single family homes and a 1.40 acre equestrian way station. For the purpose of this analysis, the Project is anticipated to be developed in a single phase with a projected Opening Year of 2016.

Trips generated by the Project's proposed land uses have been estimated based on trip generation rates collected by the Institute of Transportation Engineers (ITE) and published in their most current edition of

EXHIBIT 1-1

PRELIMINARY SITE PLAN

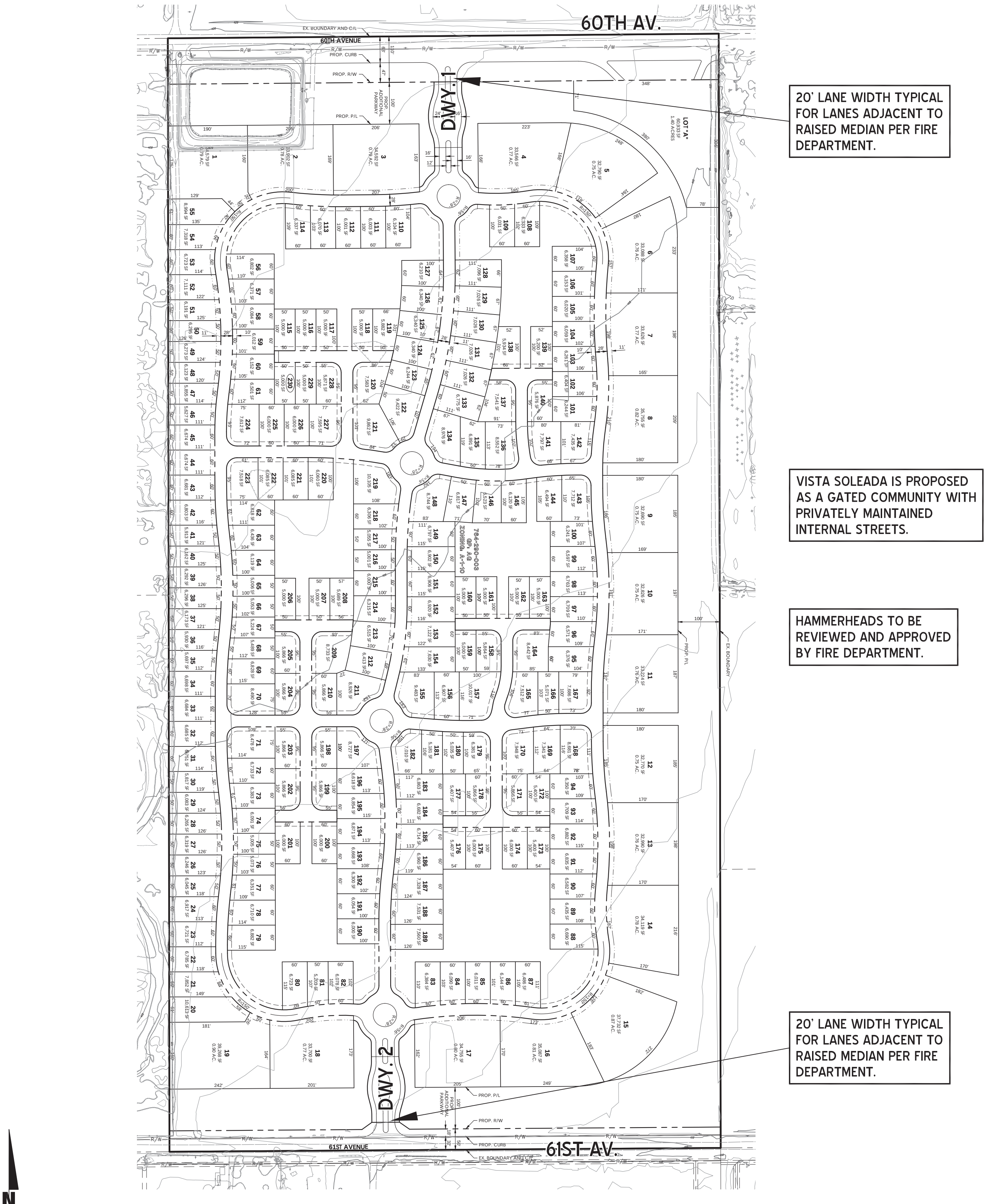
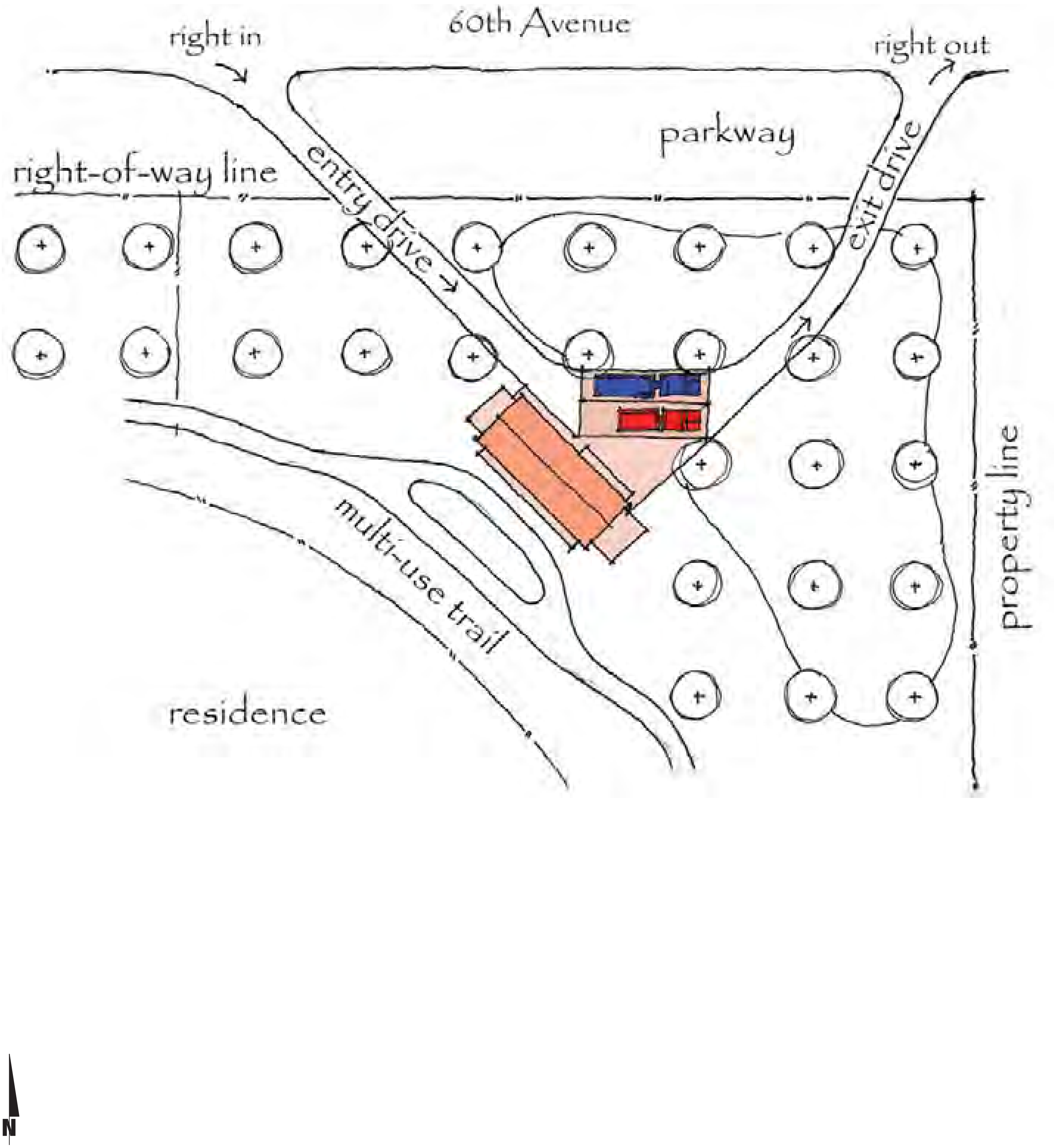


EXHIBIT 1-2
PROJECT ILLUSTRATIVE PLAN

EXHIBIT 1-3

POTENTIAL EQUESTRIAN WAY STATION



the *Trip Generation* manual, 9th Edition, 2012. The Project is estimated to generate a total of approximately 2,197 net trip-ends per day on a typical weekday with approximately 175 net weekday AM peak hour trips, 232 net weekday PM peak hour trips. The assumptions and methods used to estimate the Project's trip generation characteristics are discussed in detail in Section 4.1 *Project Trip Generation* of this report.

1.2 ANALYSIS SCENARIOS

Potential impacts to traffic and circulation were assessed for each of the following conditions:

- Existing (2013) Conditions
- Existing plus Project Conditions (E+P)
- Existing plus Ambient Growth plus Project (2016) Conditions – ambient growth only plus Project traffic (EAP)
- Existing plus Ambient Growth plus Project plus Cumulative (2016) Conditions – ambient growth and cumulative development projects plus Project traffic (EAPC)

As the Project proposes a zone change, the following long-range traffic scenarios are also be evaluated:

- Long Range (2035) Conditions Without and With Project – based on data from the Riverside County Transportation and Analysis Model (RivTAM) and City of La Quinta's General Plan Buildout (2035) traffic volume forecasts.

Information for Existing (2013) is disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared.

The Existing plus Project (E+P) analysis is included for information purposes only and to satisfy the CEQA Guideline section 15125(a).

As described by the Riverside County traffic study guidelines, the EAP (2016) analysis scenario determines significant impacts based on a comparison of EAP (2016) traffic conditions to Existing (2013) conditions. The EAP (2016) conditions analysis uniquely identifies the specific traffic impacts associated with the development of the proposed Project projected to its "Opening Year". To account for background traffic during this time, a total ambient growth from Existing (2013) conditions of 6.012% (2% per year over 3 years, compounded annually) is included for EAP (2016) conditions. Cumulative development projects are not included as part of the EAP (2016) analysis. Consistent with the County's traffic study guidelines, the EAP (2016) analysis is intended to identify the project-specific impacts associated solely with the development of the proposed Project based on the expected background growth within the project study area.

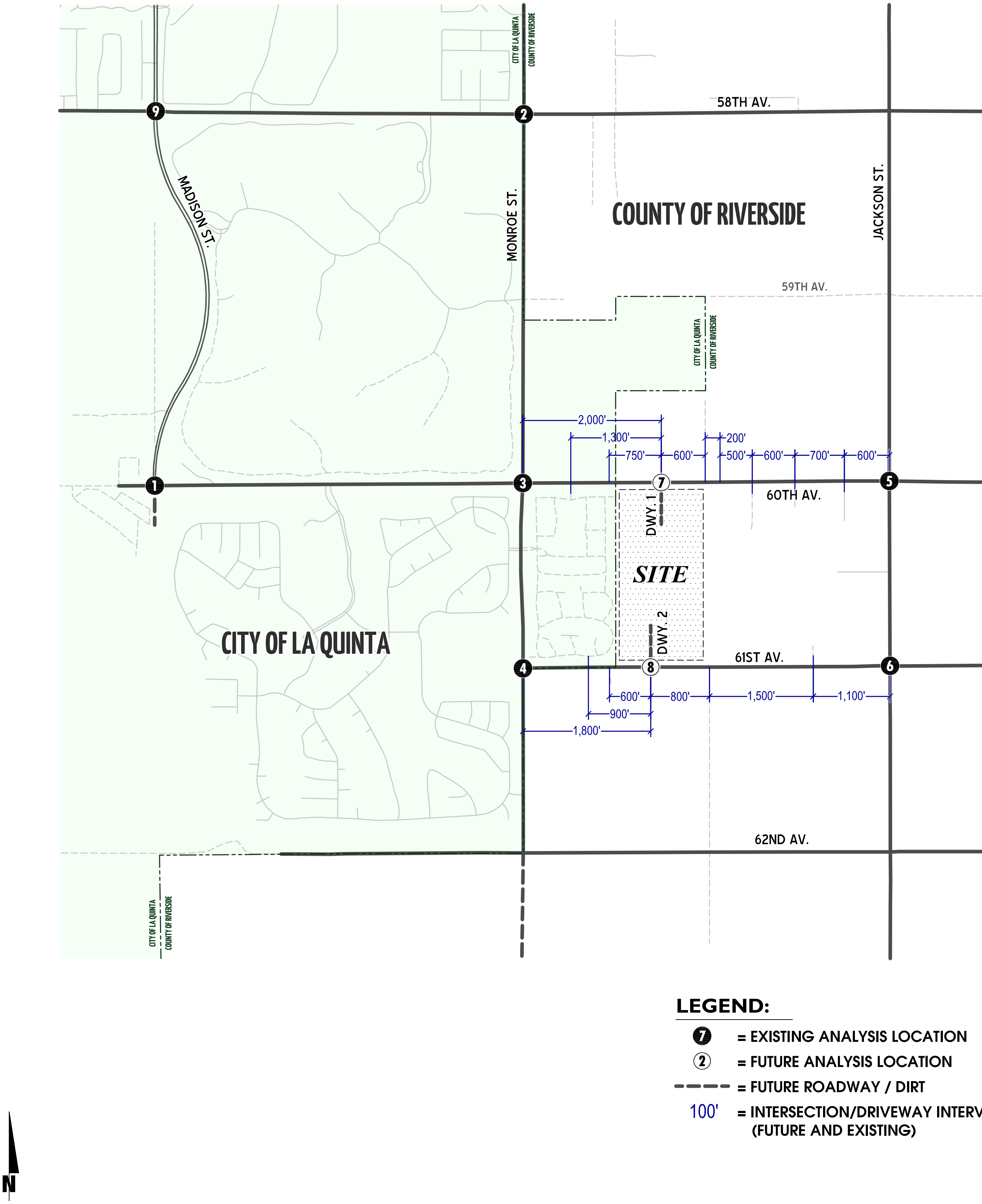
The EAPC (2016) conditions analysis will be utilized to determine if improvements funded through local and regional transportation mitigation fee programs can accommodate the cumulative traffic at the target LOS identified in the County of Riverside traffic analysis guidelines and City of La Quinta Engineering Bulletin #06-13. If the "funded" improvements can provide the target LOS, then the Project's payment into the TUMF or other approved programs will be considered as cumulative mitigation through the conditions of approval. Other improvements needed beyond the "funded" improvements (such as localized improvements to non-TUMF) are identified as such. To account for background traffic, eight (8) other known cumulative development projects within or in close proximity to the study area were included in addition to 2% of ambient growth. This list was compiled through consultation with County of Riverside and other near-by jurisdictions, such as the City of La Quinta to identify pending development projects in close proximity to the site.

Traffic projections for Long Range (2035) with Project conditions were derived from the Riverside County Transportation and Analysis Model (RivTAM) using accepted procedures for model forecast refinement and smoothing. The traffic forecasts reflect the area-wide growth anticipated between existing conditions and Long Range (2035) conditions. In most instances the zone structure of a regional or sub-regional travel demand model is not designed to provide accurate turning movements at intersections along arterial roadways unless refinement and reasonableness checking is performed. Therefore, the Long Range (2035) peak hour forecasts were refined using the model derived long-range forecasts, along with existing peak hour traffic count data collected at each analysis location in October 2013. Future estimated peak hour traffic data was used for new intersections and intersections with an anticipated change in travel patterns to further refine the Long Range (2035) peak hour forecasts. In addition, Long Range (2035) turning volumes were compared to EAPC (2016) volumes in order to ensure a minimum growth of ten (10) percent as a part of the refinement process. The minimum ten (10) percent growth includes any additional growth between EAPC (2016) and Long Range (2035) traffic conditions that is not accounted for by the traffic generated by cumulative development projects and the ambient growth between existing and EAPC (2016) conditions. Lastly, Long Range (2035) turning volumes were compared to the City of La Quinta's General Plan Buildout (2035) traffic volume forecasts and were adjusted accordingly. The Long Range (2035) without Project peak hour turning movement estimates was then reviewed by Urban Crossroads for reasonableness at intersections where model results showed unreasonable turning movements. The Long Range (2035) estimates were adjusted to achieve flow conservation (where applicable), reasonable growth, and reasonable diversion between parallel routes.

1.3 STUDY AREA

The traffic impact study area was defined in coordination with the County of Riverside and City of La Quinta. Based on consultation with City staff, the following nine (9) study area intersection locations shown on Exhibit 1-4 and listed on Table 1-1 were selected for this TIA:

EXHIBIT 1-4
STUDY AREA MAP



LEGEND:

- = EXISTING ANALYSIS LOCATION
- = FUTURE ANALYSIS LOCATION
- = FUTURE ROADWAY / DIRT
- 100' = INTERSECTION/DRIVEWAY INTERVALS (FUTURE AND EXISTING)

TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction
1	Madison Street / 60th Avenue	City of La Quinta
2	Monroe Street / 58th Avenue	City of La Quinta / County of Riverside
3	Monroe Street / 60th Avenue	City of La Quinta / County of Riverside
4	Monroe Street / 61st Avenue	City of La Quinta / County of Riverside
5	Jackson Street / 60th Avenue	County of Riverside
6	Jackson Street / 61st Avenue	County of Riverside
7	Driveway 1 / 60th Avenue – *Future Intersection*	County of Riverside
8	Driveway 2 / 61st Avenue– *Future Intersection*	County of Riverside
9	Madison Street / 58th Avenue	City of La Quinta

To ensure that this TIA satisfies the needs of the County of Riverside and City of La Quinta, Urban Crossroads, Inc. prepared a Project traffic study scoping agreement for review by City staff prior to the preparation of this TIA. The agreement provides an outline of the Project study area, trip generation, trip distribution, and analysis methodology. The agreement approved by the County of Riverside and City of La Quinta is included in Appendix "1.1".

1.4 SUMMARY OF ANALYSIS RESULTS

The results of the potentially significant project-specific traffic impact for the study area intersections for near-term and long-term traffic conditions are listed as below. The proposed Project is not anticipated to contribute additional traffic resulting in neither a potentially significant project-specific traffic impact nor a cumulative traffic impact.

Based on the assessment of Existing (2013), E+P, EAP (2016), and EAPC (2016) traffic conditions, the study area intersections are currently operating at acceptable level of service (LOS "D" or better) and is anticipated to continue to operate at acceptable LOS with the addition of Project traffic. Therefore, the Project is not anticipated to cause a significant impact at the study area intersections.

For Long Range (2035) without Project traffic conditions, the following intersections are anticipated to operate at unacceptable LOS (i.e., LOS "E" or "F") during the peak hours:

ID	Intersection Location	Jurisdiction
1	Madison Street / 60th Avenue	City of La Quinta
2	Monroe Street / 58th Avenue	City of La Quinta / County of Riverside
3	Monroe Street / 60th Avenue	City of La Quinta / County of Riverside
4	Monroe Street / 61st Avenue	City of La Quinta / County of Riverside

ID	Intersection Location (Continued)	Jurisdiction
5	Jackson Street / 60th Avenue	County of Riverside
6	Jackson Street / 61st Avenue	County of Riverside
9	Madison Street / 58th Avenue	City of La Quinta

For Long Range (2035) with Project traffic conditions, the following additional intersection is anticipated to operate at unacceptable LOS (i.e., LOS "E" or "F") during the peak hours:

ID	Intersection Location	Jurisdiction
7	Driveway 1 / 60th Avenue – *Future Intersection*	County of Riverside

Long Range (2035) recommended improvements are discussed in detail in Section 7.0 *Long Range (2035) Traffic Analysis* of this report.

1.5 ON-SITE ROADWAY AND SITE ACCESS IMPROVEMENTS

The Project is proposed to have access on 60th Avenue and 61st Avenue. Both Project access points are proposed to be full-access. Regional access to the Project site will be provided by the I-10 Freeway (located to the north) via Monroe Street.

As part of the development, the Project will construct improvements on the site adjacent roadways of 60th Avenue and 61st Avenue. Roadway improvements necessary to provide site access and on-site circulation are assumed to be constructed in conjunction with site development and are described below. These improvements should be in place prior to occupancy.

1.5.1 ON-SITE ROADWAY IMPROVEMENTS

The recommended site-adjacent roadway improvements for the Project are described below.

60th Avenue – 60th Avenue is an east-west oriented roadway located along the Project's northern boundary. Construct 60th Avenue at its ultimate half-section width as an Arterial roadway (128-foot right-of-way) between the Project's westerly and easterly boundary. It should be noted that 60th Avenue is classified as a 4-Lane Primary Arterial roadway (108' ROW) within the City of La Quinta (immediately west of Project boundary) and classified as 4-Lane Arterial roadway (128' ROW) within the County or Riverside along the Project's frontage. Therefore, a 150-foot transition lane is recommended and discussed in detail in Section 8.1 *On-Site Roadway Improvements*.

61st Avenue – 61st Avenue is an east-west oriented roadway located along the Project's southern boundary. Construct 61st Avenue at its ultimate half-section width as a Collector roadway (76-foot right-of-way) between the Project's westerly and easterly boundary.

Wherever necessary, roadways adjacent to the Project, site access points and site-adjacent intersections will be constructed to be consistent with or within the recommended roadway classifications and respective cross-sections in the County of Riverside General Plan Circulation Element.

1.5.2 SITE ACCESS IMPROVEMENTS

The recommended site access driveway improvements for the Project are described below. Construction of on-site and site adjacent improvements shall occur in conjunction with adjacent Project development activity or as needed for Project access purposes.

The recommended site access driveway improvements for the Project are described below.

Driveway 1 / 60th Avenue (#7)

- Install a stop control on the northbound approach.
- Northbound Approach: Construct one left turn lane and one right turn lane.
- Westbound Approach: Construct one left turn lane.

Driveway 2 / 61st Avenue (#8)

- Install a stop control on the northbound approach.
- Southbound Approach: One shared left-through-right turn lane.
- Eastbound Approach: One left turn lane.

On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the Project site.

Sight distance at each project access point should be reviewed with respect to standard Caltrans and County of Riverside sight distance standards at the time of preparation of final grading, landscape and street improvement plans.

2.0 METHODOLOGIES

This section documents the methodologies and assumptions used to perform this TIA.

2.1 LEVEL OF SERVICE

Traffic operations of roadway facilities are described using the term "Level of Service" (LOS). LOS is a qualitative description of traffic flow based on several factors such as speed, travel time, delay, and freedom to maneuver. Six levels are typically defined ranging from LOS "A", representing completely free-flow conditions, to LOS "F", representing breakdown in flow resulting in stop-and-go conditions. LOS "E" represents operations at or near capacity, an unstable level where vehicles are operating with the minimum spacing for maintaining uniform flow.

2.2 INTERSECTION CAPACITY ANALYSIS

The definitions of LOS for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control. The LOS is typically dependent on the quality of traffic flow at the intersections along a roadway. The *Highway Capacity Manual* (HCM) (Transportation Research Board 2000) methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. The HCM uses different procedures depending on the type of intersection control.

2.2.1 SIGNALIZED INTERSECTIONS

The County of Riverside and City of La Quinta requires signalized intersection operations analysis based on the methodology described in Chapter 16 of the HCM. Intersection LOS operations are based on an intersection's average control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections LOS is directly related to the average control delay per vehicle and is correlated to a LOS designation as described in Table 2-1.

TABLE 2-1: SIGNALIZED INTERSECTIONS LOS THRESHOLDS

Level of Service	Description	Average Control Delay (Seconds)
A	Operations with very low delay occurring with favorable progression and/or short cycle length.	0 to 10.00
B	Operations with low delay occurring with good progression and/or short cycle lengths.	10.01 to 20.00
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.01 to 35.00
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.01 to 55.00

Level of Service	Description (Continued)	Average Control Delay (Seconds)
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.01 to 80.00
F	Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths	80.01 and up

Source: HCM 2000, Chapter 16

The peak hour traffic volumes have been adjusted using a peak hour factor (PHF) to reflect peak 15 minute volumes. Common practice for LOS analysis is to use a peak 15-mintue rate of flow. However, flow rates are typically expressed in vehicles per hour. The PHF is the relationship between the peak 15-minute flow rate and the full hourly volume (e.g. PHF = [Hourly Volume] / [4 x Peak 15-minute Flow Rate]). The use of a 15-minute PHF produces a more detailed analysis as compared to analyzing vehicles per hour. Existing PHFs have been used for Existing, E+P, EAP (2016) and EAPC (2016) traffic conditions. Per Chapter 8 of the HCM 2000, PHF values over 0.95 often are indicative of high traffic volumes with capacity constraints on peak hour flows while lower PHF values are indicative of greater variability of flow during the peak hour. For 2035 conditions, peak hour factors have been adjusted to 0.92 (unless existing PHF value is higher). This adjustment accounts for the effects of congestion on peak spreading under long range conditions. Peak spreading refers to the tendency of traffic to spread more evenly across time as congestion increases.

For intersections within the County of Riverside, a saturation flow rate of 1,900 vehicles per hour of green (vphg) per lane will be utilized based on the County's traffic impact analysis guidelines. For intersections within the City of La Quinta, a saturation flow rate of 1,850 vehicles per hour of green (vphg) per lane will be utilized based on the City's traffic study guidelines (Engineering Bulletin #06-13, dated June 29, 2012). All signalized (future) study area intersections have utilized the Traffix software (Version 8.0 R1, 2008).

2.2.2 UNSIGNALIZED INTERSECTIONS

The County of Riverside and City of La Quinta requires the operations of unsignalized intersections be evaluated using the methodology described in Chapter 17 of the HCM. The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 2-2).

At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane. For all-way stop controlled intersections, LOS is computed for the intersection as a whole. All unsignalized study area intersections have utilized the Traffix software (Version 8.0 R1, 2008).

TABLE 2-2: UNSIGNALIZED INTERSECTIONS LOS THRESHOLDS

Level of Service	Description	Average Control Per Vehicle (Seconds)
A	Little or no delays.	0 to 10.00
B	Short traffic delays.	10.01 to 15.00
C	Average traffic delays.	15.01 to 25.00
D	Long traffic delays.	25.01 to 35.00
E	Very long traffic delays.	35.01 to 50.00
F	Extreme traffic delays with intersection capacity exceeded.	> 50.00

Source: HCM 2000, Chapter 17

2.3 TRAFFIC SIGNAL WARRANT ANALYSIS METHODOLOGY

The term "signal warrants" refers to the list of established criteria used by Caltrans and other public agencies to quantitatively justify or ascertain the potential need for installation of a traffic signal at an otherwise unsignalized intersection. This TIA uses the signal warrant criteria presented in the latest edition of the Federal Highway Administration's (FHWA) *Manual on Uniform Traffic Control Devices (MUTCD)*, as amended by the *2012 California MUTCD (CA MUTCD)*, for all study area intersections.

The signal warrant criteria for Existing (2013) conditions are based upon several factors, including volume of vehicular and pedestrian traffic, frequency of accidents, and location of school areas. Both the FHWA's *MUTCD* and the *2012 CA MUTCD* indicate that the installation of a traffic signal should be considered if one or more of the signal warrants are met. Specifically, this TIA utilizes the Peak Hour Volume-based Warrant 3 as the appropriate representative traffic signal warrant analysis for Existing (2013) traffic conditions. Warrant 3 criteria are basically identical for both the FHWA's *MUTCD* and the *2012 CA MUTCD*. For the purposes of this study, the speed limit was the basis for determining whether Urban or Rural warrants were used for a given intersection.

For future (new) unsignalized intersections, future traffic conditions have been assessed regarding the potential need for new traffic signals based on future average daily traffic (ADT) volumes, using the Caltrans planning level ADT-based signal warrant analysis worksheets.

Traffic signal warrant analyses were performed for the following unsignalized study area intersections:

ID	Intersection Location	Jurisdiction
1	Madison Street / 60th Avenue	City of La Quinta
2	Monroe Street / 58th Avenue	City of La Quinta / County of Riverside
3	Monroe Street / 60th Avenue	City of La Quinta / County of Riverside
4	Monroe Street / 61st Avenue	City of La Quinta / County of Riverside

ID	Intersection Location (Continued)	Jurisdiction
5	Jackson Street / 60th Avenue	County of Riverside
6	Jackson Street / 61st Avenue	County of Riverside
7	Driveway 1 / 60th Avenue – *Future Intersection*	County of Riverside
8	Driveway 2 / 61st Avenue– *Future Intersection*	County of Riverside
9	Madison Street / 58th Avenue	City of La Quinta

The Existing (2013) conditions traffic signal warrant analysis is presented in the subsequent section, Section 3.0 *Area Conditions* of this report. The traffic signal warrant analysis for future conditions is presented in Section 5.0 *Existing plus Project Traffic Analysis*, Section 6.0 *Opening Year (2016) Traffic Analysis, and* Section 7.0 *Long Range (2035) Traffic Analysis*.

It is important to note that a signal warrant defines the minimum condition under which the installation of a traffic signal might be warranted. Meeting this threshold condition does not require that a traffic control signal be installed at a particular location, but rather, that other traffic factors and conditions be evaluated in order to determine whether the signal is truly justified. It should also be noted that signal warrants do not necessarily correlate with level of service. An intersection may satisfy a signal warrant condition and operate at or above LOS "D" or operate below LOS "D" and not meet a signal warrant.

2.4 LOS CRITERIA

Riverside County General Plan Policy C 2.1 states that the County will maintain the following County-wide target level of service (LOS): LOS "C" on all County-maintained roads and conventional State Highways. As an exception, LOS "D" may be allowed in Community Development areas at intersections of any combination of Secondary Highways, Major Highways, Arterial Highways, Urban Arterial Highways, Expressways or conventional State Highways. LOS "E" may be allowed in designated Community Centers to the extent that it would support transit-oriented development and pedestrian communities. As such, LOS "D" will be considered the limit of acceptable operations for all study area intersections.

The City of La Quinta's required level of service (LOS) has been obtained from the City of La Quinta traffic study guideline (Engineering Bulletin #06-13). The City has established LOS "D" as the minimum level of service for its intersections. Therefore, any intersection operating at LOS "E" or "F" will be considered deficient for the purposes of this analysis. As an exception, LOS "E" is allowable on the side street for two-way (cross-street) stop controlled intersections.

2.5 THRESHOLDS OF SIGNIFICANCE

This section outlines the significance criteria used in this analysis relating to roadway system impacts. The Criteria are based on California Environmental Quality Act (CEQA).

According to CEQA guidelines, a project is considered to cause a significant impact to the transportation system if it:

- Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths and mass transit.
- 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 roadway or highways.
- Conflicts with adopted policies or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

Based on the County of Riverside's traffic study guidelines, a "significant" direct traffic impact under CEQA occurs when the addition of project traffic as defined by the EAP (2016) scenario causes an intersection that operates at an acceptable level of service under Existing (2013) traffic conditions (i.e., LOS "D" or better) to fall to an unacceptable level of service (i.e., LOS "E" or "F"). Therefore, EAP (2016) traffic conditions are compared to Existing (2013) traffic conditions to identify significant project-related impacts according to the following criteria:

- If an intersection is projected to operate at an acceptable level of service (i.e., LOS "D" or better) under Existing (2012) traffic conditions and the addition of project traffic, as measured by 50 or more peak hour trips, is expected to cause the intersection to operate at an unacceptable level of service (i.e., LOS "E" or "F"), the impact is considered a significant direct impact.
- If an intersection is projected to operate at an unacceptable level of service (i.e., LOS "E" or "F") without the project, and the project contributes 50 or more peak hour trips, the impact is considered a significant direct impact.

A significant cumulative impact is identified when a facility is projected to operate below the level of service standards due to cumulative future traffic AND a project-related traffic increase as measured by 50 or more peak hour trips. Cumulative traffic impacts are created as a result of a combination of the proposed project together with other future developments contributing to the overall traffic impacts requiring additional improvements to maintain acceptable level of service operations with or without the project.

Per City of La Quinta's EB #06-13, a potentially significant Project specific traffic impact is defined to occur at signalized intersections if the Project trips will result in the LOS for that intersection exceeding the criteria in Table 2-3.

TABLE 2-3: THRESHOLDS OF SIGNIFICANCE

Pre-Project LOS	Project-Related Delay Increase	Mitigation Measure
E	2.0 Seconds or More	Achieve pre-project delay or better
F	1.0 Second or More	Achieve pre-project delay or better

For unsignalized study intersections, a potentially significant Project specific impact is defined to occur when, with project traffic included, an intersection has a projected LOS 'F' on a side street for two-way stop control or LOS 'E' or worse for the intersection at an all-way stop controlled intersection and the addition of project traffic results in an addition of 3 seconds or more of delay for any movement. Delay shall be calculated for all unsignalized study intersections to demonstrate this condition.

In addition, the City of La Quinta indicates that a cumulative impact is defined to occur at any signalized intersection if the project trips will result in the LOS for that intersection exceeding the criteria established in Table 2-3 for cumulative growth volumes. A potentially significant impact at an unsignalized study intersection is defined to occur when, with the addition of project traffic included, an intersection has a projected LOS 'F' on a side street for two-way stop control or LOS 'E' or worse for the intersection at an all-way stop control at City build-out and the addition of project traffic results in an addition of 3 seconds or more of delay for any movement. Delay shall be calculated for all unsignalized intersections in the study
area to demonstrate this.

The Project's fair share contribution toward a cumulatively impacted facility not found to be covered by a pre-existing fee program should be considered sufficient to address the Project's fair share toward a mitigation measure or measures designed to alleviate the cumulative impact. In other words, the Project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable and thus is not significant.

3.0 AREA CONDITIONS

This section provides a summary of the existing circulation network, the County of Riverside General Plan Circulation Network and nearby jurisdictions, and a review of existing peak hour intersection operations, roadway analyses and traffic signal warrants.

3.1 EXISTING CIRCULATION NETWORK

Pursuant to the Traffic Study Scoping Agreement (Appendix "1.1") and discussion with the County of Riverside and City of La Quinta staff, the study area includes a total of nine (9) existing and future intersections as shown on Exhibit 1-4.

Exhibit 3-1 illustrates the study area intersections located near the proposed Project and identifies the number of through traffic lanes for existing roadways and intersection traffic controls.

3.2 GENERAL PLAN CIRCULATION ELEMENT

As previously noted, the Project site is located within the unincorporated area of Riverside County, adjacent to the City of La Quinta, in the community area of Vista Santa Rosa.

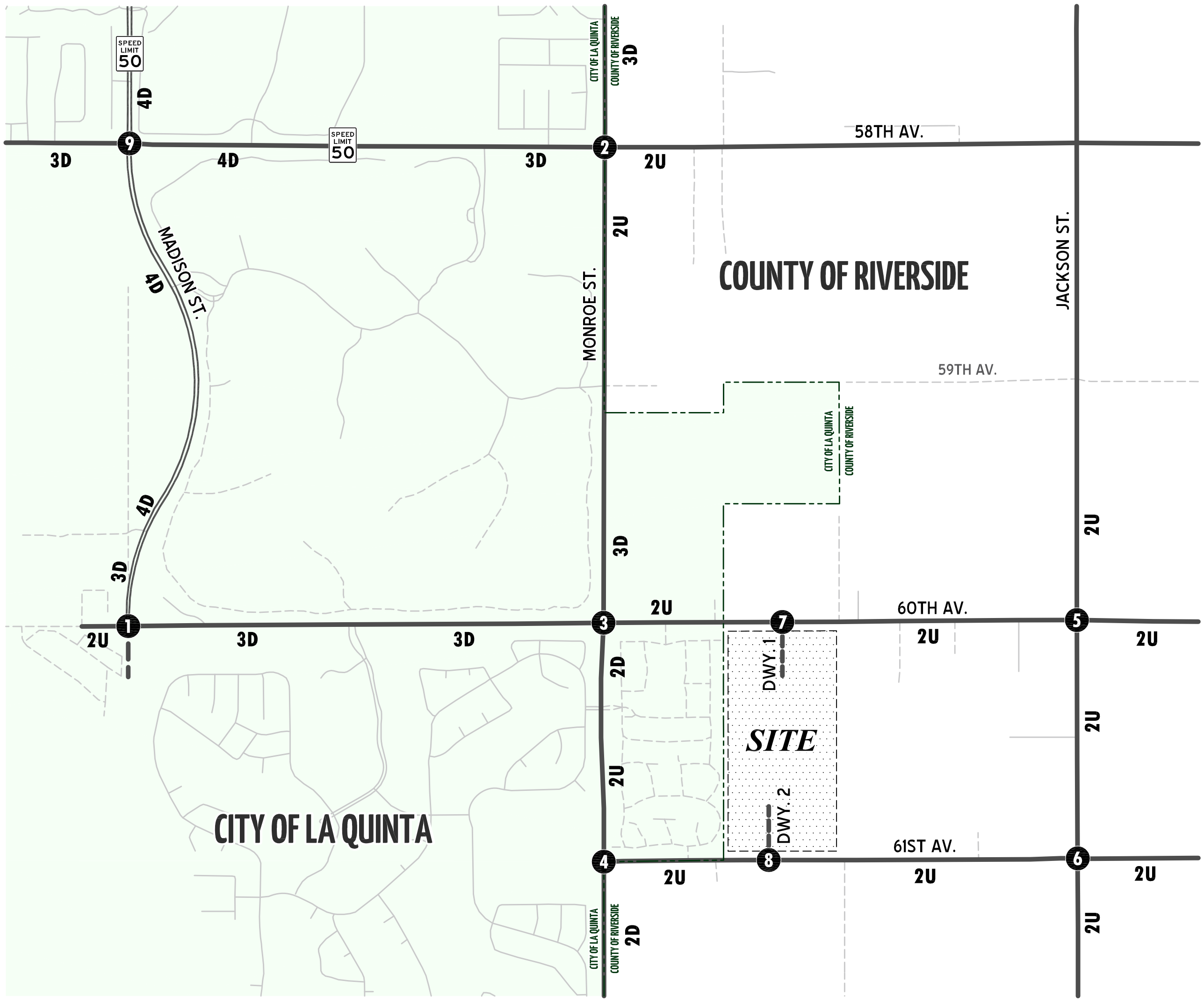
Since the County of Riverside has not yet included the circulation network map in the recently updated County of Riverside General Plan Circulation Element, the proposed roadway classification within the study area based on the draft South Valley Parkway Traffic Study, dated October 2006. The 2003 adopted Riverside County General Plan Circulation Element is shown on Exhibit 3-2. The Draft South Valley Road and Bridge District Proposed Roadway Network is presented on Exhibit 3-3. Exhibit 3-4 includes the County of Riverside General Plan Roadway Cross-Sections.

As shown on Exhibit 3-2, 60th Avenue is classified as an Expressway and 62nd Avenue as a Secondary roadway. However, the proposed roadway network shown on Exhibit 3-3 indicates a classification change for both 60th Avenue and 62nd Avenue, wherein 60th Avenue is proposed as an Arterial roadway and 62nd Avenue is proposed as an Expressway. Per County of Riverside staff, the proposed changes in roadway classification have not been adopted by the County and the status of the South Valley Road and Bridge Benefit District has no definitive timing.

The City of La Quinta General Plan Roadway Classification is shown on Exhibit 3-5. Exhibit 3-6 presents the City of La Quinta's General Plan Street Cross-Sections. As shown on Exhibit 3-5, Avenue 60 is classified as a Primary Arterial roadway, east of Monroe Street. This is consistent with the proposed roadway network shown previously on Exhibit 3-3. However, Avenue 62 is still shown as a Secondary roadway. Per County of Riverside staff, these differences still remain between City and County classifications.

EXHIBIT 3-1

EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS



LEGEND:

- S = ALL WAY STOP
- = STOP SIGN
- 4 = NUMBER OF LANES
- D = DIVIDED
- U = UNDIVIDED
- DEF = DEFACTO RIGHT TURN LANE
- 9 = INTERSECTION ID

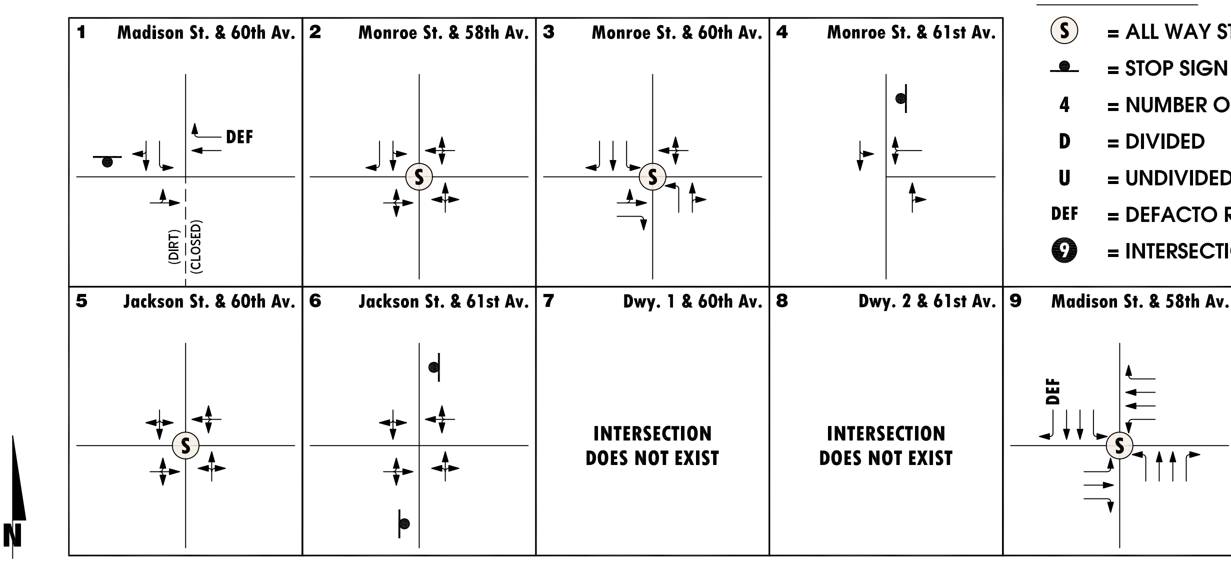
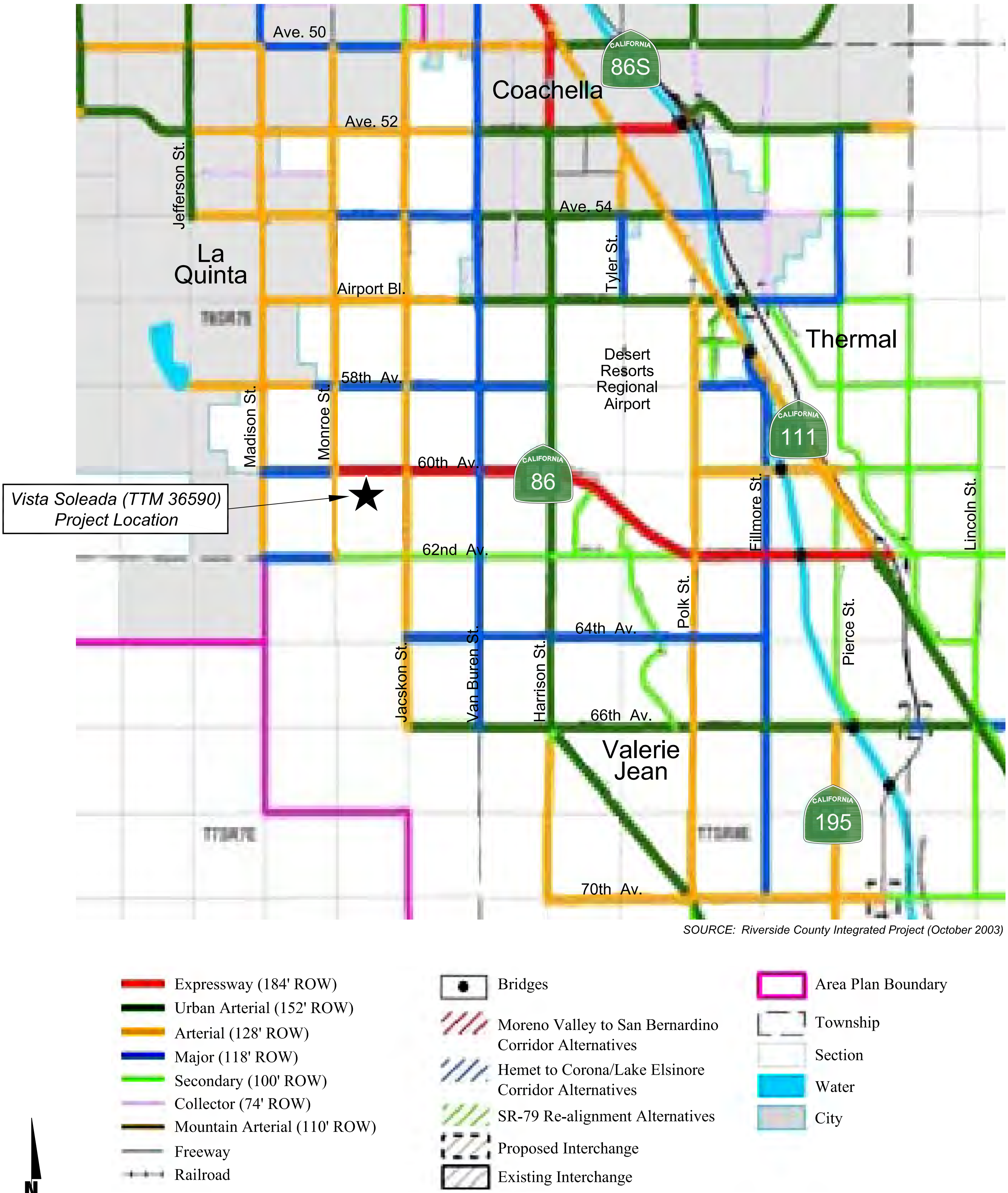


EXHIBIT 3-2

2003 RIVERSIDE COUNTY GENERAL PLAN CIRCULATION ELEMENT



SOURCE: Riverside County Integrated Project (October 2003)

EXHIBIT 3-3

DRAFT SOUTH VALLEY ROAD AND BRIDGE DISTRICT PROPOSED ROADWAY NETWORK

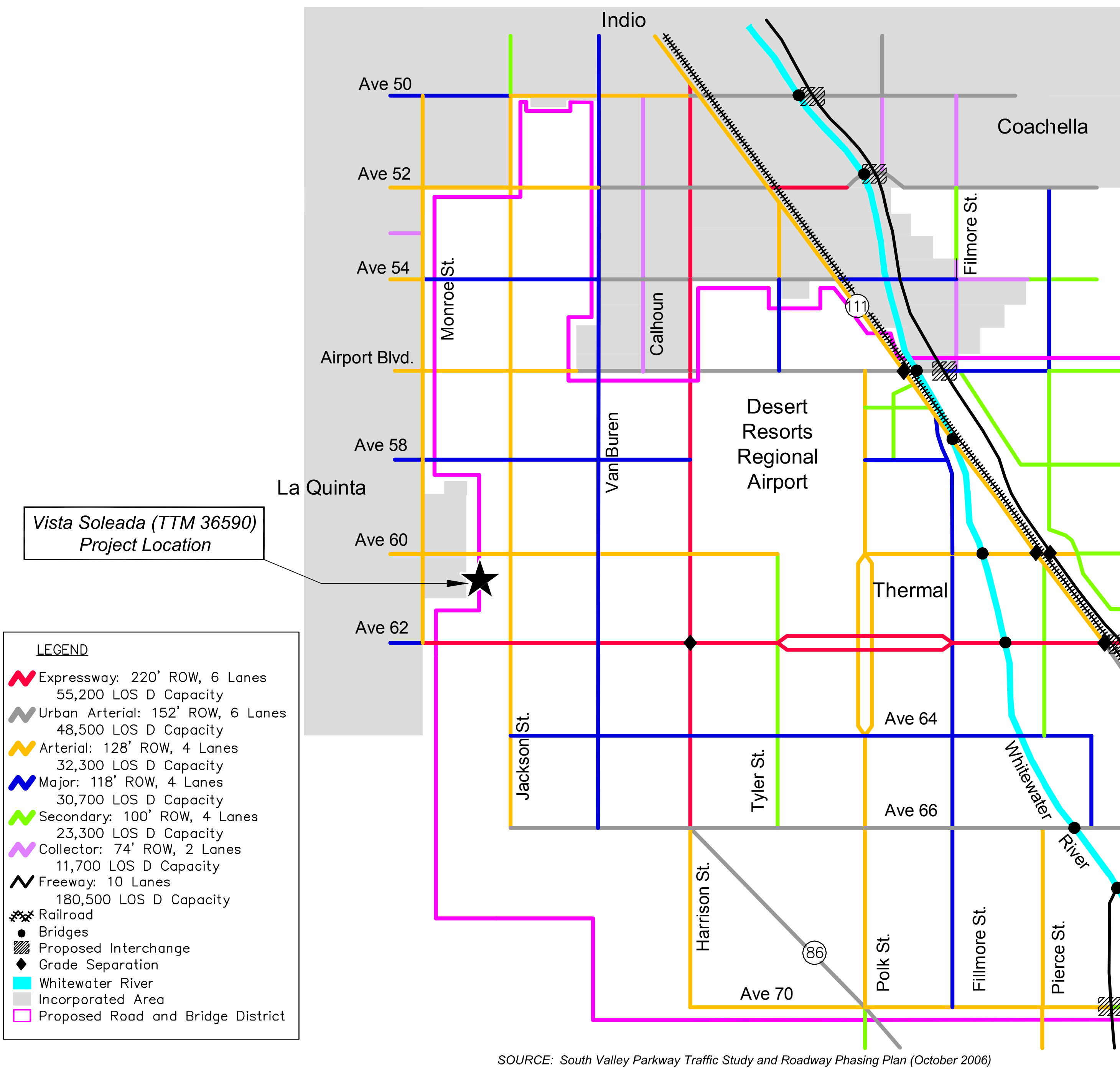
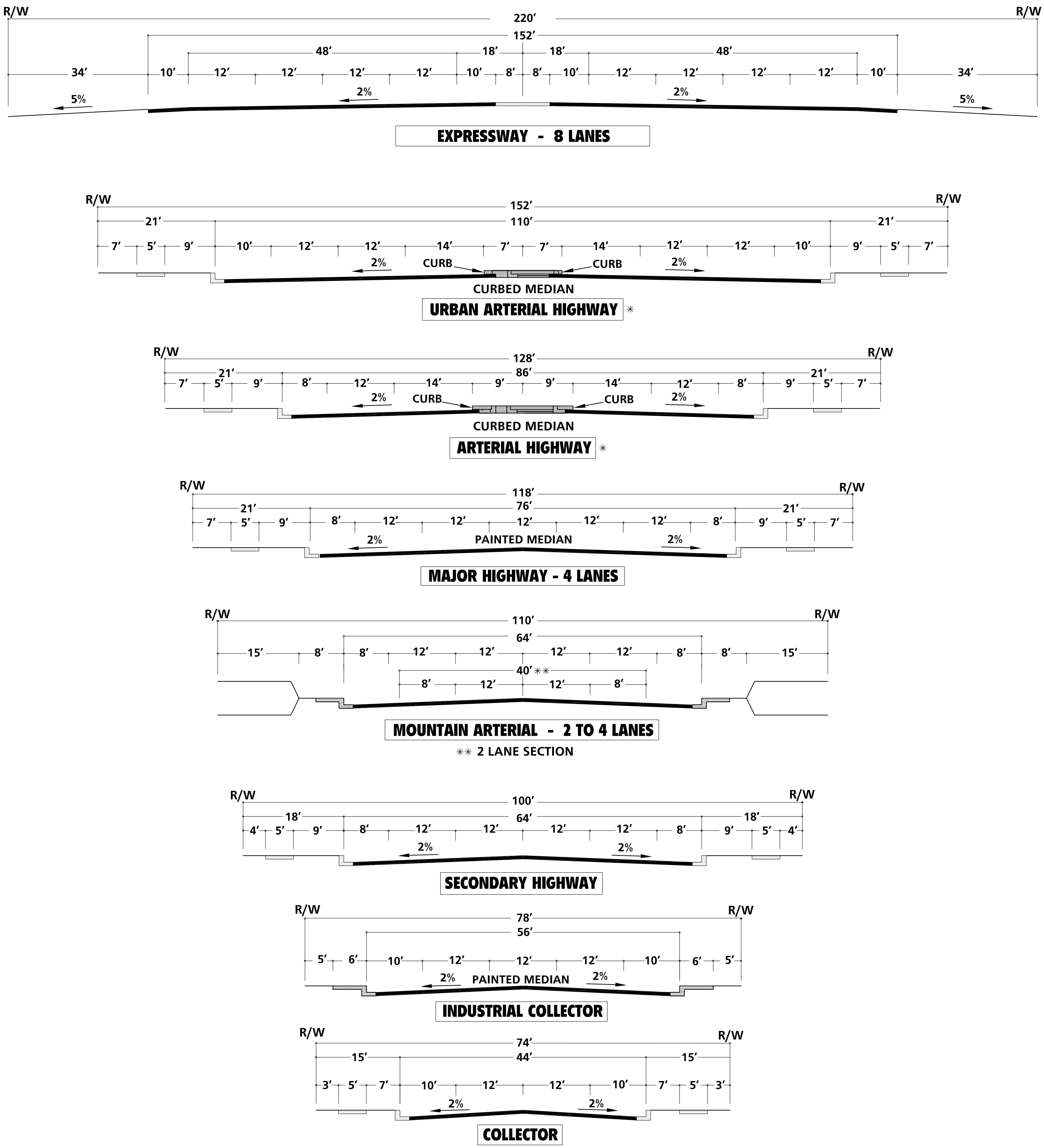


Figure 12
South Valley Road and Bridge District
Proposed Roadway Network

N

EXHIBIT 3-4

COUNTY OF RIVERSIDE
GENERAL PLAN ROADWAY CROSS-SECTIONS



✳ *IMPROVEMENTS MAY BE RECONFIGURED TO ACCOMMODATE EXCLUSIVE TRANSIT LANES OR ALTERNATIVE LANE ARRANGEMENTS ADDITIONAL RIGHT OF WAY MAY BE REQUIRED AT INTERSECTIONS TO ACCOMMODATE ULTIMATE IMPROVEMENTS FOR STATE HIGHWAYS SHALL CONFORM TO CALTRANS DESIGN STANDARDS.*

NOT TO SCALE

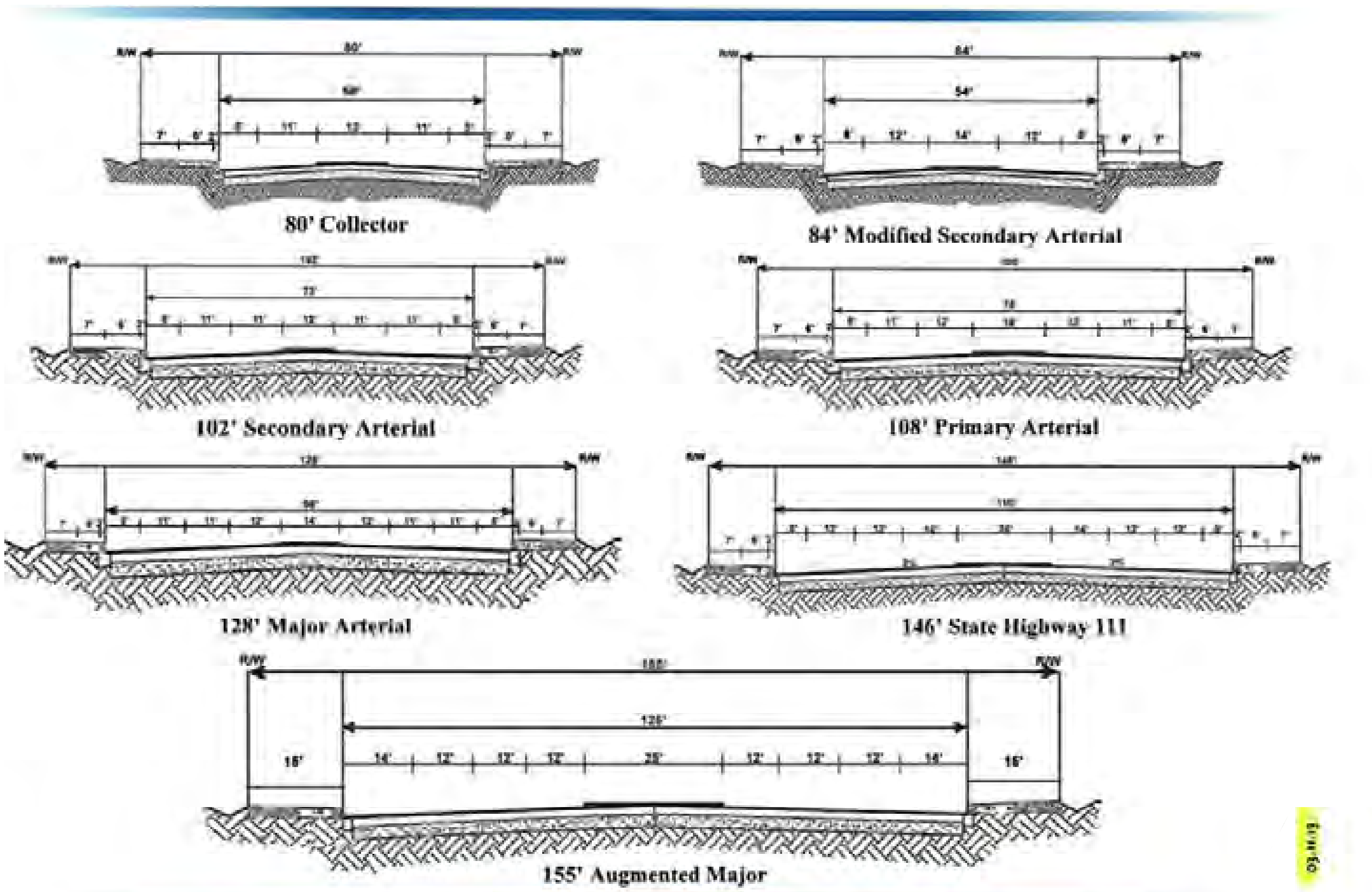
SOURCE: COUNTY OF RIVERSIDE

EXHIBIT 3-5

CITY OF LA QUINTA GENERAL PLAN ROADWAY CLASSIFICATIONS

Source: City of La Quinta Bull. 06-13 (9.22.10) & Iteris (2012)

EXHIBIT 3-6
CITY OF LA QUINTA GENERAL PLAN STREET CROSS-SECTIONS



3.3 INTERSECTION INTERVALS

Table 3-1 includes the County of Riverside intersection interval requirements. The City of La Quinta's intersection interval requirements are shown on Table 3-2. Table 3-2 also indicates the Project's driveway distances from Monroe Street.

Exhibit 1-4 (shown previously), depicts the Project's driveway distances from other existing / future driveways along 60th Avenue and 61st Avenue.

60th Avenue is classified as a 4-lane Arterial roadway (128' ROW) in the proposed roadway network for Riverside County with a minimum interval of one-quarter mile (1,320 ft.) between other streets or highways. For the City of La Quinta, 60th Avenue is classified as a 4-Lane Primary Arterial roadway (108' ROW) with a minimum interval of 1,060 feet between intersections and more than 275 feet between driveways.

61st Avenue is not shown in the County's circulation network. For the City of La Quinta, 61th Avenue is classified as a 2-Lane Collector roadway (80' ROW) with a minimum interval of 300 feet between intersections and more than 250 feet between driveways.

As shown on Exhibit 1-4, the Project driveways at 60th Avenue and 61st Avenue fall within the allowed intersection intervals.

3.4 TRAILS

The CVAG Non-Motorized Transportation Plan Update (2010) produced a comprehensive network of hiking and equestrian trails in the Coachella and Palo Verde Valleys. As shown on the Exhibit 3-7, an equestrian trail is proposed along 60th Avenue adjacent to the Project. The Vista Santa Rosa Community Plan map also shows a trail along 61st Avenue (see Exhibit 3-8). The Project incorporates a perimeter date palm orchard and multi-use trail, with equestrian way station.

3.5 PEDESTRIAN AND BICYCLE FACILITIES

Existing pedestrian and bicycle facilities (e.g., crosswalks, sidewalks, bike lanes, etc.) within the study area are shown on Exhibit 3-9. As shown in Exhibit 3-9, Madison Street, Monroe Street, 58th Avenue, and 60th Avenue currently have an existing bike lane (partially built) within the study area.

3.6 TRANSIT SERVICE

Sunline Transit Agency currently provides service to the Eastern Riverside area. However, there are currently no Sunline bus routes servicing the study area.

COUNTY OF RIVERSIDE INTERSECTION INTERVALS

Table C-1
Street Classification as identified in the city Transportation Department Standards and Specifications

Classification	Definition	Minimum Right-of-Way Width Required	Number of Lanes Required (Approximate)
Freeway	Highway upon which the abutter's rights of access are controlled and which provides separated grades at intersecting streets.	To be determined by Caltrans	To be determined by Caltrans
Expressway	Multi-modal highway corridor for through traffic to which access from abutting property is restricted. Intersections with other streets or highways shall be limited to approximately one-half mile intervals.	220 to 184 feet	6 or 8 lanes, additional rights-of-way may be needed at intersections
Urban Arterial	Highway primarily for through traffic where anticipated traffic volumes exceed four-lane capacity. Access from other streets or highways shall be limited to approximately one-quarter mile intervals.	152 feet	6 or 8 lanes, additional rights-of-way may be required. at intersections
Arterial Highway	Divided highway primarily for through traffic to which access from abutting property shall be kept at a minimum. Intersections with other streets or highways shall be limited to approximately one-quarter mile intervals.	128 feet	4 or 6 lanes, additional right of way may be required at intersections
Arterial Mountain Highway	Highway intended to serve through traffic in mountainous areas zoned for low density residential development. Access from abutting property shall be kept at a minimum. Intersections with other streets or highways shall be limited to approximately 330-foot intervals.	110 feet	2 to 4 lanes, additional right-of-way may be required at intersections.
Major Highway	Highway intended to serve property zoned for major industrial and commercial uses, or to serve through traffic. Intersections with other streets or highways may be limited to approximately 660-foot intervals.	118 feet	4 lanes, additional rights-of-way may be required at intersections
Secondary Highway	Highway intended to serve through traffic along longer routes between major traffic generating areas or to serve property zoned for multiple residential, secondary industrial or commercial uses. Intersections with other streets and highways may be limited to 330-foot intervals.	100 feet	4 lanes, generally no turn lanes, and additional right-of-way may be required at intersections
Collector Street	Street intended to serve intensive residential land use, multiple-family dwellings, or to convey traffic through an area to roads of equal or similar classification or higher. It may also serve as a cul-de-sac in industrial or commercial use areas but shall not exceed 660 feet in length when so used.	74 feet	2 lanes
Industrial Collector	A circulatory street with a continuous left-turn lane with at least one end connecting to a road of equal or greater classification.	78 feet	2 lanes

TABLE 3-2

CITY OF LA QUINTA INTERSECTION INTERVALS

Roadway Classification	Design Speed (mph)	Intersection Spacing (ft.)				
		Residential	Commercial	Access (measured between the curb returns)		
				Approach leg to a full turn intersection	On the exit leg from a full turn intersection	Between Driveways
Major Arterial	55	2,600	1,060	>250	>150	>275
Primary Arterial	45	1,060	1,060	>250	>150	>275
Secondary Arterial	40	600	600	>250	>150	>250
Collectors	30	300	300	>250	>150	>250
Local	25	250	250	-	-	-

* Source: La Quinta General Plan (2012 update). Chapter 2 - Community Development (Pages 120-122)

Vista Soleada (Residential) Project Driveway Intervals			
Roadway	Road Segment	Roadway Classification	Distance
60th Avenue	From Monroe Street to Driveway 1	Primary Arterial	2,000
61st Avenue	From Monroe Street to Driveway 2	Collector	1,800

EXHIBIT 3-7

EXISTING AND PROPOSED HIKING AND EQUESTRIAN TRAIL FACILITIES SOUTH COACHELLA VALLEY

SOURCE: Coachella Valley Association of Governments (CVAG) Non-Motorized Transportation Plan Update (September 2010)

Legend

Trail Facilities

CLASS, STATUS

- Hiking & Equestrian Trail, Existing
- Hiking & Equestrian Trail, Proposed
- Trailhead, Existing
- Trailhead, Proposed

June 2010

URBAN

N

EXHIBIT 3-8

VISTA SANTA ROSA COMMUNITY LAND USE CONCEPT PLAN MAP

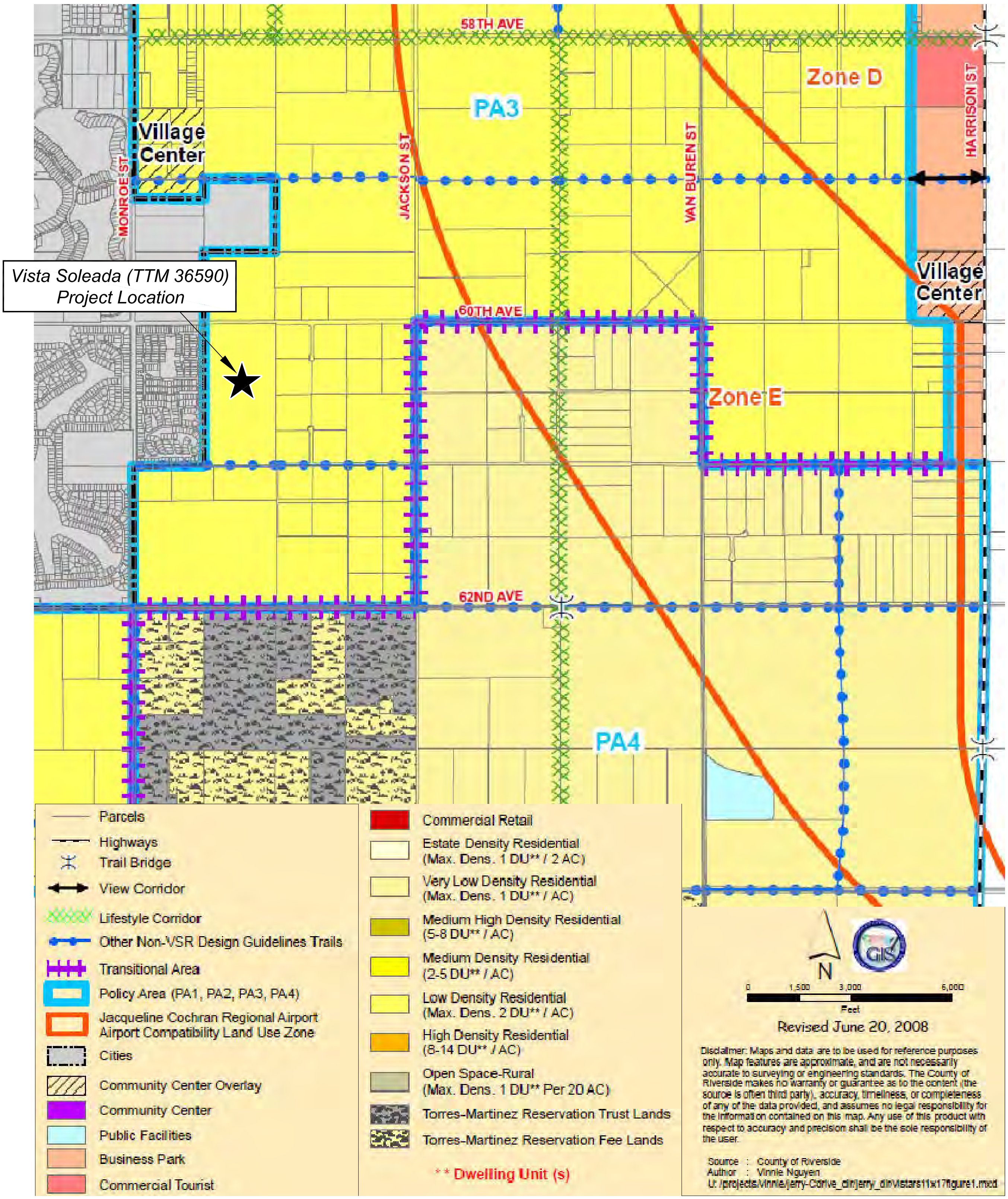
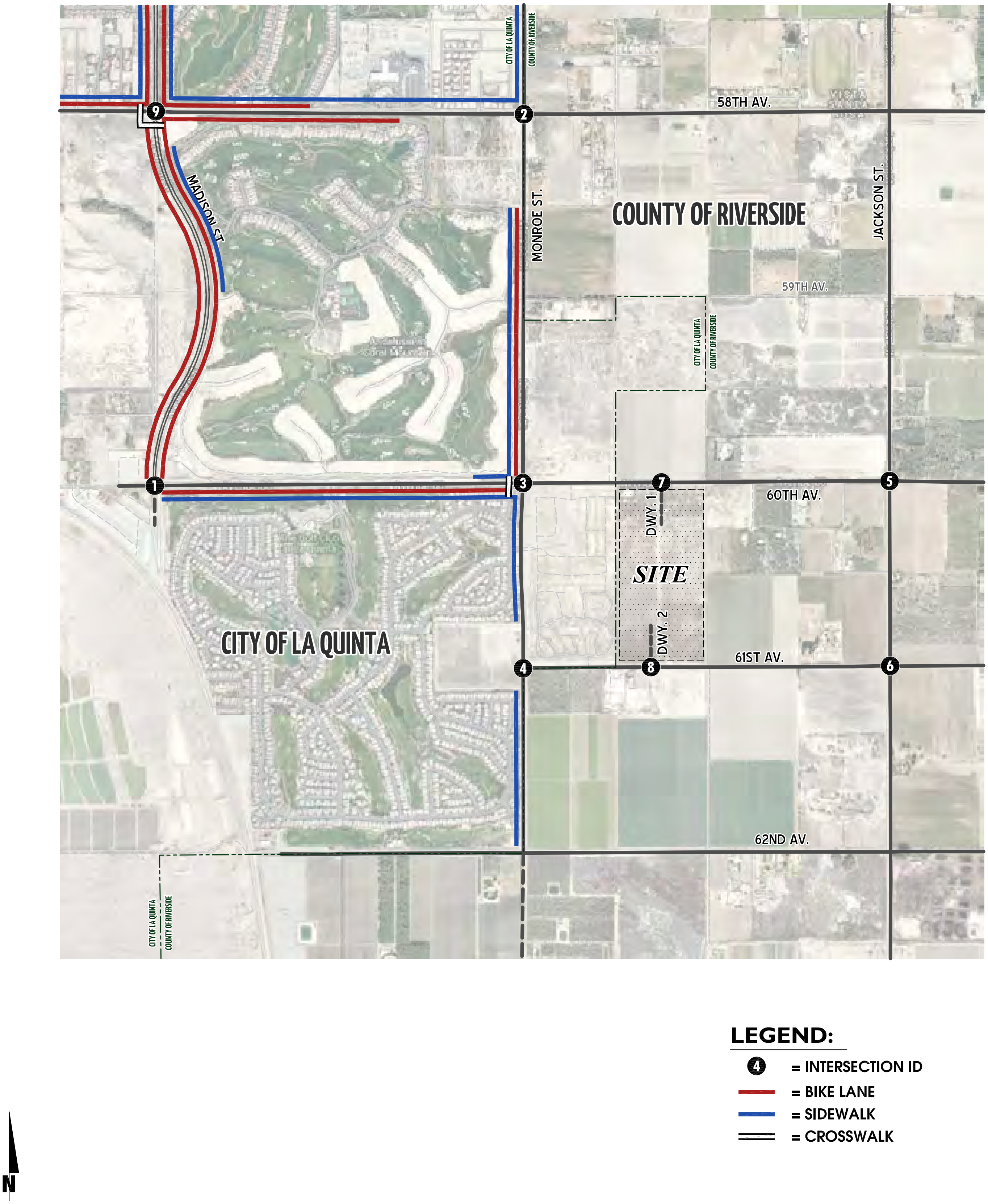


EXHIBIT 3-9

BICYCLE AND EXISTING PEDESTRIAN FACILITIES



Transit service is reviewed and updated by Sunline Transit Agency periodically to address ridership, budget and community demand needs. Changes in land use can affect these periodic adjustments which may lead to either enhanced or reduced service where appropriate.

3.7 EXISTING TRAFFIC COUNTS

The City of La Quinta's traffic study guidelines (Engineering Bulletin #06-13), requires the morning peak volumes to be measured between 6:00 & 8:30 am and afternoon peak volumes between 2:30 & 5:30 pm. The County of Riverside normally measures peak volumes between 7:00 & 9:00 am and 4:00 & 6:00 pm. For the purpose of this report, the following peak hours were selected for analysis:

- Weekday AM Peak Hour (peak hour between 6:00 AM and 9:00 AM)
- Weekday PM Peak Hour (peak hour between 2:30 PM and 6:00 PM)

Manual weekday AM and PM and peak hour turning movement counts were conducted in October 2013. The weekday AM and PM peak hour count data is representative of typical weekday peak hour traffic conditions in the study area. There were no observations made in the field that would indicate atypical traffic conditions on the count dates, such as construction activity or detour routes. The raw manual peak hour turning movement traffic count data sheets are included in Appendix "3.1". It should be noted that the City of La Quinta requires seasonal adjustments to consider the seasonal population variations within the City. Consistent with the City of La Quinta's EB #06-13, a 10% seasonal growth increase is applied to October counts for the intersections located within the City of La Quinta

Existing (2013) average daily traffic (ADT) volumes on arterial highways throughout the study area are shown on Exhibit 3-10. The ADT volumes are either based on traffic counts or have been estimated by factoring up peak hour counts. The following formula was used to estimate the daily volume for each intersection leg if daily traffic counts were not available:

$$\frac{\textit{(AM Peak Hour (Link Volume) + PM Peak Hour (Link Volume))}}{\textit{AM Link Volume \% of Daily Volume + PM Link Volume \% of Daily Volume}}$$

The daily traffic volume count worksheets and peak hour to daily traffic calculations are also included in Appendix "3.1". The resulting (combined AM and PM) ADT calculation factor is 5.714.

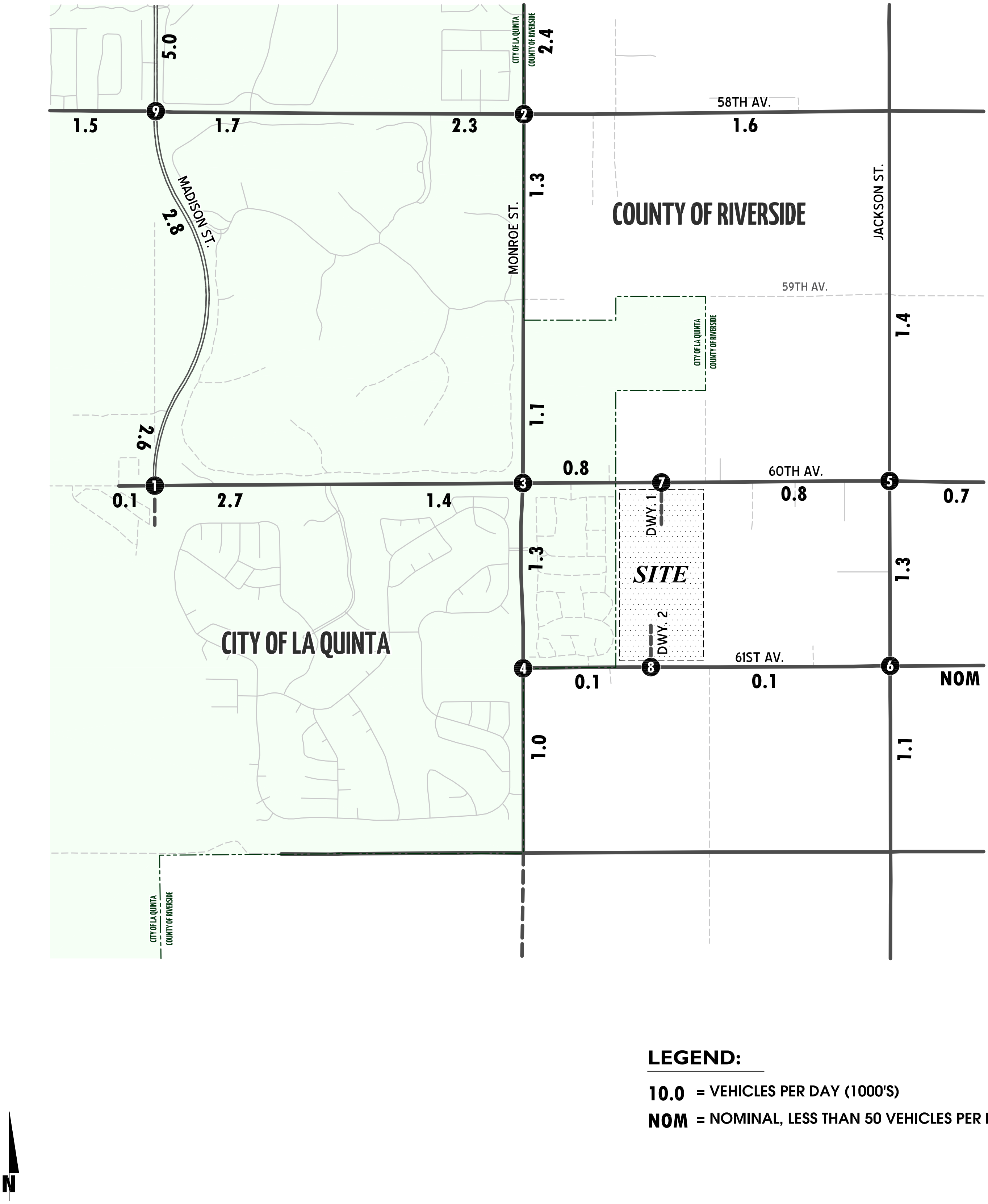
Existing (2013) weekday AM and PM peak hour intersection volumes are shown on Exhibit 3-11 and Exhibit 3-12, respectively.

3.8 EXISTING CONDITIONS INTERSECTION OPERATIONS ANALYSIS

Existing (2013) peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2.2 *Intersection Capacity Analysis* of this report.

EXHIBIT 3-10

EXISTING (2013) AVERAGE DAILY TRAFFIC (ADT)

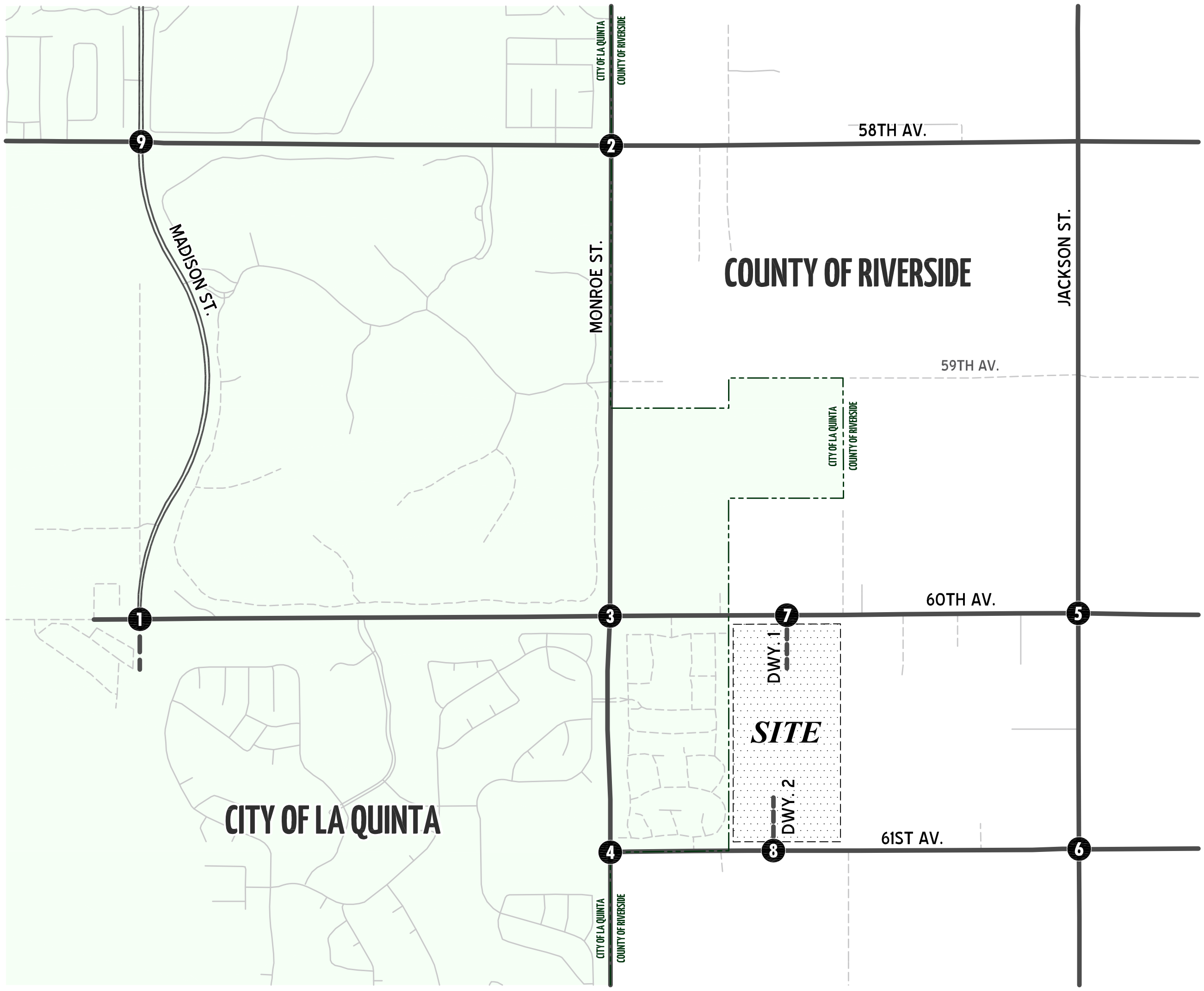


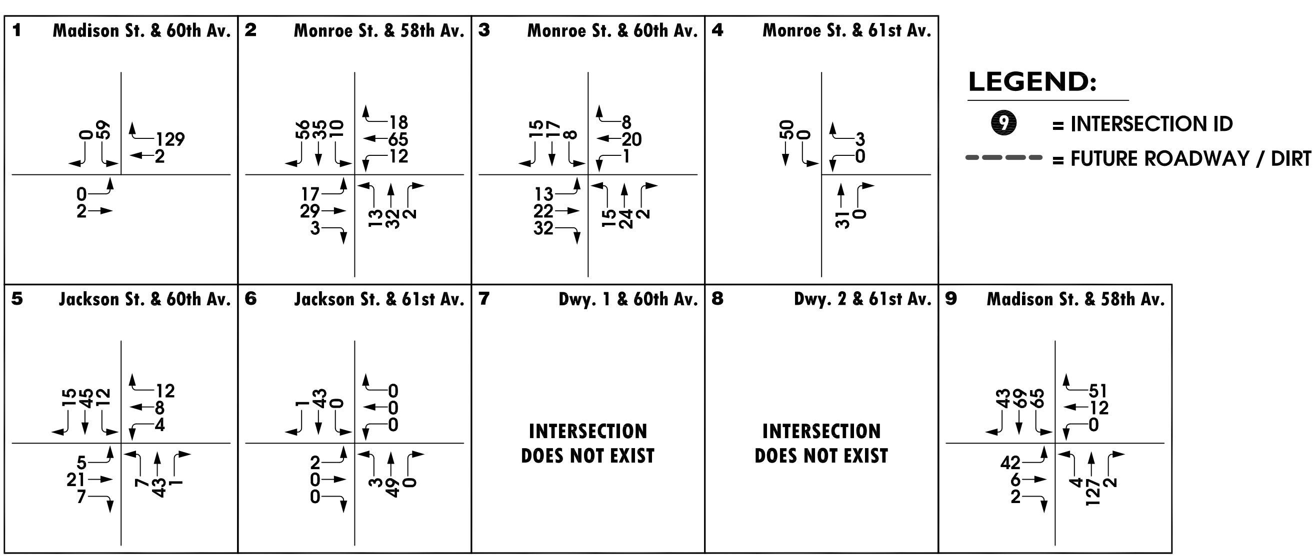
LEGEND:

10.0 = VEHICLES PER DAY (1000'S)

NOM = NOMINAL, LESS THAN 50 VEHICLES PER DAY

EXISTING (2013) AM PEAK HOUR INTERSECTION VOLUMES





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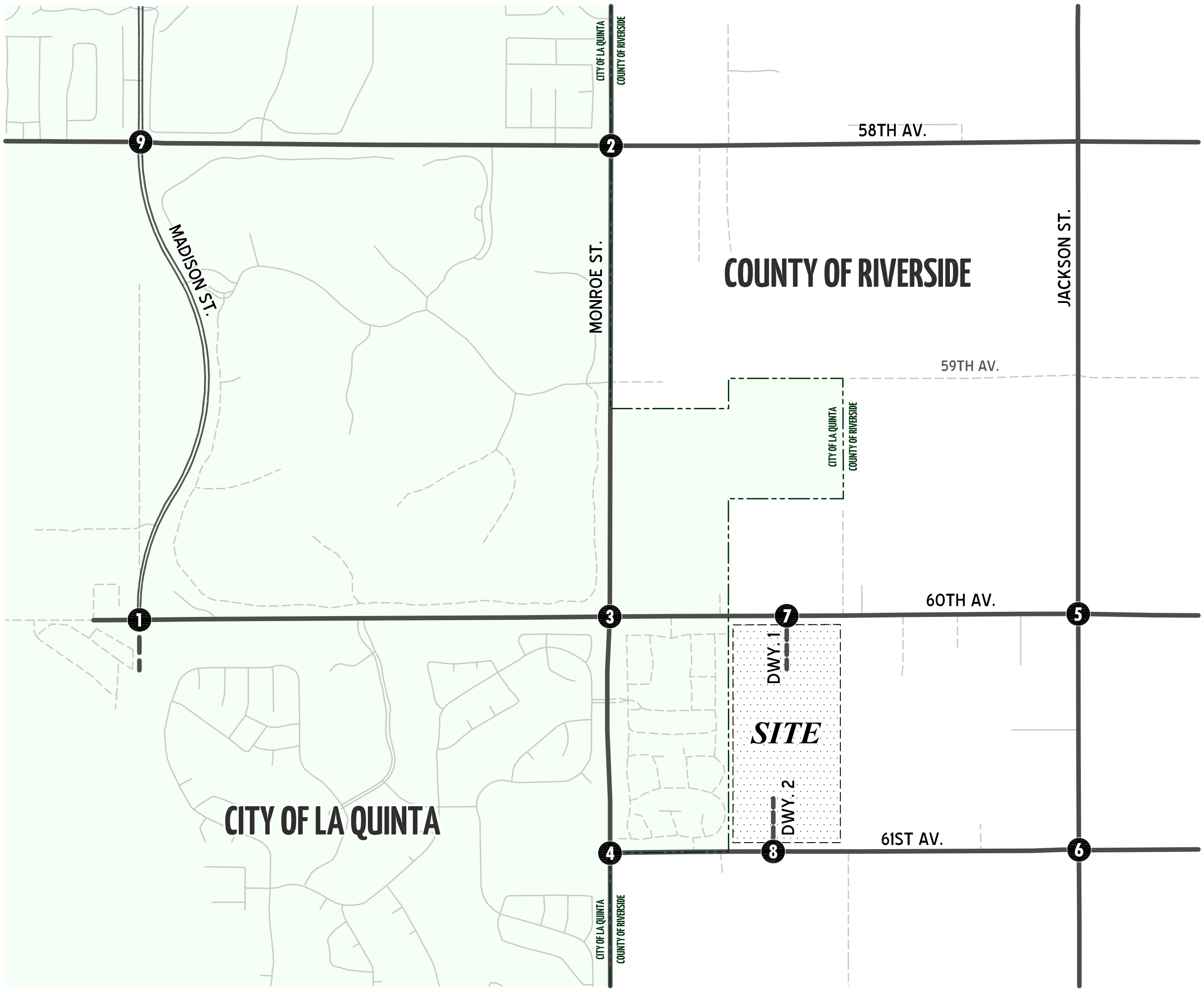
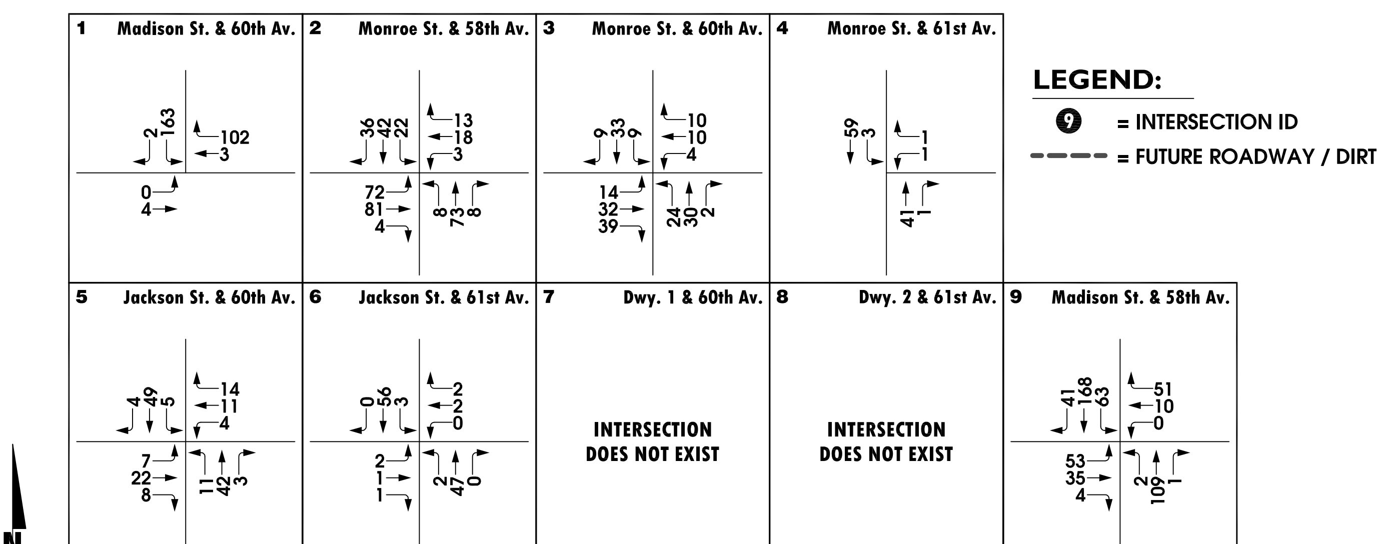
EXISTING (2013) PM PEAK HOUR INTERSECTION VOLUMES





The intersection operations analysis results are summarized in Table 3-3. The Existing (2013) conditions operations analysis shows that all study area intersections appear to currently operate at acceptable LOS (i.e., LOS "D" or better) during the peak hours.

The intersection operations analysis worksheets are included in Appendix "3.2" of this TIA.

3.9 EXISTING CONDITIONS TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for Existing traffic conditions are based on existing peak hour intersection volumes. For Existing (2013) conditions, there are no study area intersections that currently appear to warrant a traffic signal (see Appendix "3.3").

TABLE 3-3

INTERSECTION ANALYSIS FOR EXISTING (2013) CONDITIONS

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service[2]	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	Madison St. / 60th Av.	CSS	0	0	0	1	1	0	0	1	0	0	1	d	8.8	9.4	A	A
2	Monroe St. / 58th Av.	AWS	0	1!	0	0	1	1	0	1!	0	0	1!	0	7.8	8.7	A	A
3	Monroe St. / 60th Av.	AWS	1	1	0	1	1	1	0.5	0.5	1	0	1!	0	7.7	7.8	A	A
4	Monroe St. / 61st Av.	CSS	0	1	0	0.5	0.5	0	0	0	0	0	1!	0	8.5	8.9	A	A
5	Jackson St. / 60th Av.	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	7.3	7.3	A	A
6	Jackson St. / 61st Av.	CSS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	9.1	9.4	A	A
7	Dwy. 1 / 60th Av.	-	Intersection Does Not Exist												-	-	-	-
8	Dwy. 2 / 61st Av.	-	Intersection Does Not Exist												-	-	-	-
9	Madison St. / 58th Av.	AWS	1	2	1	1	2	d	1	1	1	1	2	1	8.7	8.6	A	A

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; 1! =Shared Left-Through-Right Turn Lane; d = Defacto Right Turn Lane

[2] Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with a traffic signal or all-way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] CSS = Cross-Street Stop; AWS = All-Way Stop

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4.0 PROJECTED FUTURE TRAFFIC

This section presents the traffic volumes estimated to be generated by the Project, as well as the Project's trip assignment onto the study area roadway network. The Project is proposed to consist of 230 single family homes and a 1.40 acre equestrian way station. For the purpose of this analysis, the Project is anticipated to be developed in a single phase with a projected Opening Year of 2016.

The Project is proposed to have access on 60th Avenue and 61st Avenue. Both Project access points are proposed to be full-access. Regional access to the Project site will be provided by the I-10 Freeway (located to the north) via Monroe Street.

4.1 PROJECT TRIP GENERATION

Trip generation represents the amount of traffic which is both attracted to and produced by a development. Determining traffic generation for a specific project is therefore based upon forecasting the amount of traffic that is expected to be both attracted to and produced by the specific land uses being proposed for a given development.

In order to estimate the traffic characteristics of the proposed Project, trip-generation statistics published in the Institute of Transportation Engineers (ITE) Trip Generation (9^{th} Edition, 2012) manual for the proposed land use (ITE Land Use Code 210 Single Family Detached Residential) were used. For the equestrian way station, ITE Trip Generation Manual does not include comprehensive trip rates, and therefore SANDAG's daily trip rate for neighborhood/county (undeveloped) park is utilized. For the equestrian way station (a staging area for loading/unloading of horses and access to trails) peak hour rates, SANDAG's trip generation peak to daily percentage and in/out ratio for City (developed) park is applied.

Trip generation rates used to estimate Project traffic and summary of the Project's trip generation are shown on Table 4-1. As shown in Table 4-1, the Project is estimated to generate a total of approximately 2,197 net trip-ends per day on a typical weekday with approximately 175 net weekday AM peak hour trips, 232 net weekday PM peak hour trips.

4.2 PROJECT TRIP DISTRIBUTION

The project trip distribution and assignment process represents the directional orientation of traffic to and from the project site. Trip distribution is heavily influenced by the geographical location of the site, the location of surrounding uses, and surface roadway characteristics such as proximity to the regional highway/freeway system. The travel patterns were developed in coordination with City staff when determining the limits of the study area. The project traffic distribution pattern is shown on Exhibit 4-1.

TABLE 4-1

VISTA SOLEADA (TTM 36590) PROJECT TRIP GENERATION SUMMARY

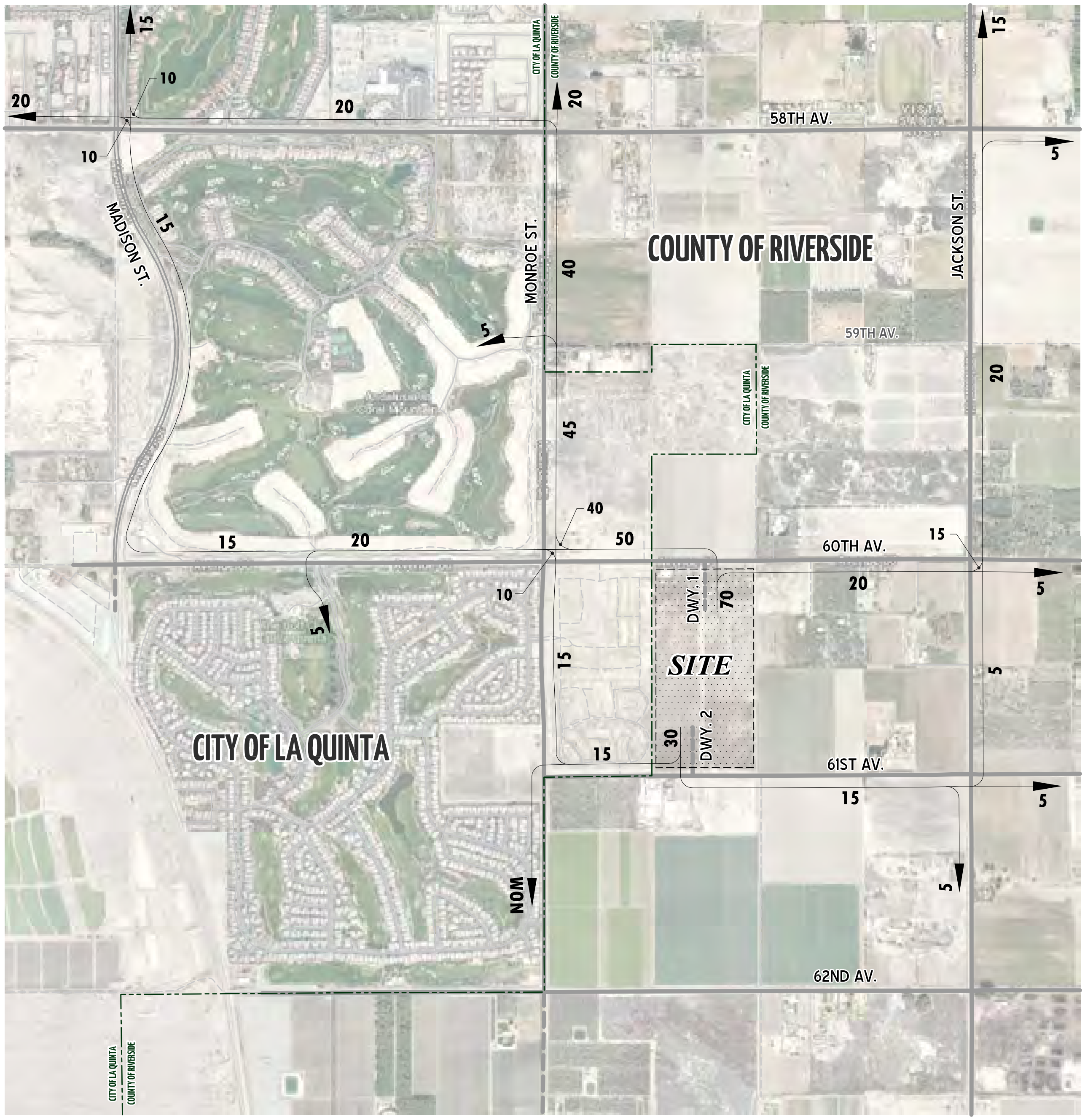
TRIP GENERATION RATES[1]										
Land Use	ITE CODE	Quantity	Units[2]	Weekday AM Peak Hour In	Weekday AM Peak Hour Out	Weekday AM Peak Hour Total	Weekday PM Peak Hour In	Weekday PM Peak Hour Out	Weekday PM Peak Hour Total	Weekday Daily
Single Family Detached	210	230	DU	0.19	0.56	0.75	0.63	0.37	1.00	9.52
Equestrian Way Station	-[3]	1.40	AC	0.33	0.32	0.65	0.23	0.22	0.45	5.00

TRIP GENERATION RESULTS										
Land Use	ITE CODE	Quantity	Units[1]	Weekday AM Peak Hour In	Weekday AM Peak Hour Out	Weekday AM Peak Hour Total	Weekday PM Peak Hour In	Weekday PM Peak Hour Out	Weekday PM Peak Hour Total	Weekday Daily
Single Family Detached	210	230	DU	44	129	173	145	85	230	2,190
Equestrian Way Station	-[3]	1.40	AC	1	1	2	1	1	2	7
TOTAL				45	130	175	146	86	232	2,197

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 9th Edition (2012).
[2] DU = Dwelling Unit; AC = Acre
[3] Since ITE does not have trip rates for an equestrian way station, similar use based on SANDAG's neighborhood/county (undeveloped) park daily rates are utilized. For the peak hour rates, SANDAG's in/out ratio for City (developed) park is applied.

EXHIBIT 4-1

PROJECT TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT
NOM = NOMINAL, LESS THAN 1 PERCENT TO/FROM PROJECT

N

4.3 MODAL SPLIT

The traffic reducing potential of public transit, walking or bicycling have not been considered in this TIA. Essentially, the traffic projections are "conservative" in that these alternative travel modes might be able to reduce the forecasted traffic volumes.

4.4 PROJECT TRIP ASSIGNMENT

The assignment of traffic from the Project area to the adjoining roadway system is based upon the Project trip generation, trip distribution, and the arterial highway and local street system improvements that would be in place by the time of initial occupancy of the Project. Based on the identified Project traffic generation and trip distribution patterns, Project (2016) average daily traffic (ADT) volumes for the weekday are shown on Exhibit 4-2. Project (2016) weekday AM and PM peak hour volumes are shown on Exhibit 4-3 and Exhibit 4-4, respectively.

4.5 BACKGROUND TRAFFIC

Future year traffic forecasts have been based upon three (3) years of background (ambient) growth at 2% per year for 2016 traffic conditions. The ambient growth factor is intended to approximate regional traffic growth. The total ambient growth is 6.012% for 2016 traffic conditions (compounded growth of two percent per year over two years or $1.02^{3\ \text{years}}$). This ambient growth rate is added to existing traffic volumes to account for area-wide growth not reflected by cumulative development projects. Ambient growth has been added to daily and peak hour traffic volumes on surrounding roadways, in addition to traffic generated by the development of future projects that have been approved but not yet built and/or for which development applications have been filed and are under consideration by governing agencies.

4.6 CUMULATIVE DEVELOPMENT TRAFFIC

CEQA guidelines require that other reasonably foreseeable development projects which are either approved or being processed concurrently in the study area also be included as part of a cumulative analysis scenario. A cumulative project list was developed for the purposes of this analysis through consultation with planning and engineering staff from the County of Riverside and City of La Quinta. Exhibit 4-5 illustrates the cumulative development location map. The cumulative data trip distribution patterns are included in Appendix 4.1.

Trip generation rates used to estimate cumulative development traffic are shown on Table 4-2. Table 4-3 presents the cumulative development trip generation summary. As shown in Table 4-3, the cumulative development projects are estimated to generate a total of approximately 9,918 net trip-ends per day on a typical weekday with approximately 781 net weekday AM peak hour trips, 1033 net weekday PM peak hour trips

TABLE 4-2

CUMULATIVE DEVELOPMENT TRIP GENERATION RATES

Land Use[2]	ITE CODE	Quantity	Units[3]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
COUNTY OF RIVERSIDE										
SFDR	210	Varies	DU	0.19	0.56	0.75	0.63	0.37	1.00	9.52
CITY OF LA QUINTA[4]										
SFDR - 472 DU	210	472	DU	0.19	0.54	0.73	0.57	0.32	0.89	9.28
SFDR - 94 DU	210	94	DU	0.22	0.61	0.83	0.69	0.39	1.08	10.55
SFDR - 392 DU	210	392	DU	0.19	0.54	0.73	0.58	0.33	0.91	9.41
SFDR - 326 DU	210	326	DU	0.19	0.55	0.74	0.59	0.33	0.92	9.55

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 9th Edition (2012).

[2] SFDR = Single Family Detached Residential

[3] DU = Dwelling Unit

[4] It should be noted that the City of La Quinta utilizes the ITE average rate of the peak hour of the generator NOT the peak hour of adjacent street. In accordance with the City of La Quinta's Engineering Bulletin #06-13, trip generation rates with a good regression curve fit to the data points (R^2>0.7) will be utilized rather than the average rate.

TABLE 4-3

CUMULATIVE DEVELOPMENT TRIP GENERATION SUMMARY

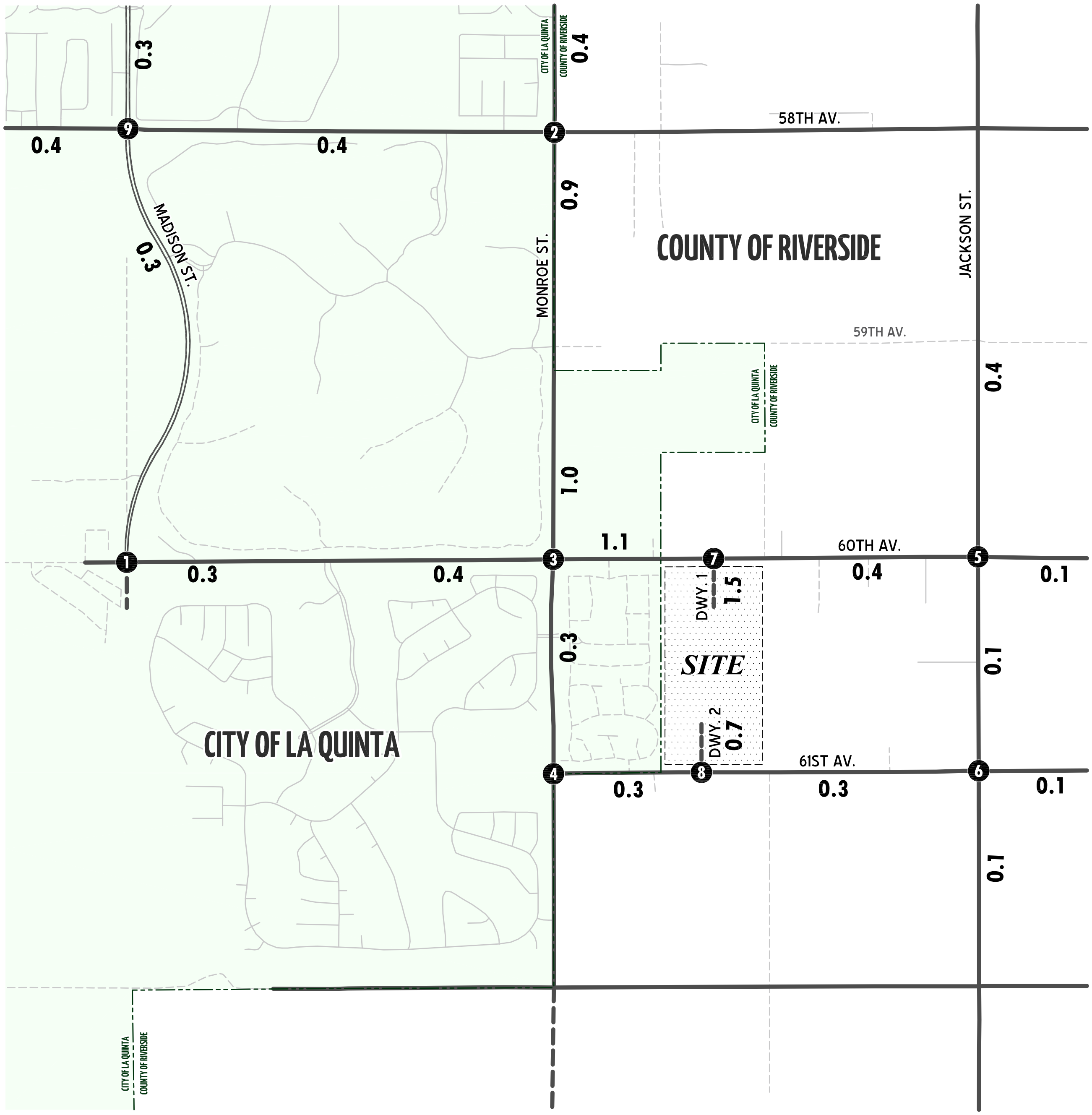
TAZ ID	Project Name	Land Use[1]	Quantity	Units[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
COUNTY OF RIVERSIDE											
1	TR 34302	SFDR	56	DU	11	31	42	35	21	56	533
2	TR 36234	SFDR	90	DU	17	50	67	57	33	90	857
3	TR 32693	SFDR	228	DU	43	128	171	144	84	228	2,171
4	TR 32694	SFDR	547	DU	104	306	410	345	202	547	5,207
COUNTY OF RIVERSIDE TOTAL					175	515	690	581	340	921	8,768
CITY OF LA QUINTA											
5	SP 2003-067 (Andalusia)	SFDR	472	DU	90	255	345	269	151	420	4,380
	- Completed by 2016	SFDR	220	DU	42	119	161	125	70	195	2,042
	- Currently Built	SFDR	(160)	DU	(30)	(86)	(116)	(91)	(51)	(142)	(1,485)
	TAZ 5 Total (Opening Year 2016)				12	33	45	34	19	53	557
6	TM 31434	SFDR	94	DU	21	57	78	65	37	102	992
	- Completed by 2016	SFDR	20	DU	4	12	16	14	8	22	211
	TAZ 6 Total (Opening Year 2016)				4	12	16	14	8	22	211
7	SP 2004-072 (Schumacher)	SFDR	392	DU	74	212	286	227	129	356	3,689
	- Completed by 2016	SFDR	0	DU	--	--	--	--	--	--	--
	TAZ 7 Total (Opening Year 2016)				n/a	n/a	n/a	n/a	n/a	n/a	n/a
8	TT 31732 & 31733 (Palizada)	SFDR	326	DU	62	179	241	192	108	300	3,113
	- Completed by 2016	SFDR	40	DU	8	22	30	24	13	37	382
	TAZ 8 Total (Opening Year 2016)				8	22	30	24	13	37	382
CITY OF LA QUINTA TOTAL					24	67	91	72	40	112	1,150

TOTAL CUMULATIVE PROJECTS	199	582	781	653	380	1,033	9,918

[1] SFDR = Single Family Detached Residential

[2] DU = Dwelling Unit

EXHIBIT 4-2
PROJECT ONLY AVERAGE DAILY TRAFFIC (ADT)



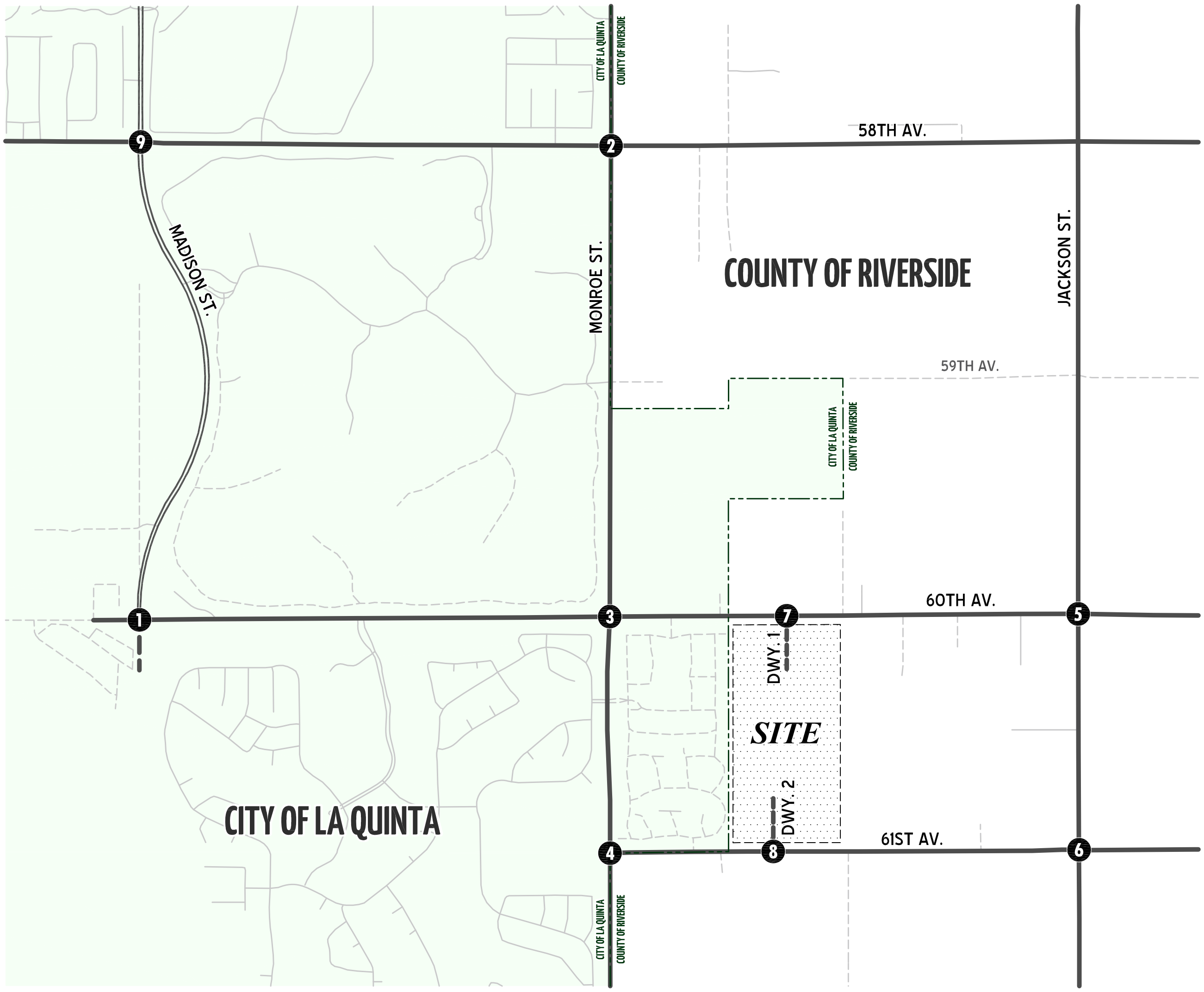
LEGEND:

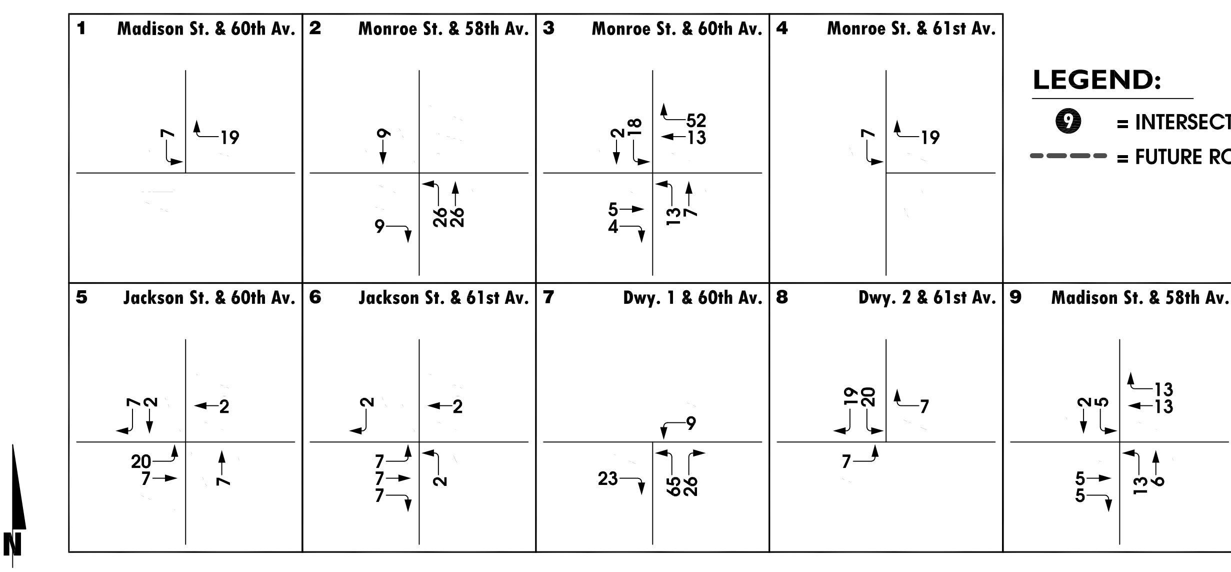
10.0 = VEHICLES PER DAY (1000'S)

NOM = NOMINAL, LESS THAN 50 VEHICLES PER DAY

EXHIBIT 4-3

PROJECT ONLY
AM PEAK HOUR INTERSECTION VOLUMES



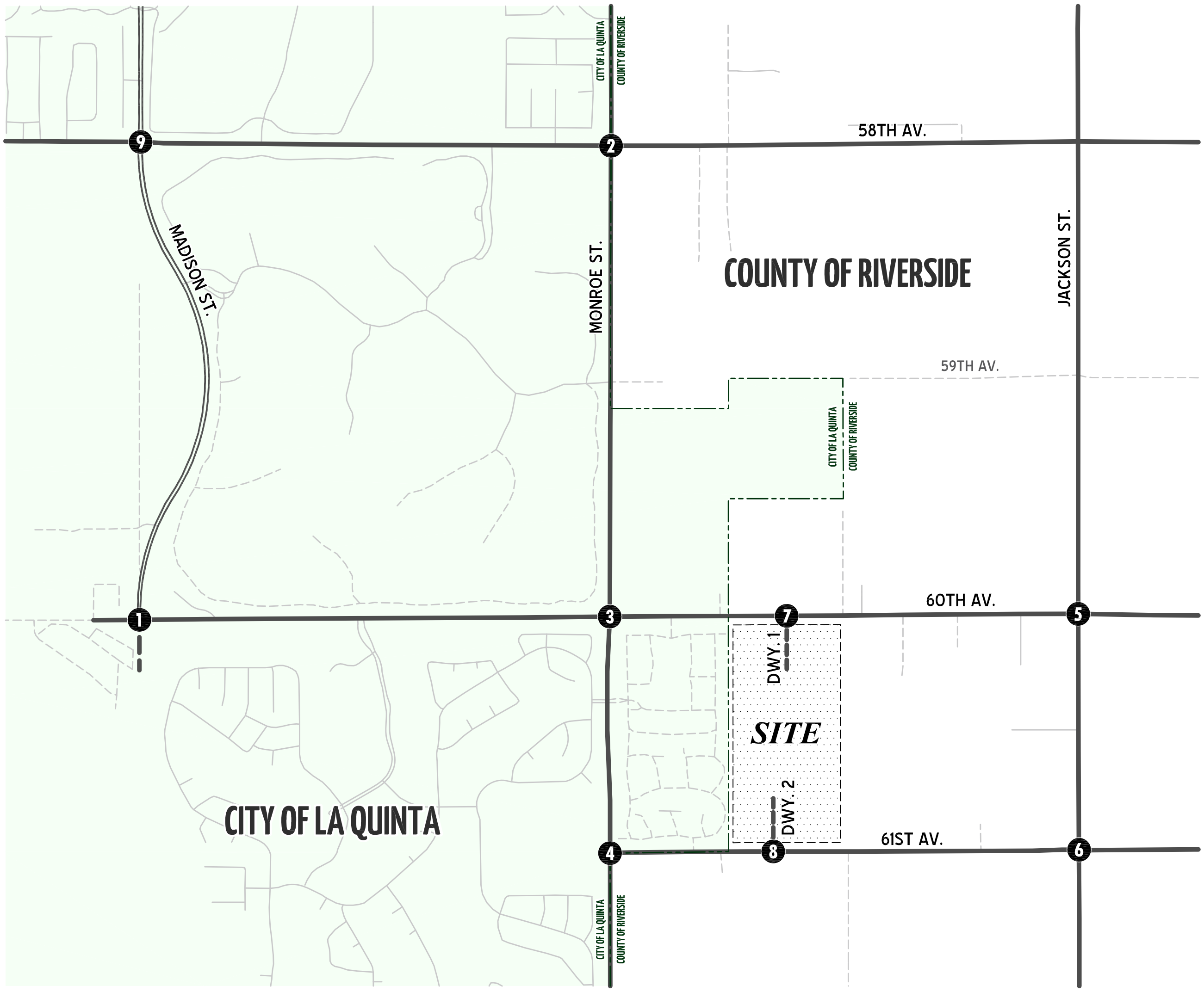


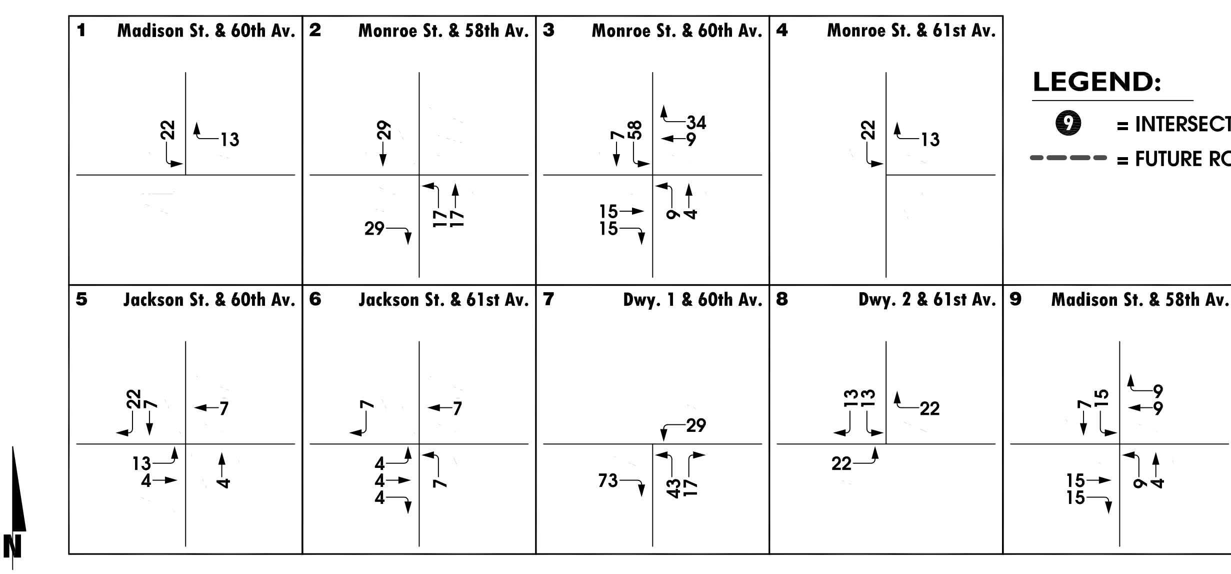
LEGEND:

9 = INTERSECTION ID

= FUTURE ROADWAY / DIRT

EXHIBIT 4-4
PROJECT ONLY
PM PEAK HOUR INTERSECTION VOLUMES





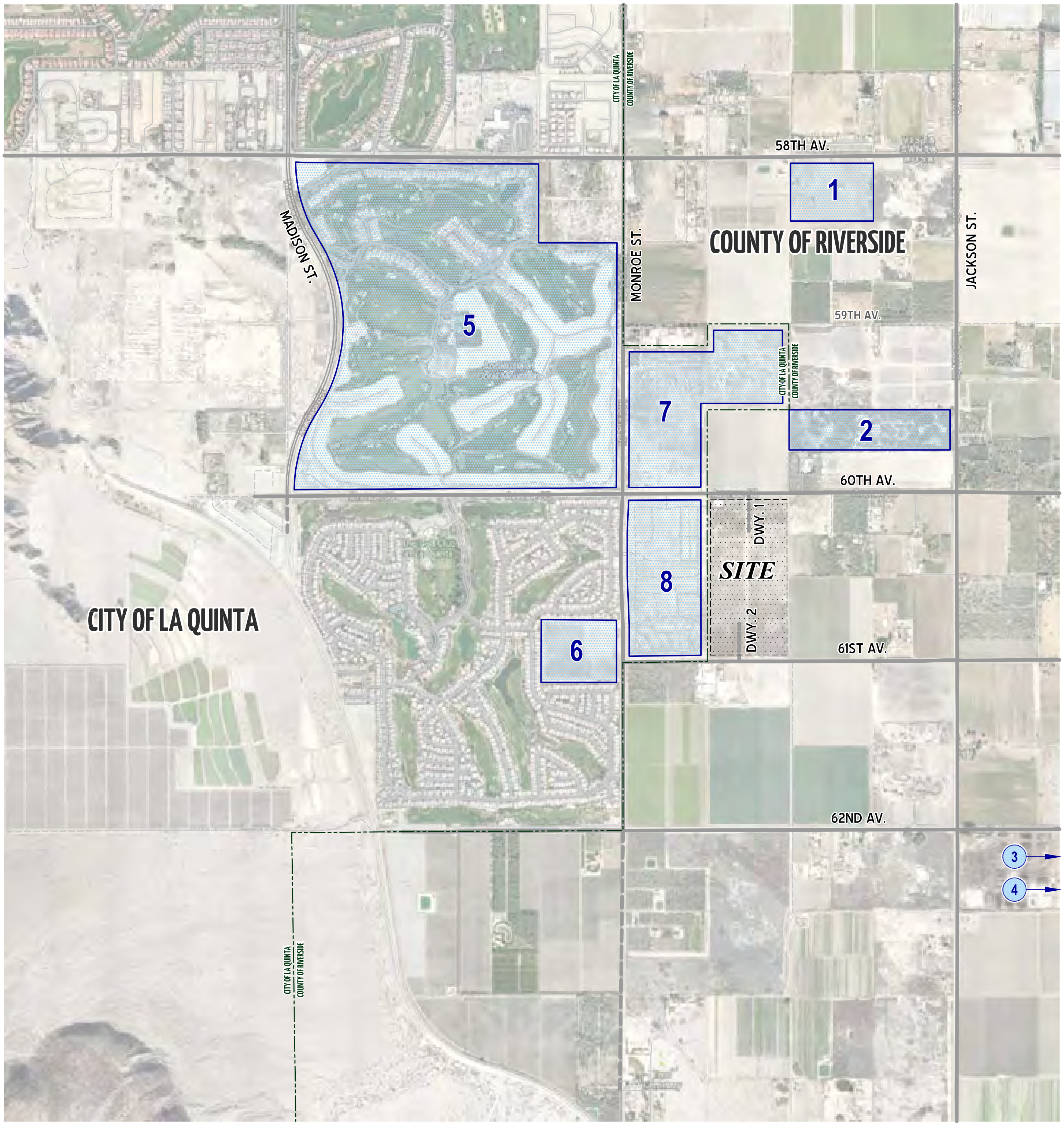
LEGEND:

❾ = INTERSECTION ID

— — — = FUTURE ROADWAY / DIRT

EXHIBIT 4-5

CUMULATIVE DEVELOPMENT LOCATION MAP



LEGEND:

1 = CUMULATIVE DEVELOPMENT PROJECTS (SEE TABLE 4-3)

Based on the identified cumulative development traffic generation and trip distribution patterns, Cumulative Development average daily traffic (ADT) volumes for the weekday are shown on Exhibit 4-6. Cumulative Development weekday AM and PM peak hour volumes are shown on Exhibit 4-7 and Exhibit 4-8, respectively.

4.7 TRAFFIC FORECASTS

To provide a comprehensive assessment of the potential project-related and cumulative traffic impacts, two types of analyses, "buildup" and "buildout", were performed in support of this work effort. The "buildup" method was used to approximate the EAP traffic conditions for the study year of 2016, and is intended to identify the project-related impacts on both the existing and planned near-term circulation system. The EAP (2016) traffic condition includes background traffic in addition to the traffic generated by the proposed Project. The "buildup" method was also utilized to approximate the EAPC conditions for the study year of 2016, and is intended to identify the cumulative impacts on both the existing and planned near-term circulation system. The EAPC (2015) traffic condition includes background traffic, traffic generated by other cumulative development projects within the study area and the traffic generated by the proposed Project. The "buildout" approach is used to forecast the Long-Range (2035) conditions.

4.8 OPENING YEAR (2016) CONDITIONS

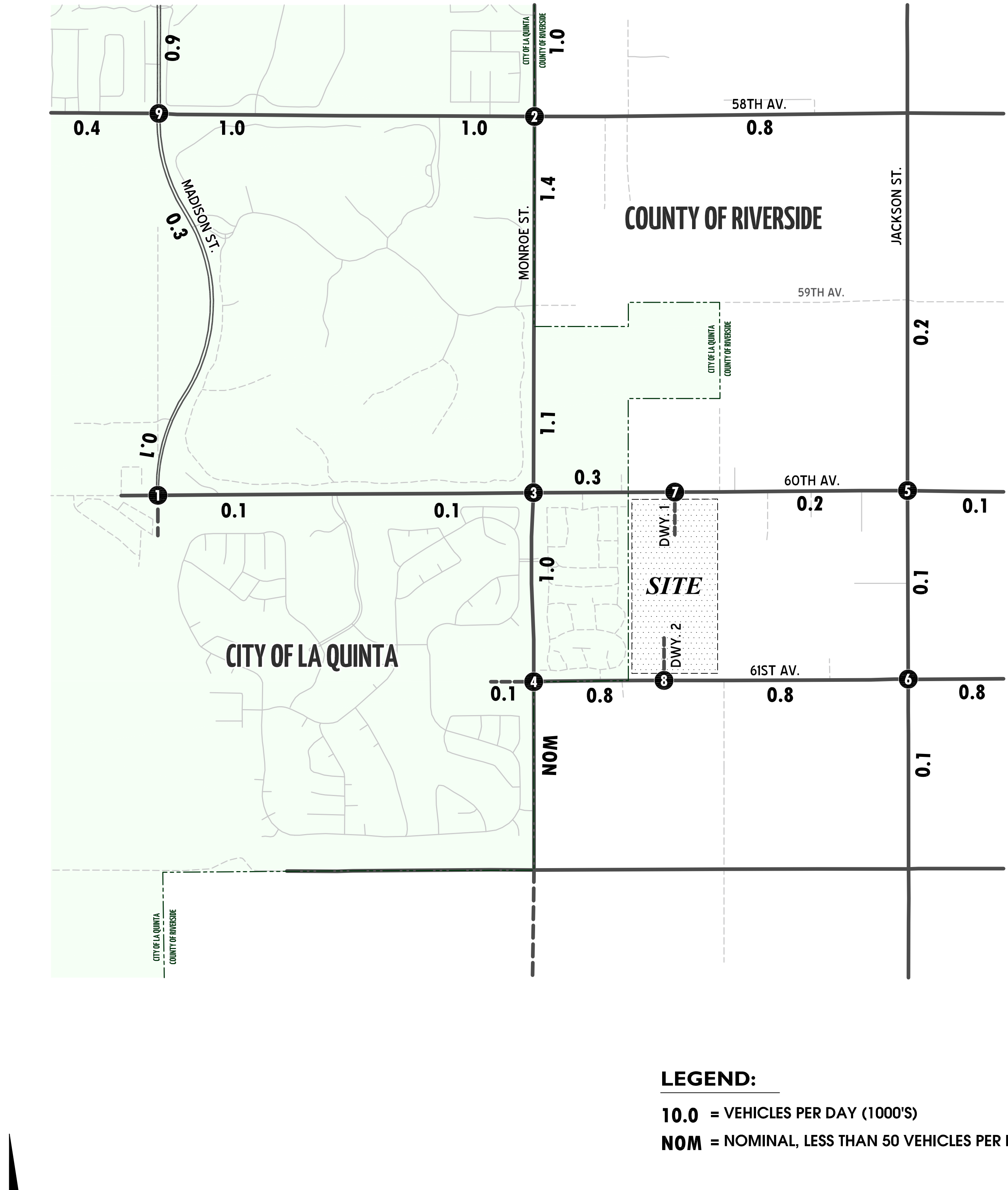
The "buildup" approach combines existing traffic counts with a background ambient growth factor to forecast the Opening Year (2016) traffic conditions. An ambient growth factor of 6.012% accounts for background (area-wide) traffic increases that occur over time up to the year 2016 from the year 2013. Traffic volumes generated by the Project are then added to assess the EAP (2016) traffic conditions. The 2016 roadway network is similar to the Existing conditions roadway network, with the exception of future roadways proposed to be developed by the Project.

The Opening Year traffic analysis includes the following traffic conditions, with the various traffic components:

- Existing Plus Ambient Growth Plus Project (EAP)
    - Existing 2013 counts
    - Ambient growth traffic (6.012%)
    - Project traffic

- Existing Plus Ambient Growth Plus Project Plus Cumulative (EAPC)
    - Existing 2013 counts
    - Ambient growth traffic (6.012%)
    - Project traffic
    - Cumulative Development traffic

EXHIBIT 4-6
CUMULATIVE ONLY AVERAGE DAILY TRAFFIC (ADT)



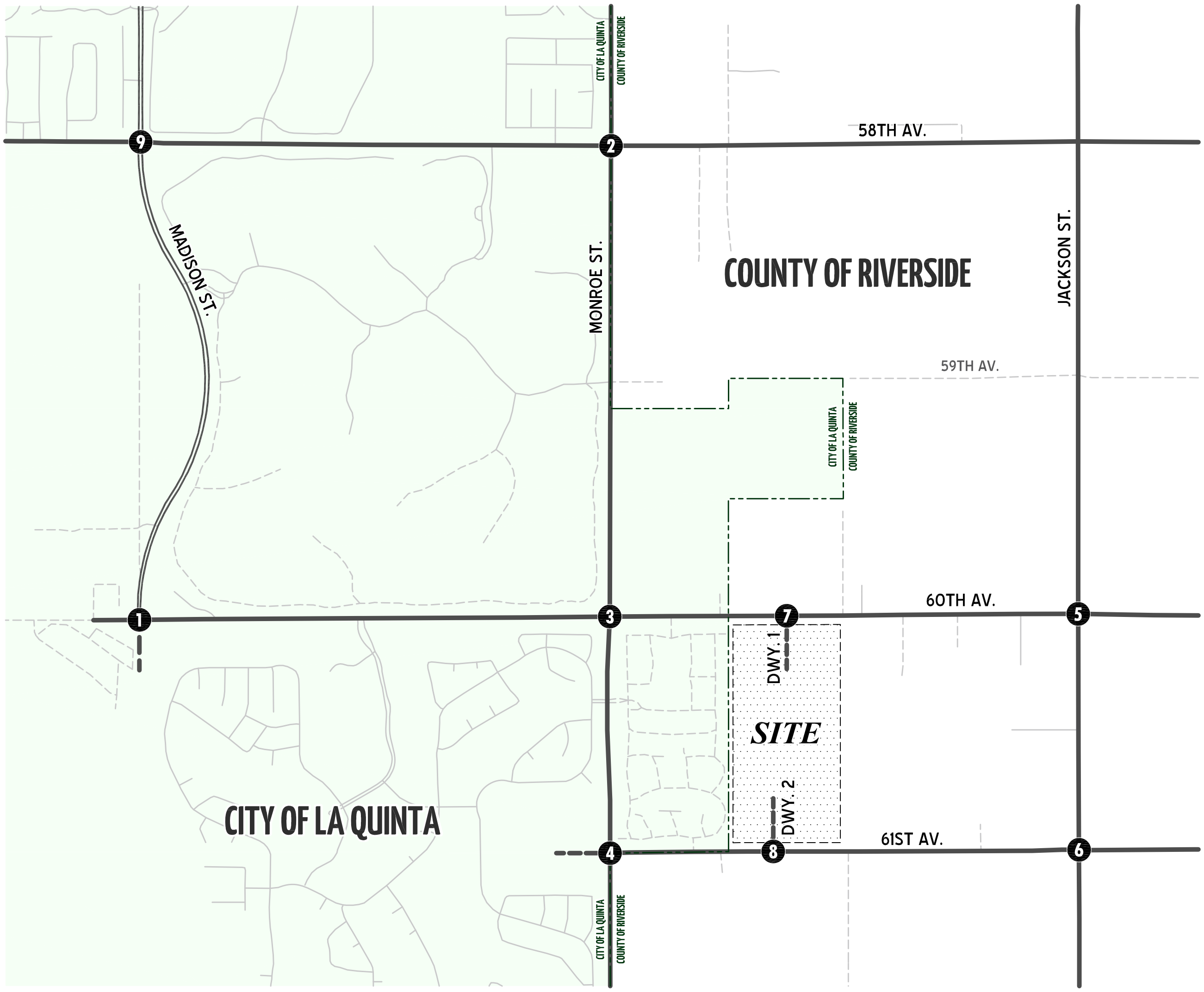
LEGEND:

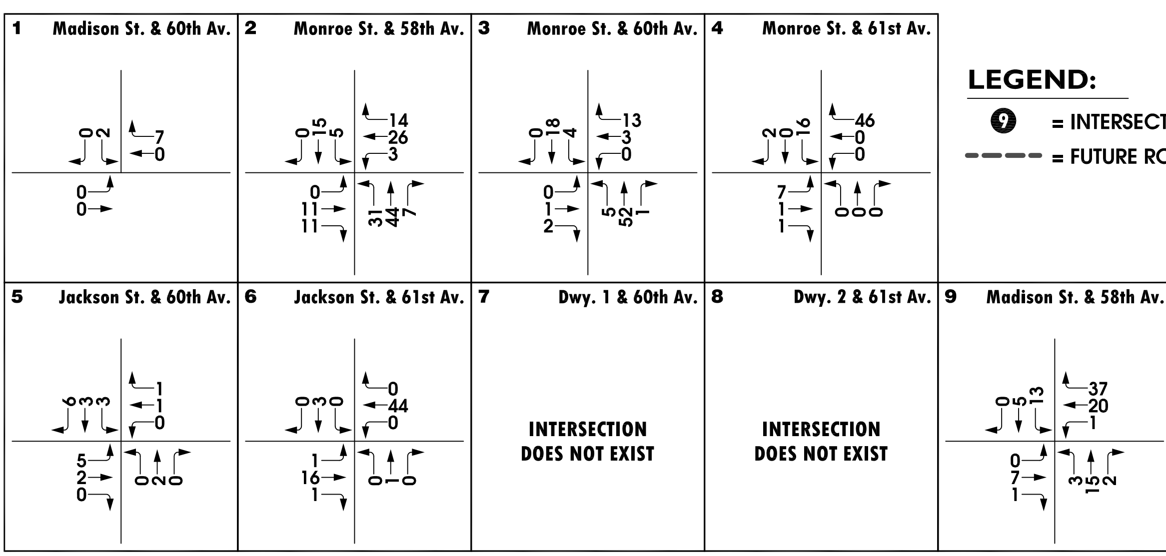
10.0 = VEHICLES PER DAY (1000'S)

NOM = NOMINAL, LESS THAN 50 VEHICLES PER DAY

EXHIBIT 4-7

CUMULATIVE ONLY
AM PEAK HOUR INTERSECTION VOLUMES



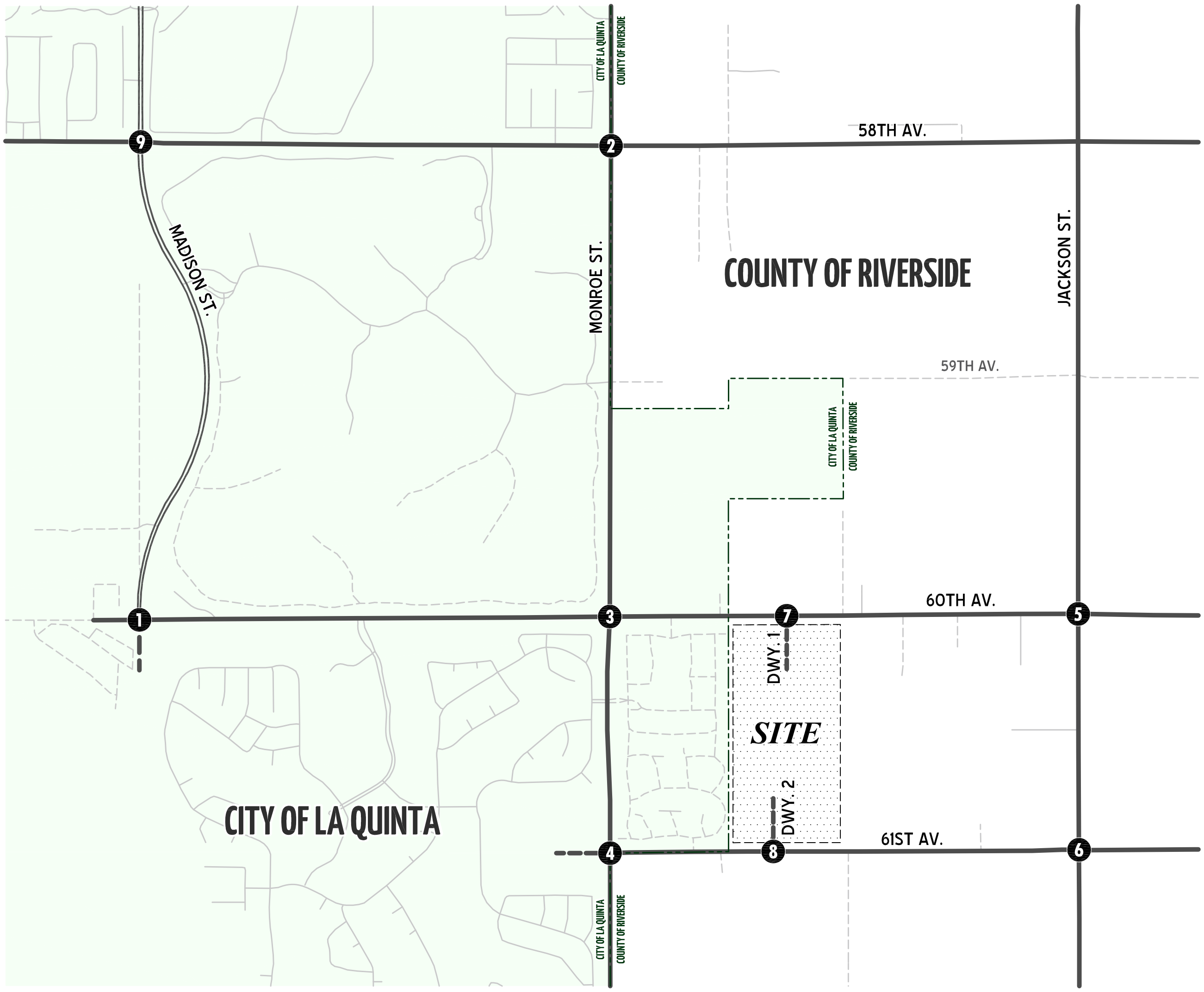


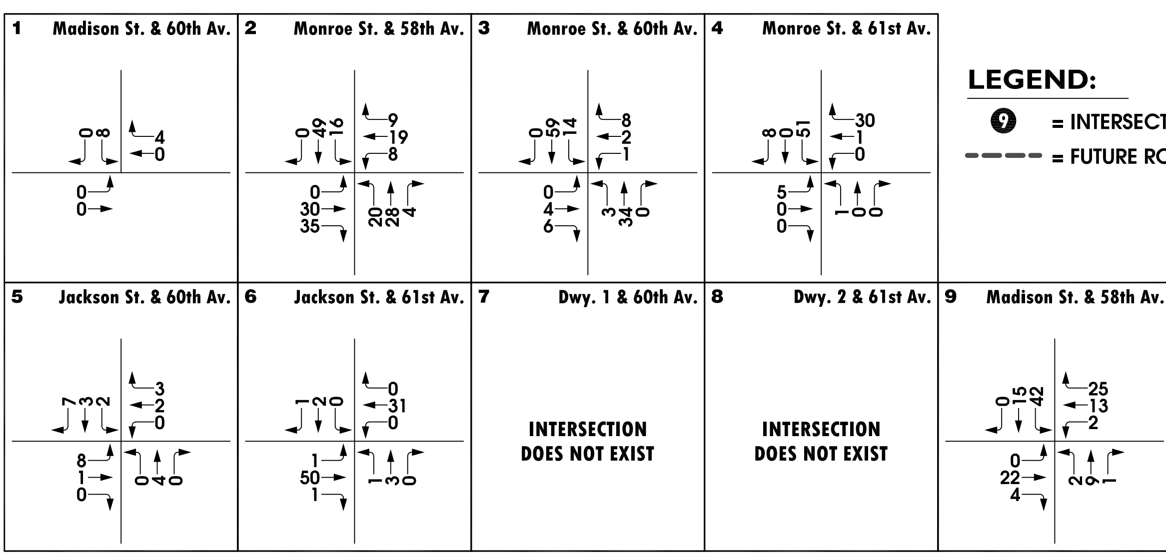
LEGEND:

9 = INTERSECTION ID

= FUTURE ROADWAY / DIRT

EXHIBIT 4-8
CUMULATIVE ONLY PM PEAK HOUR INTERSECTION VOLUMES





LEGEND:

- 9 = INTERSECTION ID
- = FUTURE ROADWAY / DIRT

N

4.9 LONG RANGE (2035) CONDITIONS

Traffic projections for Long Range (2035) with Project conditions were derived from the Riverside County Transportation and Analysis Model (RivTAM) using accepted procedures for model forecast refinement and smoothing. The traffic forecasts reflect the area-wide growth anticipated between existing conditions and Long Range (2035) conditions. In most instances the zone structure of a regional or sub-regional travel demand model is not designed to provide accurate turning movements at intersections along arterial roadways unless refinement and reasonableness checking is performed. Therefore, the Long Range (2035) peak hour forecasts were refined using the model derived long-range forecasts, along with existing peak hour traffic count data collected at each analysis location in October 2013. Future estimated peak hour traffic data was used for new intersections and intersections with an anticipated change in travel patterns to further refine the Long Range (2035) peak hour forecasts. In addition, Long Range (2035) turning volumes were compared to EAPC (2016) volumes in order to ensure a minimum growth of ten (10) percent as a part of the refinement process. The minimum ten (10) percent growth includes any additional growth between EAPC (2016) and Long Range (2035) traffic conditions that is not accounted for by the traffic generated by cumulative development projects and the ambient growth between existing and EAPC (2016) conditions. Lastly, Long Range (2035) turning volumes were compared to the City of La Quinta's General Plan Buildout (2035) traffic volume forecasts from the La Quinta General Plan Circulation Element Update Traffic Impact Analysis (prepared by ITERIS, May 2012) and were adjusted accordingly. The Long Range (2035) without Project peak hour turning movement estimates was then reviewed by Urban Crossroads for reasonableness at intersections where model results showed unreasonable turning movements. The Long Range (2035) estimates were adjusted to achieve flow conservation (where applicable), reasonable growth, and reasonable diversion between parallel routes.

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5.0 EXISTING PLUS PROJECT TRAFFIC ANALYSIS

In an effort to satisfy the CEQA Guideline section 15125(a), an analysis of existing traffic volumes plus traffic generated by the proposed Project (E+P) has been included in this analysis. This section discusses the traffic forecasts for Existing plus Project (E+P) conditions and the resulting intersection operations and traffic signal warrants.

5.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for E+P conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- At project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for E+P conditions only (e.g., intersection turn lane improvements at the Project driveways).

5.2 EXISTING PLUS PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes Existing (2013) traffic volumes plus Project traffic. Exhibit 5-1 shows the ADT volumes which can be expected for E+P traffic conditions. E+P AM and PM peak hour intersection turning movement volumes are shown on Exhibit 5-2 and Exhibit 5-3, respectively.

5.3 INTERSECTION OPERATIONS ANALYSIS

E+P peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2.0 *Methodologies* of this TIA. The intersection analysis results are summarized in Table 5-1, which indicates that the study area intersections are anticipated to operate at acceptable LOS (LOS "D" or better) during the Peak Hours.

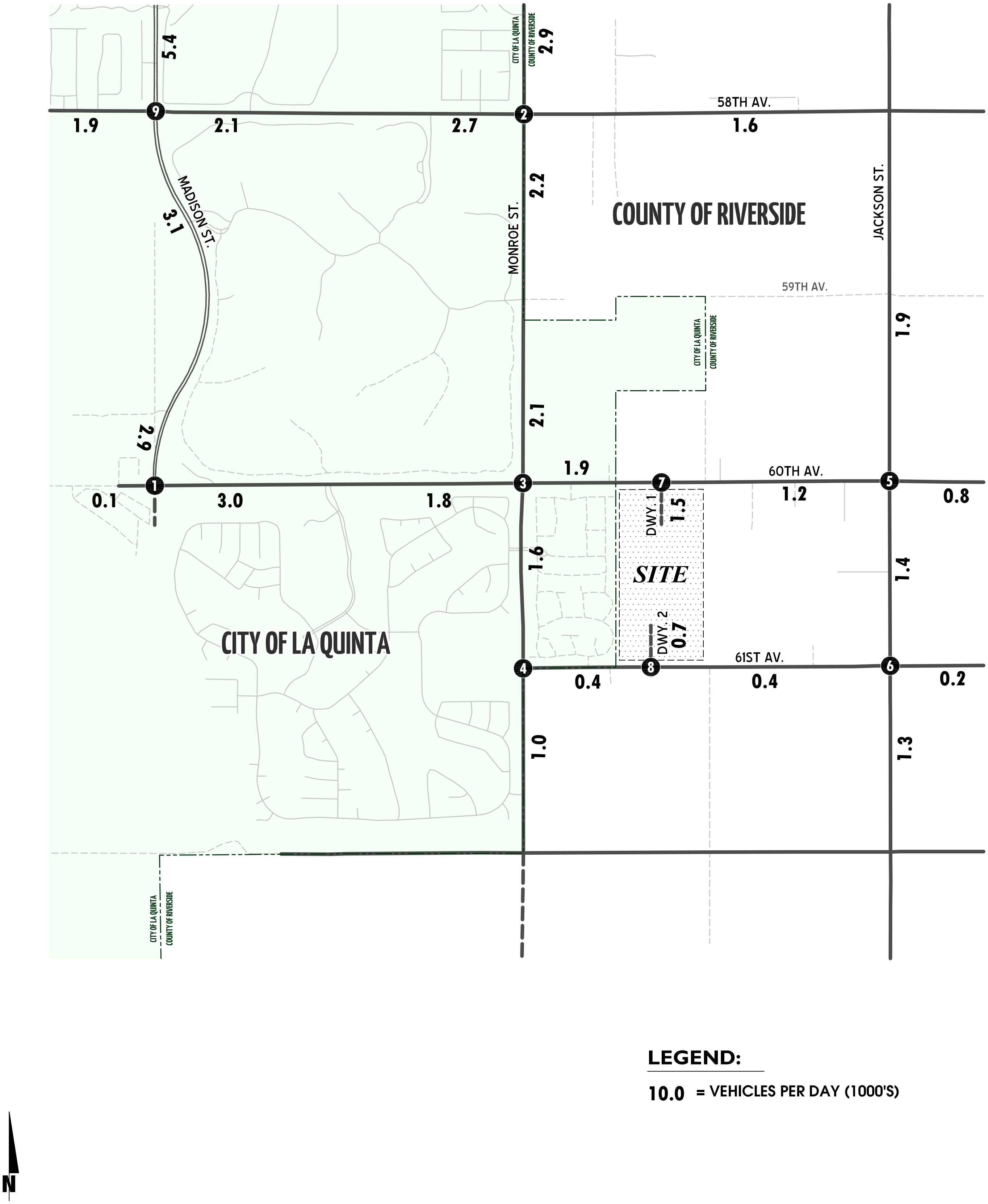
The intersection operations analysis worksheets for E+P conditions are included in Appendix "5.1" of this TIA.

5.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for E+P traffic conditions are based on E+P ADT volumes. For E+P conditions, there are no study area intersections that are anticipated to warrant a traffic signal (see Appendix "3.3").

EXHIBIT 5-1

EXISTING PLUS PROJECT AVERAGE DAILY TRAFFIC (ADT)

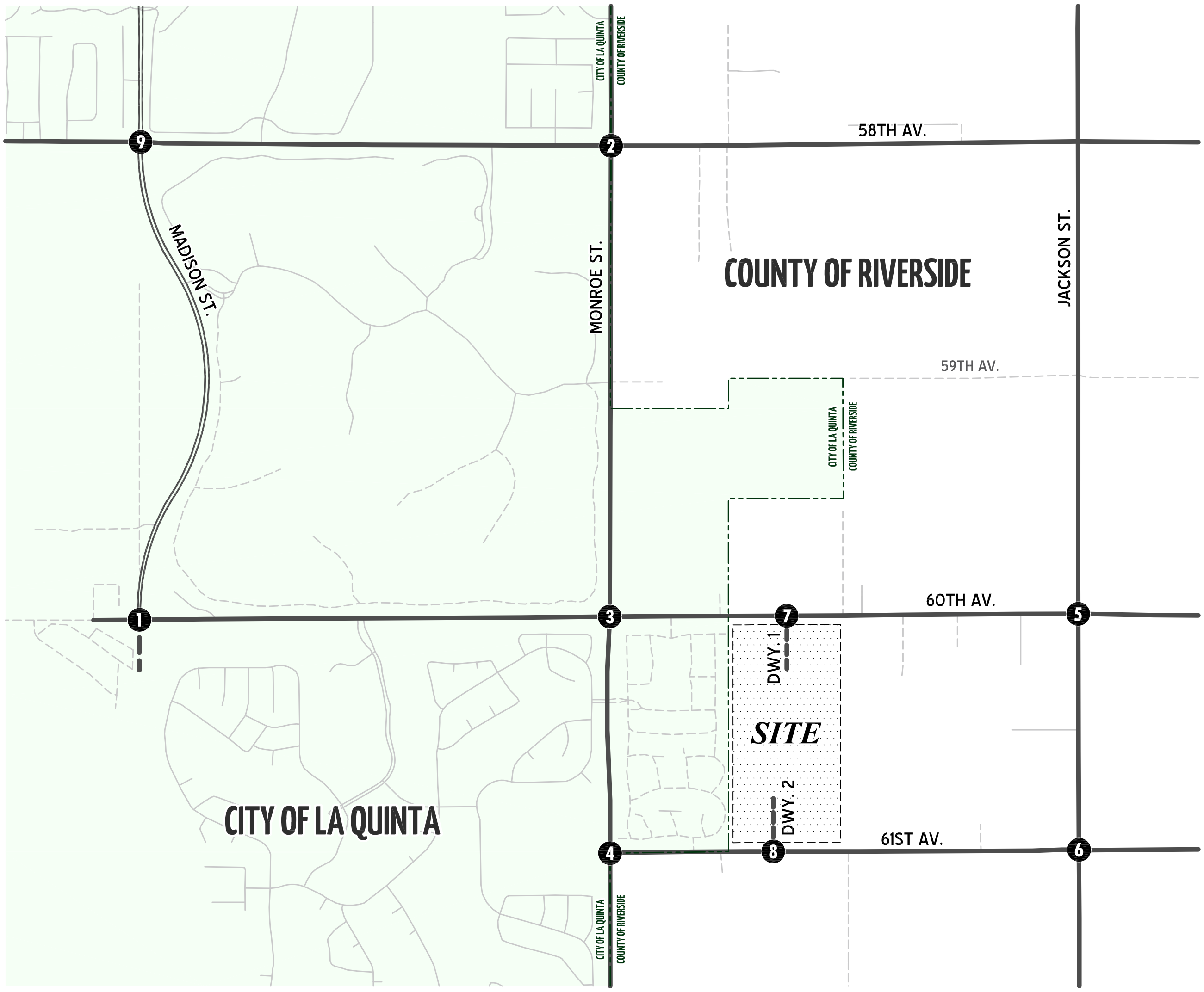


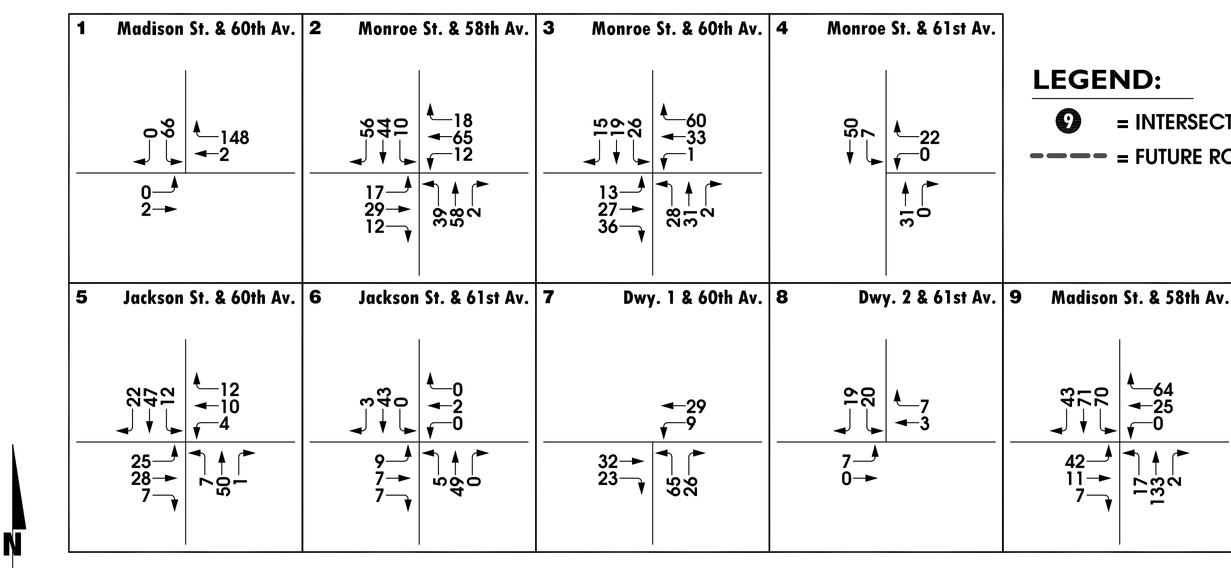
LEGEND:

10.0 = VEHICLES PER DAY (1000'S)

URBAN CROSSROADS

EXHIBIT 5-2
EXISTING PLUS PROJECT AM PEAK HOUR INTERSECTION VOLUMES



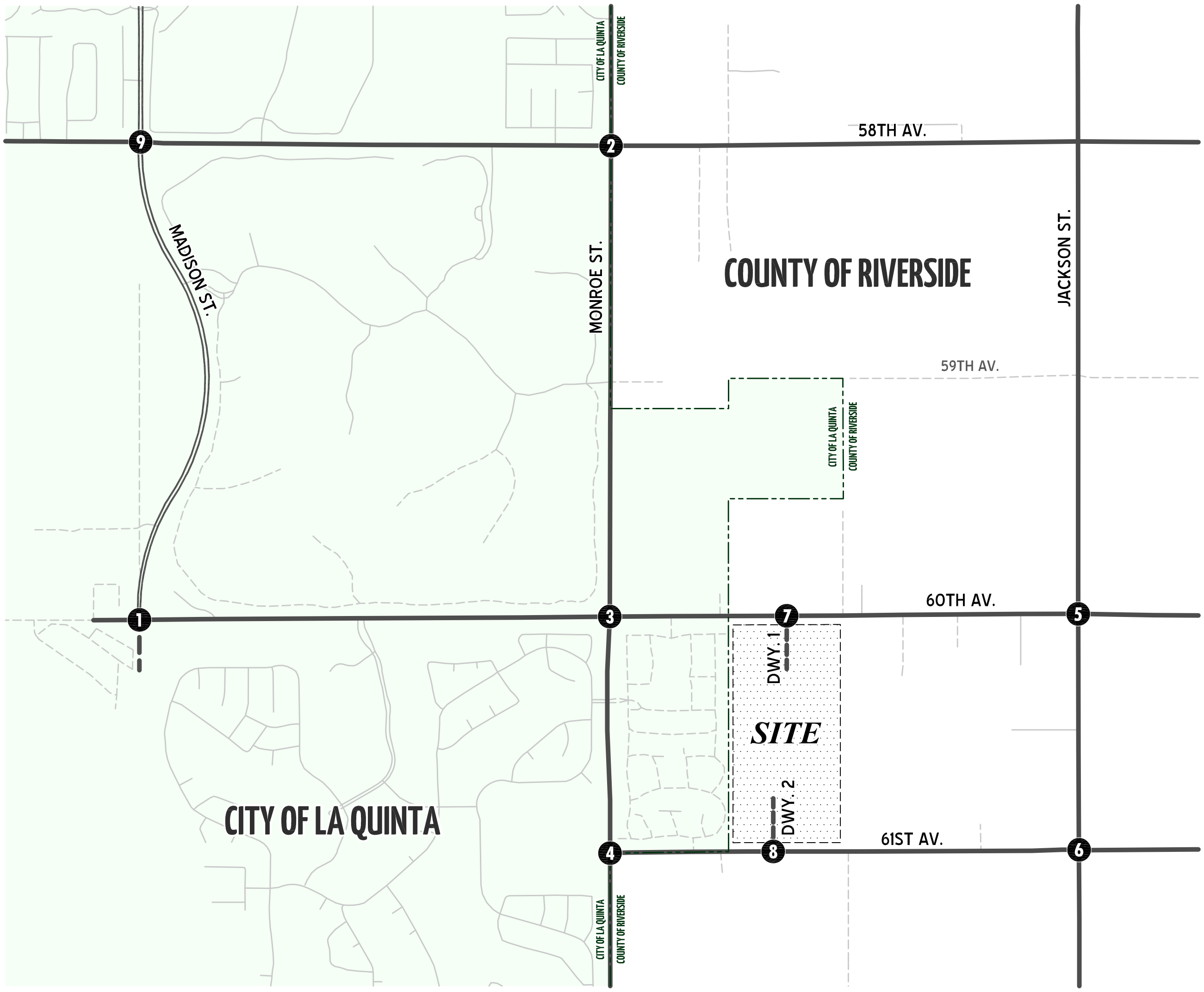


LEGEND:

- 9 = INTERSECTION ID
- - - - - = FUTURE ROADWAY / DIRT

EXHIBIT 5-3

EXISTING PLUS PROJECT PM PEAK HOUR INTERSECTION VOLUMES



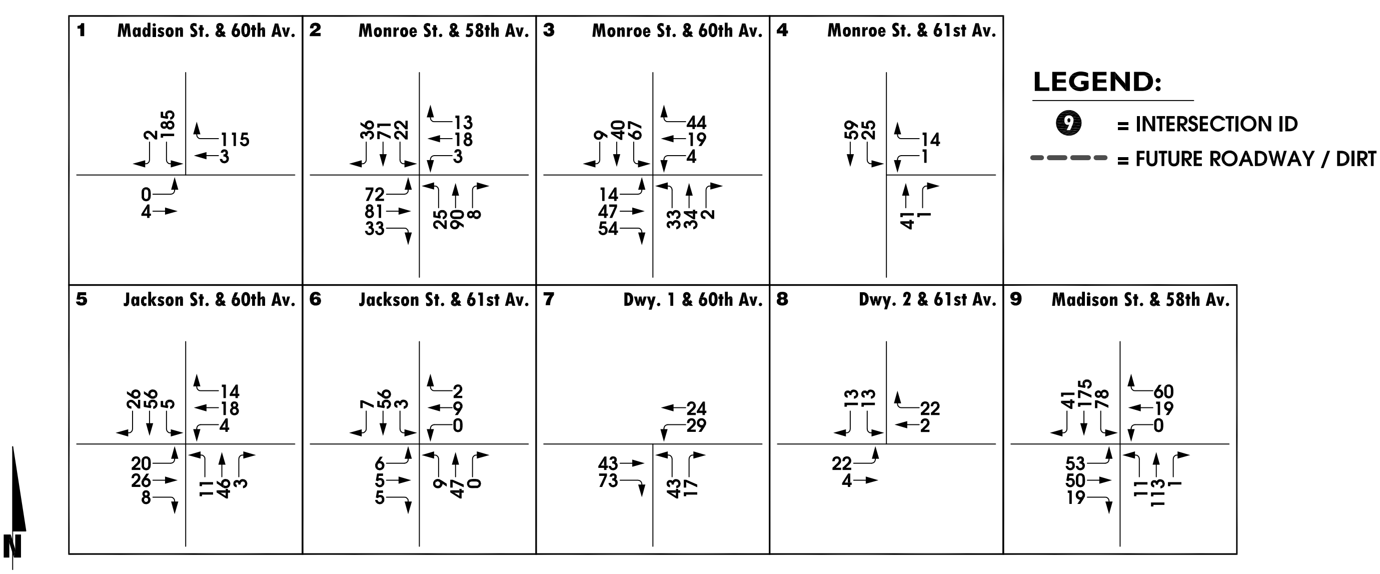


Table 5-1

INTERSECTION ANALYSIS FOR EXISTING PLUS PROJECT CONDITIONS

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Existing (2013)				Existing Plus Project			
			Northbound			Southbound			Eastbound			Westbound			Delay[2] (secs.)		Level of Service[2]		Delay[2] (secs.)		Level of Service[2]	
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM	AM	PM	AM	PM
1	Madison St. / 60th Av.	CSS	0	0	0	1	1	0	0	1	0	0	1	d	8.8	9.4	A	A	8.8	9.5	A	A
2	Monroe St. / 58th Av.	AWS	0	1!	0	0	1	1	0	1!	0	0	1!	0	7.8	8.7	A	A	8.2	9.4	A	A
3	Monroe St. / 60th Av.	AWS	1	1	0	1	1	1	0.5	0.5	1	0	1!	0	7.7	7.8	A	A	8.3	8.5	A	A
4	Monroe St. / 61st Av.	CSS	0	1	0	0.5	0.5	0	0	0	0	0	1!	0	8.5	8.9	A	A	8.6	8.7	A	A
5	Jackson St. / 60th Av.	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	7.3	7.3	A	A	7.5	7.5	A	A
6	Jackson St. / 61st Av.	CSS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	9.1	9.4	A	A	9.7	10.0	A	A
7	Dwy. 1 / 60th Av.	**CSS**	**1**	**1**	0	0	0	0	0	1	0	**1**	1	0	Intersection Does Not Exist				9.3	9.7	A	A
8	Dwy. 2 / 61st Av.	**CSS**	0	0	0	0	**1!**	0	**1**	1	0	0	1	0	Intersection Does Not Exist				8.6	8.7	A	A
9	Madison St. / 58th Av.	AWS	1	2	1	1	2	d	1	1	1	1	2	1	8.7	8.6	A	A	8.9	8.9	A	A

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; 1! = Shared Left-Through-Right Turn Lane; d = Defacto Right Turn Lane; **1** = Improvement (Project Access)

[2] Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with a traffic signal or all-way stop control. For intersections with cross street stop control, see subsequent footnotes.

[3] CSS = Cross-Street Stop; AWS = All-Way Stop

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6.0 OPENING YEAR (2016) TRAFFIC ANALYSIS

This section discusses the methods used to develop Opening Year (2016) traffic forecasts for EAP and EAPC (2016) traffic conditions, and the resulting intersection and roadway operations and traffic signal warrants.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Opening Year (2016) conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- At project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for Opening Year (2016) With Project conditions only (e.g., intersection turn lane improvements at the Project driveways).

6.2 EAP (2016) TRAFFIC VOLUME FORECASTS

This scenario includes Existing (2013) traffic volumes plus an ambient growth factor of 6.012% and the addition of Project traffic. The weekday ADT volumes which can be expected for EAP (2016) traffic conditions are shown on Exhibit 6-1. Exhibit 6-2 and Exhibit 6-3, shows the AM and PM peak hour intersection turning movement volumes for EAP (2016) traffic conditions.

6.3 EAPC (2016) TRAFFIC VOLUME FORECASTS

This scenario includes Existing (2013) traffic volumes, an ambient growth factor of 6.012%, traffic from pending and approved but not yet constructed known development projects in the area, and Project traffic. The weekday ADT volumes which can be expected for EAPC (2016) traffic conditions are shown on Exhibit 6-4. Exhibit 6-5 and Exhibit 6-6, shows the AM and PM peak hour intersection turning movement volumes for EAPC (2016) traffic conditions.

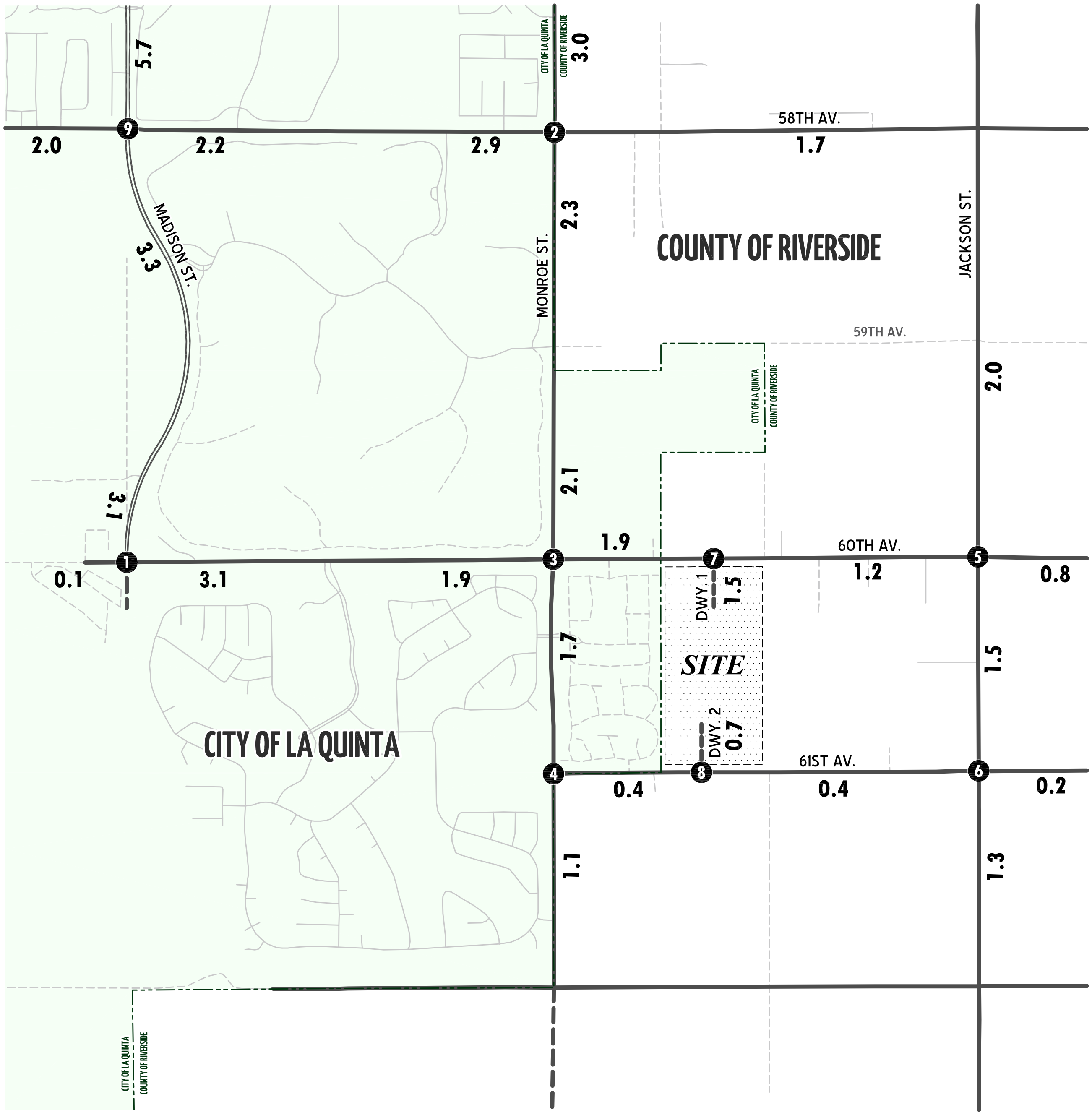
6.4 INTERSECTION OPERATIONS ANALYSIS

6.4.1 INTERSECTION OPERATIONS ANALYSIS FOR EAP (2016) CONDITIONS

Level of service calculations were conducted for the study intersections to evaluate their operations under EAP (2016) conditions. Consistent with Existing (2013) conditions, the intersection analysis results summarized in Table 6-1 indicate that the study area intersections are anticipated to operate at acceptable LOS (i.e., LOS “D” or better)

EXHIBIT 6-1

EXISTING PLUS AMBIENT PLUS PROJECT (2016) AVERAGE DAILY TRAFFIC (ADT)

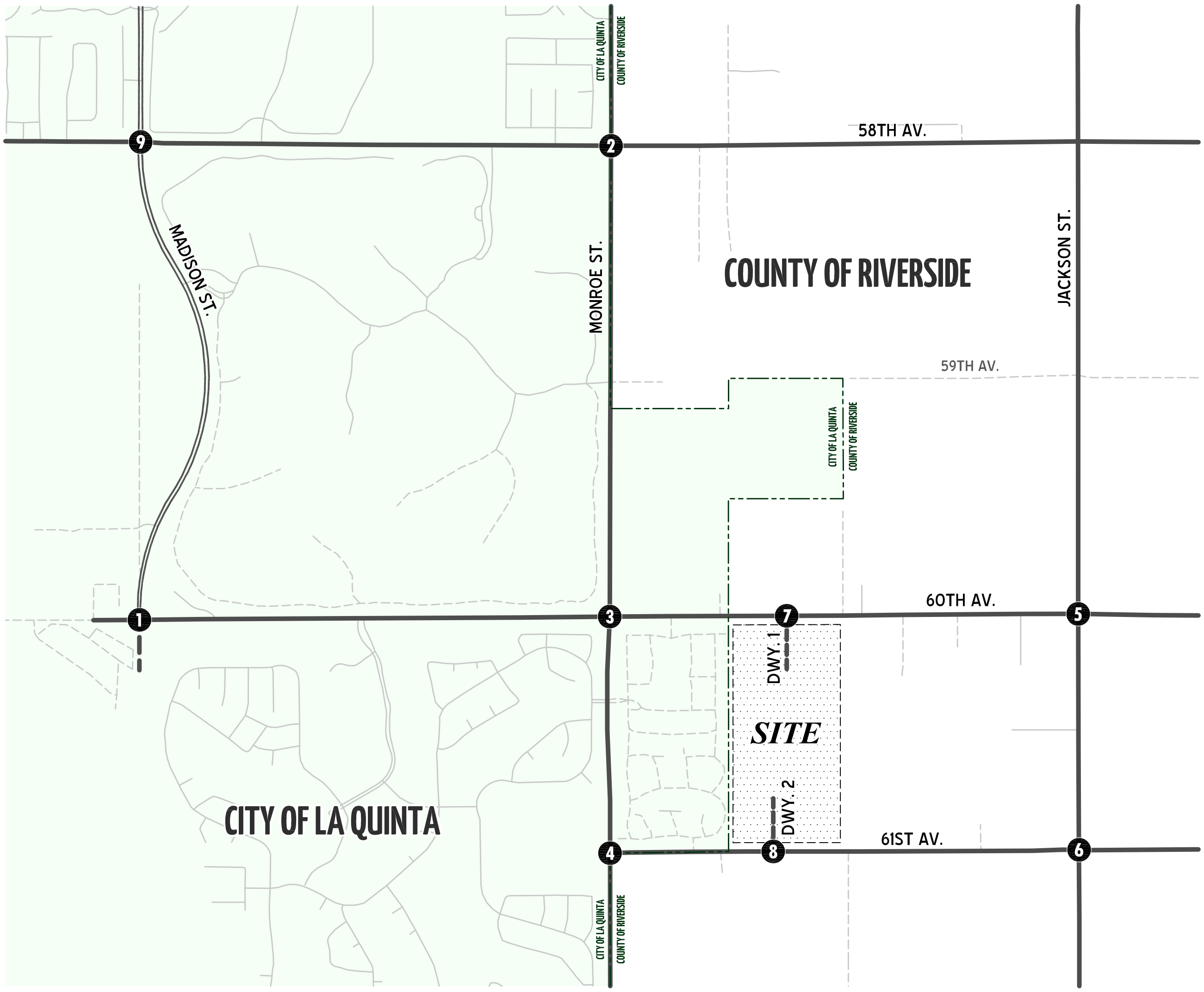


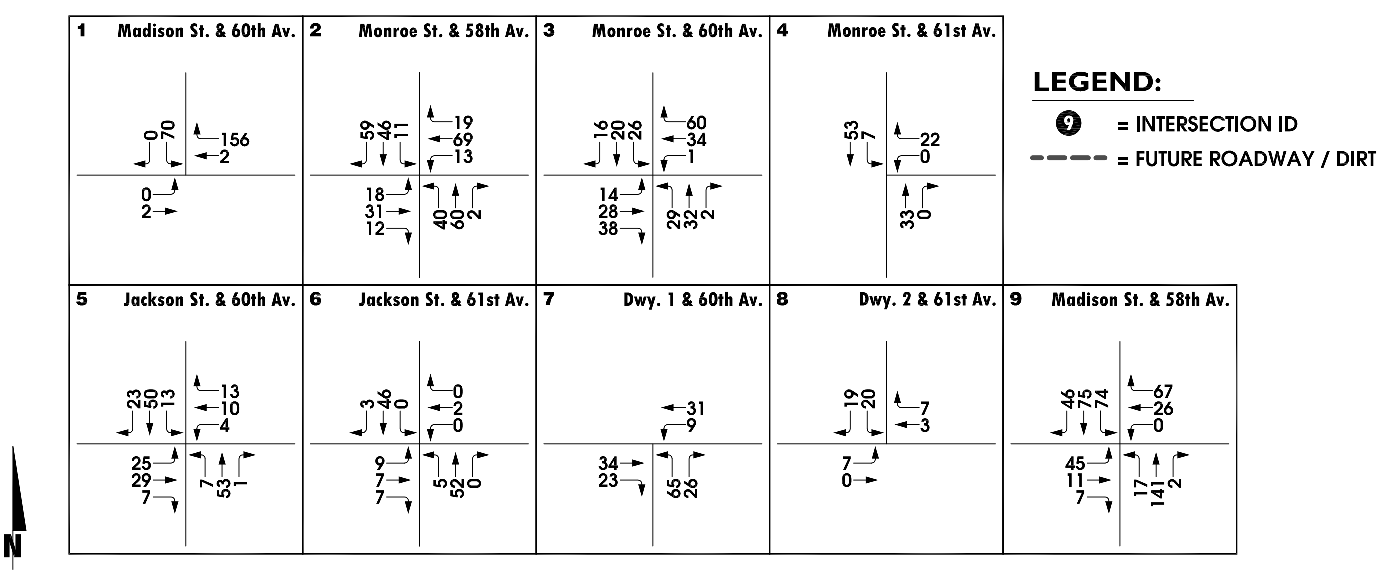
LEGEND:

10.0 = VEHICLES PER DAY (1000'S)

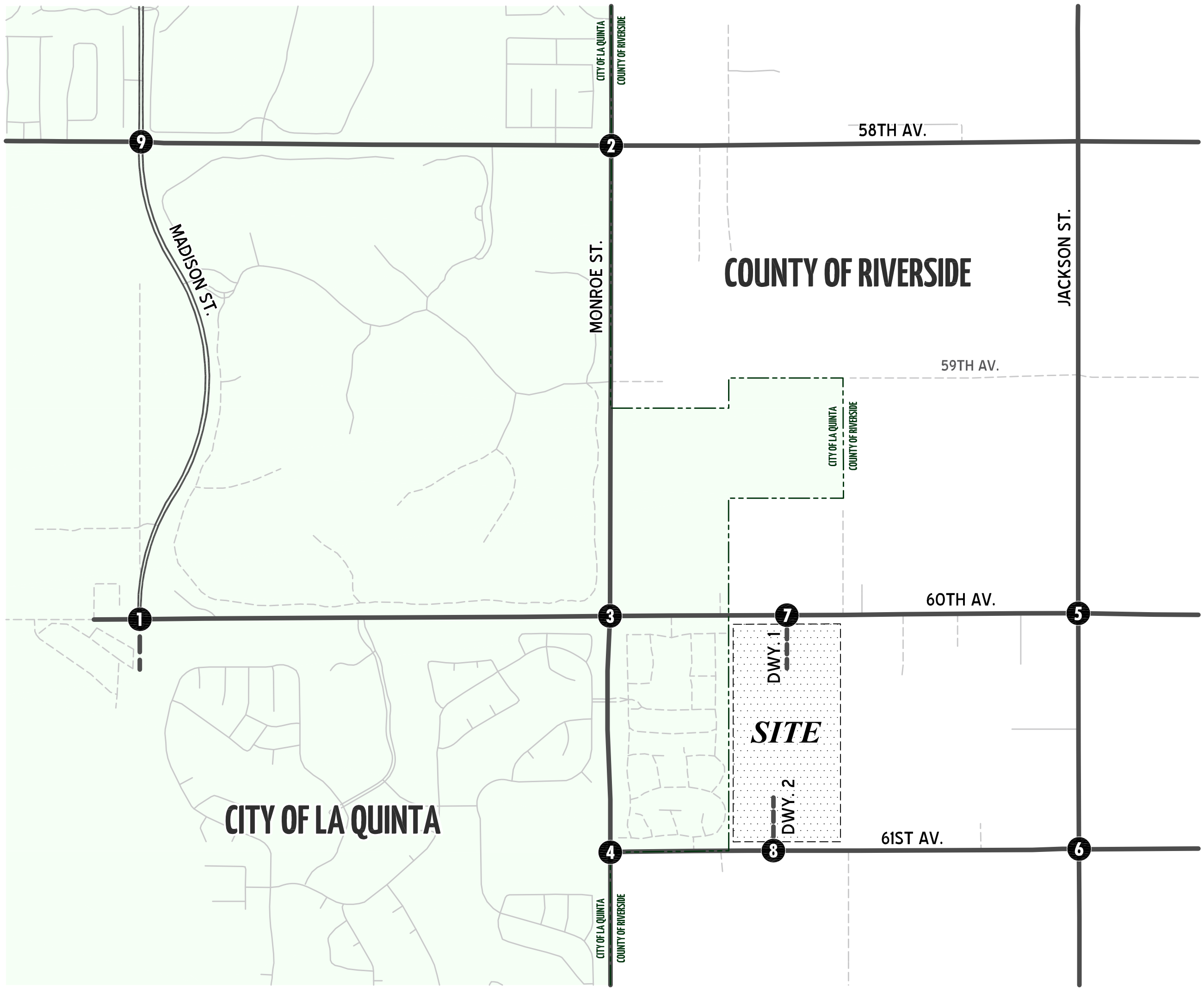
N

EXISTING PLUS AMBIENT PLUS PROJECT (2016) AM PEAK HOUR INTERSECTION VOLUMES





EXISTING PLUS AMBIENT PLUS PROJECT (2016) PM PEAK HOUR INTERSECTION VOLUMES



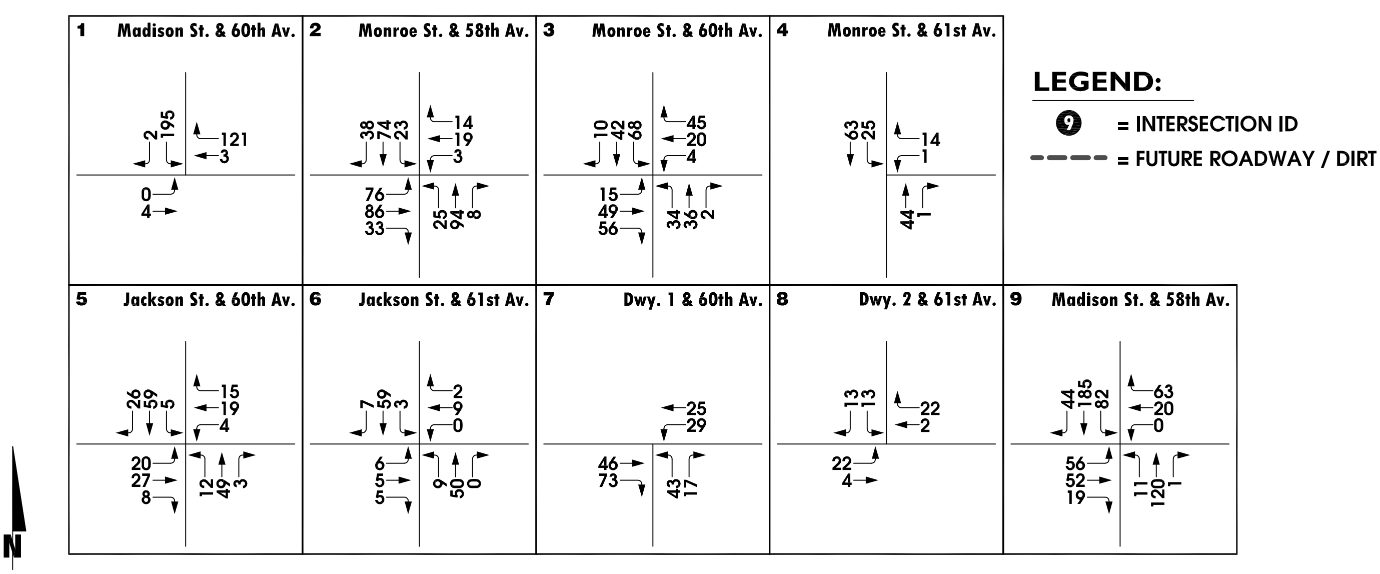
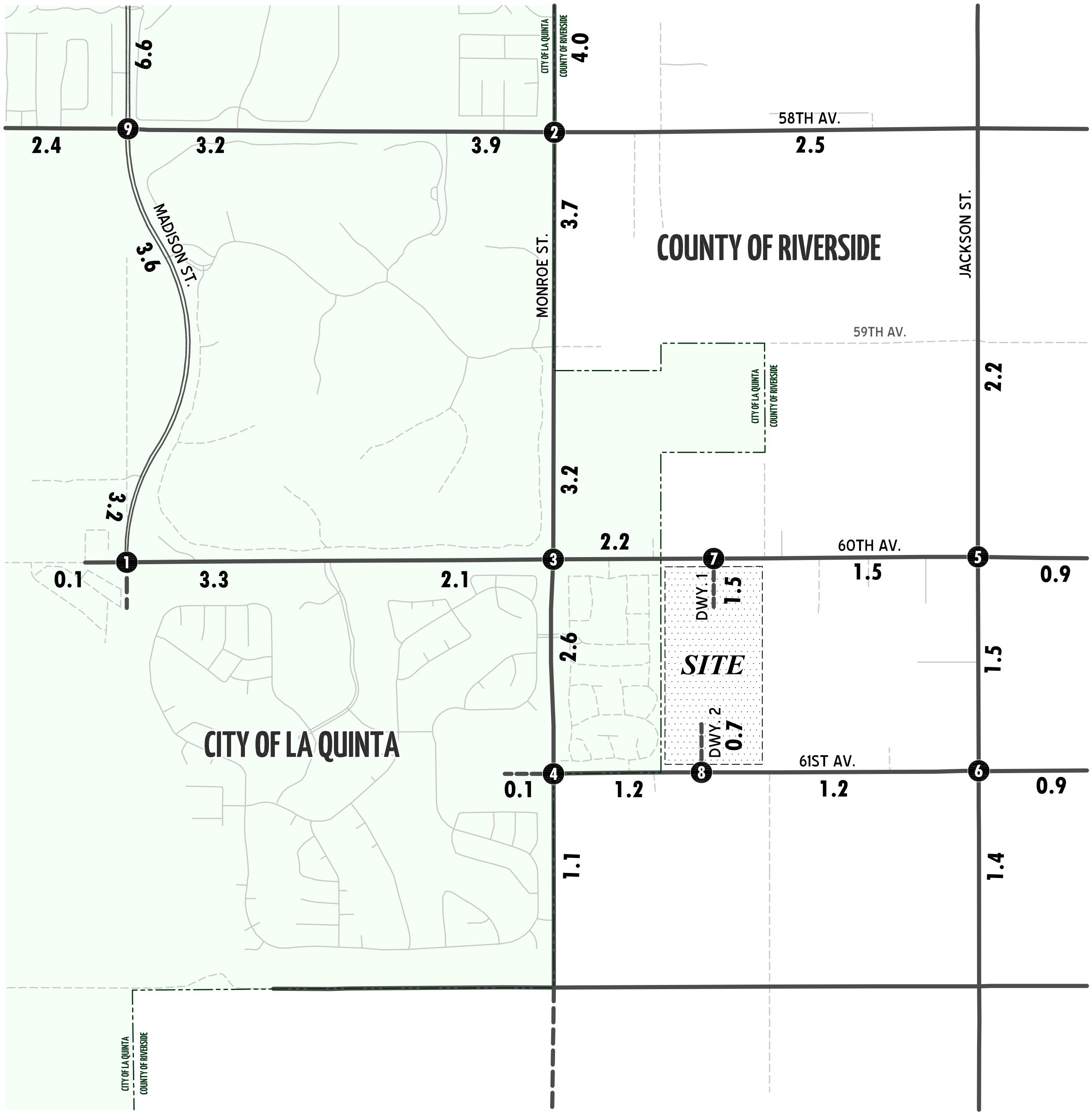


EXHIBIT 6-4

EXISTING + AMBIENT + PROJECT + CUMULATIVE (2016) AVERAGE DAILY TRAFFIC (ADT)



LEGEND:

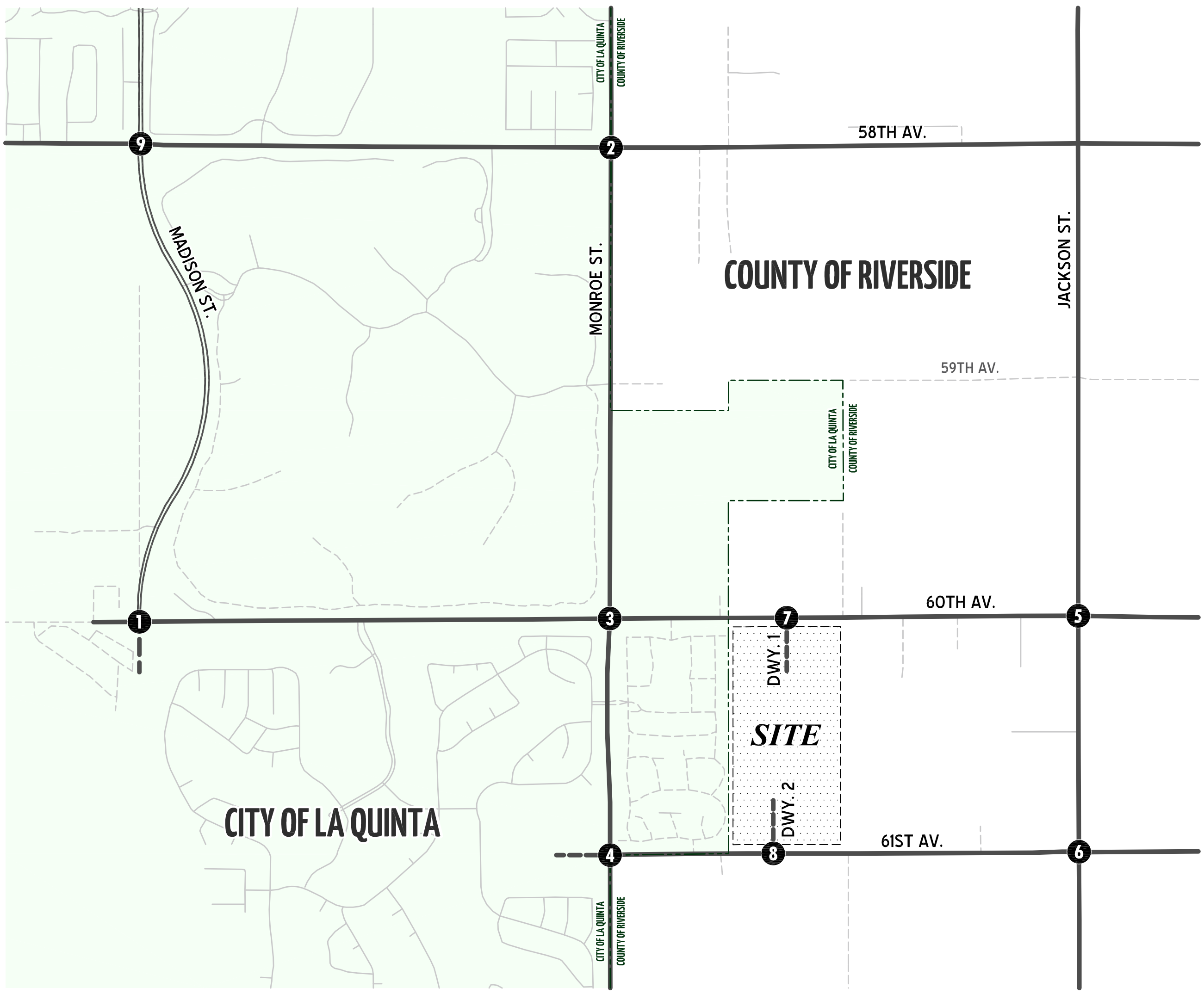
10.0 = VEHICLES PER DAY (1000'S)

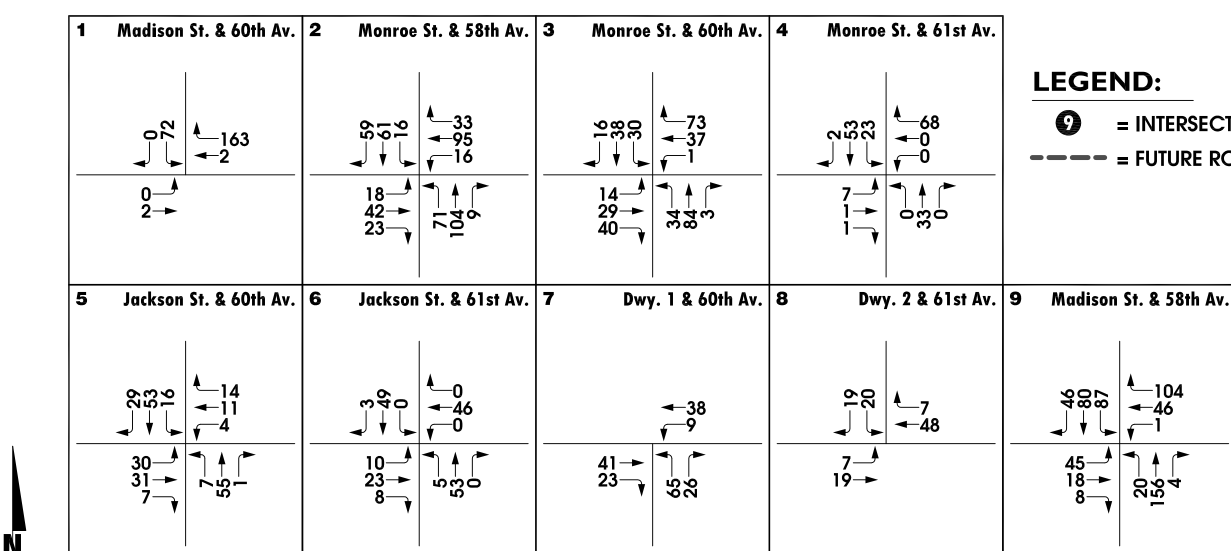
N

URBAN CROSSROADS

EXHIBIT 6-5

EXISTING + AMBIENT + PROJECT + CUMULATIVE (2016) AM PEAK HOUR INTERSECTION VOLUMES



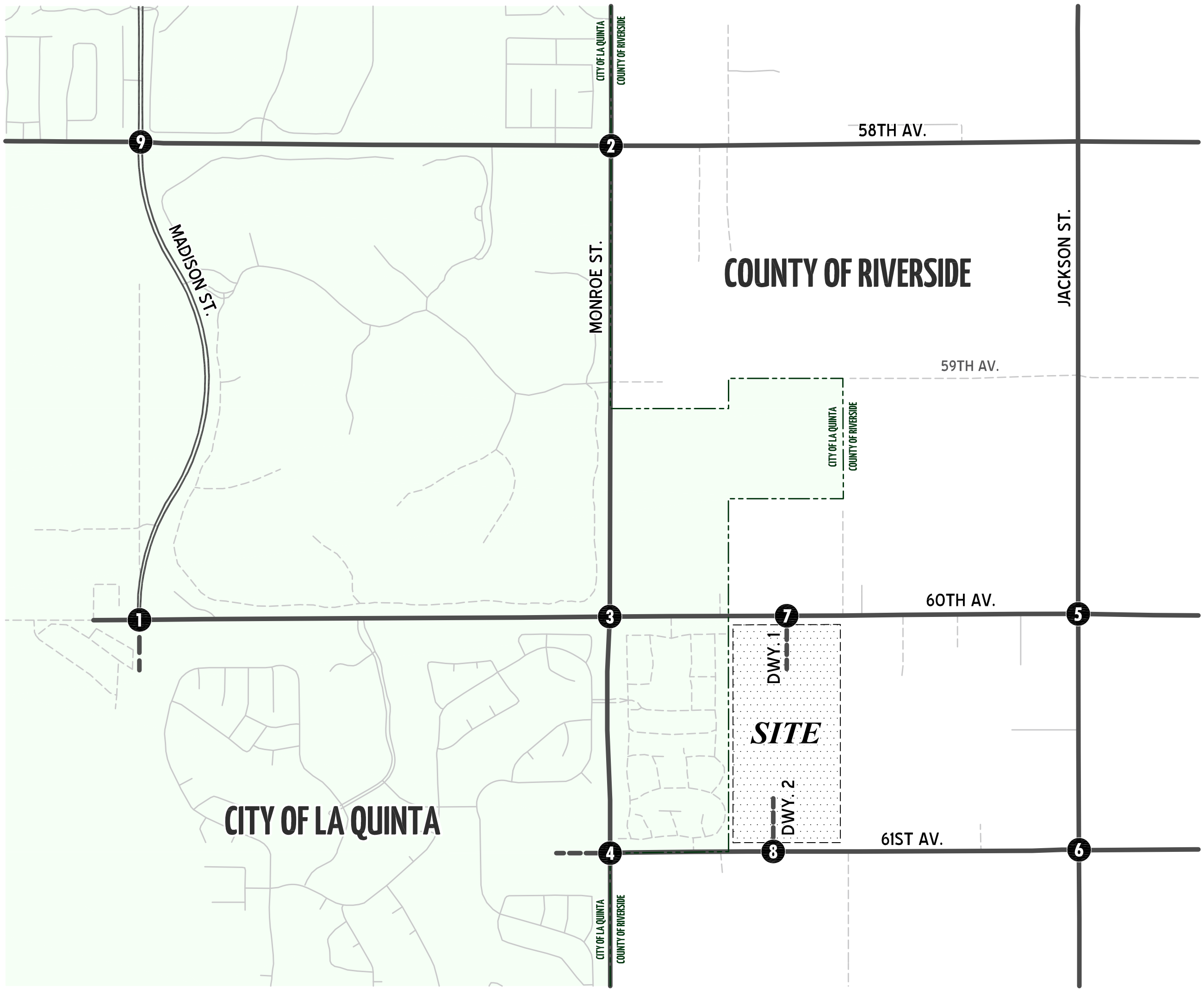


LEGEND:

⑨ = INTERSECTION ID

– – – – = FUTURE ROADWAY / DIRT

EXISTING + AMBIENT + PROJECT + CUMULATIVE (2016) PM PEAK HOUR INTERSECTION VOLUMES



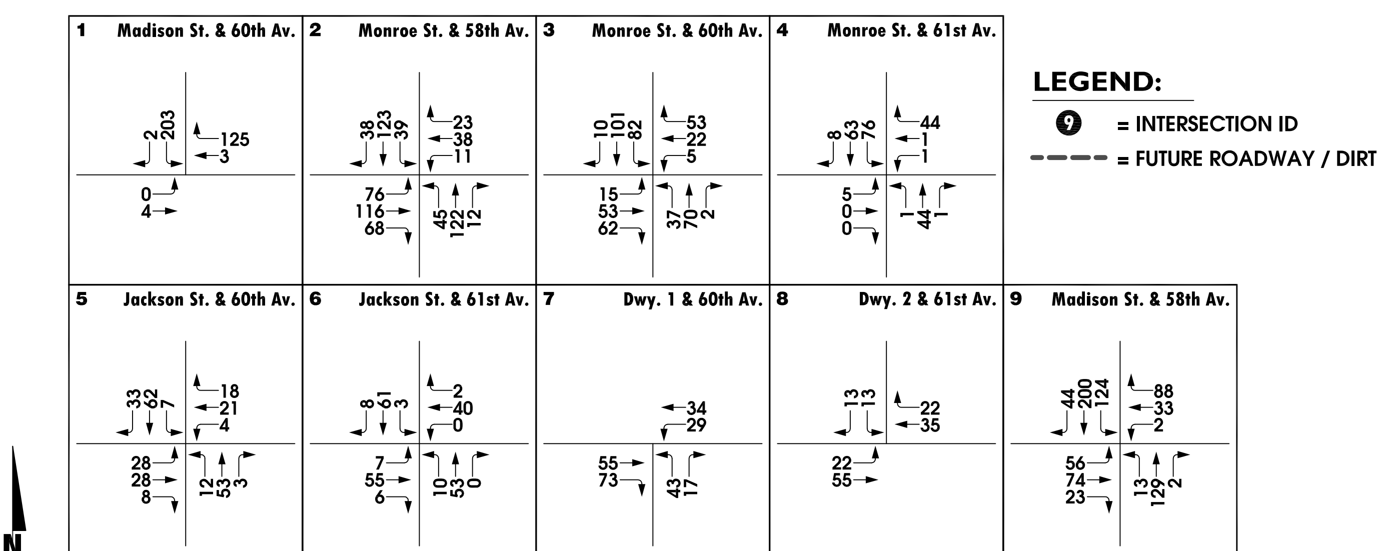


Table 6-1

INTERSECTION ANALYSIS FOR OPENING YEAR (2016) CONDITIONS

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1] Northbound L	T	R	Southbound L	T	R	Eastbound L	T	R	Westbound L	T	R	EAP (2016) Delay[2] (secs.) AM	PM	Level of Service[2] AM	PM	EAPC (2016) Delay[2] (secs.) AM	PM	Level of Service[2] AM	PM
1	Madison St. / 60th Av.	CSS	0	0	0	1	1	0	0	1	0	0	1	d	8.8	9.6	A	A	8.9	9.6	A	A
2	Monroe St. / 58th Av.	AWS	0	1!	0	0	1	1	0	1!	0	0	1!	0	8.3	9.6	A	A	9.4	12.1	A	B
3	Monroe St. / 60th Av.	AWS	1	1	0	1	1	1	0.5	0.5	1	0	1!	0	8.4	8.6	A	A	8.9	9.2	A	A
4	Monroe St. / 61st Av.	CSS	0	1	0	0.5	0.5	0	0	**1!**	0	0	1!	0	8.6	8.7	A	A	10.5	11.7	B	B
5	Jackson St. / 60th Av.	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	7.5	7.5	A	A	7.6	7.6	A	A
6	Jackson St. / 61st Av.	CSS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	9.8	10.0	A	A	10.2	11.0	B	B
7	Dwy. 1 / 60th Av.	**CSS**	**1**	**1**	0	0	0	0	0	1	0	**1**	1	0	9.4	9.8	A	A	9.5	9.9	A	A
8	Dwy. 2 / 61st Av.	**CSS**	0	0	0	0	**1!**	0	**1**	1	0	0	1	0	8.6	8.7	A	A	8.9	9.1	A	A
9	Madison St. / 58th Av.	AWS	1	2	1	1	2	d	1	1	1	1	2	1	9.1	9.0	A	A	9.6	9.6	A	A

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; 1! = Shared Left-Through-Right Turn Lane; d = Defacto Right Turn Lane; **1** = Improvement (Project/Cumulative Access)

[2] Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with a traffic signal or all-way stop control. For intersections with cross street stop control, see subsequent footnotes.

[3] CSS = Cross-Street Stop; AWS = All-Way Stop

The intersection operations analysis worksheets for EAP (2016) traffic conditions are included in Appendix "6.1" of this TIA.

6.4.2 INTERSECTION OPERATIONS ANALYSIS FOR EAPC (2016) CONDITIONS

Level of service calculations were conducted for the study intersections to evaluate their operations under EAPC (2016) conditions. Consistent with Existing (2013) conditions, the intersection analysis results summarized in Table 6-1 indicate that the study area intersections are anticipated to operate at acceptable LOS (i.e., LOS "D" or better)

The intersection operations analysis worksheets for EAPC (2016) traffic conditions are included in Appendix "6.2" of this TIA.

6.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

For EAP (2016) and EAPC (2016) conditions, there are no study area intersections that are anticipated to warrant a traffic signal (see Appendix "3.3").

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7.0 LONG RANGE (2035) TRAFFIC ANALYSIS

This section discusses the methods used to develop Long Range (2035) traffic forecasts for without and with Project conditions and the resulting intersection and roadway operations and traffic signal warrants. Assessment of Long Range (2035) without and with Project traffic conditions will determine if the County of Riverside Circulation Element is adequate to accommodate future traffic at the target LOS, or if additional mitigation is necessary.

7.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Long Range (2035) without and with Project conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project or cumulative development projects to provide site access are also assumed to be in place for Long Range (2035) with Project traffic conditions.

7.2 LONG RANGE (2035) WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes the refined post-processed volumes based on the Riverside County Transportation and Analysis Model (RivTAM) (see Section 4.9 *Long Range (2035) Conditions* of this TIA for a detailed discussion on the post-processing methodology). The weekday ADT volumes which can be expected for Long Range (2035) without Project traffic conditions are shown on Exhibit 7-1. Exhibits 7-2 and 7-3 show the AM and PM peak hour intersection turning movement volumes for Long Range (2035) without Project traffic conditions.

7.3 LONG RANGE (2035) WITH PROJECT TRAFFIC VOLUME FORECASTS

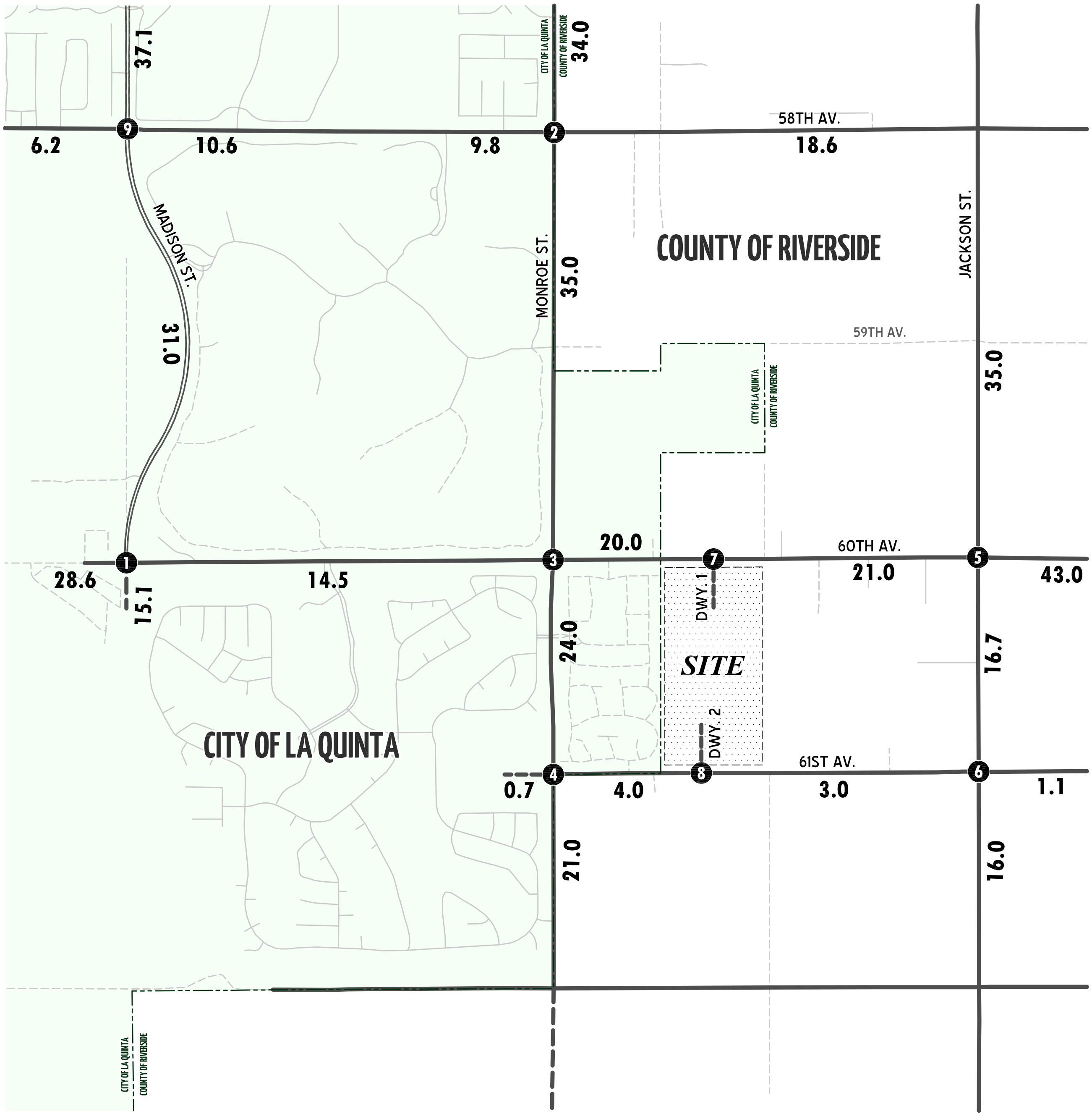
This scenario includes the refined post-processed volumes based on the Riverside County Transportation and Analysis Model (RivTAM) (see Section 4.9 *Long Range (2035) Conditions* of this TIA for a detailed discussion on the post-processing methodology) with the addition of Project traffic. The weekday ADT volumes which can be expected for Long Range (2035) with Project traffic conditions are shown on Exhibit 7-4. Exhibits 7-5 and 7-6 show the AM and PM peak hour intersection turning movement volumes for Long Range (2035) with Project traffic conditions.

7.4 INTERSECTION OPERATIONS ANALYSIS

LOS calculations were conducted for the study intersections to evaluate their operations under Long Range (2035) without and with Project conditions. The intersection analysis results for Long Range (2035) Without Project traffic conditions are summarized in Table 7-1 which indicates that the following

EXHIBIT 7-1

LONG RANGE (2035) WITHOUT PROJECT AVERAGE DAILY TRAFFIC (ADT)



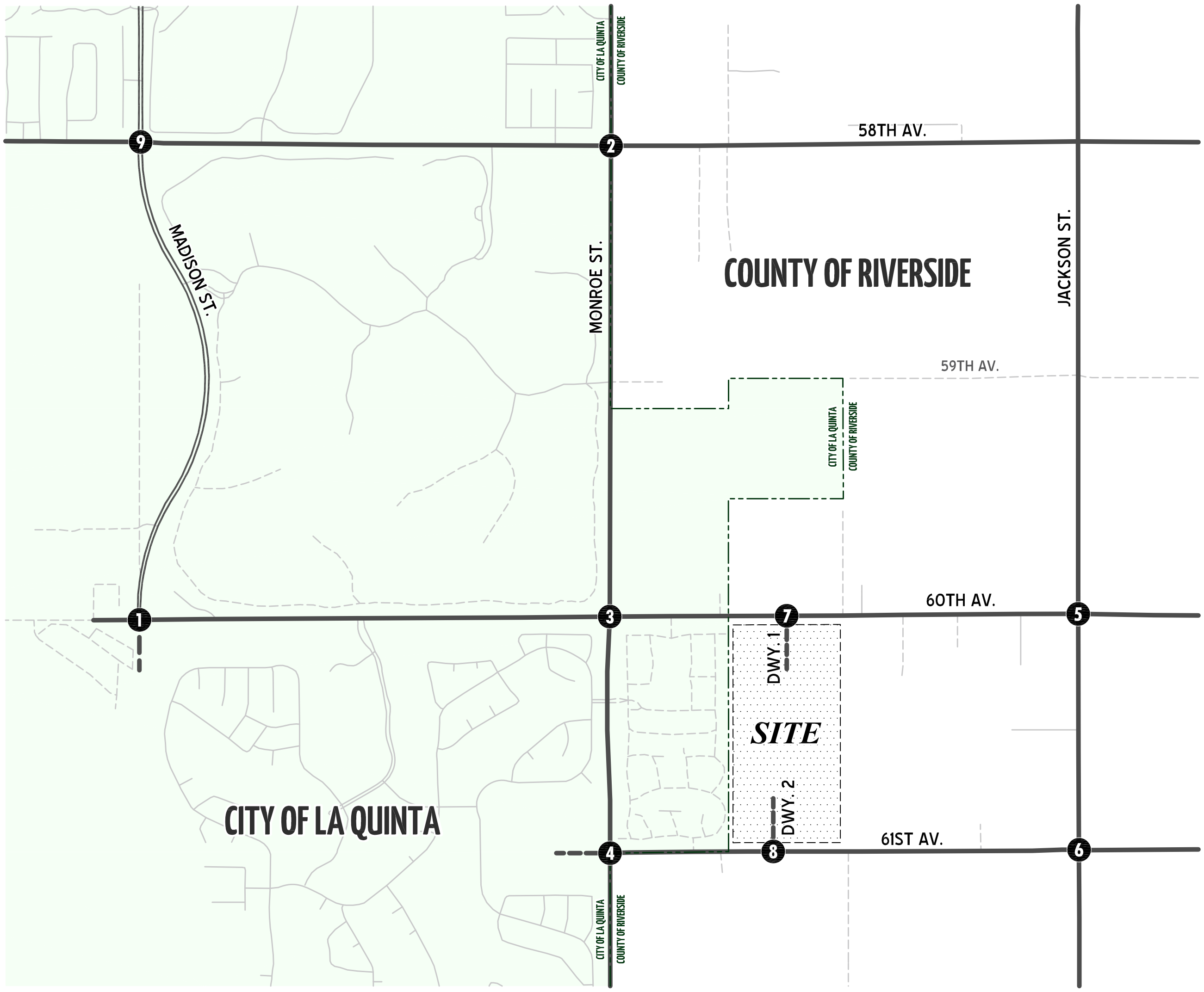
LEGEND:

10.0 = VEHICLES PER DAY (1000'S)

N

EXHIBIT 7-2

LONG RANGE (2035) WITHOUT PROJECT AM PEAK HOUR INTERSECTION VOLUMES



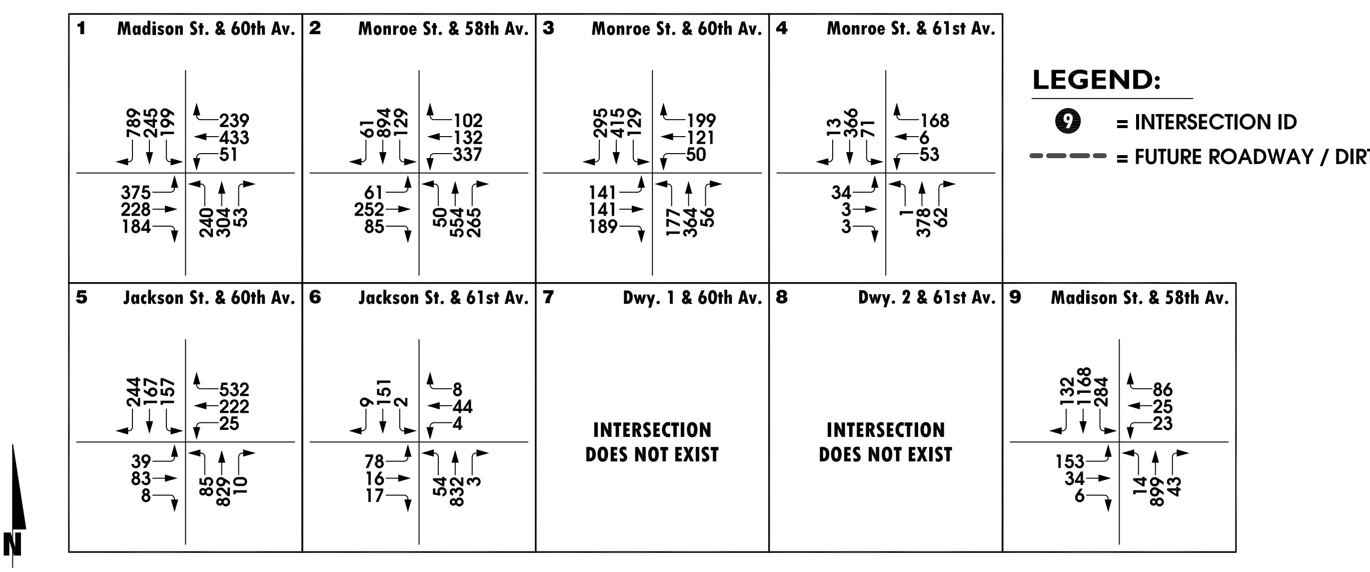
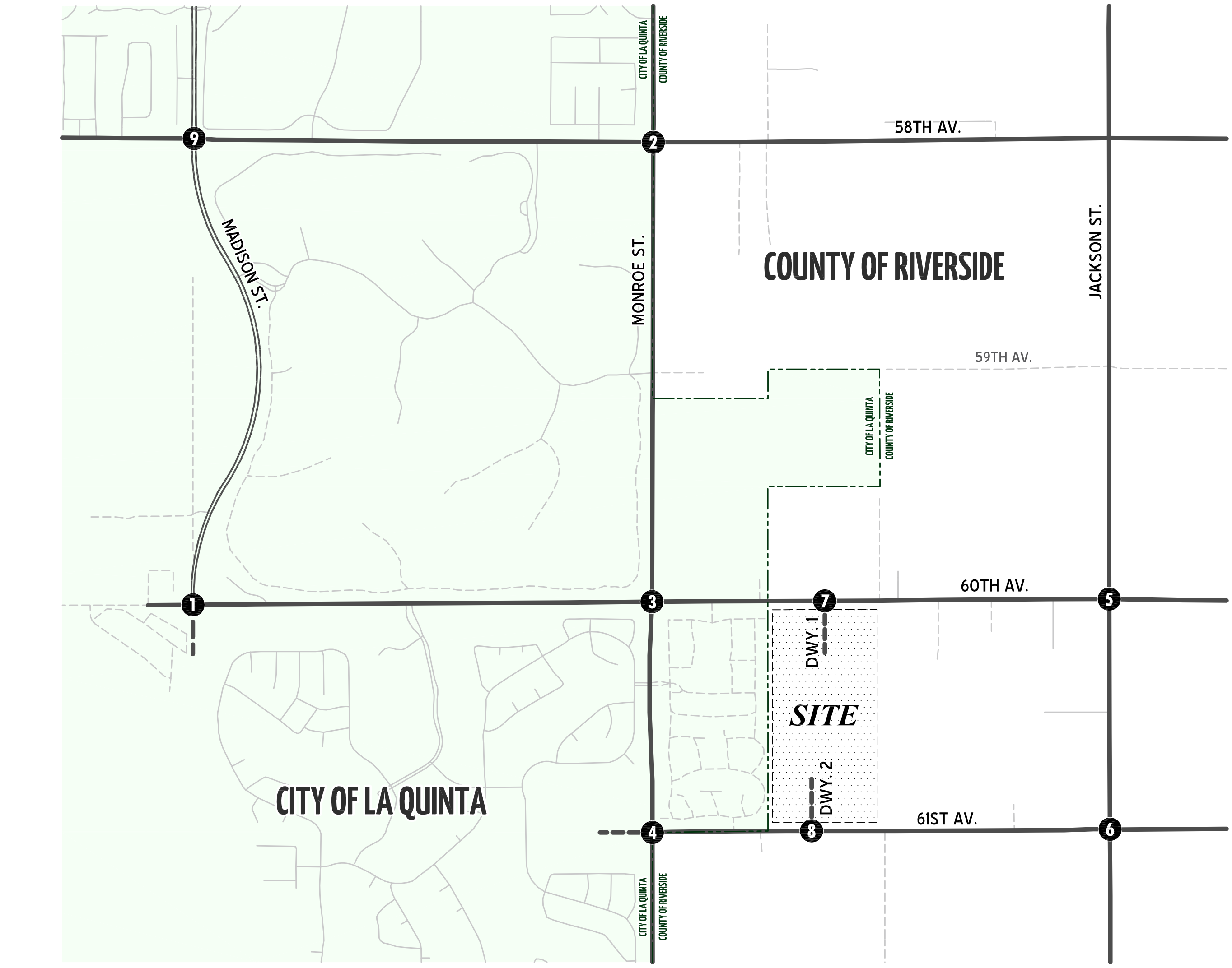


EXHIBIT 7-3

LONG RANGE (2035) WITHOUT PROJECT PM PEAK HOUR INTERSECTION VOLUMES



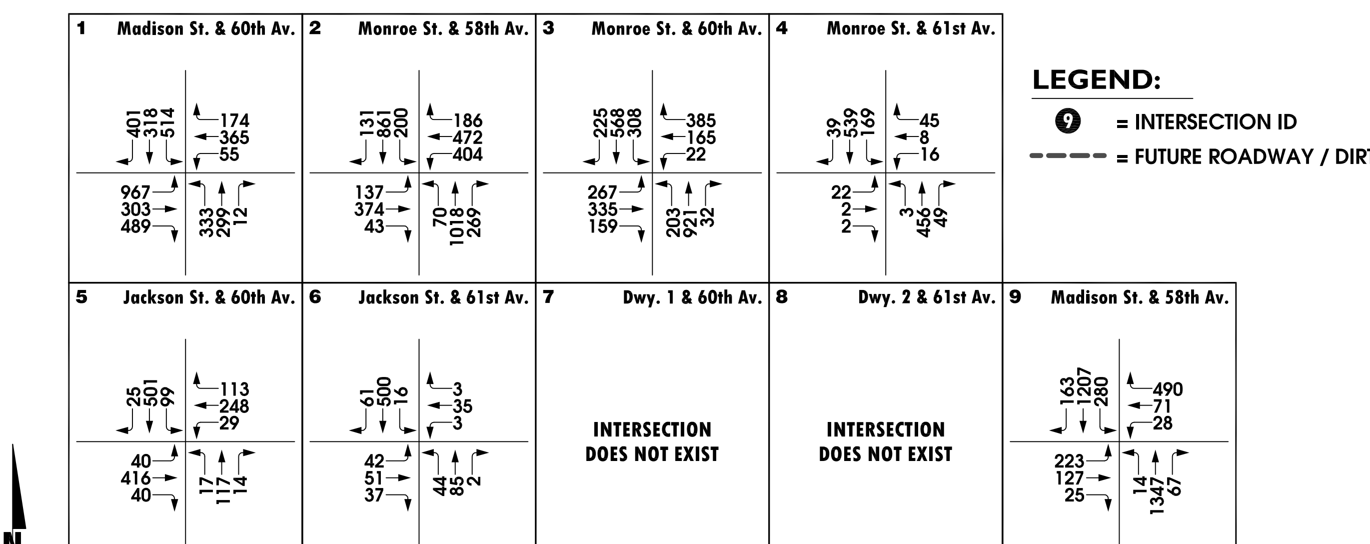
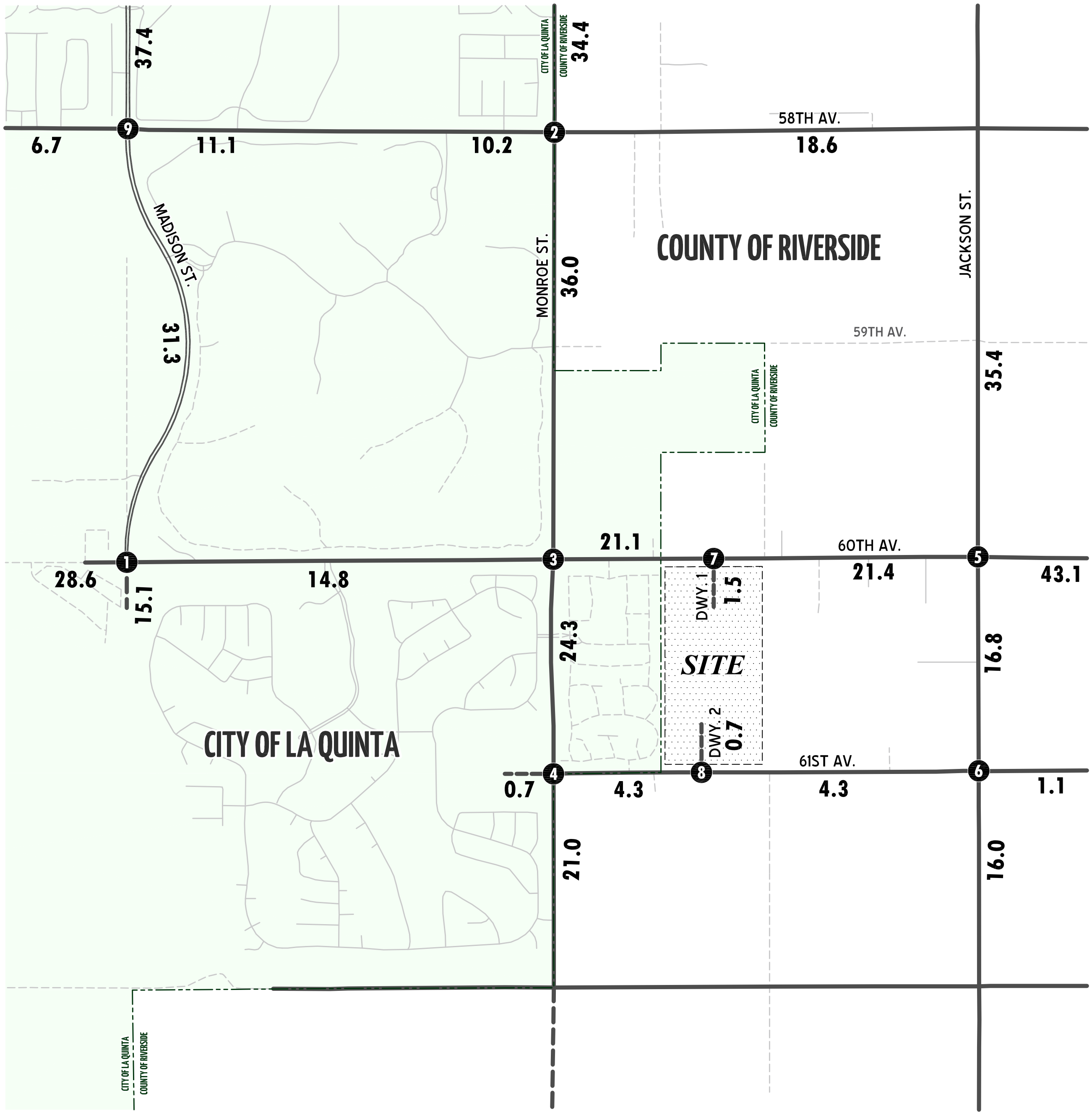


EXHIBIT 7-4

LONG RANGE (2035) WITH PROJECT AVERAGE DAILY TRAFFIC (ADT)

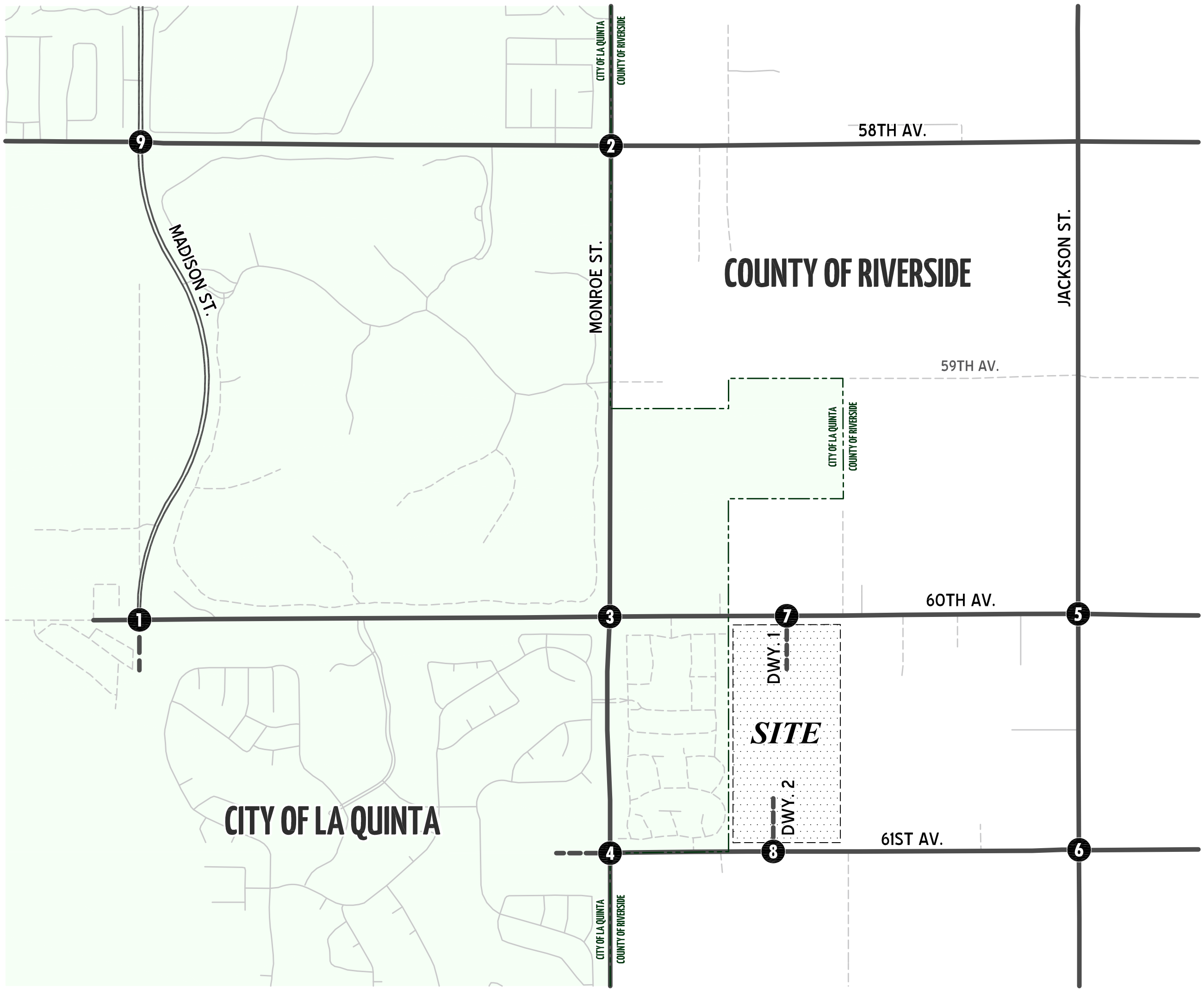


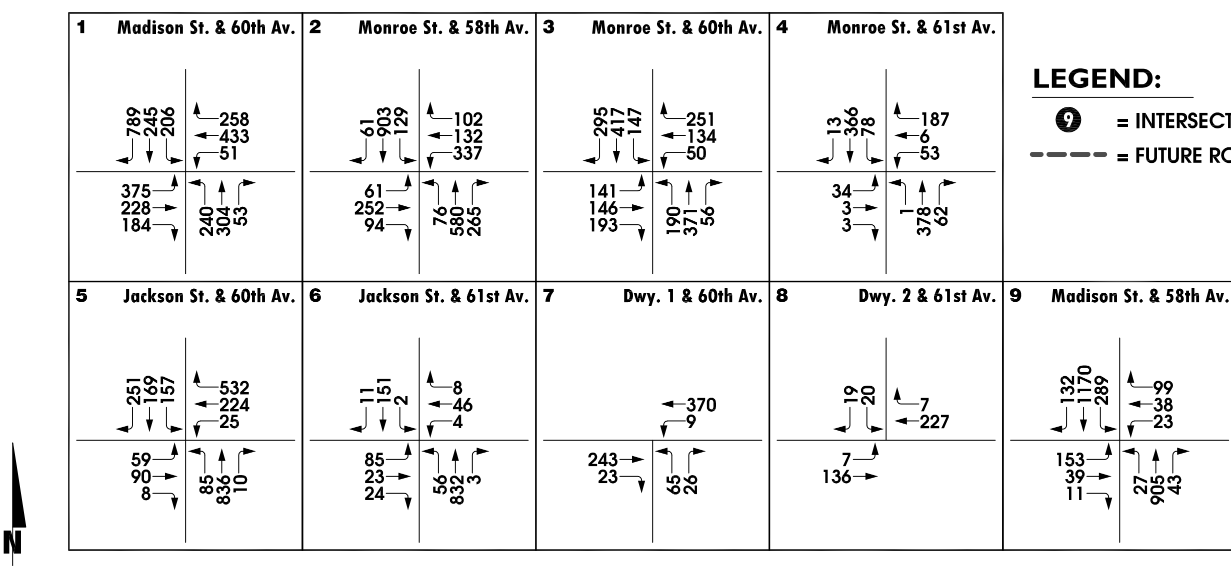
LEGEND:

10.0 = VEHICLES PER DAY (1000'S)

N

LONG RANGE (2035) WITH PROJECT AM PEAK HOUR INTERSECTION VOLUMES





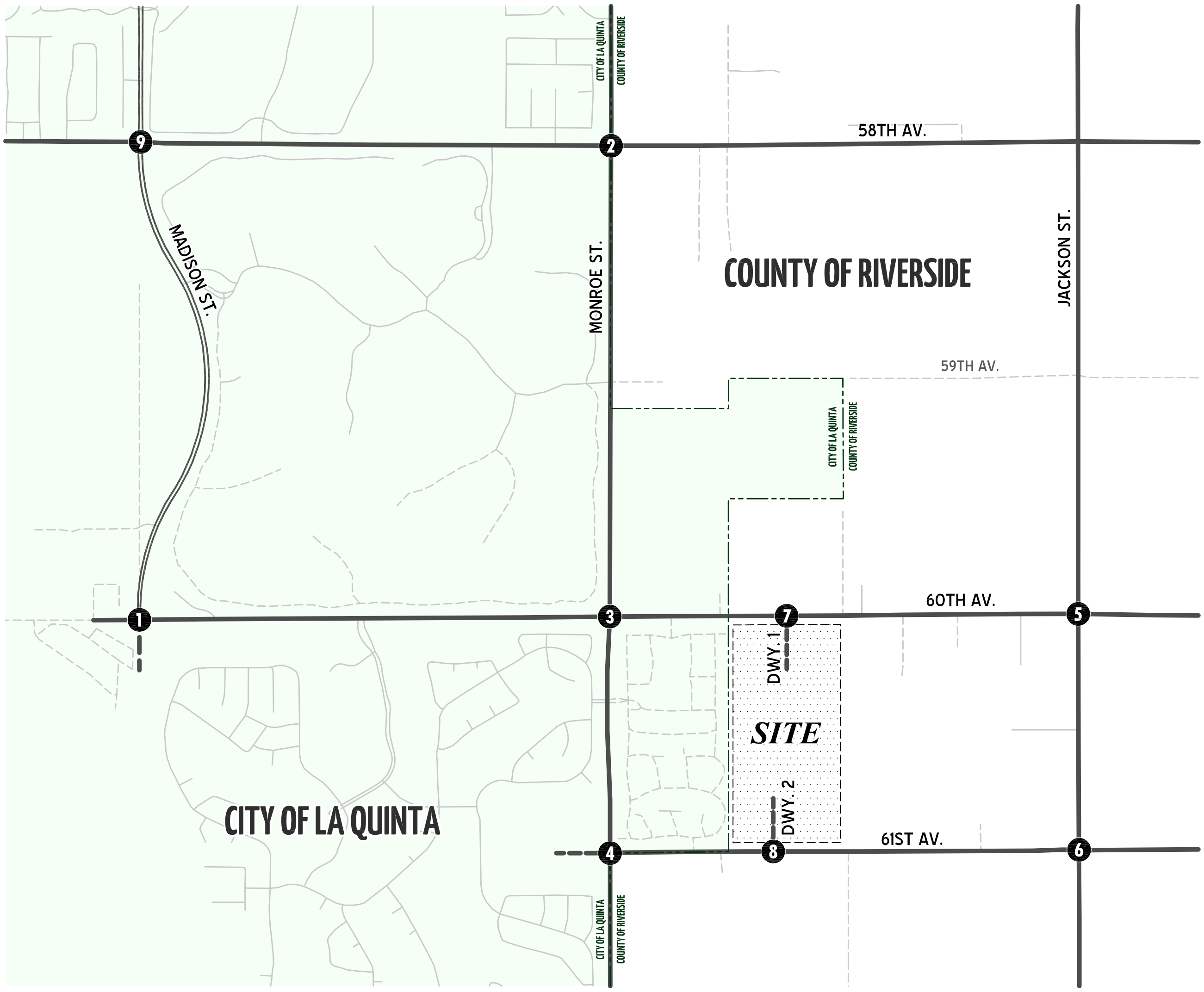
LEGEND:

9 = INTERSECTION ID

= FUTURE ROADWAY / DIRT

EXHIBIT 7-6

LONG RANGE (2035) WITH PROJECT PM PEAK HOUR INTERSECTION VOLUMES



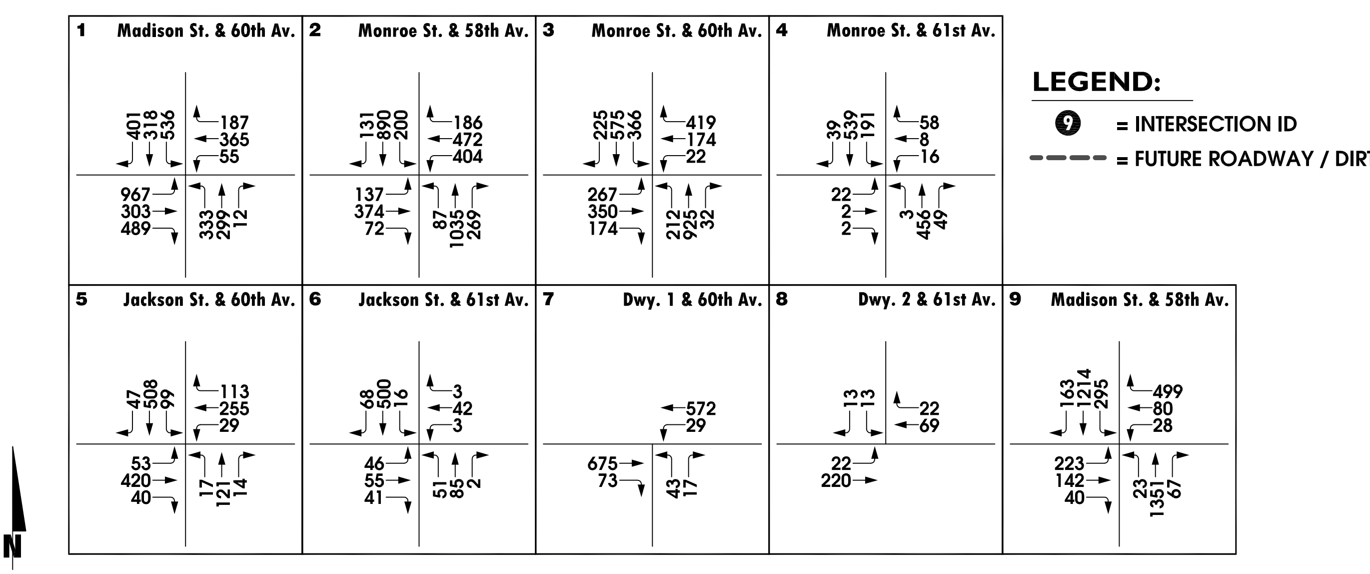


Table 7-1

INTERSECTION ANALYSIS FOR LONG RANGE (2035) CONDITIONS

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1] Northbound			Southbound			Eastbound			Westbound			2035 Without Project Delay[2] (secs.)		Level of Service[2]		2035 With Project Delay[2] (secs.)		Level of Service[2]	
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM	AM	PM	AM	PM
1	Madison St. / 60th Av.																					
	- Without Improvements	CSS	0	0	0	1	1	0	0	1	0	0	1	d	**>80**	**>80**	**F**	**F**	**>80**	**>80**	**F**	**F**
	- With Improvements[5]	TS	1	2	0	2	2	1>	2	2	1>	1	2	1>	55.0	52.8	D	D	54.9	53.1	D	D
2	Monroe St. / 58th Av.																					
	- Without Improvements	AWS	0	1!	0	0	1	1	0	1!	0	0	1!	0	**>80**	**>80**	**F**	**F**	**>80**	**>80**	**F**	**F**
	- With Improvements[5,6]	TS	1	2	1>	1	2	0	1	2	0	1	2	0	34.2	48.6	C	D	34.7	51.0	C	D
3	Monroe St. / 60th Av.																					
	- Without Improvements	AWS	1	1	0	1	1	1	0.5	0.5	1	0	1!	0	**>80**	**>80**	**F**	**F**	**>80**	**>80**	**F**	**F**
	- With Improvements	TS	1	2	0	2	2	0	1	2	0	1	1	1>	33.9	48.8	C	D	34.3	51.0	C	D
4	Monroe St. / 61st Av.																					
	- Without Improvements	CSS	0	1	0	0.5	0.5	0	0	**1!**	0	0	1!	0	**43.1**	**78.2**	**E**	**F**	**67.1**	**72.2**	**F**	**F**
	- With Improvements	TS	1	2	0	1	2	0	0	**1!**	0	0	1!	0	17.1	18.9	B	B	17.3	19.4	B	B
5	Jackson St. / 60th Av.																					
	- Without Improvements	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	**>80**	**49.5**	**F**	**F**[4]	**>80**	**62.0**	**F**	**F**
	- With Improvements	TS	1	2	0	1	2	0	1	2	0	1	2	0	47.0	28.1	D	C	47.3	28.4	D	C
6	Jackson St. / 61st Av.																					
	- Without Improvements	CSS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	**>80**	24.9	**F**	C	**>80**	**50.6**	**F**	**F**
	- With Improvements	TS	1	2	0	1	2	0	1	1	0	1	1	0	19.8	20.1	B	C	20.1	20.3	C	C
7	Dwy. 1 / 60th Av.																					
	- With Project Access (2016)	CSS	1	0	1	0	0	0	0	1	0	1	1	0	Intersection Does Not Exist				19.4	**38.3**	C	**E**
	- With Improvements (2035)	CSS	1	0	1	0	0	0	0	2	0	1	2	0	Intersection Does Not Exist				12.1	24.7	B	C
8	Dwy. 2 / 61st Av.																					
	- With Project Access	CSS	0	0	0	0	1!	0	1	1	0	0	1	0	Intersection Does Not Exist				10.7	9.9	B	A
9	Madison St. / 58th Av.																					
	- Without Improvements	AWS	1	2	1	1	2	d	1	1	1	1	2	1	**>80**	**>80**	**F**	**F**	**>80**	**>80**	**F**	**F**
	- With Improvements[5]	TS	1	2	1	1	2	d	1	2	0	1	2	1>	18.4	29.8	B	C	18.7	31.0	B	C

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; 1! = Shared Left-Through-Right Turn Lane; 1 = Improvement

[2] Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with a traffic signal or all-way stop control. For intersections with cross street stop control, see subsequent footnotes.
BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[3] CSS = Cross-Street Stop; AWS = All-Way Stop

[4] Volume-to-capacity ratio is greater than 1.00; Intersection unstable; Level of Service "F".

[5] Pedestrian phase not anticipated in every cycle.

intersection locations are anticipated to experience unacceptable LOS (i.e., LOS “E” or LOS “F”) during one or both of the peak hours:

ID	Intersection Location	Type of Warrant
1	Madison Street / 60th Avenue	City of La Quinta
2	Monroe Street / 58th Avenue	City of La Quinta / County of Riverside
3	Monroe Street / 60th Avenue	City of La Quinta / County of Riverside
4	Monroe Street / 61st Avenue	City of La Quinta / County of Riverside
5	Jackson Street / 60th Avenue	County of Riverside
6	Jackson Street / 61st Avenue	County of Riverside
9	Madison Street / 58th Avenue	City of La Quinta

The intersection operations analysis worksheets for Long Range (2035) Without Project traffic conditions are included in Appendix “7.1” of this TIA.

The intersection analysis results for Long Range (2035) With Project traffic conditions are also summarized in Table 7-1 which indicates that the following intersection locations are anticipated to experience unacceptable LOS (i.e., LOS “E” or LOS “F”) during one or both of the peak hours, in addition to those previously identified under Long Range (2035) Without Project conditions:

ID	Intersection Location	Jurisdiction
7	Driveway 1 / 60th Avenue – *Future Intersection*	County of Riverside

This intersection that is an additional deficiency is a Project driveway; no other additional deficiencies are identified. The intersection operations analysis worksheets for Long Range (2035) With Project traffic conditions are included in Appendix “7.2” of this TIA.

7.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

For Long Range (2035) Without Project conditions, the following intersections appear to warrant traffic signals based on the future Peak Hour and ADT traffic volumes (see Appendix “3.3”):

ID	Intersection Location	Type of Warrant
1	Madison Street / 60th Avenue	City of La Quinta
2	Monroe Street / 58th Avenue	City of La Quinta / County of Riverside
3	Monroe Street / 60th Avenue	City of La Quinta / County of Riverside
4	Monroe Street / 61st Avenue	City of La Quinta / County of Riverside
5	Jackson Street / 60th Avenue	County of Riverside
6	Jackson Street / 61st Avenue	County of Riverside
9	Madison Street / 58th Avenue	City of La Quinta

For Long Range (2035) With Project conditions, there are no new study area intersections that are anticipated to warrant a traffic signal, in addition to those previously identified under Long Range (2035) Without Project conditions (see Appendix "3.3").

7.6 LONG RANGE (2035) IMPACTS AND RECOMMENDED IMPROVEMENTS

Improvements have been recommended at intersections that have been identified as cumulatively impacted to reduce each location's peak hour delay and improve the associated LOS grade to LOS "D" or better. The effectiveness of the recommended improvements discussed below to address Long Range (2035) cumulative traffic impacts are also presented in Table 7-1.

The following improvements are recommended to reduce cumulative impacts identified at transportation facilities under Long Range (2035) to less-than-significant (See Exhibit 7-7):

Madison Street / 60th Avenue (#1)

- Install a traffic Signal
- Northbound Approach: Construct one left turn lane, one through lane, and one shared through-right turn lane.
- Southbound Approach: Construct a 2nd left turn lane, 2nd through lane, and one right turn lane with overlap phasing.
- Eastbound Approach: Construct two left turn lane, 2nd through lane, and one right turn lane with overlap phasing.
- Westbound Approach: Construct one left turn lane, 2nd through lane, and one right turn lane with overlap phasing.

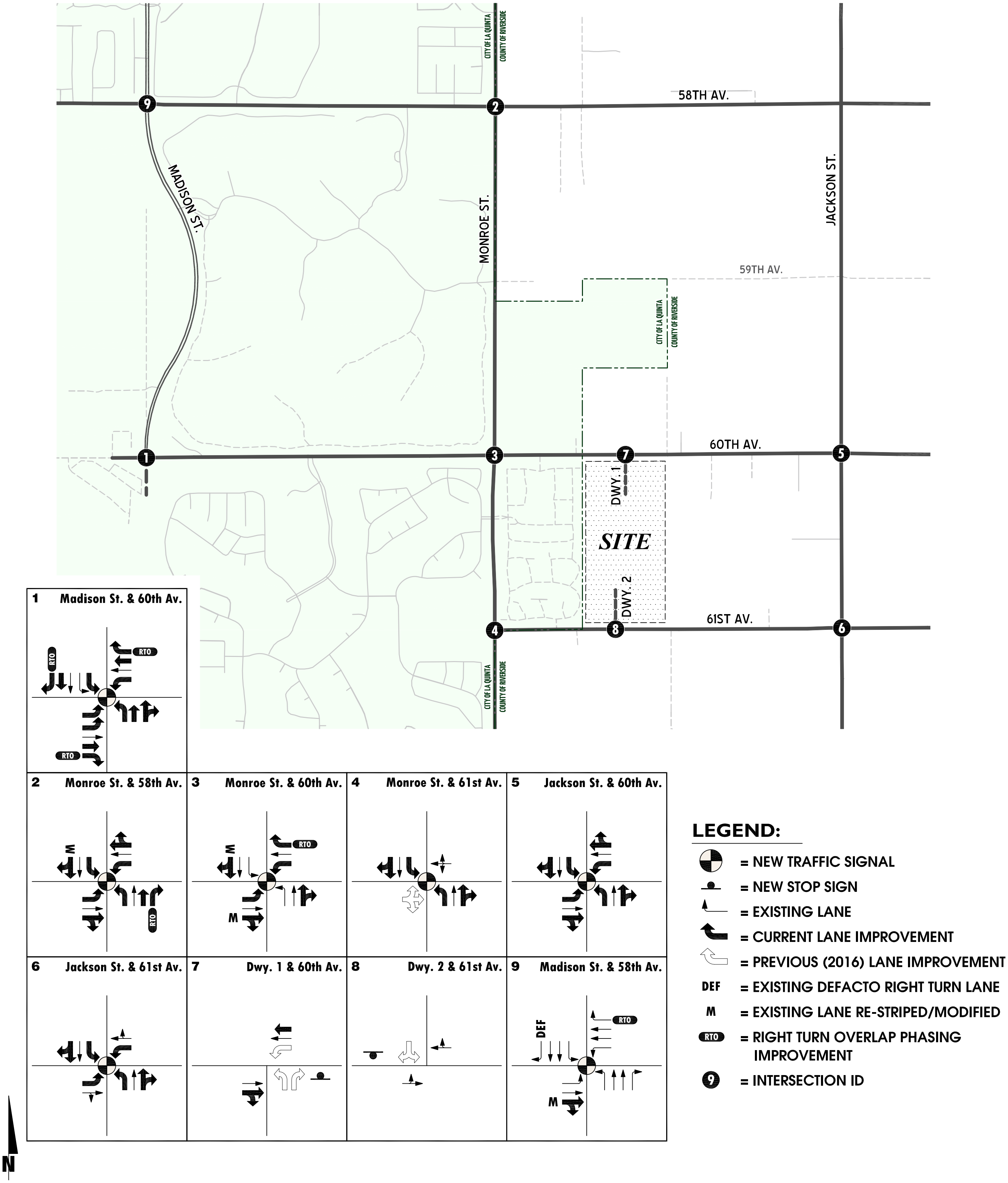
Monroe Street / 58th Avenue (#2)

- Install a traffic Signal
- Northbound Approach: Construct one left turn lane, 2nd through lane, and one right turn lane with overlap phasing.
- Southbound Approach: Construct one left turn lane and modify existing right turn lane to a shared through-right turn lane.
- Eastbound Approach: Construct one left turn lane and one shared through-right turn lane.
- Westbound Approach: Construct one left turn lane and one shared through-right turn lane.

Monroe Street / 60th Avenue (#3)

- Install a traffic Signal
- Northbound Approach: Construct one shared through-right turn lane.
- Southbound Approach: Construct a 2nd left turn lane and modify existing right turn lane to a shared through-right turn lane.
- Eastbound Approach: Construct a dedicated left turn lane and modify existing right turn lane to a shared through-right turn lane.
- Westbound Approach: Construct one left turn lane and one right turn lane with overlap phasing

EXHIBIT 7-7
LONG RANGE (2035) RECOMMENDED IMPROVEMENTS



URBAN CROSSROADS

Monroe Street / 61st Avenue (#4)

- Install a traffic Signal
- Northbound Approach: Construct one left turn lane and one shared through-right turn lane.
- Southbound Approach: Construct one left turn lane and one shared through-right turn lane.
- Eastbound Approach: Construct one shared left-through-right turn lane (Cumulative TAZ 6 - TM 31434 Driveway).
- Westbound Approach: n/a

Jackson Street / 60th Avenue (#5)

- Install a traffic Signal
- Northbound Approach: Construct one left turn lane and one shared through-right turn lane.
- Southbound Approach: Construct one left turn lane and one shared through-right turn lane.
- Eastbound Approach: Construct one left turn lane and one shared through-right turn lane.
- Westbound Approach: Construct one left turn lane and one shared through-right turn lane.

Jackson Street / 61st Avenue (#6)

- Install a traffic Signal
- Northbound Approach: Construct one left turn lane and one shared through-right turn lane.
- Southbound Approach: Construct one left turn lane and one shared through-right turn lane.
- Eastbound Approach: Construct one left turn lane.
- Westbound Approach: Construct one left turn lane.

Driveway 1 / 60th Avenue (#7)

- Install a stop control on the northbound approach (Project Driveway).
- Northbound Approach: Construct one left turn lane and one right turn lane (Project Driveway).
- Southbound Approach: n/a
- Eastbound Approach: Construct one shared through-right turn lane.
- Westbound Approach: Construct one left turn lane (for Project) and 2^{nd} through lane.

Driveway 2 / 61st Avenue (#8)

- Install a stop control on the southbound approach (Project Driveway).
- Northbound Approach: n/a
- Southbound Approach: Construct one shared left-through-right turn lane (Project Driveway).
- Eastbound Approach: Construct one left turn lane (for Project).
- Westbound Approach: n/a

Madison Street / 58th Avenue (#9)

- Install a traffic Signal
- Northbound Approach: n/a
- Southbound Approach: n/a
- Eastbound Approach: Modify existing right turn lane to a shared though-right turn lane.
- Westbound Approach: Provide right turn overlap phasing.

8.0 LOCAL CIRCULATION AND SITE ACCESS

This section summarizes Project site access and on-site circulation recommendations.

The Project is proposed to have access on 60th Avenue and 61st Avenue. Both Project access points are proposed to be full-access. Regional access to the Project site will be provided by the I-10 Freeway (located to the north) via Monroe Street.

8.1 ON-SITE ROADWAY IMPROVEMENTS

The recommended site access driveway improvements for the Project are described below. Exhibit 8-1 illustrates the on-site recommended roadway lane improvements. Construction of on-site improvements shall occur in conjunction with adjacent Project development activity or as needed for Project access purposes. These improvements should be in place prior to occupancy.

60th Avenue – 60th Avenue is an east-west oriented roadway located along the Project's northern boundary. Construct 60th Avenue at its ultimate half-section width as an Arterial roadway (128-foot right-of-way) between the Project's westerly and easterly boundary. It should be noted that 60th Avenue is classified as a 4-Lane Primary Arterial roadway (108' ROW) within the City of La Quinta (immediately west of Project boundary) and classified as 4-Lane Arterial roadway (128' ROW) within the County or Riverside along the Project's frontage. Therefore, a 150-foot transition lane is recommended, east of the Project's westerly boundary as shown on Exhibit 8-2.

61st Avenue – 61st Avenue is an east-west oriented roadway located along the Project's southern boundary. Construct 61st Avenue at its ultimate half-section width as a Collector roadway (74-foot right-of-way) between the Project's westerly and easterly boundary.

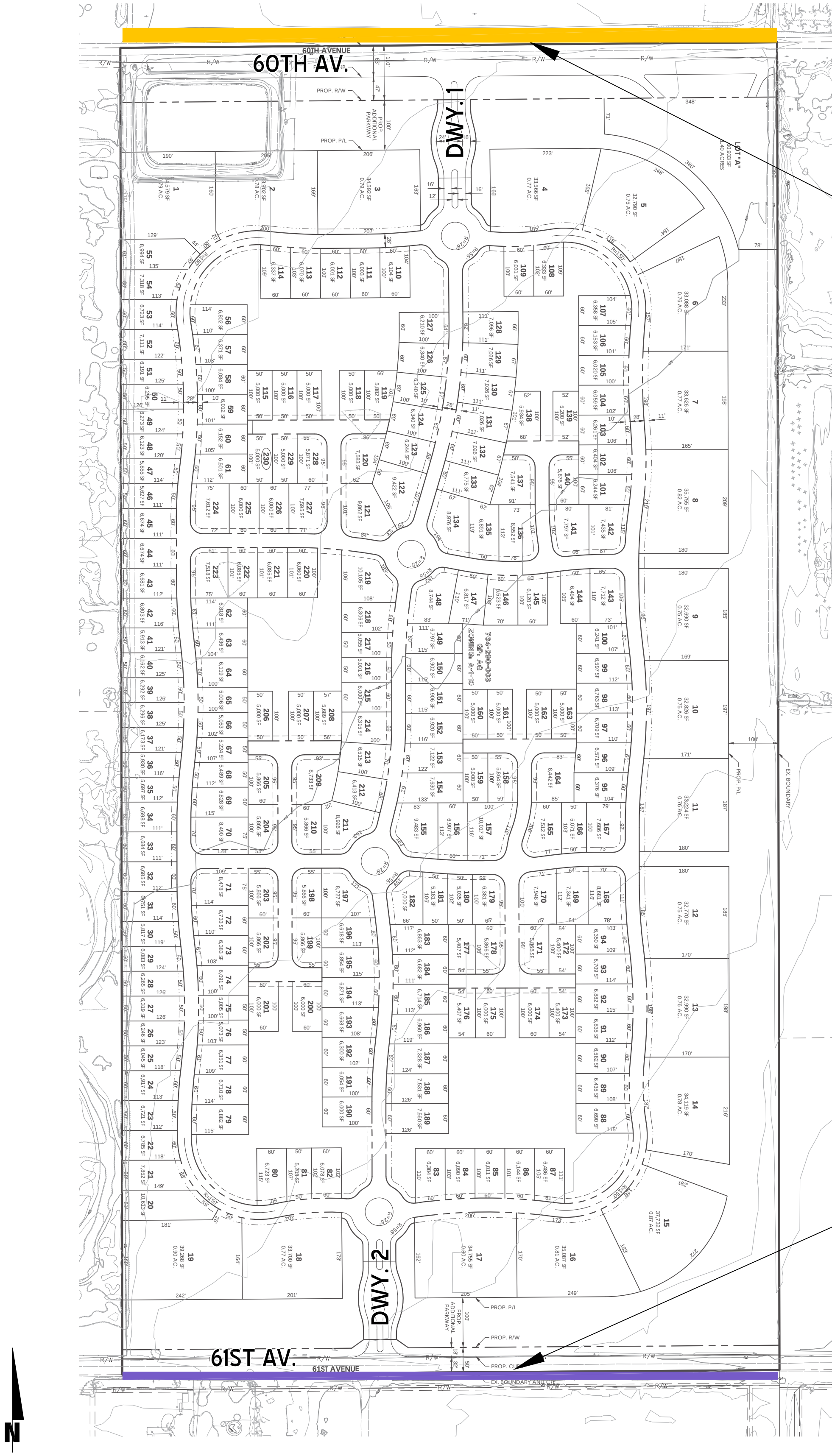
Wherever necessary, roadways adjacent to the Project, site access points and site-adjacent intersections will be constructed to be consistent with or within the recommended roadway classifications and respective cross-sections in the County of Riverside General Plan Circulation Element.

8.2 SITE ACCESS IMPROVEMENTS

The recommended site access driveway improvements for the Project are described below. Exhibit 8-3 illustrates the on-site and site adjacent recommended roadway lane improvements. Construction of on-site and site adjacent improvements shall occur in conjunction with adjacent Project development activity or as needed for Project access purposes.

EXHIBIT 8-1

SITE ADJACENT ROADWAY RECOMMENDATIONS



60TH AVENUE IS AN EAST-WEST ORIENTED ROADWAY LOCATED ALONG THE PROJECT'S NORTHERN BOUNDARY. CONSTRUCT 60TH AVENUE AT ITS ULTIMATE HALF-SECTION WIDTH AS AN ARTERIAL ROADWAY (128-FOOT RIGHT-OF-WAY) BETWEEN THE PROJECT'S WESTERLY AND EASTERLY BOUNDARY. IN ADDITION, A 150-FOOT TRANSITION LANE IS ALSO RECOMMENDED, EAST OF THE PROJECT'S WESTERLY BOUNDARY (SHOWN ON EXHIBIT 8-2).

LEGEND:

= ARTERIAL (128-FOOT R.O.W)

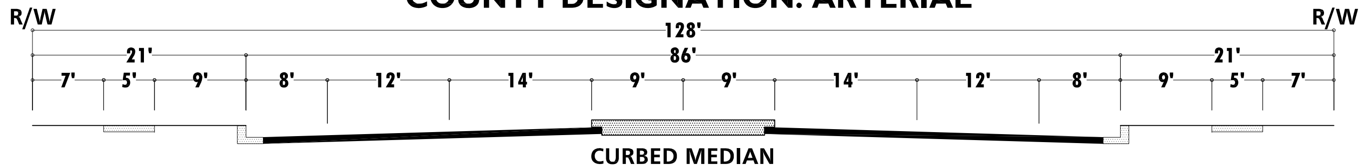
= COLLECTOR (74-FOOT R.O.W)

61ST AVENUE IS AN EAST-WEST ORIENTED ROADWAY LOCATED ALONG THE PROJECT'S SOUTHERN BOUNDARY. CONSTRUCT 61ST AVENUE AT ITS ULTIMATE HALF-SECTION WIDTH AS A COLLECTOR ROADWAY (74-FOOT RIGHT-OF-WAY) BETWEEN THE PROJECT'S WESTERLY AND EASTERLY BOUNDARY.

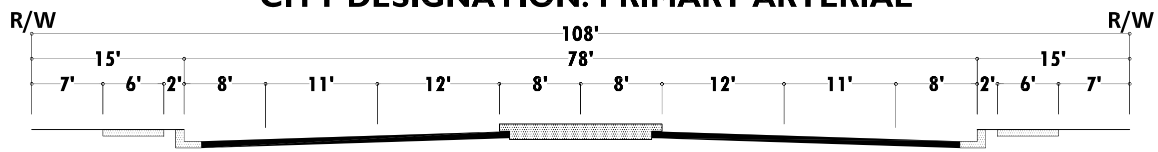
EXHIBIT 8-2

AVENUE 60 CROSS SECTION RECONCILIATION ADJACENT TO VISTA SOLEADA (TTM 36590)

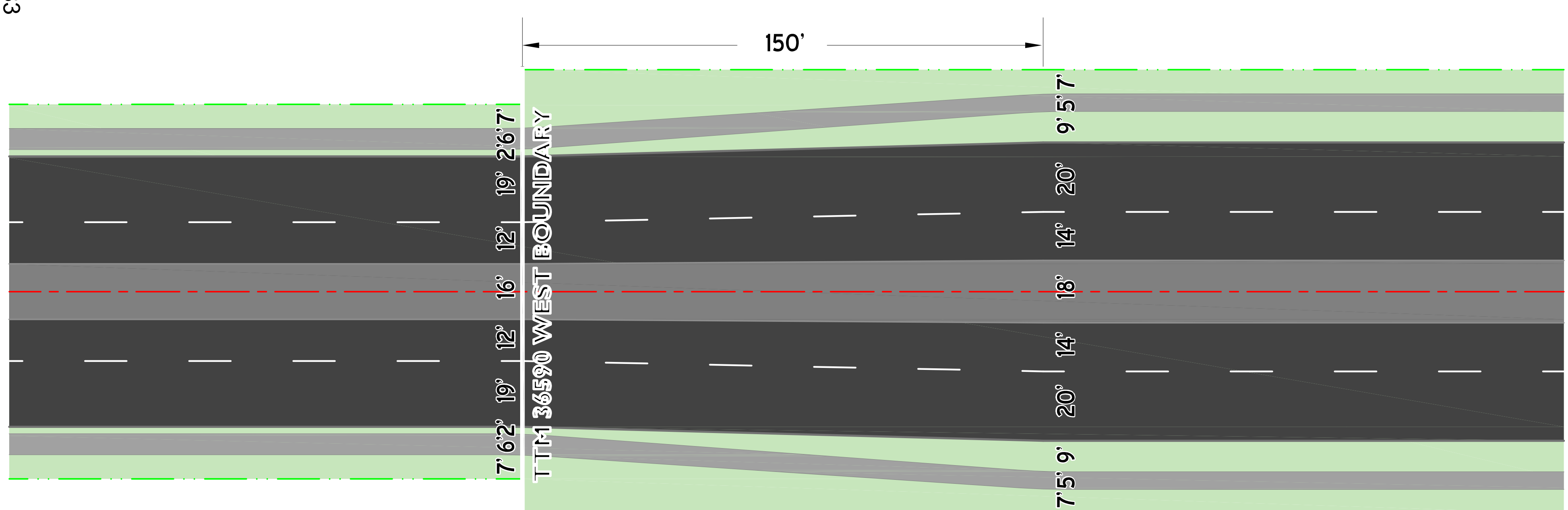
COUNTY DESIGNATION: ARTERIAL



CITY DESIGNATION: PRIMARY ARTERIAL



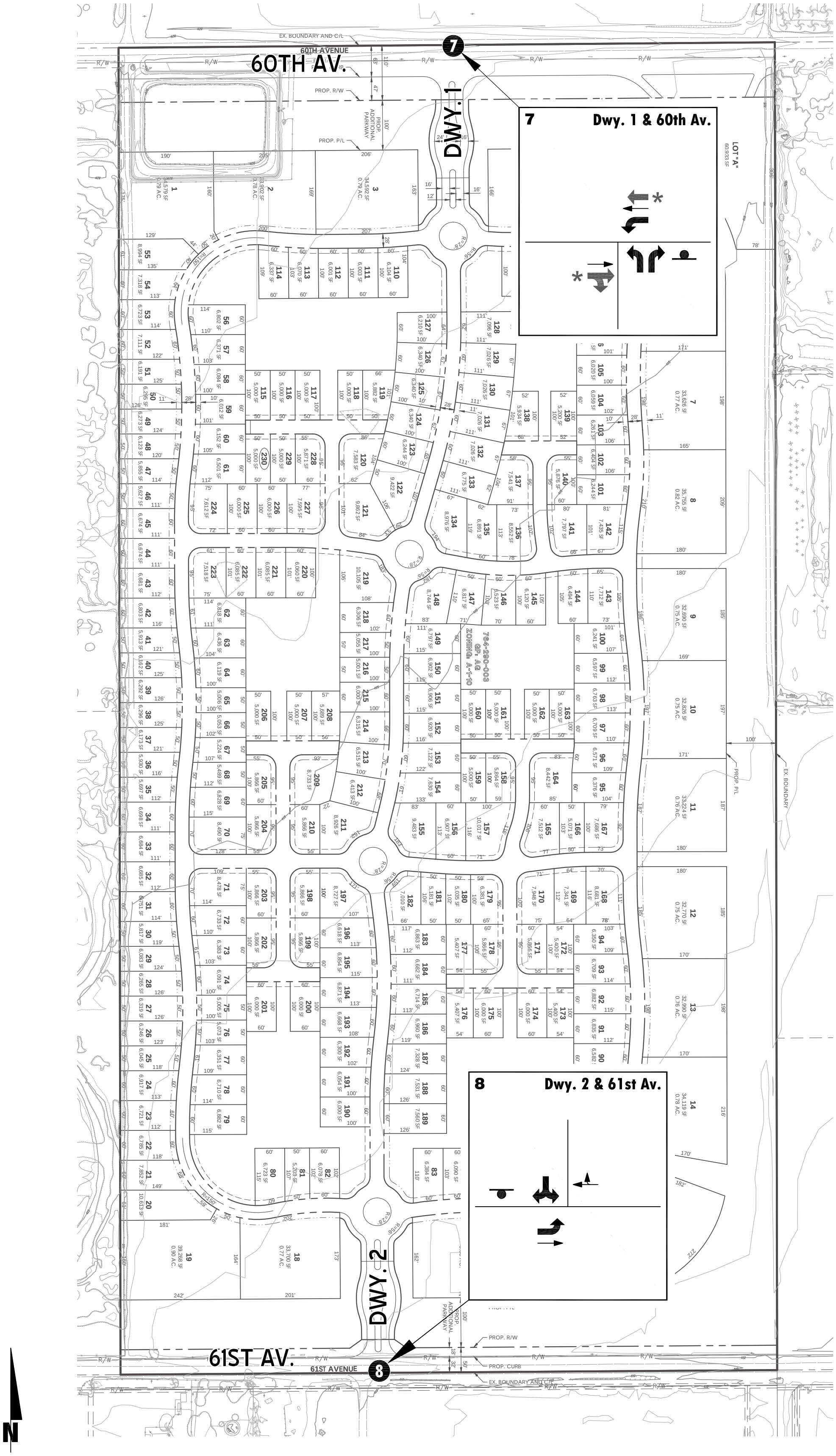
EAST/WEST TRANSITION RECOMMENDED AT CITY BOUNDARY

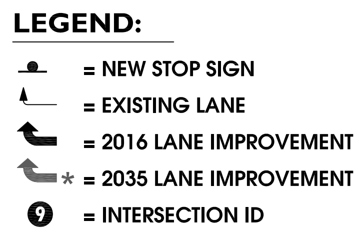


URBAN CROSSROADS

EXHIBIT 8-3

ON-SITE CIRCULATION RECOMMENDATIONS





ON-SITE TRAFFIC SIGNING AND STRIPING SHOULD BE IMPLEMENTED IN CONJUNCTION WITH DETAILED CONSTRUCTION PLANS FOR THE PROJECT SITE.

SIGHT DISTANCE AT EACH PROJECT ACCESS POINT SHOULD BE REVIEWED WITH RESPECT TO STANDARD CALTRANS AND COUNTY OF RIVERSIDE SIGHT DISTANCE STANDARDS AT THE TIME OF PREPARATION OF FINAL GRADING, LANDSCAPE AND STREET IMPROVEMENT PLANS.

The recommended site access driveway improvements for the Project are described below.

Driveway 1 / 60th Avenue (#7)

- Install a stop control on the northbound approach.
- Northbound Approach: Construct one left turn lane and one right turn lane.
- Westbound Approach: Construct one left turn lane.

It should be noted that for Long Range (2035) conditions, a 2nd eastbound and westbound through lane is also recommended.

Driveway 2 / 61st Avenue (#8)

- Install a stop control on the southbound approach.
- Southbound Approach: One shared left-through-right turn lane.
- Eastbound Approach: One left turn lane.

On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the Project site.

Sight distance at each project access point should be reviewed with respect to standard Caltrans and County of Riverside sight distance standards at the time of preparation of final grading, landscape and street improvement plans.

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9.0 LOCAL AND REGIONAL FUNDING MECHANISMS

Transportation improvements throughout Riverside County are funded through a combination of direct project mitigation, fair share contributions or development impact fee programs. Identification and timing of needed improvements is generally determined through local jurisdictions based upon a variety of factors. Discussion of the relevant pre-existing transportation impact fee programs within the study area is provided below.

The Project's contribution to one of the aforementioned transportation impact fee programs or as a fair share contribution toward a cumulatively impacted facility not found to be covered by a pre-existing fee program should be considered sufficient to address the Project's fair share toward a mitigation measure or measures designed to alleviate the cumulative impact. In other words, the Project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable and thus is not significant. If an impacted facility was found to require improvements beyond those already identified within one of the pre-existing regional or local fee programs, the Project may be required to contribute the associated intersection or roadway fair-share percentage toward the costs of the recommended improvements. Additional discussion of the relevant pre-existing transportation impact fee programs is provided below.

9.1 TRANSPORTATION UNIFORM MITIGATION FEE (TUMF) PROGRAM

The TUMF program is administered by Coachella Valley Association of Governments (CVAG) based upon a regional Nexus Study completed in early 2003 and updated in 2009 to address major changes in right of way acquisition and improvement cost factors. TUMF identifies a network of backbone and local roadways that are needed to accommodate growth through 2035. This regional program was put into place to ensure that development pays its fair share and that funding is in place for construction of facilities needed to maintain the requisite level of service and critical to mobility in the region. TUMF is a truly regional mitigation fee program, and is imposed and implemented in every jurisdiction in the Coachella Valley.

TUMF fees are imposed on new residential, industrial, and commercial development through application of the TUMF fee ordinance and fees are collected at the building or occupancy permit stage.

A number of the facilities forecast to be impacted by the Project are programmed for improvements through the TUMF program. The project applicant will be subject to the TUMF fee program and will pay the requisite TUMF fees at the rates then in effect pursuant to the TUMF Ordinance. The facilities planned through the TUMF program are constructed prior to the time at which the identified facility is expected to deteriorate to an inadequate level of service. WRCOG has a successful track record funding and overseeing the construction of improvements funded through the TUMF program. In total, the TUMF program is anticipated to generate nearly $5 billion in transportation projects for the Coachella Valley. The project's payment of TUMF fees appear to be sufficient to mitigate its impacts to TUMF-funded facilities.

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APPENDIX 1.1

Approved Traffic Study Scoping Agreement

Janette Cachola

From: Wally Nesbit [wnesbit@la-quinta.org]
Sent: Tuesday, December 10, 2013 3:42 PM
To: Nazir Lalani Email
Cc: Janette Cachola
Subject: RE: (JN:08773) Vista Soleada (TTM 36590) TIA Scoping Agreement - Revised
Attachments: 0406_001.pdf

Sincere apologies for the extremely delayed response -
Need to include our most current adopted street sections and roadway classification exhibits (EX 10 and 11 in scope) from the Circulation Element (attached)

LQ projects identified w/in ½ mile per our EB are as follows (augments Attachment A of scope):

TT 31732, 31733 - KB Homes (Palizada) - APPROVED for 326 SFD (adjacent on west side of subject tract) – 80 acres
NOTE: Project in for revision for 418 lots and 14 KSF clubhouse; not approved
Existing = 0; Completed by 2016 = 40

SP 2004-072 - Schumacher – APPROVED for 392 SFD
NEC Ave 60 and Monroe Street – 100 acres
Existing = 0; Completed by 1/1/2016: 0

SP 2003-067 – Andalusia – IN CONSTRUCTION - APPROVED for 472 SFD
Between Ave 58, Ave 60, west of Monroe – 548 acres
Existing = 160; Completed by 1/1/2016: 220

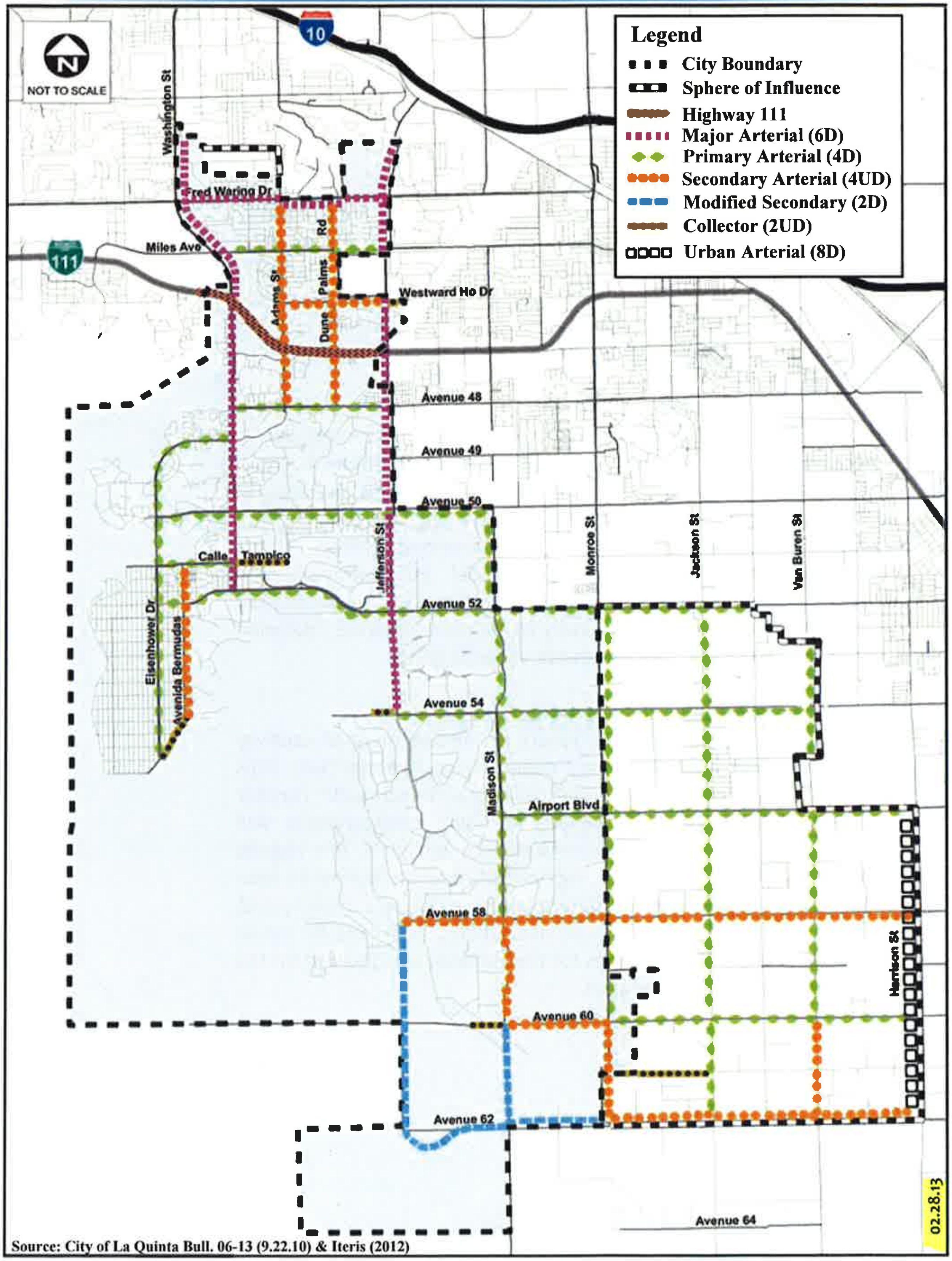
TT 31434 - Monroe Dates – APPROVED for 94 SFD
West side Monroe Street at Ave 61 alignment – 30 acres
Existing = 0; Completed by 1/1/2016: 20

Wallace H. Nesbit, Principal Planner
Community Development Department
City of La Quinta
78495 Calle Tampico
La Quinta CA 92253
Direct: 760-777-7069 Fax: 760-777-7011
email: wnesbit@la-quinta.org
W. H. Nesbit

From: nazir.lalani1@gmail.com [mailto:nazir.lalani1@gmail.com] **On Behalf Of** Nazir Lalani
Sent: Tuesday, October 29, 2013 2:59 PM
To: Wally Nesbit
Subject: Fwd: (JN:08773) Vista Soleada (TTM 36590) TIA Scoping Agreement - Revised

Wally, here is another email with a revised agreement.

---------- Forwarded message ----------
From: **Janette Cachola** <JCachola@urbanxroads.com>
Date: Mon, Oct 28, 2013 at 8:06 PM
Subject: (JN:08773) Vista Soleada (TTM 36590) TIA Scoping Agreement - Revised
To: "Tsang, Kevin" <KTSANG@rctlma.org>, "Nazir Lalani (nlalani@la-quinta.org)" <nlalani@la-quinta.org>,



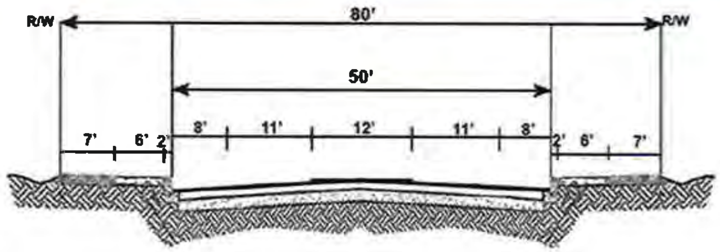
TERRA NOVA®
Planning & Research, Inc.

City of La Quinta General Plan
General Plan Roadway Classifications
La Quinta, California

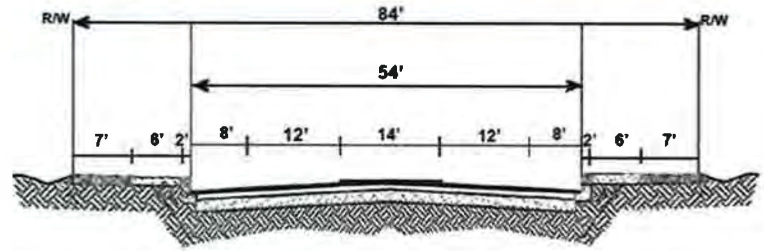
La Quinta 2035 GENERAL PLAN

Exhibit
II-2

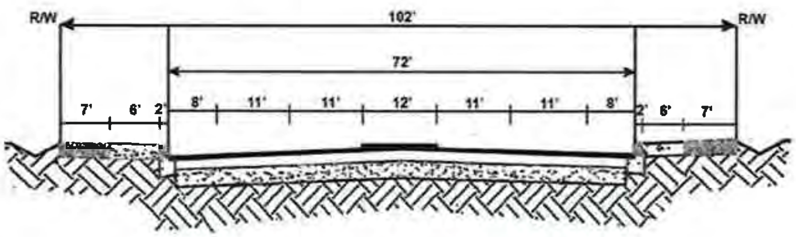
1.1-3



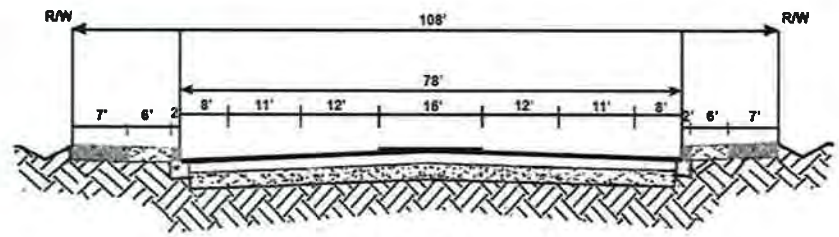
80' Collector



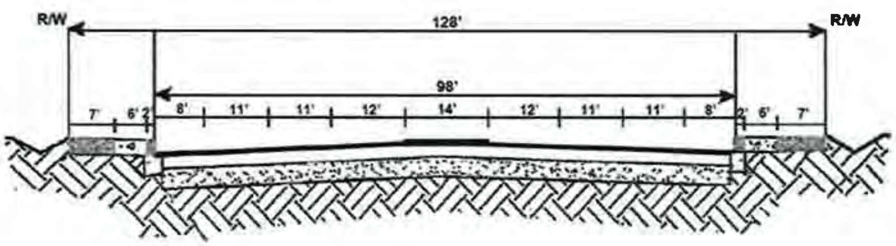
84' Modified Secondary Arterial



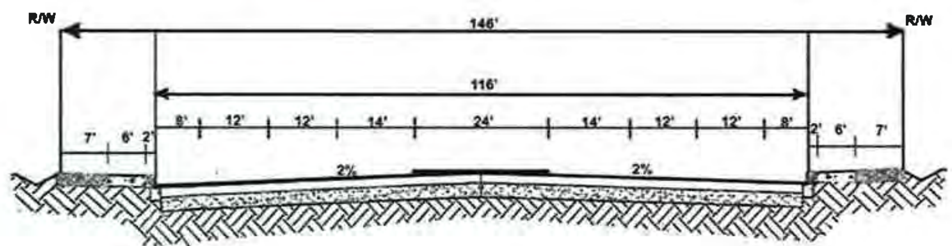
102' Secondary Arterial



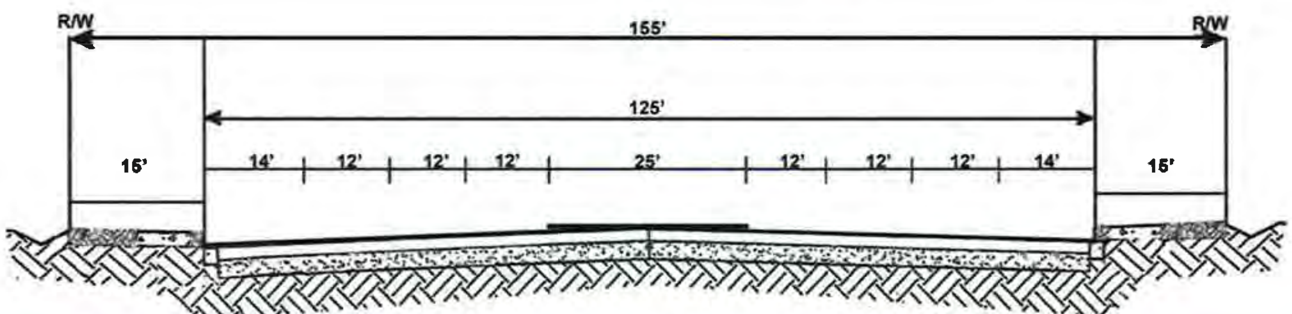
108' Primary Arterial



128' Major Arterial



146' State Highway 111



155' Augmented Major

N

03.11.13

TERRA NOVA®
Planning & Research, Inc.

City of La Quinta General Plan
General Plan Street Cross Sections
La Quinta, California

La Quinta 2035 GENERAL PLAN

Exhibit

II-3

URBAN CROSSROADS
41 Corporate Park | Suite 300 | Irvine, CA 92606 | (949) 660-1994
www.urbanXroads.com

November 13, 2013

Mr. Nazir Lalani
CITY OF LA QUINTA PUBLIC WORKS DEPARTMENT
78-495 Calle Tampico
La Quinta, CA 92253

Mr. Kevin Tsang
COUNTY OF RIVERSIDE TRANSPORTATION DEPARTMENT
4080 Lemon Street, 8th Floor
Riverside, CA 92501

Subject: **Responses to October 29, 2013 City of La Quinta Comments Regarding the Vista Soleada Traffic Impact Analysis Scope**

Dear Gentlemen:

The purpose of this letter is to respond to City of La Quinta comments regarding the Vista Soleada Traffic Impact Analysis scope. As such, the project trip distribution has been adjusted, subject to further review by County of Riverside staff members.

Comment #1

This project is located on Avenue 60 east of Monroe Street and comprises 230 residential units. The scoping agreement was received by Public Works directly from Urban Crossroads. It is unclear whether this agreement should have been sent via the Planning Department.

Response

It appears that the appropriate coordination is in place.

Comment #2

Page 2: It is unclear what the "Existing Plus Ambient Growth Plus Project (2016) Conditions" represent. Is this the "Project Opening Year" scenario? Are the study area Intersections consistent with the City of La Quinta's EB 06-13?

Response

The "Existing Plus Ambient Growth Plus Project" (EAP) scenario is included in the scope since it is used to determine project specific impacts based on the Riverside County Traffic Impact Analysis

Preparation Guide (April 2008). The TIA will be consistent with all the requirements of EB 06-13 for study intersections within the City of La Quinta.

<u>Comment #3</u>

Page 4: The Scoping Agreement indicates that it will use a saturation flow rate of 1,850 per hour of green per lane consistent with EB 06-13. However, the methodology for calculating intersection levels of service for the City of La Quinta intersections needs to be consistent with all the requirements of EB 06-13 as they relate to HCM capacity analysis methodology.

<u>Response</u>

The TIA will be consistent with all the requirements of EB 06-13 for study intersections within the City of La Quinta. Saturation flow rate was pointed out in the scope since the County of Riverside requires 1900 saturation flow rate while the City of La Quinta uses 1850 saturation flow rate.

<u>Comment #4</u>

Exhibit 2: Is the Project's access on Avenue 60 proposed to be full movement? If so, will the analysis of the project's driveway volumes analyze the possibility of a future traffic signal meeting warrants at that location?

<u>Response</u>

The Project is anticipated to have full access on Avenue 60. Traffic signal warrants will be analyzed.

<u>Comment #5</u>

Exhibit 5: The trip distribution shows 30 percent of the traffic from the subdivision traveling east on Avenue 60 and 61. However, there will not be any land uses to the east of the subdivision to cause this level of trip attraction. The trip distribution should assign no more than 5% of the traffic to each of these corridors.

<u>Response</u>

Per direction from the City of La Quinta staff, the intersection of Madison St./58th Avenue will be included in the study area as shown on Exhibit 4-a. The Project Trip Distribution has been adjusted and is illustrated on Exhibit 5a.

Comment #6

Exhibits 10 and 11: Both of these Exhibits should be consistent with the General Plan Update adopted by the City Council in 2013.

Response

The Exhibits shown in the signed traffic study scope were extracted from the City website (http://www.la-quinta.org/Index.aspx?page=620). The Avenue 60 Cross-Section Reconciliation presented on Exhibit 14 illustrates the proposed Avenue 60 cross-section transition from the City of La Quinta to the County of Riverside, adjacent to the Project's westerly site boundary.

Kevin and Nazir, please indicate whether you accept the information on attached Exhibits 4a, 5a, and 14. The signed traffic study scope is also attached for your ease of reference. If you have any questions, please contact myself at (949) 660-1994 (ext. 211) or Janette Cachola (ext. 249).

Respectfully submitted,

URBAN CROSSROADS, INC.

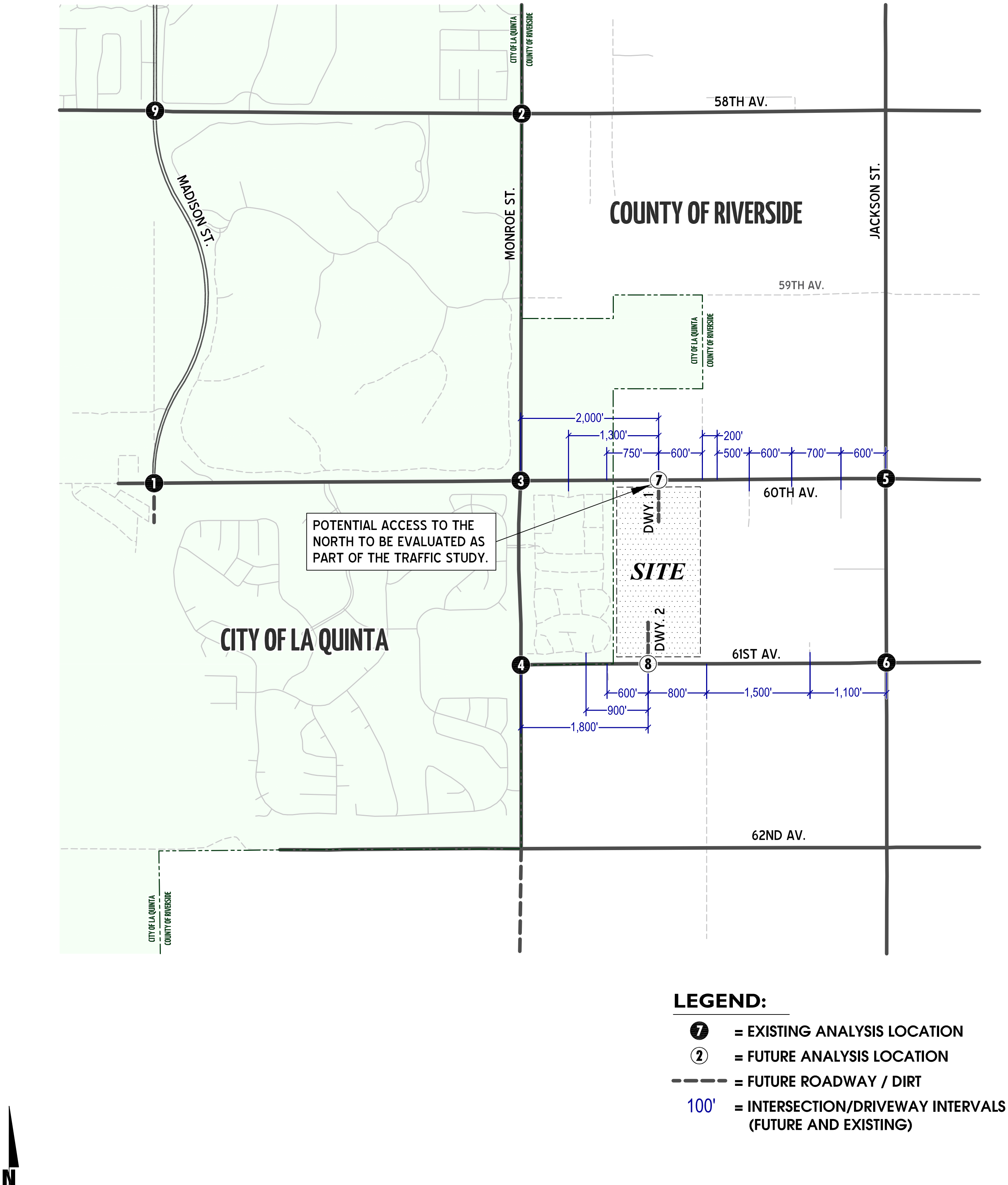
John Kain

John Kain, AICP
President

JN: 08773-03 Scope RTC

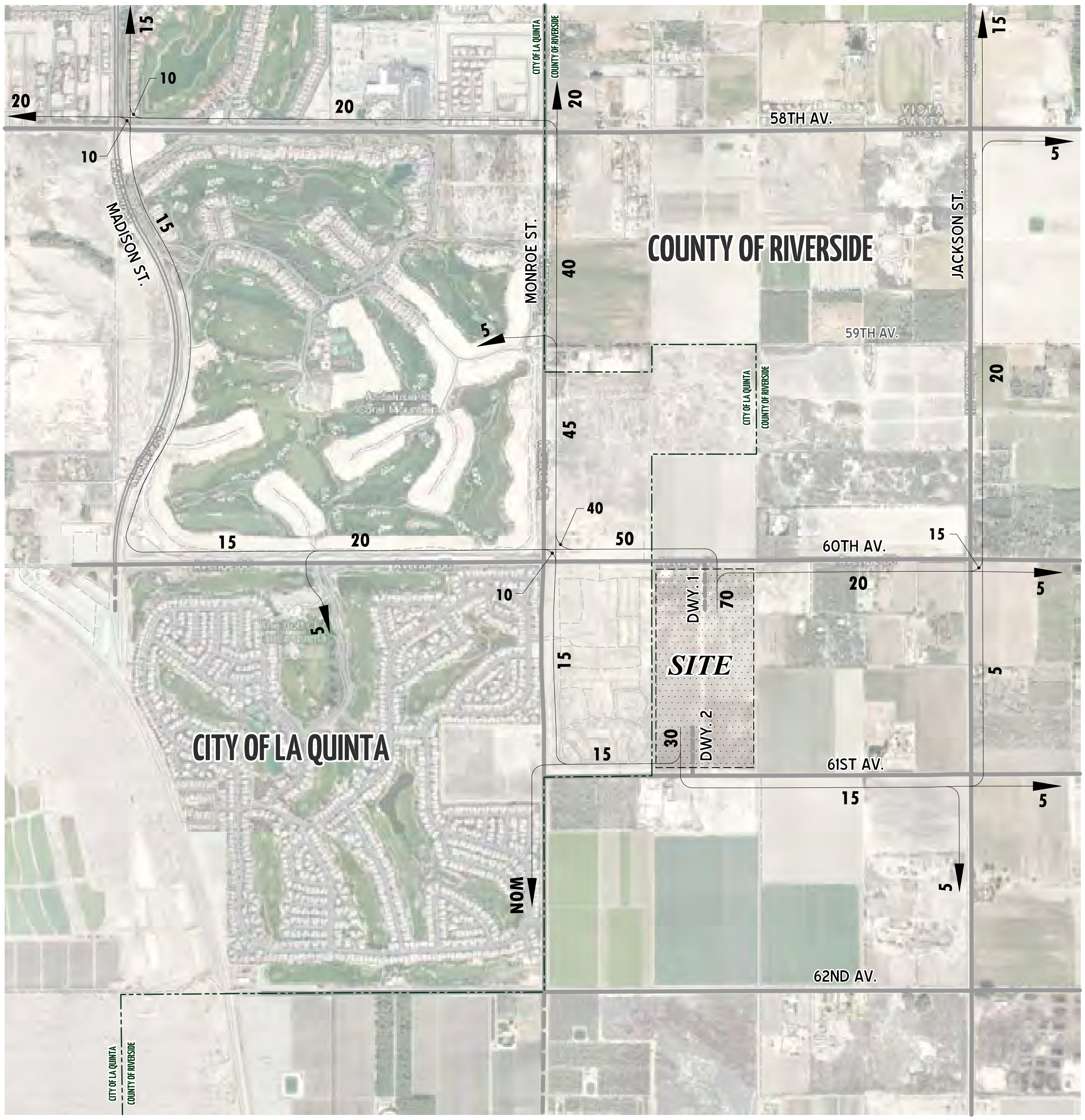
EXHIBIT 4a

REVISED STUDY AREA MAP



REVISED: 11/13/2013

EXHIBIT 5a
REVISED PROJECT TRIP DISTRIBUTION (INTERIM YEAR)



LEGEND:

10 = PERCENT TO/FROM PROJECT
NOM = NOMINAL, LESS THAN 1 PERCENT TO/FROM PROJECT

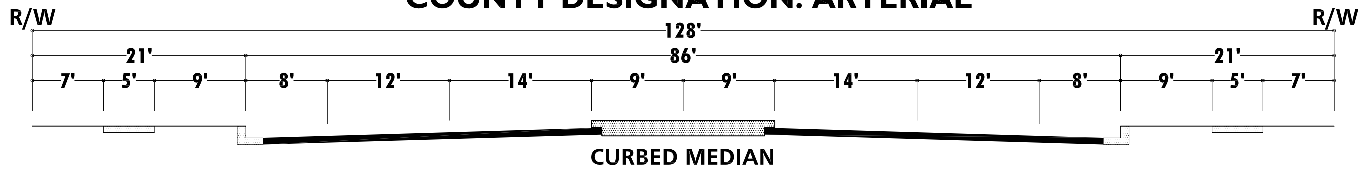
N

REVISED: 11/13/2013

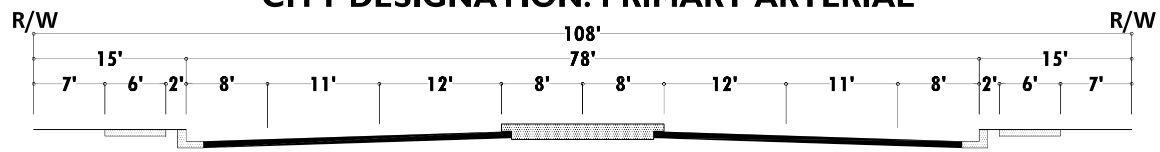
EXHIBIT 14

AVENUE 60 CROSS SECTION RECONCILIATION ADJACENT TO VISTA SOLEADA (TTM 36590)

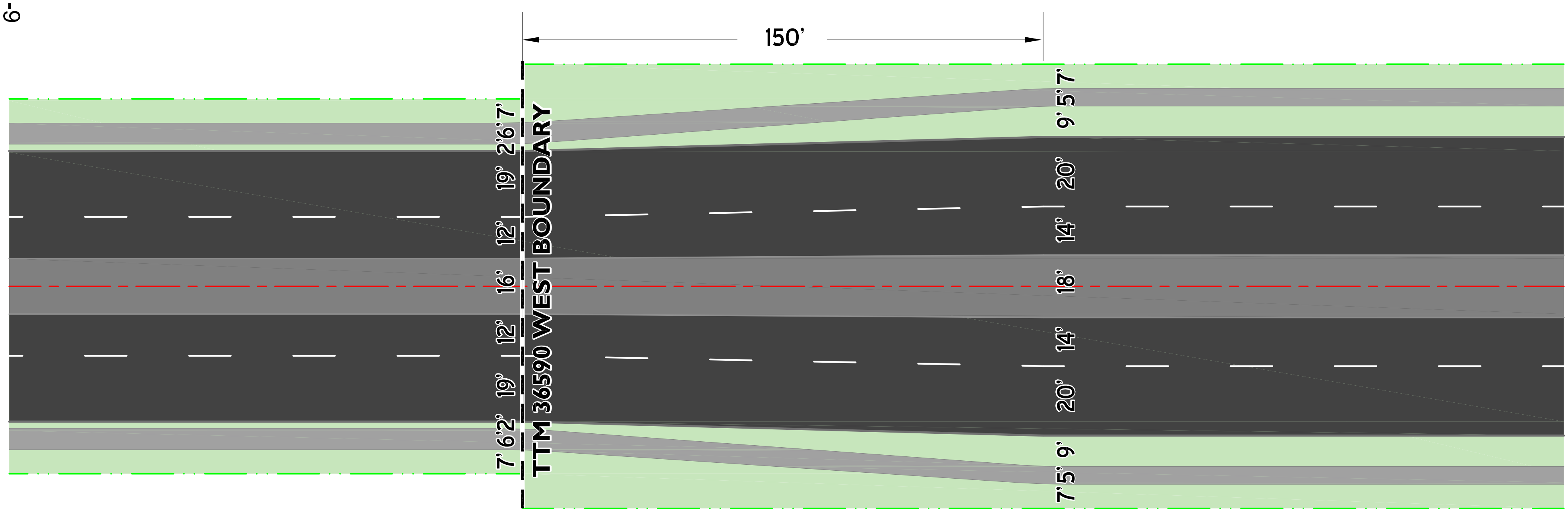
COUNTY DESIGNATION: ARTERIAL



CITY DESIGNATION: PRIMARY ARTERIAL



EAST/WEST TRANSITION RECOMMENDED AT CITY BOUNDARY



41 Corporate Park | Suite 300 | Irvine, CA 92606 | (949) 660-1994
www.urbanXroads.com

October 28, 2013

Mr. Kevin Tsang
COUNTY OF RIVERSIDE TRANSPORTATION DEPARTMENT
4080 Lemon Street, 8th Floor
Riverside, CA 92501

Subject: Traffic Impact Analysis Scoping Agreement for the Proposed Vista Soleada (TTM 36590) Residential Development

The firm of Urban Crossroads, Inc. is pleased to submit this scoping letter regarding the traffic impact analysis for the proposed Vista Soleada Tentative Tract Map No. 36590 ("Project"), which is generally located 0.25 miles east of Monroe Street and south of 60th Avenue in the unincorporated area of Riverside County, adjacent to the City of La Quinta, in the community area of Vista Santa Rosa. The proposed Project is to consist of 230 single family homes and a 1.40 acre equestrian way station.

A preliminary site plan for the proposed Project is shown on Exhibit 1. Exhibit 2 provides an illustrative plan for the overall Project, and Exhibit 3 shows the potential equestrian way station which is located at the northeast corner of the Project. The 76-acre Project is characterized by multiple pocket parks, citrus themed country lanes and a 100' wide perimeter grove of date palm trees. Residential density within the project averages approximately 3 dwelling units per gross acre (du/ac), consisting of 211 residential lots (min. 4,000 s.f., avg. 6,000 s.f.) at the core of the project and 19 estate lots (¾-1 acre) that surround them.

Exhibit 4 depicts the location of the proposed Project in relation to the existing roadway network. For purposes of the traffic impact analysis the Project's opening year is anticipated to be 2016 (i.e., fully built and occupied). Local access to the project site is provided from Driveway 1 via 60th Avenue and Driveway 2 via 61st Avenue. To achieve a "country lane' feel within the community, the Project proposes customized rural road sections and street standards with reduced centerline radii, hammerhead turnarounds rather than cul-de-sacs, traffic circles rather than standard T-intersections, and turf-lined drainage swales in place of concrete curb and gutter.

TRIP GENERATION

In order to estimate the traffic characteristics of the proposed Project, trip-generation statistics published in the Institute of Transportation Engineers (ITE) Trip Generation (9th Edition, 2012) manual for the proposed land use (ITE Land Use Code 210 Single Family Detached Residential) were used. For the equestrian way station, ITE Trip Generation Manual does not include comprehensive trip rates, and therefore SANDAG's daily trip rate for neighborhood/county (undeveloped) park is utilized. For the equestrian way station (a staging area for loading/unloading of horses and access to trails) peak hour rates, SANDAG's trip generation peak to daily percentage and in/out ratio for City (developed) park is applied.

Table 1 presents the trip generation rates and resulting trips generated by the number of dwelling units and acres of equestrian way station associated with the proposed Project. As shown in Table 1, the proposed Project is anticipated to generate a net total of approximately 2,197 trip-ends per day, with 175 vehicles per hour (VPH) during the AM peak hour and 232 VPH during the PM peak hour.

TRIP DISTRIBUTION

Trip Distribution patterns for the project are illustrated on Exhibit 5 and resulting AM and PM peak hour link volumes for the proposed study area are shown on Exhibit 6.

ANALYSIS SCENARIOS

Consistent with the County's Traffic Impact Analysis Preparation Guide (April 2008), intersection analysis will be provided for the following scenarios:

- Existing (2013) Conditions
- Existing plus Project Conditions
- Existing plus Ambient Growth plus Project (2016) Conditions
- Existing plus Ambient Growth plus Project Plus Cumulative Projects (2016) Conditions

As the Project proposes a zone change, the following long-range traffic scenarios will also be evaluated:

- Long Range (2035) Conditions without Project
- Long Range (2035) Conditions with Project

STUDY AREA INTERSECTIONS

Based on the Project's anticipated travel patterns and trip generation characteristics, the following eight (8) study area intersection locations shown on Exhibit 4 and listed below were selected for analysis based on the County of Riverside's 50 peak hour trip threshold and proximity to the Project.

ID	Intersection Location	Jurisdiction
1	Madison Street / 60th Avenue	City of La Quinta
2	Monroe Street / 58th Avenue	City of La Quinta / County of Riverside
3	Monroe Street / 60th Avenue	City of La Quinta / County of Riverside
4	Monroe Street / 61st Avenue	City of La Quinta / County of Riverside
5	Jackson Street / 60th Avenue	County of Riverside
6	Jackson Street / 61st Avenue	County of Riverside
7	Driveway 1 / 60th Avenue – *Future Intersection*	County of Riverside
8	Driveway 2 / 61st Avenue– *Future Intersection*	County of Riverside

GENERAL PLAN CIRCULATION NETWORK

Since the County of Riverside has not yet included the circulation network map in the recently updated County of Riverside General Plan Circulation Element, the proposed roadway classification within the study area based on the South Valley Parkway Traffic Study, dated October 2006, needs to be confirmed by County staff members. The 2003 adopted Riverside County General Plan Circulation Element is shown on Exhibit 7. The Draft South Valley Road and Bridge District Proposed Roadway Network is presented on Exhibit 8. Exhibit 9 includes the County of Riverside General Plan Roadway Cross-Sections.

As shown on Exhibit 7, 60th Avenue is classified as an Expressway and 62nd Avenue as a Secondary roadway. However, the proposed roadway network shown on Exhibit 8 indicates a classification change for both 60th Avenue and 62nd Avenue, wherein 60th Avenue is proposed as an Arterial roadway and 62nd Avenue is proposed as an Expressway. Per County of Riverside staff, the proposed changes in roadway classification have not been adopted by the County and the status of the South Valley Road and Bridge Benefit District has no definitive timing.

The City of La Quinta General Plan Roadway Classification is shown on Exhibit 10. Exhibit 11 presents the City of La Quinta's General Plan Street Cross-Sections. As shown on Exhibit 10, Avenue 60 is classified as a Primary Arterial roadway, east of Monroe Street. This is consistent with the proposed roadway network shown previously on Exhibit 8. However, Avenue 62 is still shown as a Secondary roadway. Per County of Riverside staff, these differences still remain between City and County classifications.

INTERSECTION INTERVALS

Table 2 includes the County of Riverside intersection interval requirements. The City of La Quinta's intersection interval requirements are shown on Table 3. Table 3 also indicates the Project's driveway distances from Monroe Street.

Exhibit 4 depicts the Project's driveway distances from other existing / future driveways along 60th Avenue and 61st Avenue.

60th Avenue is classified as a 4-lane Arterial roadway (128' ROW) in the proposed roadway network for Riverside County with a minimum interval of one-quarter mile (1,320 ft.) between other streets or highways. For the City of La Quinta, 60th Avenue is classified as a 4-Lane Primary Arterial roadway (108' ROW) with a minimum interval of 1,060 feet between intersections and more than 275 feet between driveways.

61st Avenue is not shown in the County's circulation network. For the City of La Quinta, 61th Avenue is classified as a 2-Lane Collector roadway (80' ROW) with a minimum interval of 300 feet between intersections and more than 250 feet between driveways.

As shown on Exhibit 4, the Project driveways at 60th Avenue and 61st Avenue fall within the allowed intersection intervals.

TRAILS

The CVAG Non-Motorized Transportation Plan Update (2010) produced a comprehensive network of hiking and equestrian trails in the Coachella and Palo Verde Valleys. As shown on the attached Exhibit 12, an equestrian trail is proposed along 60th Avenue adjacent to the Project. The Vista Santa Rosa Community Plan map also shows a trail along 61st Avenue (see attached Exhibit 13). The Project incorporates a perimeter date palm orchard and multi-use trail, with equestrian way station.

ANALYSIS CRITERIA

Highway Capacity Manual (HCM) analysis will be performed for study area intersections. For signalized intersections, average total delay per vehicle for the overall intersection is used to determine level of service. Levels of service at the study intersections will be evaluated using an HCM intersection analysis program. The level of service will be determined at signalized intersections using data collected describing the intersection configuration, traffic signal timing, and traffic volumes to calculate average intersection delay.

For intersections within the County of Riverside, a saturation flow rate of 1,900 vehicles per hour of green (vphg) per lane will be utilized based on the County's traffic impact analysis guidelines.

For intersections within the City of La Quinta, a saturation flow rate of 1,850 vehicles per hour of green (vphg) per lane will be utilized based on the City's traffic study guidelines (Engineering Bulletin #06-13, dated June 29, 2012).

The study area intersections which are stop sign controlled with stop-control on the minor street only will be analyzed using the two-way stop-controlled unsignalized intersection analysis methodology of the HCM. For these intersections, the calculation of level of service is dependent on the occurrence of gaps occurring in the traffic flow of the major street. The level of service criteria for this type of intersection analysis is based on total delay per vehicle for the worst minor street movement(s).

Definition of Deficiency

Riverside County General Plan Policy C 2.1 states that the County will maintain the following County-wide target level of service (LOS): LOS "C" on all County-maintained roads and conventional State Highways. As an exception, LOS "D" may be allowed in Community Development areas at intersections of any combination of Secondary Highways, Major Highways, Arterial Highways, Urban Arterial Highways, Expressways or conventional State Highways. LOS "E" may be allowed in designated Community Centers to the extent that it would support transit-oriented development and pedestrian communities. As such, LOS "D" will be considered the limit of acceptable operations for all study area intersections.

The City of La Quinta's required level of service (LOS) has been obtained from the City of La Quinta traffic study guideline (Engineering Bulletin #06-13). The City has established LOS "D" as the minimum level of service for its intersections. Therefore, any intersection operating at LOS "E" or "F" will be considered deficient for the purposes of this analysis. As an exception, LOS "E" is allowable on the side street for two-way (cross-street) stop controlled intersections.

<u>TRAFFIC VOLUMES</u>

The City of La Quinta's traffic study guidelines (Engineering Bulletin #06-13), requires the morning peak volumes to be measured between 6:00 to 8:30 am and afternoon peak volumes between 2:30 to 5:30 pm. The County of Riverside normally measures peak volumes between 7:00 to 9:00 am and 4:00 to 6:00 pm. For the purpose of this report, the morning peak hour volumes will be measured between <u>6:00 to 9:00 am</u> and afternoon peak hour volumes will be measured between <u>2:30 to 6:00 pm</u>.

In addition, the City of La Quinta requires seasonal adjustments to consider the seasonal population variations within the City. Since the counts are anticipated to be collected this October, a 10% increase will be applied consistent with the City of La Quinta's traffic study guidelines.

<u>CUMULATIVE DEVELOPMENT PROJECTS</u> – (OPEN ITEMS)

We are requesting that the County of Riverside staff members and City of La Quinta staff members to provide a list of cumulative projects to be included that might potentially affect our study area. Nearby development projects are included in Attachment A. For long range future (2035) conditions, we anticipate utilizing available RIVTAM projections and/or available City of La Quinta General Plan forecasts.

If you have any questions, please contact Janette Cachola at (949) 660-1994, extension 249.

Respectfully submitted,

John Kain

John Kain, AICP
President

JN:08773-02 Scope (revised)

xc: Nazir Lalani
Traffic Engineer
CITY OF LA QUINTA

Ed Wimmer
Public Works Department
CITY OF LA QUINTA

EXHIBIT B

SCOPING AGREEMENT FOR TRAFFIC IMPACT STUDY

This letter acknowledges the Riverside County Transportation Department requirements for traffic impact analysis of the following project. The analysis must follow the Riverside County Transportation Department Traffic Study Guidelines dated February 2005.

Case No.	
Related Cases-	
SP No.	
EIR No.	
GPA No.	
CZ No.	
Project Name:	Vista Soleada (TTM 36590)
Project Address:	0.25 miles east of Monroe St. and south of 60th Av. in the unincorporated area of Riverside County.
Project Description:	230 Single Family Residential Dwelling Units and 1.40 AC Equestrian Way Station (See Exhibit 1)

	Consultant	Developer
Name:	Urban Crossroads Inc. - John Kain	SABAL FINANCIAL GROUP, L.P. - Jim Stockhausen
Address:	41 Corporate Park, Suite 300	4675 MacArthur Ct., Suite 1550
	Irvine, CA 92606	Newport Beach, CA 92660
Telephone:	(949) 660-1994 ext. 211	
Fax:	(949) 660-1911	

A. Trip Generation Source: ITE 9th Edition (2012) (See Table 1)

Current GP Land Use	AG	Proposed Land Use	Residential
Current Zoning	A-1-10	Proposed Zoning	Residential

	Current Trip Generation			Proposed Trip Generation		
	In	Out	Total	In	Out	Total
AM Trips	**0**	**0**	**0**	**45**	**130**	**175**
PM Trips	**0**	**0**	**0**	**146**	**86**	**232**

Internal Trip Allowance ☐ Yes ■ No (% Trip Discount)
Pass-By Trip Allowance ☐ Yes ■ No (% Trip Discount)

A passby trip discount of 25% is allowed for appropriate land uses. The passby trips at adjacent study area intersections and project driveways shall be indicated on a report figure.

B. Trip Geographic Distribution: (See attached Exhibit 5 for detailed assignment)

N **40** % S **5** % E **30** % W **25** %

C. Background Traffic

Project Build-out Year: 2016 Annual Ambient Growth Rate: 2 %
Phase Year(s) 2016

Other area Projects to be analyzed: County/City to provide list of cumulative projects (nearby projects included in Attachment A)
Model/Forecast Methodology: RIVTAM 2035 and/or City of La Quinta General Plan forecasts

D. Study Intersections: *(NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments form other agencies).* (See Exhibit 4)

1. Madison Street / 60th Avenue	9.
2. Monroe Street / 58th Avenue	10.
3. Monroe Street / 60th Avenue	11.
4. Monroe Street / 61st Avenue	12.
5. Jackson Street / 60th Avenue	13.
6. Jackson Street / 61st Avenue	14.
7. Driveway 1 / 60th Avenue - *Future Intersection*	15.
8. Driveway 2 / 61st Avenue - *Future Intersection*	16.

E. Study Roadway Segments: *(NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments form other agencies).*

1. ______________________ 2. ______________________

F. Other Jurisdictional Impacts

Is this project within a City's Sphere of influence or one mile radius of City boundarie: ■ Yes ☐ No

If so, name of City jurisdiction: City of La Quinta

G. Site Plan (please attach reduced copy) (see Exhibit 1)

H. Specific issues to be addressed in the Study (in addition to the standard analysis described in the Guideline) (To be filled out by Transportation Department)
(NOTE: If the traffic study states that "a traffic signal is warranted" (or "a traffic signal appears to be warranted", or similar statement) at an existing unsignalized intersection under existing conditions, 8-hour approach traffic volume information must be submitted in addition to the peak hourly turning movement counts for that intersection.

I. Existing Conditions
Traffic count data must be new or recent. Provide traffic count dates if using other than new counts.
Date of counts October 2013

***NOTE* Traffic Study Submittal Form and appropriate fee must be submitted with, or prior to submittal of this form. Transportation Department staff will not process the Scoping Agreement prior to receipt of the fee.**

Recommended by:

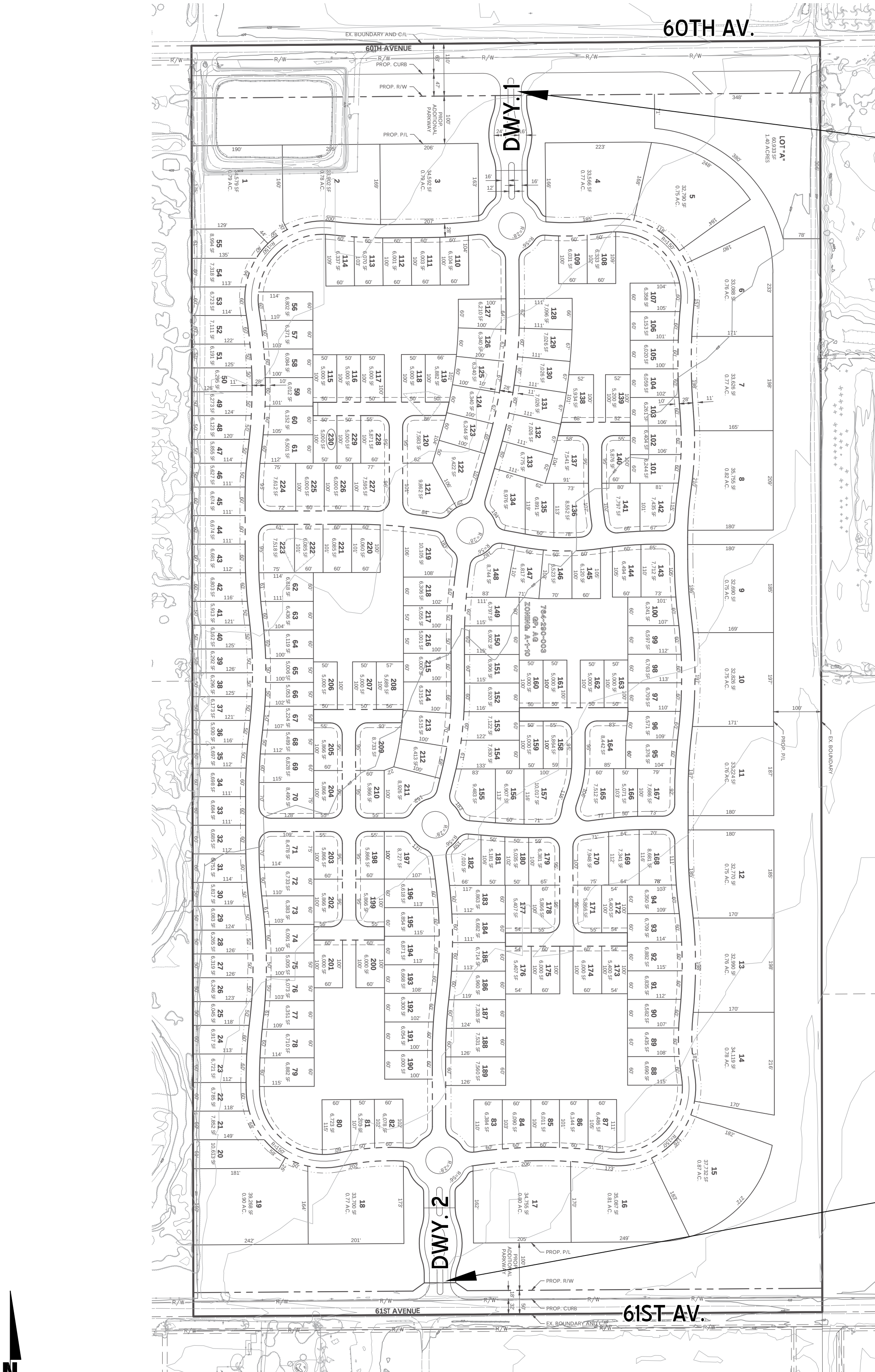
John Kain
10/10/2013
Consultant's Representative Date

Scoping Agreement Revised on 10/28/2013

Approved Scoping Agreement:

10/29/2013
Riverside County Transportation Department Date

EXHIBIT 1
PRELIMINARY SITE PLAN



20' LANE WIDTH TYPICAL FOR LANES ADJACENT TO RAISED MEDIAN PER FIRE DEPARTMENT.

VISTA SOLEADA IS PROPOSED AS A GATED COMMUNITY WITH PRIVATELY MAINTAINED INTERNAL STREETS.

HAMMERHEADS TO BE REVIEWED AND APPROVED BY FIRE DEPARTMENT.

20' LANE WIDTH TYPICAL FOR LANES ADJACENT TO RAISED MEDIAN PER FIRE DEPARTMENT.

EXHIBIT 2

PROJECT ILLUSTRATIVE PLAN

EXHIBIT 3
POTENTIAL EQUESTRIAN WAY STATION

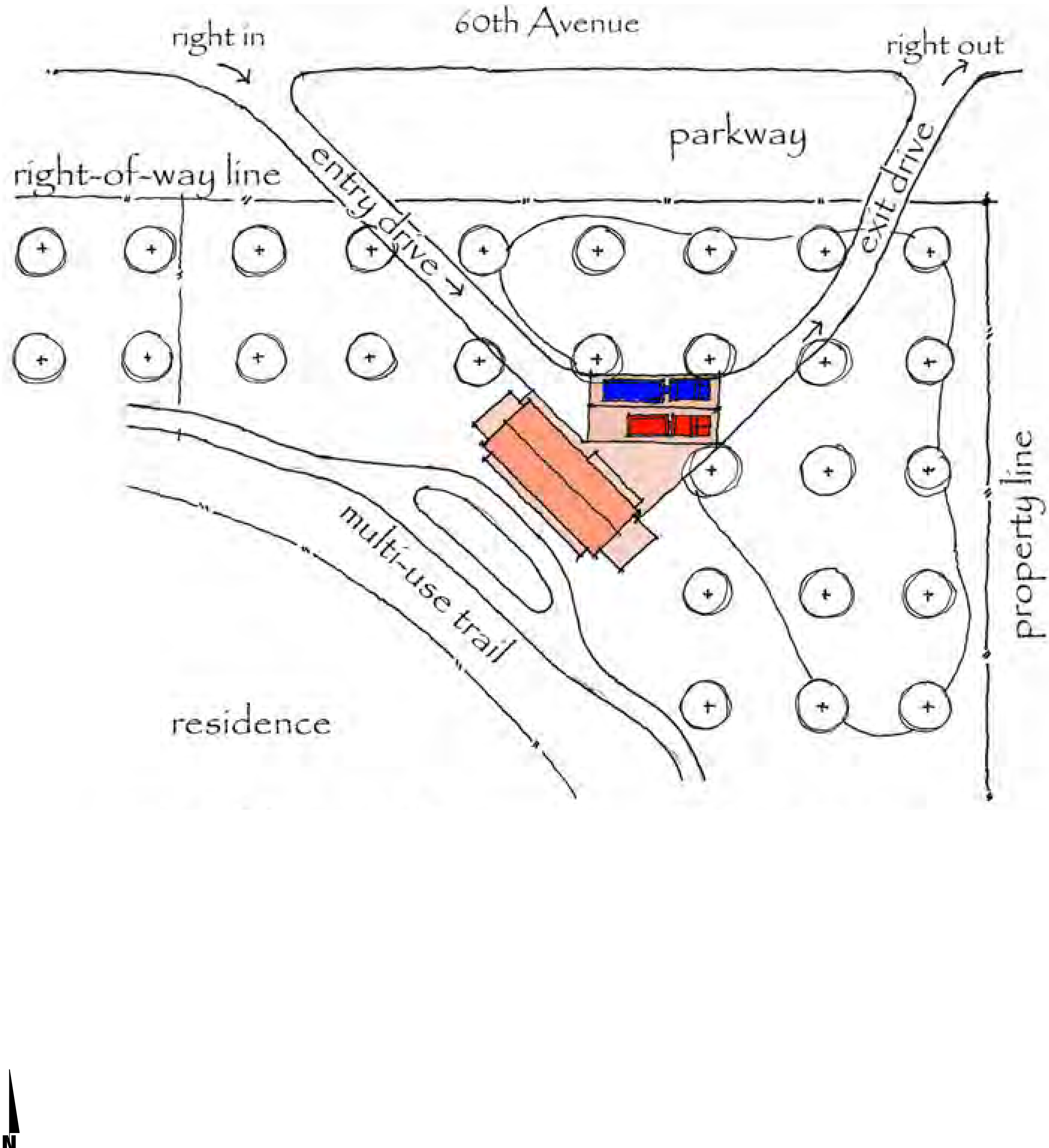
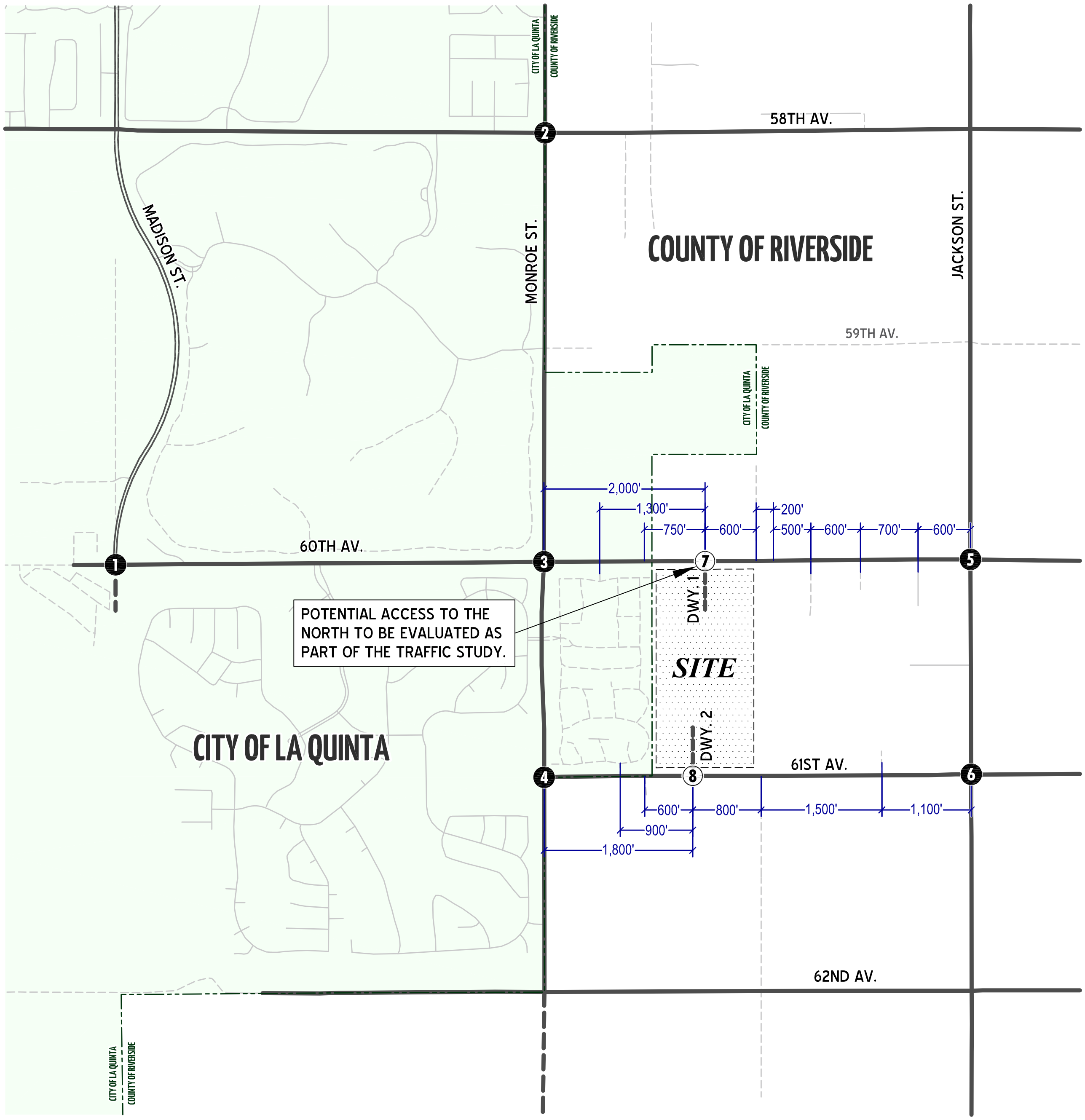


EXHIBIT 4
LOCATION MAP



LEGEND:

- ❻ = EXISTING ANALYSIS LOCATION
- ② = FUTURE ANALYSIS LOCATION
- ---- = FUTURE ROADWAY / DIRT
- 100' = INTERSECTION/DRIVEWAY INTERVALS (FUTURE AND EXISTING)

N

TABLE 1

VISTA SOLEADA (TTM 36590) PROJECT TRIP GENERATION SUMMARY

TRIP GENERATION RATES[1]										
Land Use	ITE CODE	Quantity	Units[2]	Weekday AM Peak Hour			Weekday PM Peak Hour			Weekday Daily
				In	Out	Total	In	Out	Total	
Single Family Detached	210	230	DU	0.19	0.56	0.75	0.63	0.37	1.00	9.52
Equestrian Way Station	-[3]	1.40	AC	0.33	0.32	0.65	0.23	0.22	0.45	5.00

TRIP GENERATION TOTAL										
Land Use	ITE CODE	Quantity	Units[1]	Weekday AM Peak Hour			Weekday PM Peak Hour			Weekday Daily
				In	Out	Total	In	Out	Total	
Single Family Detached	210	230	DU	44	129	173	145	85	230	2,190
Equestrian Way Station	-[3]	1.40	AC	1	1	2	1	1	2	7
TOTAL				45	130	175	146	86	232	2,197

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 9th Edition (2012).
[2] DU = Dwelling Unit; AC = Acre
[3] Since ITE does not have trip rates for an equestrian way station, similar use based on SANDAG's neighborhood/county (undeveloped) park daily rates are utilized. For the peak hour rates, SANDAG's in/out ratio for City (developed) park is applied.

EXHIBIT 5

PROJECT TRIP DISTRIBUTION (INTERIM YEAR)

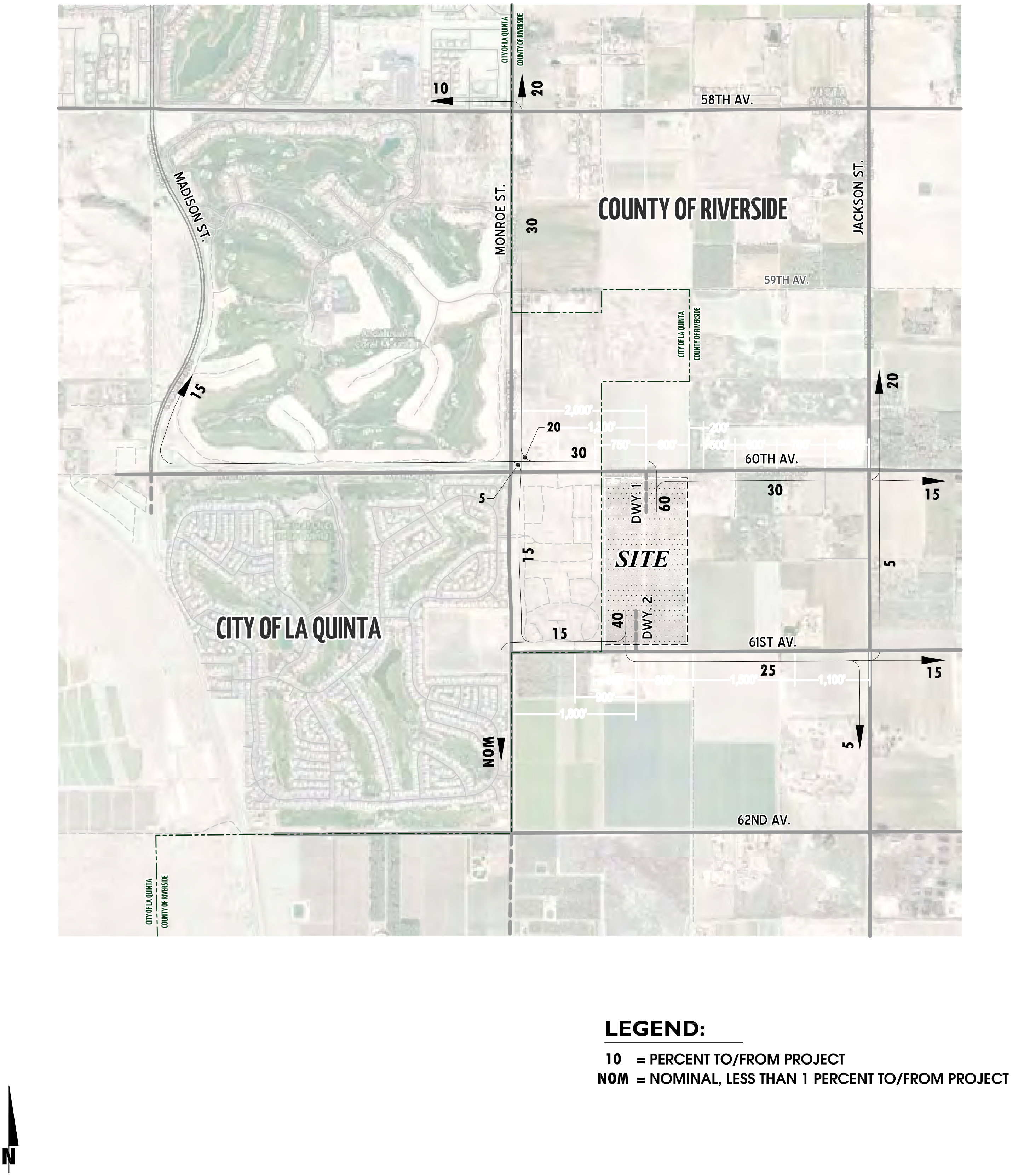
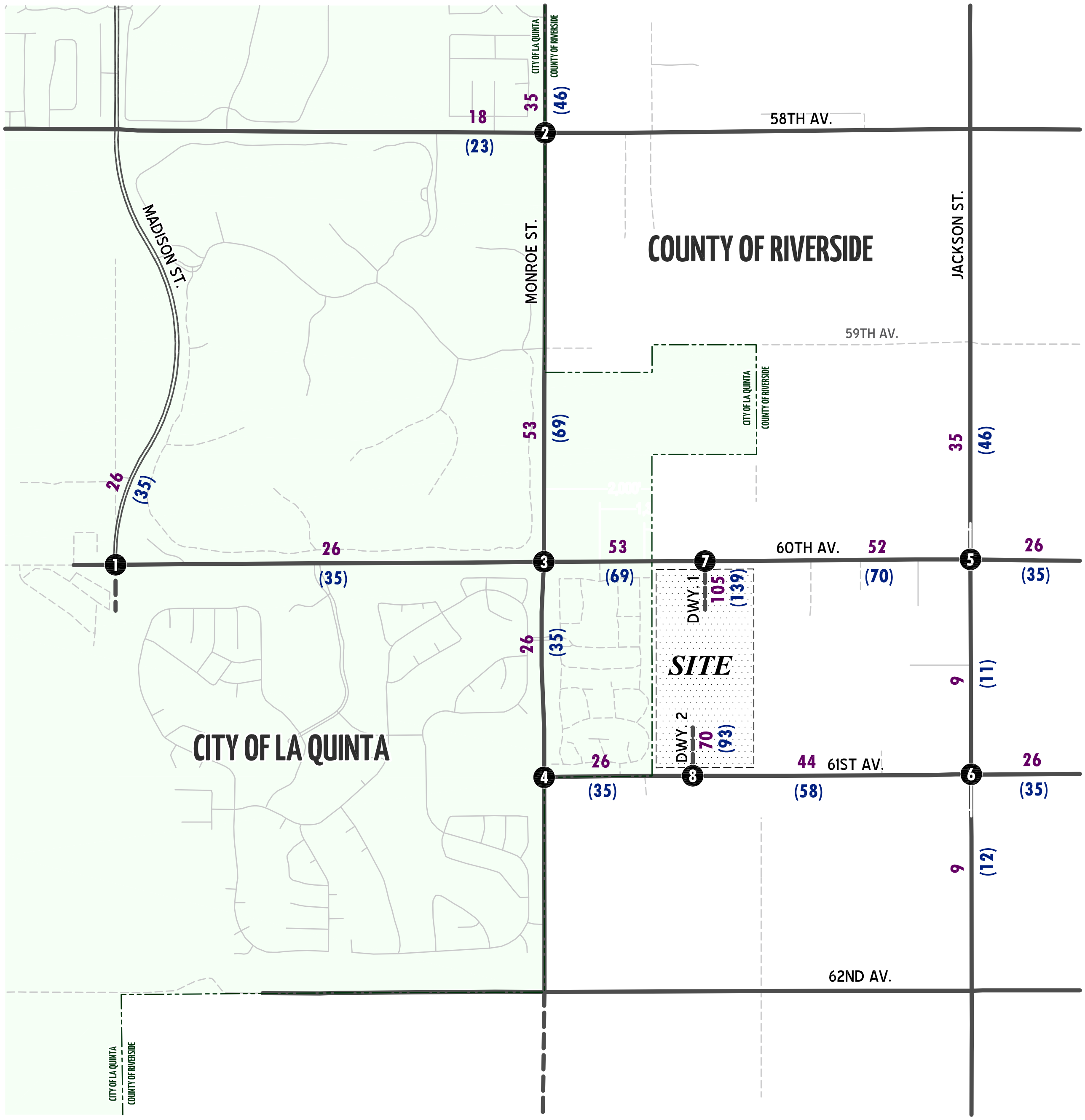


EXHIBIT 6
PROJECT ONLY PEAK HOUR LINK VOLUMES



LEGEND:

8 = INTERSECTION ID

100 = PROJECT ONLY AM PEAK HOUR LINK (2-WAY) VOLUMES

(100) = PROJECT ONLY PM PEAK HOUR LINK (2-WAY) VOLUMES

N

EXHIBIT 7

2003 RIVERSIDE COUNTY GENERAL PLAN CIRCULATION ELEMENT

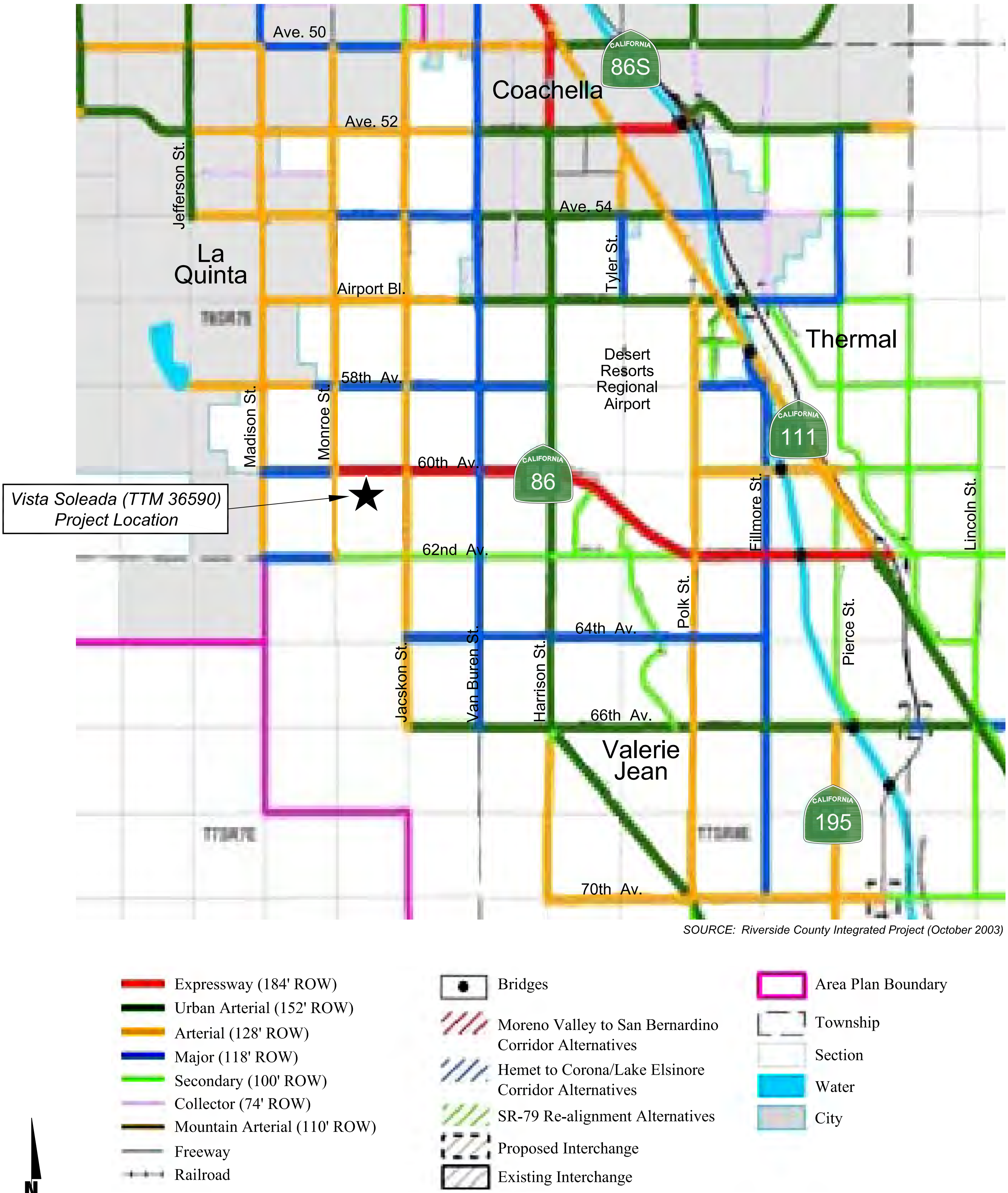
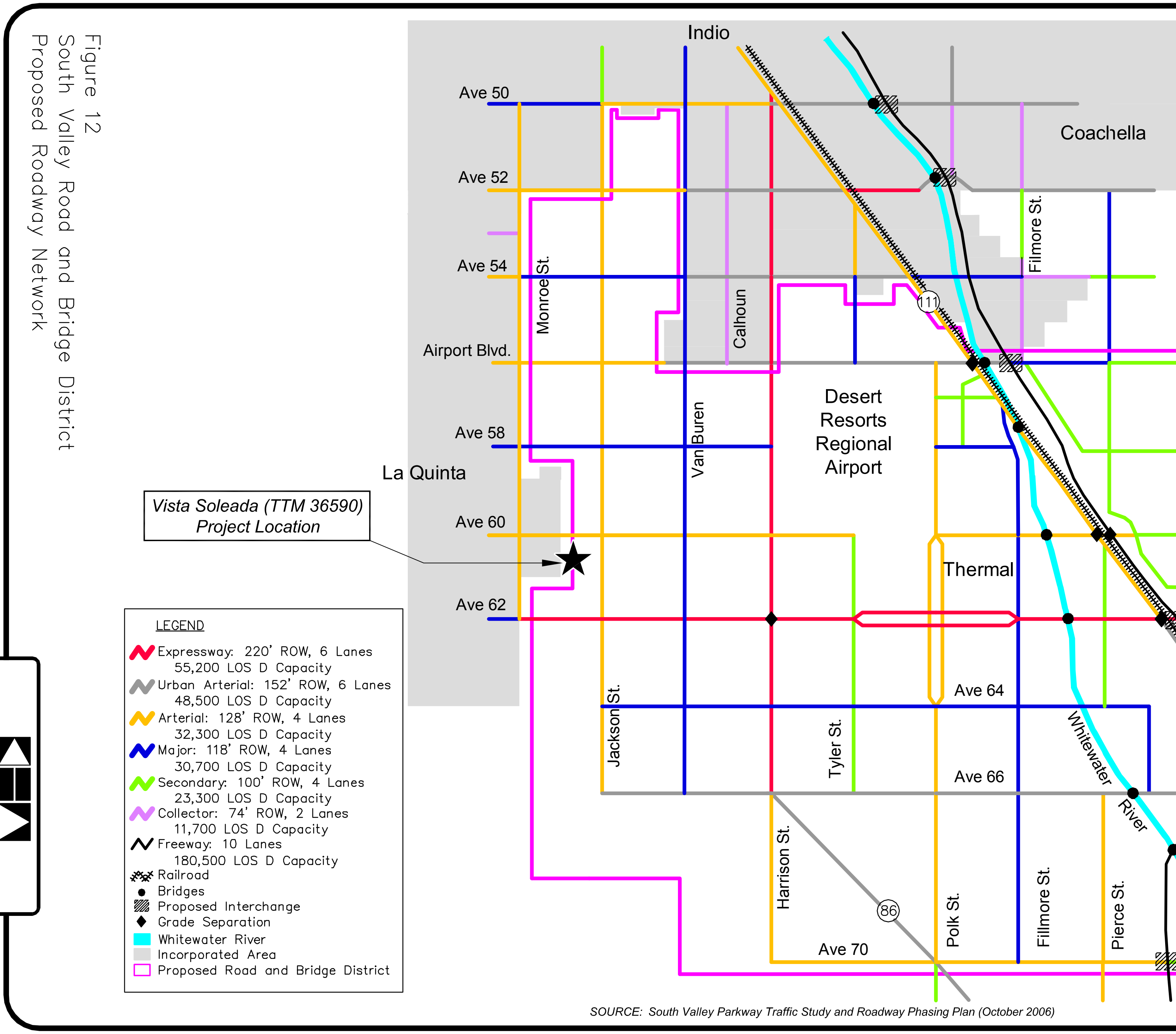


EXHIBIT 8

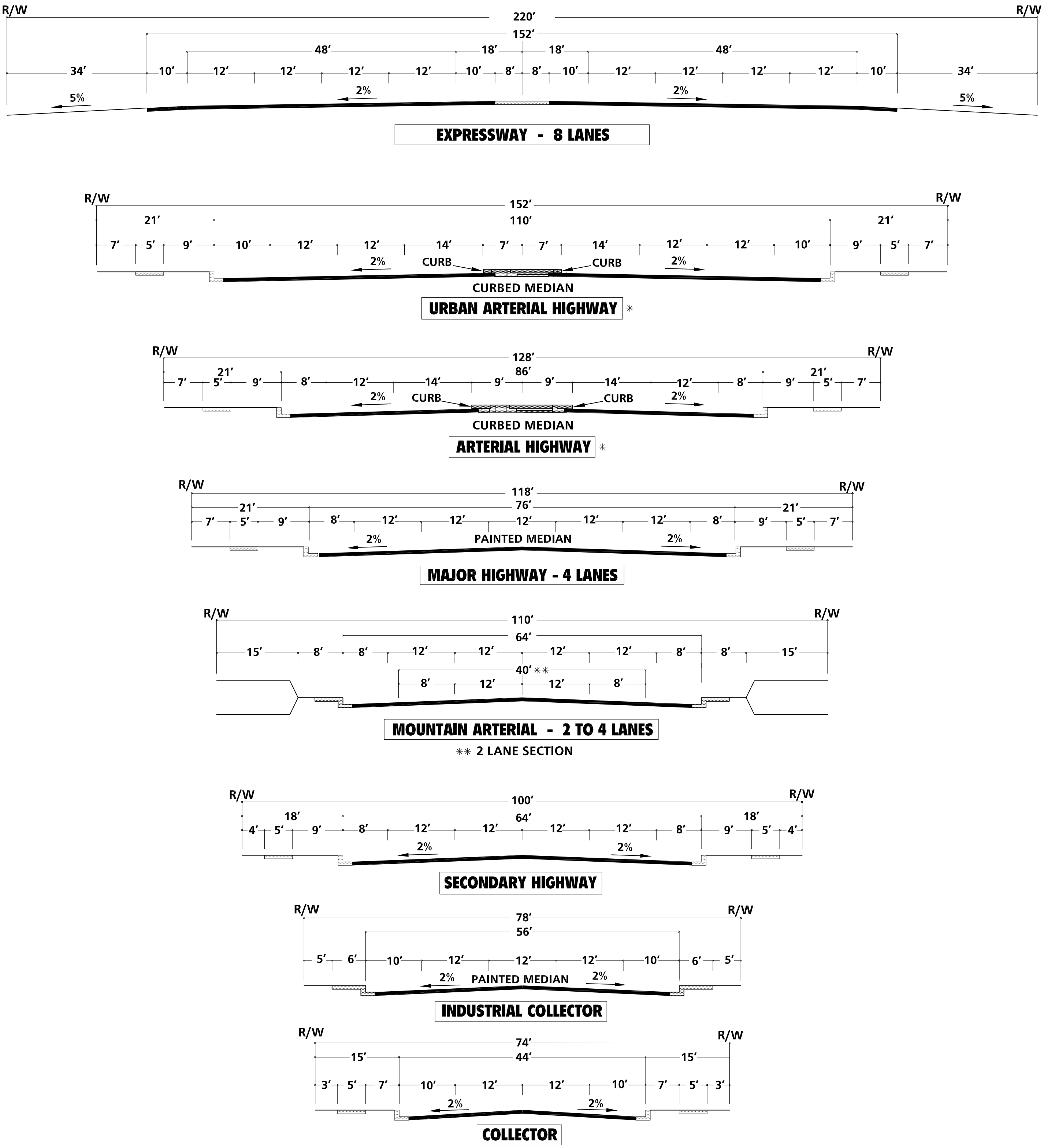
DRAFT SOUTH VALLEY ROAD AND BRIDGE DISTRICT PROPOSED ROADWAY NETWORK



N

EXHIBIT 9

COUNTY OF RIVERSIDE GENERAL PLAN ROADWAY CROSS-SECTIONS



✳ *IMPROVEMENTS MAY BE RECONFIGURED TO ACCOMMODATE EXCLUSIVE TRANSIT LANES OR ALTERNATIVE LANE ARRANGEMENTS ADDITIONAL RIGHT OF WAY MAY BE REQUIRED AT INTERSECTIONS TO ACCOMMODATE ULTIMATE IMPROVEMENTS FOR STATE HIGHWAYS SHALL CONFORM TO CALTRANS DESIGN STANDARDS.*

NOT TO SCALE

SOURCE: COUNTY OF RIVERSIDE

EXHIBIT 10

CITY OF LA QUINTA GENERAL PLAN ROADWAY CLASSIFICATIONS

Source: City of La Quinta Bull. 06-13 (9.22.10) & Iteris (2012)

EXHIBIT 11

CITY OF LA QUINTA GENERAL PLAN STREET CROSS-SECTIONS

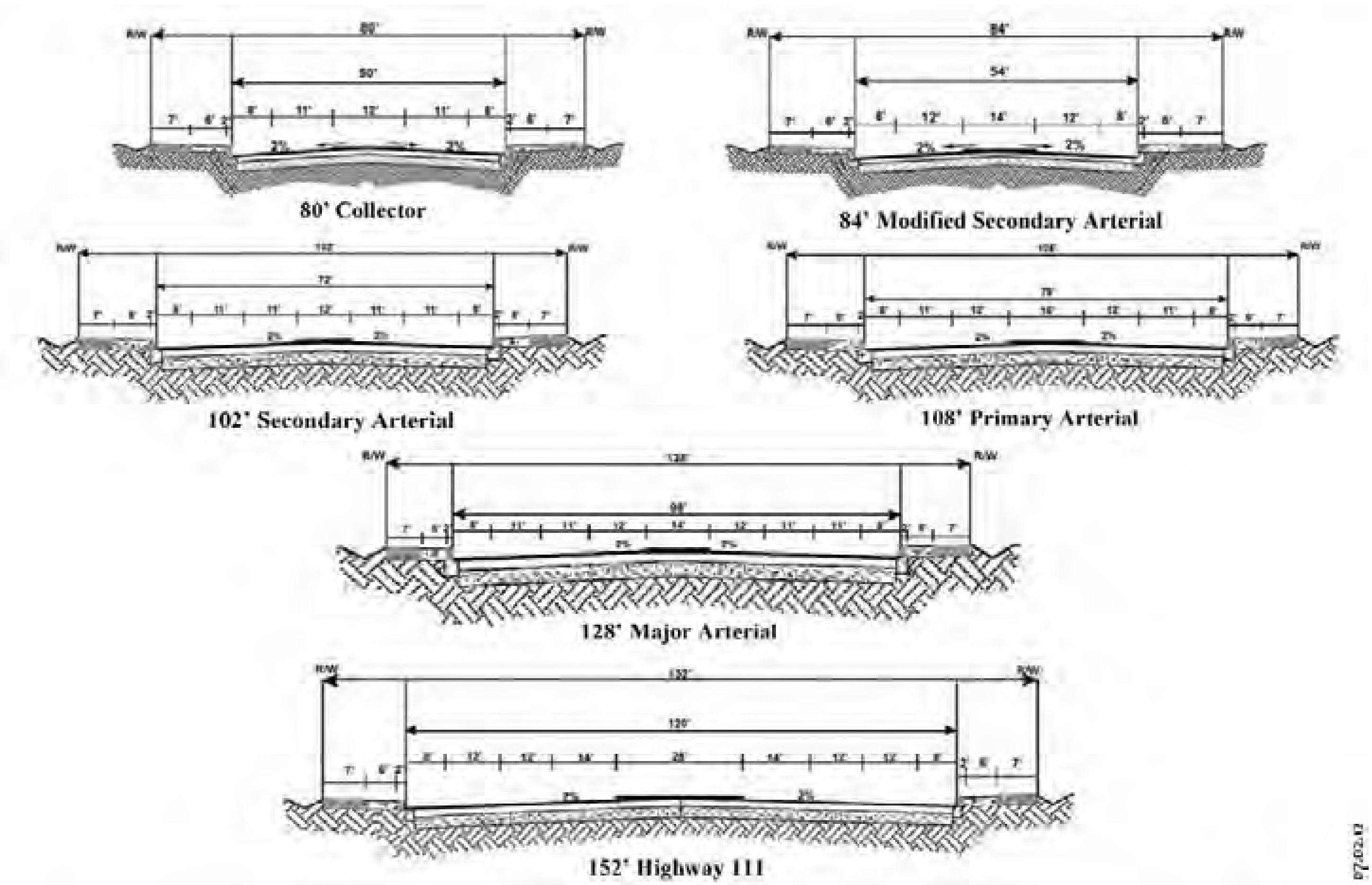


EXHIBIT 12
EXISTING AND PROPOSED HIKING AND EQUESTRIAN TRAIL FACILITIES SOUTH COACHELLA VALLEY

SOURCE: Coachella Valley Association of Governments (CVAG) Non-Motorized Transportation Plan Update (September 2010)

EXHIBIT 13

VISTA SANTA ROSA COMMUNITY LAND USE CONCEPT PLAN MAP

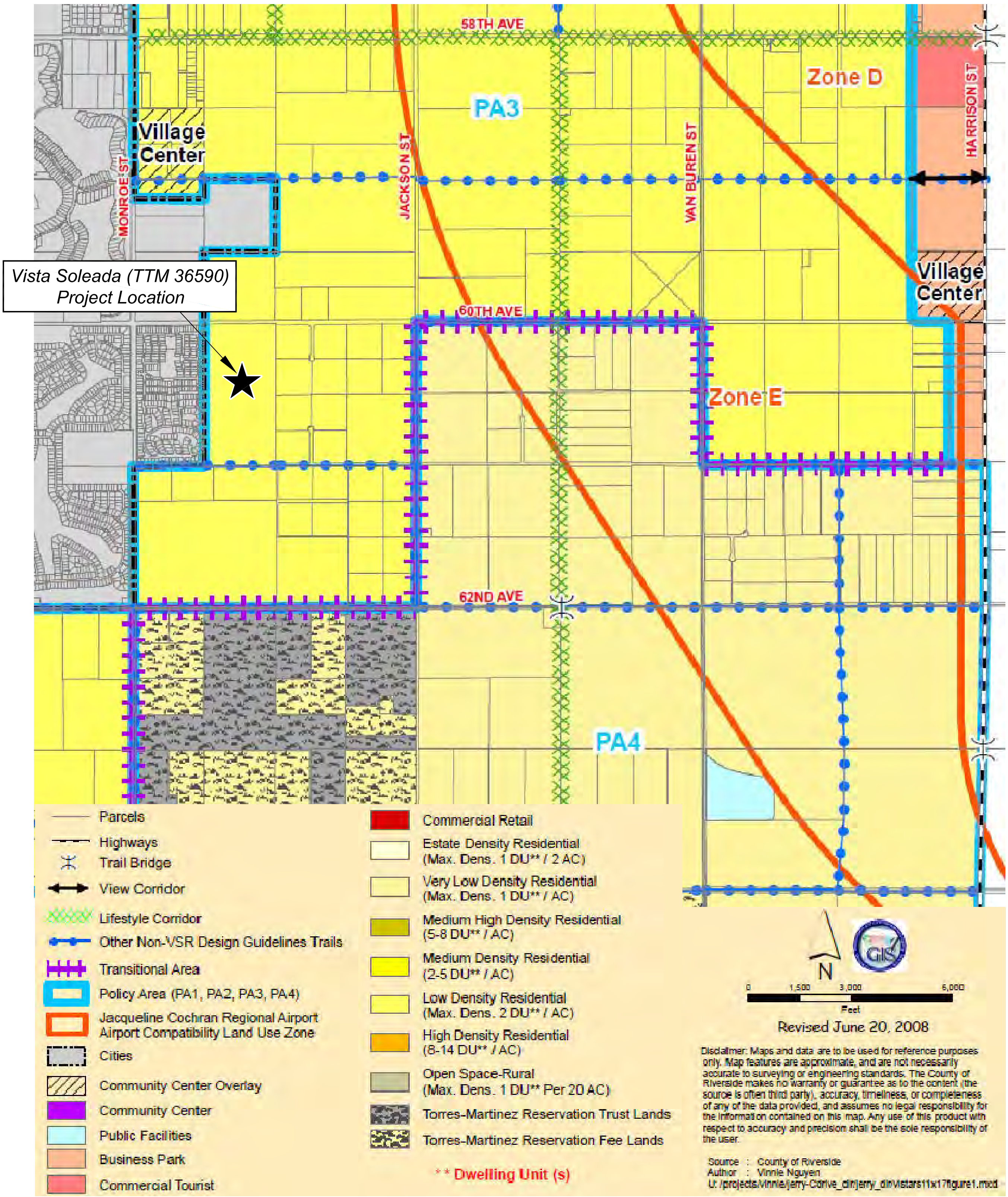


Table C-1
Street Classification as identified in the city Transportation Department Standards and Specifications

Classification	Definition	Minimum Right-of-Way Width Required	Number of Lanes Required (Approximate)
Freeway	Highway upon which the abutter's rights of access are controlled and which provides separated grades at intersecting streets.	To be determined by Caltrans	To be determined by Caltrans
Expressway	Multi-modal highway corridor for through traffic to which access from abutting property is restricted. Intersections with other streets or highways shall be limited to approximately one-half mile intervals.	220 to 184 feet	6 or 8 lanes, additional rights-of-way may be needed at intersections
Urban Arterial	Highway primarily for through traffic where anticipated traffic volumes exceed four-lane capacity. Access from other streets or highways shall be limited to approximately one-quarter mile intervals.	152 feet	6 or 8 lanes, additional rights-of-way may be required. at intersections
Arterial Highway	Divided highway primarily for through traffic to which access from abutting property shall be kept at a minimum. Intersections with other streets or highways shall be limited to approximately one-quarter mile intervals.	128 feet	4 or 6 lanes, additional right of way may be required at intersections
Arterial Mountain Highway	Highway intended to serve through traffic in mountainous areas zoned for low density residential development. Access from abutting property shall be kept at a minimum. Intersections with other streets or highways shall be limited to approximately 330-foot intervals.	110 feet	2 to 4 lanes, additional right-of-way may be required at intersections.
Major Highway	Highway intended to serve property zoned for major industrial and commercial uses, or to serve through traffic. Intersections with other streets or highways may be limited to approximately 660-foot intervals.	118 feet	4 lanes, additional rights-of-way may be required at intersections
Secondary Highway	Highway intended to serve through traffic along longer routes between major traffic generating areas or to serve property zoned for multiple residential, secondary industrial or commercial uses. Intersections with other streets and highways may be limited to 330-foot intervals.	100 feet	4 lanes, generally no turn lanes, and additional right-of-way may be required at intersections
Collector Street	Street intended to serve intensive residential land use, multiple-family dwellings, or to convey traffic through an area to roads of equal or similar classification or higher. It may also serve as a cul-de-sac in industrial or commercial use areas but shall not exceed 660 feet in length when so used.	74 feet	2 lanes
Industrial Collector	A circulatory street with a continuous left-turn lane with at least one end connecting to a road of equal or greater classification.	78 feet	2 lanes

Source: Riverside County General Plan (2013 update). Chapter 4 - Circulation Element (Page C-15)

TABLE 3

CITY OF LA QUINTA INTERSECTION INTERVALS

Roadway Classification	Design Speed (mph)	Intersection Spacing (ft.)				
		Residential	Commercial	Access (measured between the curb returns)		
				Approach leg to a full turn intersection	On the exit leg from a full turn intersection	Between Driveways
Major Arterial	55	2,600	1,060	>250	>150	>275
Primary Arterial	45	1,060	1,060	>250	>150	>275
Secondary Arterial	40	600	600	>250	>150	>250
Collectors	30	300	300	>250	>150	>250
Local	25	250	250	-	-	-

* Source: La Quinta General Plan (2012 update). Chapter 2 - Community Development (Pages 120-122)

Vista Soleada (Residential) Project Driveway Intervals			
Roadway	Road Segment	Roadway Classification	Distance
60th Avenue	From Monroe Street to Driveway 1	Primary Arterial	2,000
61st Avenue	From Monroe Street to Driveway 2	Collector	1,800

ATTACHMENT A

Nearby Development Projects

CITY OF LA QUINTA, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA
OFF SITE STREET, STORM DRAIN, SIGNING & STRIPING IMPROVEMENT PLAN
TR. NO. 32398-1

LOCATED IN THE CITY OF LA QUINTA, CALIFORNIA,
OF SECTION 26, T. 6 S., R. 7 E., SAN BERNARDINO BASE AND MERIDIAN

GENERAL NOTES

PAVING NOTES

MONUMENT NOTES

BASIS OF BEARINGS

APPLICANT/SUBDIVIDER

SCHAMACHER INTERESTS

LEGEND

ASSESSOR'S PARCEL NO.

SHEET INDEX

SOIL'S ENGINEER CERTIFICATE

UTILITY CONTACTS

UNDERGROUND UTILITIES

COUNTY OF RIVERSIDE TRANSPORTATION DEPARTMENT

5-25-07

UNDERGROUND SERVICE ALERT
CALL TOLL FREE:
1-800
227-2600
TWO WORKING DAYS BEFORE YOU DIG

UNDERGROUND UTILITIES

PRIVATE ENGINEERING NOTE

MDS CONSULTING

6/1/07

TRACT NO. 32398-1
OFF SITE STREET, STORM DRAIN, SIGNING & STRIPING IMPROVEMENT PLAN
TITLE SHEET/SHEET INDEX

SCHAMACHER INTERESTS

1

16

1.1-35

In the City of La Quinta, County of Riverside, State of California

Off-Site Street, Signing & Striping Improvement Plan

AMENDED TRACT NO. 31732 - PALIZADA

GENERAL NOTES

PAVING NOTES

INDEX MAP

LEGEND

MONUMENT NOTES

ALL CONCRETE MIX SHALL BE CLASS 560-C-3250 CONCRETE WITH TYPE V CEMENT

NOTE: ALL PAVEMENT SECTIONS ARE MINIMUM AND ARE BASED ON R-VALUES OF 50 OR GREATER. THE PAVEMENT SECTIONS MAY INCREASE SHOULD ACTUAL R-VALUES BE LESS THAN 50.

VICINITY MAP

SHEET INDEX

SOIL'S ENGINEER CERTIFICATE

OWNER / DEVELOPER

KB HOME

NOTE:

BASIS OF BEARING

ASSESSOR'S PARCEL NO.'S

UNDERGROUND UTILITIES

COUNTY OF RIVERSIDE
TRANSPORTATION DEPARTMENT

UNDERGROUND SERVICE ALERT
CALL TOLL FREE
1-800
227-2600
TWO WORKING DAYS BEFORE YOU DIG

RIVERSIDE COUNTY MS 4112, I.P. #060118

UNDERGROUND UTILITIES

PRIVATE ENGINEERING NOTE

MDS CONSULTING

IN THE CITY OF LA QUINTA, STATE OF CALIFORNIA
OFF-SITE STREET, SIGNING & STRIPING IMPROVEMENT PLAN
AMENDED TRACT NO. 31732 - PALIZADA
TITLE SHEET

1 OF 15

946-LL

KB HOME

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APPENDIX 3.1

Traffic Count Data – October 2013

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of La Quinta
N/S: Madison Street
E/W: 60th Avenue
Weather: Sunny

File Name : LQAMA60AM
Site Code : 05113410
Start Date : 10/30/2013
Page No : 1

Groups Printed- Total Volume

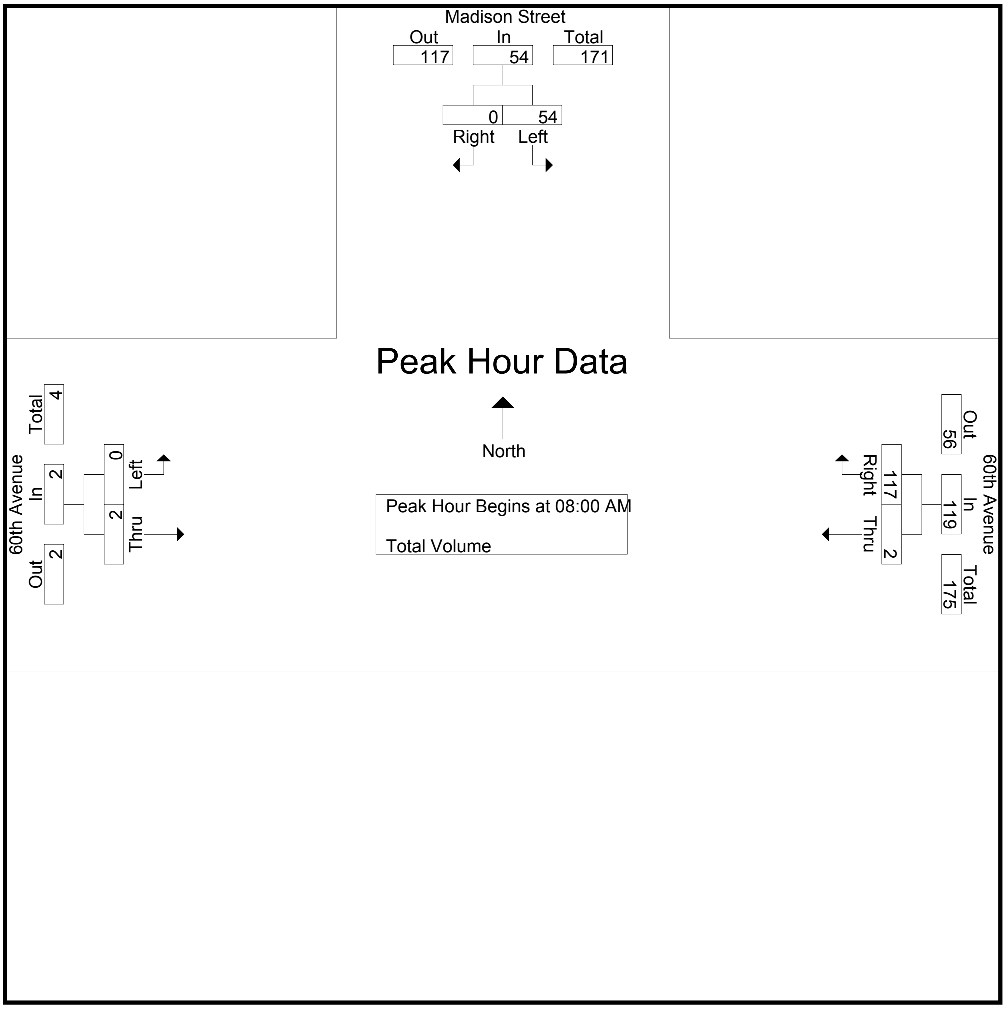
	Madison Street Southbound			60th Avenue Westbound			60th Avenue Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
06:00 AM	6	0	6	0	12	12	0	0	0	18
06:15 AM	7	0	7	0	10	10	0	0	0	17
06:30 AM	13	0	13	0	18	18	0	0	0	31
06:45 AM	14	0	14	0	8	8	0	0	0	22
Total	40	0	40	0	48	48	0	0	0	88
07:00 AM	14	0	14	1	12	13	1	0	1	28
07:15 AM	16	0	16	0	22	22	0	0	0	38
07:30 AM	18	0	18	0	21	21	0	0	0	39
07:45 AM	22	0	22	0	17	17	0	0	0	39
Total	70	0	70	1	72	73	1	0	1	144
08:00 AM	10	0	10	1	29	30	0	1	1	41
08:15 AM	14	0	14	0	25	25	0	0	0	39
08:30 AM	13	0	13	0	41	41	0	0	0	54
08:45 AM	17	0	17	1	22	23	0	1	1	41
Total	54	0	54	2	117	119	0	2	2	175
Grand Total	164	0	164	3	237	240	1	2	3	407
Apprch %	100	0		1.2	98.8		33.3	66.7		
Total %	40.3	0	40.3	0.7	58.2	59	0.2	0.5	0.7	

	Madison Street Southbound			60th Avenue Westbound			60th Avenue Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	10	0	10	**1**	29	30	0	**1**	**1**	41
08:15 AM	14	0	14	0	25	25	0	0	0	39
08:30 AM	13	0	13	0	**41**	**41**	0	0	0	**54**
08:45 AM	**17**	0	**17**	1	22	23	0	1	1	41
Total Volume	54	0	54	2	117	119	0	2	2	175
% App. Total	100	0		1.7	98.3		0	100		
PHF	.794	.000	.794	.500	.713	.726	.000	.500	.500	.810

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of La Quinta
N/S: Madison Street
E/W: 60th Avenue
Weather: Sunny

File Name : LQAMA60AM
Site Code : 05113410
Start Date : 10/30/2013
Page No : 2



Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			08:00 AM			08:00 AM		
+0 mins.	14	0	14	**1**	29	30	0	**1**	**1**
+15 mins.	16	0	16	0	25	25	0	0	0
+30 mins.	18	0	18	0	**41**	**41**	0	0	0
+45 mins.	**22**	0	**22**	1	22	23	0	1	1
Total Volume	70	0	70	2	117	119	0	2	2
% App. Total	100	0		1.7	98.3		0	100	
PHF	.795	.000	.795	.500	.713	.726	.000	.500	.500

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of La Quinta
N/S: Madison Street
E/W: 60th Avenue
Weather: Sunny

File Name : LQAMA60PM
Site Code : 05113410
Start Date : 10/30/2013
Page No : 1

Groups Printed- Total Volume

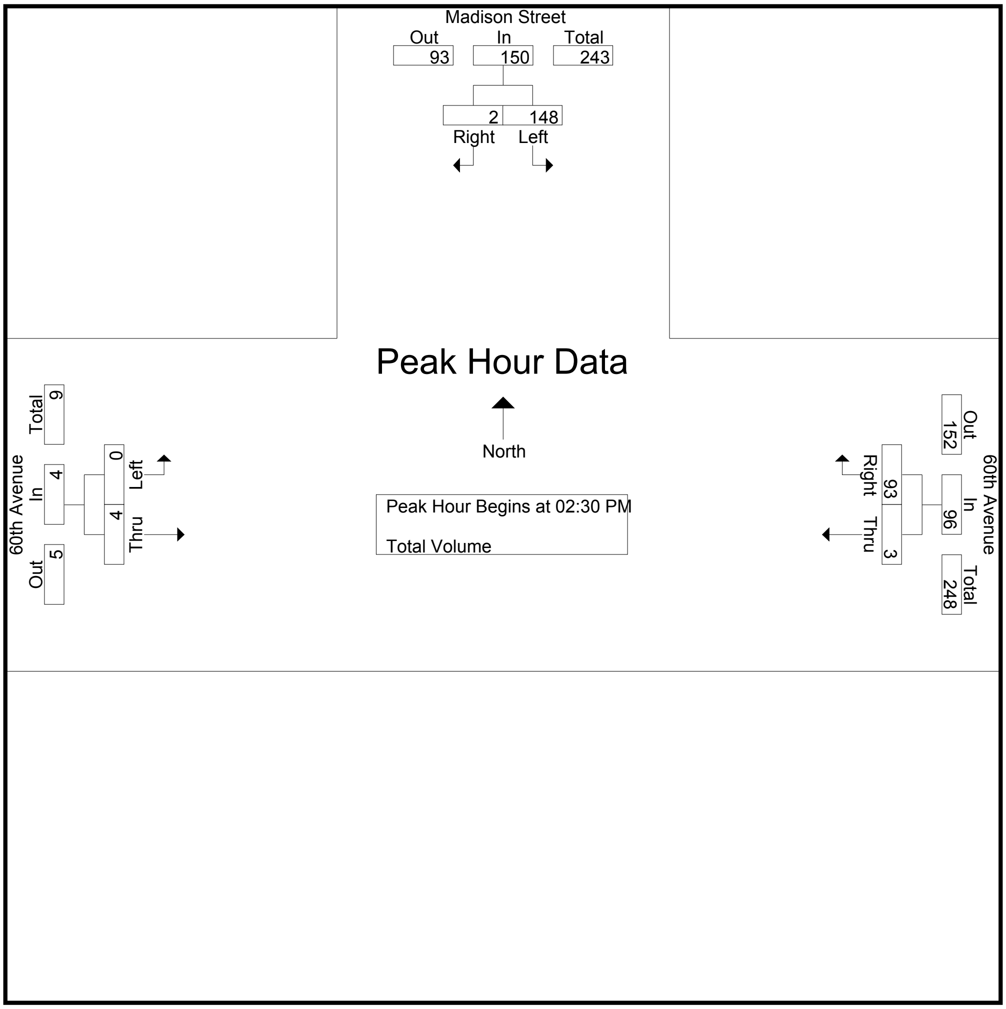
	Madison Street Southbound			60th Avenue Westbound			60th Avenue Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
02:30 PM	35	1	36	1	36	37	0	2	2	75
02:45 PM	35	1	36	0	16	16	0	1	1	53
Total	70	2	72	1	52	53	0	3	3	128
03:00 PM	38	0	38	0	20	20	0	0	0	58
03:15 PM	40	0	40	2	21	23	0	1	1	64
03:30 PM	38	0	38	0	14	14	1	0	1	53
03:45 PM	37	1	38	1	24	25	0	0	0	63
Total	153	1	154	3	79	82	1	1	2	238
04:00 PM	32	0	32	0	14	14	0	0	0	46
04:15 PM	49	1	50	0	18	18	0	0	0	68
04:30 PM	27	2	29	0	12	12	1	1	2	43
04:45 PM	34	0	34	1	18	19	0	0	0	53
Total	142	3	145	1	62	63	1	1	2	210
05:00 PM	32	2	34	0	24	24	0	0	0	58
05:15 PM	21	0	21	0	24	24	0	1	1	46
05:30 PM	18	1	19	1	19	20	0	0	0	39
05:45 PM	22	0	22	0	15	15	0	0	0	37
Total	93	3	96	1	82	83	0	1	1	180
Grand Total	458	9	467	6	275	281	2	6	8	756
Apprch %	98.1	1.9		2.1	97.9		25	75		
Total %	60.6	1.2	61.8	0.8	36.4	37.2	0.3	0.8	1.1	

	Madison Street Southbound			60th Avenue Westbound			60th Avenue Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 02:30 PM										
02:30 PM	35	**1**	36	1	**36**	**37**	0	**2**	**2**	**75**
02:45 PM	35	1	36	0	16	16	0	1	1	53
03:00 PM	38	0	38	0	20	20	0	0	0	58
03:15 PM	**40**	0	**40**	**2**	21	23	0	1	1	64
Total Volume	148	2	150	3	93	96	0	4	4	250
% App. Total	98.7	1.3		3.1	96.9		0	100		
PHF	.925	.500	.938	.375	.646	.649	.000	.500	.500	.833

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of La Quinta
N/S: Madison Street
E/W: 60th Avenue
Weather: Sunny

File Name : LQAMA60PM
Site Code : 05113410
Start Date : 10/30/2013
Page No : 2



Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	03:30 PM			02:30 PM			02:30 PM		
+0 mins.	38	0	38	1	**36**	**37**	0	**2**	**2**
+15 mins.	37	**1**	38	0	16	16	0	1	1
+30 mins.	32	0	32	0	20	20	0	0	0
+45 mins.	**49**	1	**50**	**2**	21	23	0	1	1
Total Volume	156	2	158	3	93	96	0	4	4
% App. Total	98.7	1.3		3.1	96.9		0	100	
PHF	.796	.500	.790	.375	.646	.649	.000	.500	.500

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of La Quinta
N/S: Monroe Street
E/W: 58th Avenue
Weather: Sunny

File Name : LQAMO58AM
Site Code : 05113410
Start Date : 10/30/2013
Page No : 1

Groups Printed- Total Volume

	Monroe Street Southbound				58th Avenue Westbound				Monroe Street Northbound				58th Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00 AM	0	9	2	11	1	9	2	12	1	8	0	9	0	3	0	3	35
06:15 AM	1	6	6	13	3	10	2	15	0	4	0	4	2	4	2	8	40
06:30 AM	1	8	5	14	4	23	3	30	2	5	4	11	1	2	0	3	58
06:45 AM	5	11	21	37	1	18	4	23	5	7	0	12	1	8	1	10	82
Total	7	34	34	75	9	60	11	80	8	24	4	36	4	17	3	24	215
07:00 AM	2	6	18	26	5	15	2	22	2	6	0	8	5	4	2	11	67
07:15 AM	1	4	3	8	3	18	5	26	3	6	1	10	2	5	0	7	51
07:30 AM	1	11	9	21	2	8	5	15	2	10	1	13	7	9	0	16	65
07:45 AM	7	12	8	27	0	13	4	17	1	11	1	13	5	3	1	9	66
Total	11	33	38	82	10	54	16	80	8	33	3	44	19	21	3	43	249
08:00 AM	3	7	7	17	0	4	2	6	0	11	1	12	0	9	0	9	44
08:15 AM	1	11	6	18	0	2	4	6	3	7	0	10	4	11	2	17	51
08:30 AM	3	7	10	20	0	6	4	10	1	8	0	9	5	9	1	15	54
08:45 AM	0	4	7	11	0	4	0	4	2	11	0	13	9	8	1	18	46
Total	7	29	30	66	0	16	10	26	6	37	1	44	18	37	4	59	195
Grand Total	25	96	102	223	19	130	37	186	22	94	8	124	41	75	10	126	659
Apprch %	11.2	43	45.7		10.2	69.9	19.9		17.7	75.8	6.5		32.5	59.5	7.9		
Total %	3.8	14.6	15.5	33.8	2.9	19.7	5.6	28.2	3.3	14.3	1.2	18.8	6.2	11.4	1.5	19.1	

	Monroe Street Southbound				58th Avenue Westbound				Monroe Street Northbound				58th Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 06:45 AM																	
06:45 AM	**5**	**11**	**21**	**37**	1	**18**	4	23	**5**	7	0	12	1	8	1	10	**82**
07:00 AM	2	6	18	26	**5**	15	2	22	2	6	0	8	5	4	**2**	11	67
07:15 AM	1	4	3	8	3	18	**5**	**26**	3	6	**1**	10	2	5	0	7	51
07:30 AM	1	11	9	21	2	8	5	15	2	**10**	1	**13**	**7**	**9**	0	**16**	65
Total Volume	9	32	51	92	11	59	16	86	12	29	2	43	15	26	3	44	265
% App. Total	9.8	34.8	55.4		12.8	68.6	18.6		27.9	67.4	4.7		34.1	59.1	6.8		
PHF	.450	.727	.607	.622	.550	.819	.800	.827	.600	.725	.500	.827	.536	.722	.375	.688	.808

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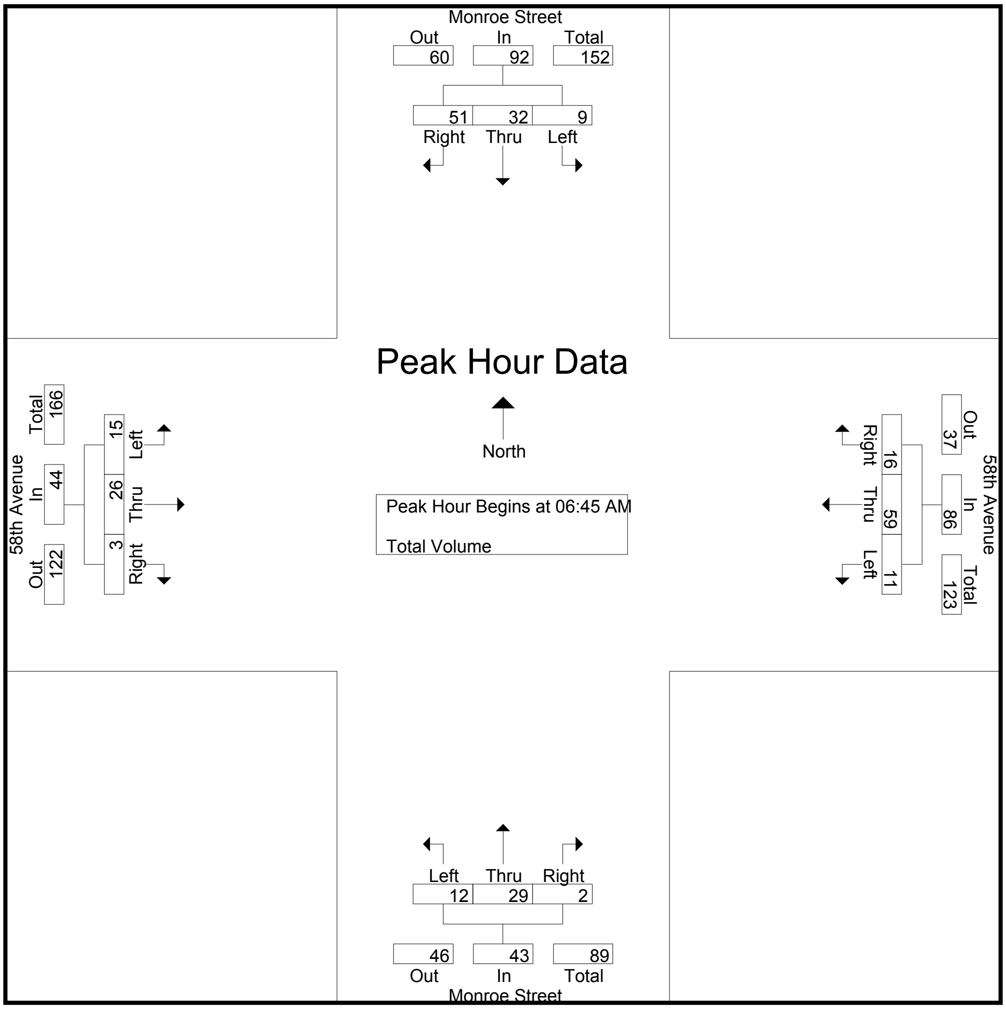
City of La Quinta	File Name : LQAMO58AM
N/S: Monroe Street	Site Code : 05113410
E/W: 58th Avenue	Start Date : 10/30/2013
Weather: Sunny	Page No : 2



Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	06:45 AM				06:30 AM				07:15 AM				08:00 AM			
+0 mins.	**5**	**11**	**21**	**37**	4	**23**	3	**30**	**3**	6	**1**	10	0	9	0	9
+15 mins.	2	6	18	26	1	18	4	23	2	10	1	**13**	4	**11**	**2**	17
+30 mins.	1	4	3	8	**5**	15	2	22	1	**11**	1	13	5	9	1	15
+45 mins.	1	11	9	21	3	18	**5**	26	0	11	1	12	**9**	8	1	**18**
Total Volume	9	32	51	92	13	74	14	101	6	38	4	48	18	37	4	59
% App. Total	9.8	34.8	55.4		12.9	73.3	13.9		12.5	79.2	8.3		30.5	62.7	6.8	
PHF	.450	.727	.607	.622	.650	.804	.700	.842	.500	.864	1.000	.923	.500	.841	.500	.819

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City of La Quinta
N/S: Monroe Street
E/W: 58th Avenue
Weather: Sunny

File Name : LQAMO58PM
Site Code : 05113410
Start Date : 10/30/2013
Page No : 1

Groups Printed- Total Volume

	Monroe Street Southbound				58th Avenue Westbound				Monroe Street Northbound				58th Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:30 PM	2	14	8	24	1	13	2	16	2	20	4	26	7	10	2	19	85
02:45 PM	3	8	10	21	0	6	3	9	3	21	1	25	12	7	1	20	75
Total	5	22	18	45	1	19	5	25	5	41	5	51	19	17	3	39	160
03:00 PM	3	7	9	19	2	3	5	10	1	13	3	17	10	13	2	25	71
03:15 PM	6	9	6	21	1	4	1	6	1	16	1	18	20	21	0	41	86
03:30 PM	8	14	8	30	0	3	3	6	2	16	2	20	23	33	1	57	113
03:45 PM	3	11	7	21	1	3	2	6	0	6	1	7	17	13	1	31	65
Total	20	41	30	91	4	13	11	28	4	51	7	62	70	80	4	154	335
04:00 PM	2	8	7	17	0	5	2	7	1	11	1	13	14	24	2	40	77
04:15 PM	5	7	5	17	2	3	5	10	1	12	2	15	8	7	1	16	58
04:30 PM	6	5	7	18	2	3	5	10	1	11	1	13	8	7	0	15	56
04:45 PM	5	11	2	18	0	6	2	8	0	7	0	7	4	10	2	16	49
Total	18	31	21	70	4	17	14	35	3	41	4	48	34	48	5	87	240
05:00 PM	3	7	1	11	0	9	3	12	2	13	0	15	11	7	2	20	58
05:15 PM	5	9	0	14	0	10	1	11	0	3	1	4	9	4	1	14	43
05:30 PM	4	7	0	11	0	1	6	7	0	5	0	5	7	7	2	16	39
05:45 PM	5	7	1	13	1	1	4	6	1	8	0	9	1	6	0	7	35
Total	17	30	2	49	1	21	14	36	3	29	1	33	28	24	5	57	175
Grand Total	60	124	71	255	10	70	44	124	15	162	17	194	151	169	17	337	910
Apprch %	23.5	48.6	27.8		8.1	56.5	35.5		7.7	83.5	8.8		44.8	50.1	5		
Total %	6.6	13.6	7.8	28	1.1	7.7	4.8	13.6	1.6	17.8	1.9	21.3	16.6	18.6	1.9	37	

	Monroe Street Southbound				58th Avenue Westbound				Monroe Street Northbound				58th Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:45 PM																	
02:45 PM	3	8	**10**	21	0	**6**	3	9	**3**	**21**	1	**25**	12	7	1	20	75
03:00 PM	3	7	9	19	**2**	3	**5**	**10**	1	13	**3**	17	10	13	**2**	25	71
03:15 PM	6	9	6	21	1	4	1	6	1	16	1	18	20	21	0	41	86
03:30 PM	**8**	**14**	8	**30**	0	3	3	6	2	16	2	20	**23**	**33**	1	**57**	**113**
Total Volume	20	38	33	91	3	16	12	31	7	66	7	80	65	74	4	143	345
% App. Total	22	41.8	36.3		9.7	51.6	38.7		8.8	82.5	8.8		45.5	51.7	2.8		
PHF	.625	.679	.825	.758	.375	.667	.600	.775	.583	.786	.583	.800	.707	.561	.500	.627	.763

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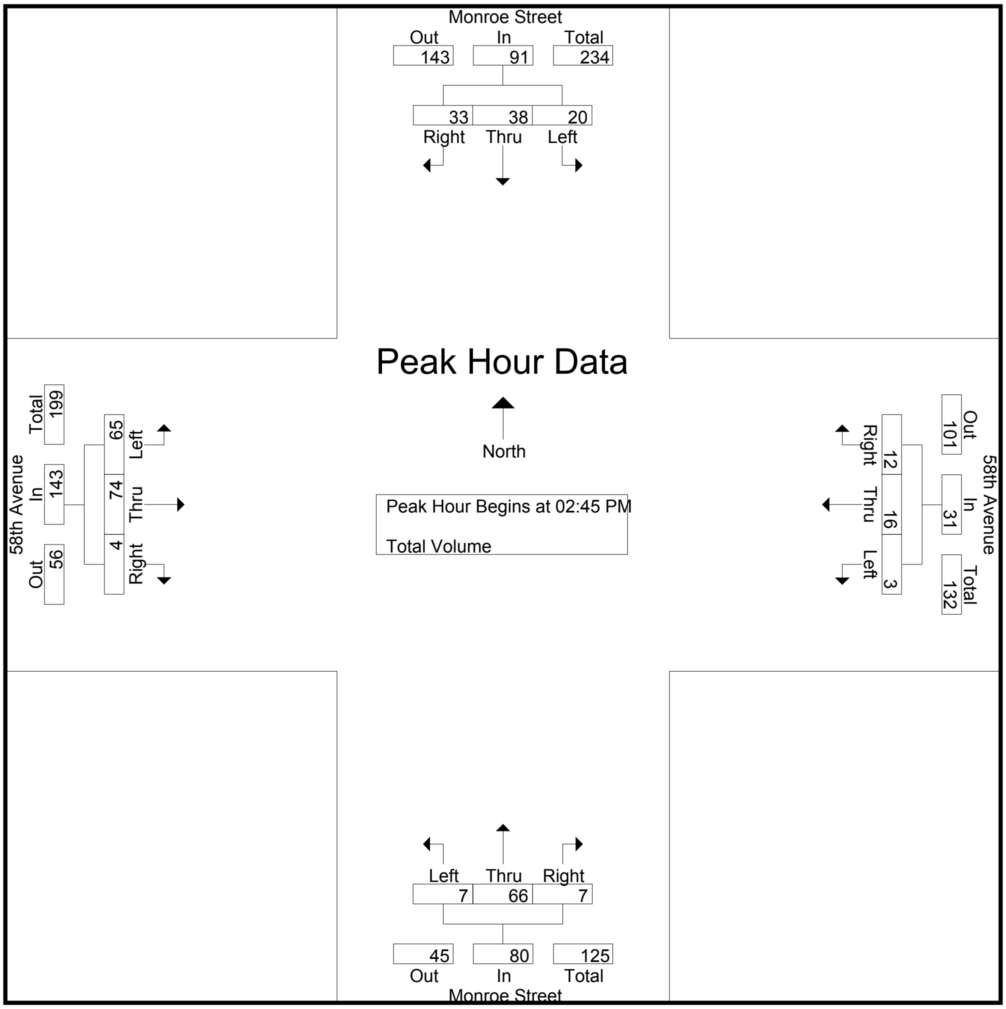
City of La Quinta
N/S: Monroe Street
E/W: 58th Avenue
Weather: Sunny

File Name : LQAMO58PM
Site Code : 05113410
Start Date : 10/30/2013
Page No : 2



Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:45 PM				02:30 PM				02:30 PM				03:15 PM			
+0 mins.	3	8	**10**	21	1	**13**	2	**16**	2	20	**4**	**26**	20	21	0	41
+15 mins.	3	7	9	19	0	6	3	9	**3**	**21**	1	25	**23**	**33**	1	**57**
+30 mins.	6	9	6	21	**2**	3	**5**	10	1	13	3	17	17	13	1	31
+45 mins.	**8**	**14**	8	**30**	1	4	1	6	1	16	1	18	14	24	**2**	40
Total Volume	20	38	33	91	4	26	11	41	7	70	9	86	74	91	4	169
% App. Total	22	41.8	36.3		9.8	63.4	26.8		8.1	81.4	10.5		43.8	53.8	2.4	
PHF	.625	.679	.825	.758	.500	.500	.550	.641	.583	.833	.563	.827	.804	.689	.500	.741

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City of La Quinta
N/S: Monroe Street
E/W: 60th Avenue
Weather: Sunny

File Name : LQAMO60AM
Site Code : 05113410
Start Date : 10/30/2013
Page No : 1

Groups Printed- Total Volume

	Monroe Street Southbound				60th Avenue Westbound				Monroe Street Northbound				60th Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00 AM	3	7	0	10	0	4	0	4	0	7	0	7	0	3	2	5	26
06:15 AM	2	3	0	5	0	4	0	4	0	3	0	3	0	2	4	6	18
06:30 AM	1	5	2	8	0	6	4	10	4	8	1	13	1	2	8	11	42
06:45 AM	1	9	0	10	1	2	2	5	1	8	0	9	0	6	7	13	37
Total	7	24	2	33	1	16	6	23	5	26	1	32	1	13	21	35	123
07:00 AM	2	2	5	9	0	4	3	7	5	4	0	9	1	7	4	12	37
07:15 AM	0	1	3	4	0	5	2	7	1	5	0	6	0	4	8	12	29
07:30 AM	3	3	3	9	1	4	2	7	4	6	1	11	3	3	6	12	39
07:45 AM	2	9	3	14	0	5	0	5	4	7	1	12	8	6	11	25	56
Total	7	15	14	36	1	18	7	26	14	22	2	38	12	20	29	61	161
08:00 AM	1	1	3	5	0	5	1	6	2	7	0	9	1	2	3	6	26
08:15 AM	1	1	5	7	0	1	2	3	3	4	1	8	1	2	3	6	24
08:30 AM	1	6	2	9	0	3	1	4	4	9	2	15	0	3	3	6	34
08:45 AM	1	2	3	6	0	3	1	4	1	8	1	10	4	2	4	10	30
Total	4	10	13	27	0	12	5	17	10	28	4	42	6	9	13	28	114
Grand Total	18	49	29	96	2	46	18	66	29	76	7	112	19	42	63	124	398
Apprch %	18.8	51	30.2		3	69.7	27.3		25.9	67.9	6.2		15.3	33.9	50.8		
Total %	4.5	12.3	7.3	24.1	0.5	11.6	4.5	16.6	7.3	19.1	1.8	28.1	4.8	10.6	15.8	31.2	

	Monroe Street Southbound				60th Avenue Westbound				Monroe Street Northbound				60th Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	2	2	**5**	9	0	4	**3**	**7**	**5**	4	0	9	1	**7**	4	12	37
07:15 AM	0	1	3	4	0	**5**	2	7	1	5	0	6	0	4	8	12	29
07:30 AM	**3**	3	3	9	**1**	4	2	7	4	6	**1**	11	3	3	6	12	39
07:45 AM	2	**9**	3	**14**	0	5	0	5	4	**7**	1	**12**	**8**	6	**11**	**25**	**56**
Total Volume	7	15	14	36	1	18	7	26	14	22	2	38	12	20	29	61	161
% App. Total	19.4	41.7	38.9		3.8	69.2	26.9		36.8	57.9	5.3		19.7	32.8	47.5		
PHF	.583	.417	.700	.643	.250	.900	.583	.929	.700	.786	.500	.792	.375	.714	.659	.610	.719

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City of La Quinta
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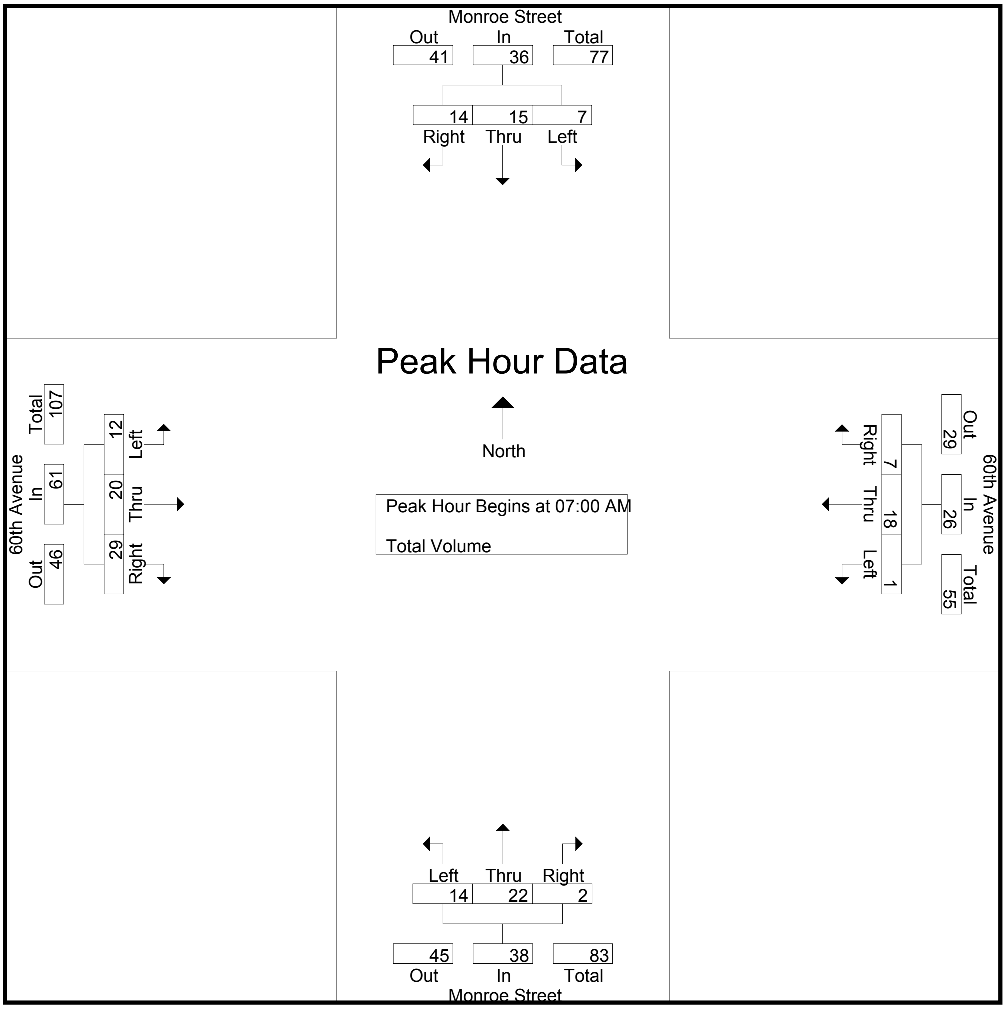
Weather: Sunny

File Name : LQAMO60AM
Site Code : 05113410
Start Date : 10/30/2013
Page No : 2



Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				06:30 AM				07:45 AM				07:00 AM			
+0 mins.	2	2	**5**	9	0	**6**	**4**	**10**	**4**	7	1	12	1	**7**	4	12
+15 mins.	0	1	3	4	**1**	2	2	5	2	7	0	9	0	4	8	12
+30 mins.	**3**	3	3	9	0	4	3	7	3	4	1	8	3	3	6	12
+45 mins.	2	**9**	3	**14**	0	5	2	7	4	**9**	**2**	**15**	**8**	6	**11**	**25**
Total Volume	7	15	14	36	1	17	11	29	13	27	4	44	12	20	29	61
% App. Total	19.4	41.7	38.9		3.4	58.6	37.9		29.5	61.4	9.1		19.7	32.8	47.5	
PHF	.583	.417	.700	.643	.250	.708	.688	.725	.813	.750	.500	.733	.375	.714	.659	.610

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City of La Quinta
N/S: Monroe Street
E/W: 60th Avenue
Weather: Sunny

File Name : LQAMO60PM
Site Code : 05113410
Start Date : 10/30/2013
Page No : 1

Groups Printed- Total Volume

	Monroe Street Southbound				60th Avenue Westbound				Monroe Street Northbound				60th Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:30 PM	3	8	2	13	1	3	2	6	7	6	1	14	7	14	7	28	61
02:45 PM	1	6	3	10	0	3	2	5	2	9	0	11	3	5	5	13	39
Total	4	14	5	23	1	6	4	11	9	15	1	25	10	19	12	41	100
03:00 PM	3	11	0	14	1	2	4	7	9	8	1	18	0	4	10	14	53
03:15 PM	1	5	3	9	2	1	1	4	4	4	0	8	3	6	13	22	43
03:30 PM	1	6	2	9	0	4	2	6	4	7	0	11	3	4	7	14	40
03:45 PM	1	9	5	15	0	4	2	6	5	5	0	10	2	3	1	6	37
Total	6	31	10	47	3	11	9	23	22	24	1	47	8	17	31	56	173
04:00 PM	3	3	4	10	0	5	2	7	3	4	0	7	7	9	8	24	48
04:15 PM	2	7	0	9	0	5	4	9	4	7	0	11	3	7	5	15	44
04:30 PM	1	3	2	6	1	1	1	3	1	3	0	4	5	5	1	11	24
04:45 PM	0	7	5	12	0	3	0	3	1	2	0	3	3	4	5	12	30
Total	6	20	11	37	1	14	7	22	9	16	0	25	18	25	19	62	146
05:00 PM	0	6	1	7	1	1	2	4	7	7	0	14	6	6	5	17	42
05:15 PM	4	9	0	13	2	7	0	9	4	1	0	5	0	3	2	5	32
05:30 PM	2	4	1	7	0	4	0	4	1	2	0	3	3	3	3	9	23
05:45 PM	2	5	2	9	0	1	3	4	6	3	0	9	4	4	4	12	34
Total	8	24	4	36	3	13	5	21	18	13	0	31	13	16	14	43	131
Grand Total	24	89	30	143	8	44	25	77	58	68	2	128	49	77	76	202	550
Apprch %	16.8	62.2	21		10.4	57.1	32.5		45.3	53.1	1.6		24.3	38.1	37.6		
Total %	4.4	16.2	5.5	26	1.5	8	4.5	14	10.5	12.4	0.4	23.3	8.9	14	13.8	36.7	

	Monroe Street Southbound				60th Avenue Westbound				Monroe Street Northbound				60th Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:30 PM																	
02:30 PM	**3**	8	2	13	1	**3**	2	6	7	6	**1**	14	**7**	**14**	7	**28**	**61**
02:45 PM	1	6	**3**	10	0	3	2	5	2	**9**	0	11	3	5	5	13	39
03:00 PM	3	**11**	0	**14**	1	2	**4**	**7**	**9**	8	1	**18**	0	4	10	14	53
03:15 PM	1	5	3	9	**2**	1	1	4	4	4	0	8	3	6	**13**	22	43
Total Volume	8	30	8	46	4	9	9	22	22	27	2	51	13	29	35	77	196
% App. Total	17.4	65.2	17.4		18.2	40.9	40.9		43.1	52.9	3.9		16.9	37.7	45.5		
PHF	.667	.682	.667	.821	.500	.750	.563	.786	.611	.750	.500	.708	.464	.518	.673	.688	.803

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City of La Quinta
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File Name : LQAMO60PM
Site Code : 05113410
Start Date : 10/30/2013
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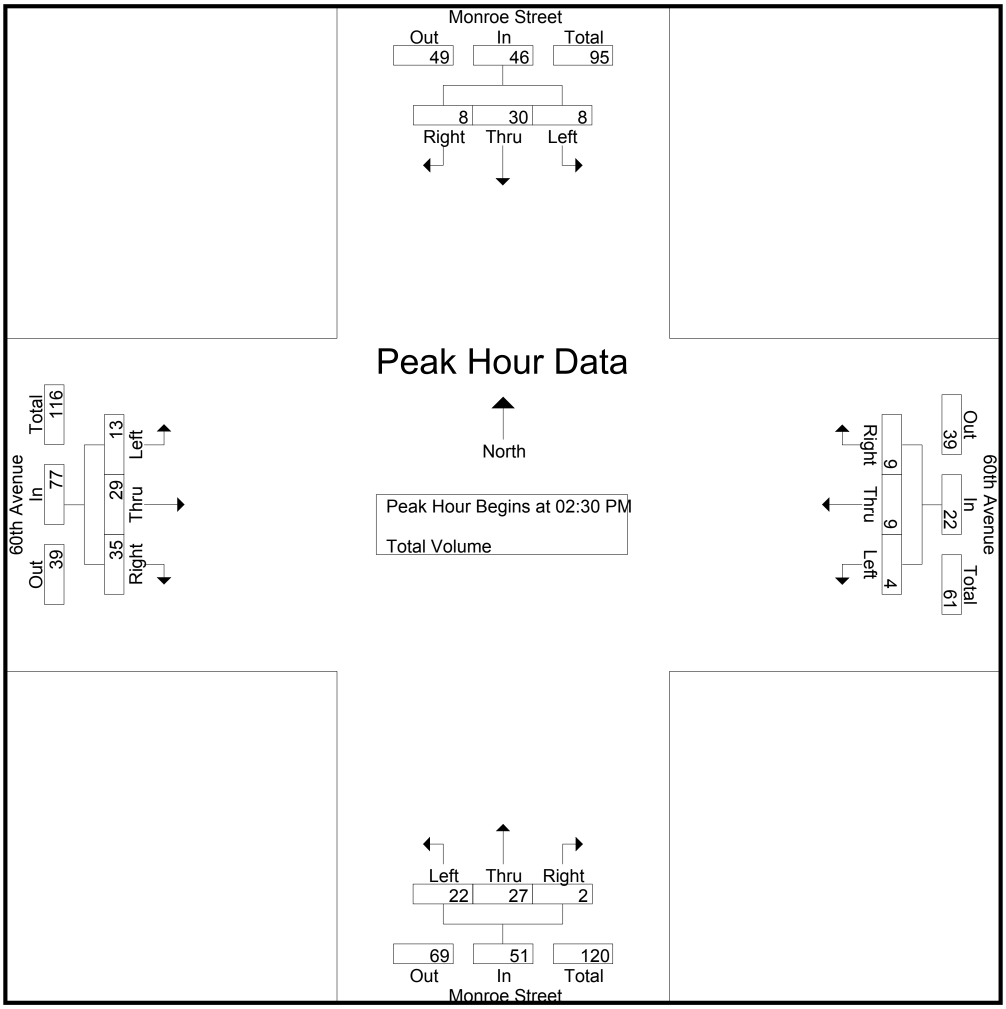

Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	03:00 PM				03:30 PM				02:30 PM				02:30 PM			
+0 mins.	**3**	**11**	0	14	0	4	2	6	7	6	**1**	14	**7**	**14**	7	**28**
+15 mins.	1	5	3	9	0	4	2	6	2	**9**	0	11	3	5	5	13
+30 mins.	1	6	2	9	0	**5**	2	7	**9**	8	1	**18**	0	4	10	14
+45 mins.	1	9	**5**	**15**	0	5	**4**	**9**	4	4	0	8	3	6	**13**	22
Total Volume	6	31	10	47	0	18	10	28	22	27	2	51	13	29	35	77
% App. Total	12.8	66	21.3		0	64.3	35.7		43.1	52.9	3.9		16.9	37.7	45.5	
PHF	.500	.705	.500	.783	.000	.900	.625	.778	.611	.750	.500	.708	.464	.518	.673	.688

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City of La Quinta
N/S: Monroe Street
E/W: 61th Avenue
Weather: Sunny

File Name : LQAMO61AM
Site Code : 05113410
Start Date : 10/30/2013
Page No : 1

Groups Printed- Total Volume

	Monroe Street Southbound			61st Avenue Westbound			Monroe Street Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
06:00 AM	0	4	4	0	0	0	5	0	5	9
06:15 AM	0	8	8	0	0	0	2	0	2	10
06:30 AM	0	11	11	0	1	1	9	0	9	21
06:45 AM	0	20	20	0	0	0	8	0	8	28
Total	0	43	43	0	1	1	24	0	24	68
07:00 AM	0	7	7	0	2	2	7	0	7	16
07:15 AM	0	7	7	0	0	0	4	0	4	11
07:30 AM	0	10	10	0	2	2	7	0	7	19
07:45 AM	0	18	18	0	0	0	8	0	8	26
Total	0	42	42	0	4	4	26	0	26	72
08:00 AM	0	3	3	0	0	0	7	0	7	10
08:15 AM	0	2	2	0	0	0	6	0	6	8
08:30 AM	1	7	8	0	0	0	11	0	11	19
08:45 AM	1	7	8	0	0	0	7	0	7	15
Total	2	19	21	0	0	0	31	0	31	52
Grand Total	2	104	106	0	5	5	81	0	81	192
Apprch %	1.9	98.1		0	100		100	0		
Total %	1	54.2	55.2	0	2.6	2.6	42.2	0	42.2	

	Monroe Street Southbound			61st Avenue Westbound			Monroe Street Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 06:30 AM										
06:30 AM	0	11	11	0	1	1	**9**	0	**9**	21
06:45 AM	0	**20**	**20**	0	0	0	8	0	8	**28**
07:00 AM	0	7	7	0	**2**	**2**	7	0	7	16
07:15 AM	0	7	7	0	0	0	4	0	4	11
Total Volume	0	45	45	0	3	3	28	0	28	76
% App. Total	0	100		0	100		100	0		
PHF	.000	.563	.563	.000	.375	.375	.778	.000	.778	.679

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File Name : LQAMO61AM
Site Code : 05113410
Start Date : 10/30/2013
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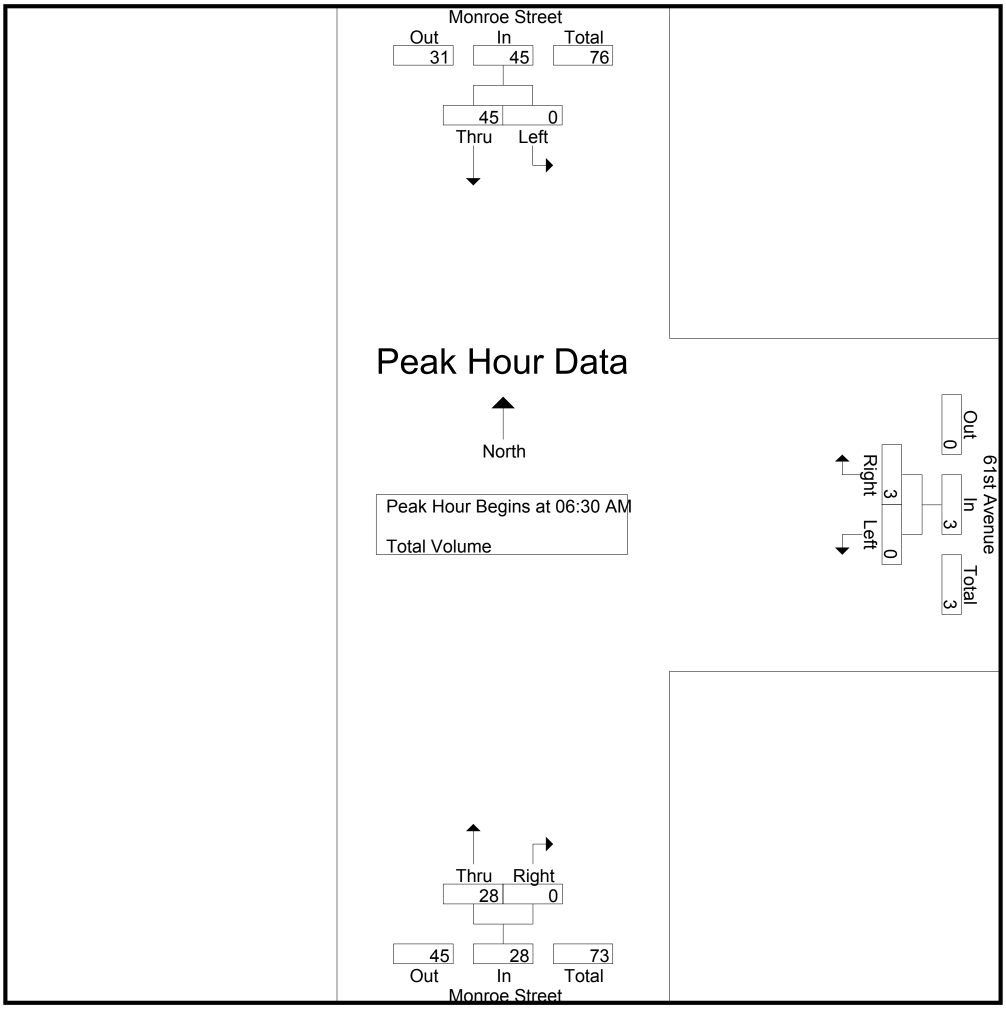

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	06:15 AM			06:45 AM			07:45 AM		
+0 mins.	0	8	8	0	0	0	8	0	8
+15 mins.	0	11	11	0	**2**	**2**	7	0	7
+30 mins.	0	**20**	**20**	0	0	0	6	0	6
+45 mins.	0	7	7	0	2	2	**11**	0	**11**
Total Volume	0	46	46	0	4	4	32	0	32
% App. Total	0	100		0	100		100	0	
PHF	.000	.575	.575	.000	.500	.500	.727	.000	.727

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File Name : LQAMO61PM
Site Code : 05113410
Start Date : 10/30/2013
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Groups Printed- Total Volume

	Monroe Street Southbound			61st Avenue Westbound			Monroe Street Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
02:30 PM	2	11	13	0	2	2	7	0	7	22
02:45 PM	0	8	8	0	1	1	7	0	7	16
Total	2	19	21	0	3	3	14	0	14	38
03:00 PM	2	15	17	1	0	1	11	1	12	30
03:15 PM	1	17	18	0	0	0	7	0	7	25
03:30 PM	0	14	14	0	0	0	12	0	12	26
03:45 PM	1	6	7	0	1	1	7	1	8	16
Total	4	52	56	1	1	2	37	2	39	97
04:00 PM	0	9	9	0	1	1	8	0	8	18
04:15 PM	1	9	10	0	0	0	7	0	7	17
04:30 PM	1	0	1	0	0	0	2	0	2	3
04:45 PM	0	7	7	0	0	0	5	0	5	12
Total	2	25	27	0	1	1	22	0	22	50
05:00 PM	1	11	12	0	0	0	13	0	13	25
05:15 PM	0	9	9	1	0	1	5	1	6	16
05:30 PM	0	9	9	0	0	0	3	0	3	12
05:45 PM	0	6	6	0	0	0	7	0	7	13
Total	1	35	36	1	0	1	28	1	29	66
Grand Total	9	131	140	2	5	7	101	3	104	251
Apprch %	6.4	93.6		28.6	71.4		97.1	2.9		
Total %	3.6	52.2	55.8	0.8	2	2.8	40.2	1.2	41.4	

	Monroe Street Southbound			61st Avenue Westbound			Monroe Street Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 02:45 PM										
02:45 PM	0	8	8	0	**1**	**1**	7	0	7	16
03:00 PM	**2**	15	17	**1**	0	1	11	**1**	**12**	**30**
03:15 PM	1	**17**	**18**	0	0	0	7	0	7	25
03:30 PM	0	14	14	0	0	0	**12**	0	12	26
Total Volume	3	54	57	1	1	2	37	1	38	97
% App. Total	5.3	94.7		50	50		97.4	2.6		
PHF	.375	.794	.792	.250	.250	.500	.771	.250	.792	.808

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City of La Quinta
N/S: Monroe Street
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File Name : LQAMO61PM
Site Code : 05113410
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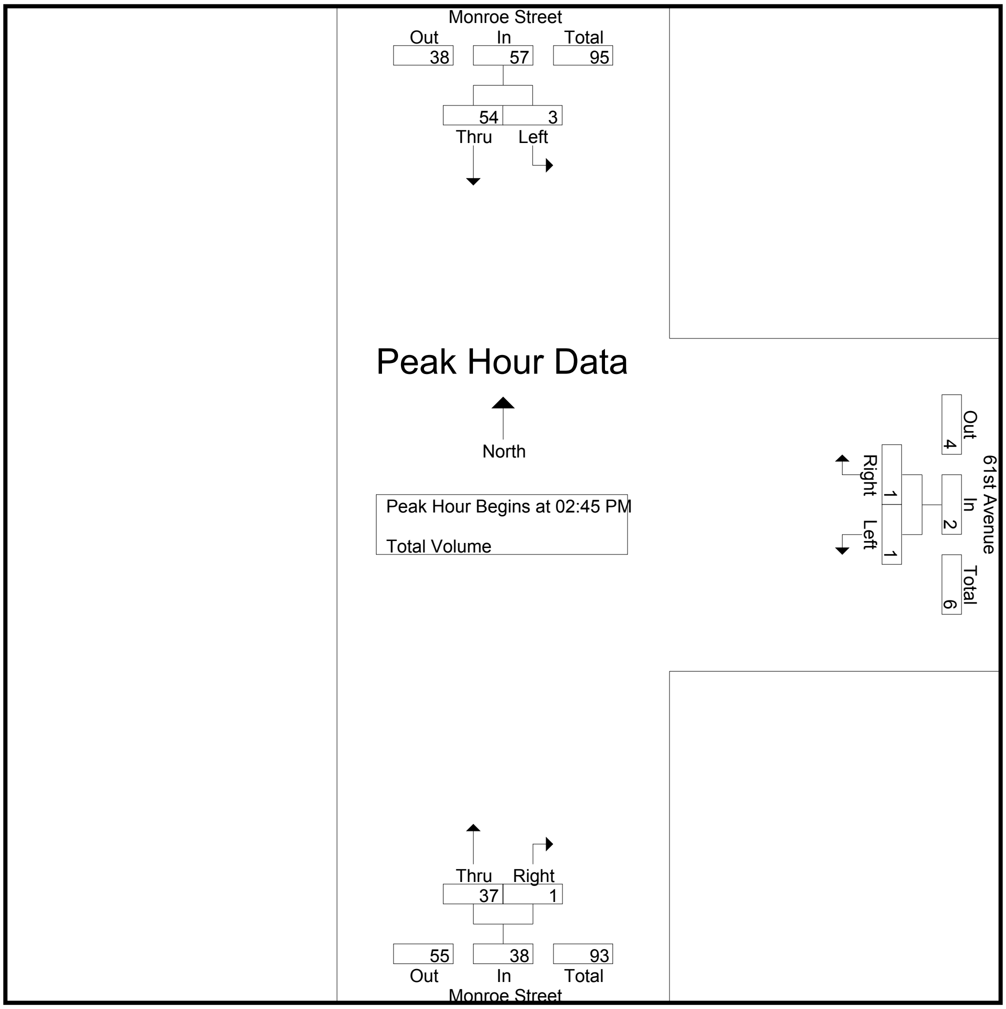

Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:45 PM			02:30 PM			03:00 PM		
+0 mins.	0	8	8	0	**2**	**2**	11	**1**	**12**
+15 mins.	**2**	15	17	0	1	1	7	0	7
+30 mins.	1	**17**	**18**	**1**	0	1	**12**	0	12
+45 mins.	0	14	14	0	0	0	7	1	8
Total Volume	3	54	57	1	3	4	37	2	39
% App. Total	5.3	94.7		25	75		94.9	5.1	
PHF	.375	.794	.792	.250	.375	.500	.771	.500	.813

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City of La Quinta
N/S: Jackson Street
E/W: 60th Avenue
Weather: Sunny

File Name : LQAJA60AM
Site Code : 05113410
Start Date : 10/30/2013
Page No : 1

Groups Printed- Total Volume

	Jackson Street Southbound				60th Avenue Westbound				Jackson Street Northbound				60th Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00 AM	2	17	0	19	1	2	1	4	0	8	1	9	0	2	4	6	38
06:15 AM	2	6	1	9	1	6	3	10	1	7	0	8	0	1	3	4	31
06:30 AM	1	6	0	7	0	4	3	7	5	17	1	23	2	1	0	3	40
06:45 AM	1	11	3	15	2	2	4	8	2	9	0	11	1	8	0	9	43
Total	6	40	4	50	4	14	11	29	8	41	2	51	3	12	7	22	152
07:00 AM	3	8	4	15	0	0	4	4	2	13	1	16	1	8	1	10	45
07:15 AM	4	16	6	26	1	2	3	6	1	10	0	11	0	4	1	5	48
07:30 AM	1	9	2	12	3	2	2	7	2	9	0	11	1	3	3	7	37
07:45 AM	4	12	3	19	0	4	3	7	2	11	0	13	3	6	2	11	50
Total	12	45	15	72	4	8	12	24	7	43	1	51	5	21	7	33	180
08:00 AM	4	16	1	21	0	1	1	2	2	4	0	6	1	4	2	7	36
08:15 AM	1	14	0	15	1	1	0	2	0	11	0	11	1	3	1	5	33
08:30 AM	1	2	0	3	0	5	2	7	0	7	0	7	3	1	4	8	25
08:45 AM	0	8	1	9	1	3	1	5	0	7	0	7	0	3	0	3	24
Total	6	40	2	48	2	10	4	16	2	29	0	31	5	11	7	23	118
Grand Total	24	125	21	170	10	32	27	69	17	113	3	133	13	44	21	78	450
Apprch %	14.1	73.5	12.4		14.5	46.4	39.1		12.8	85	2.3		16.7	56.4	26.9		
Total %	5.3	27.8	4.7	37.8	2.2	7.1	6	15.3	3.8	25.1	0.7	29.6	2.9	9.8	4.7	17.3	

	Jackson Street Southbound				60th Avenue Westbound				Jackson Street Northbound				60th Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	3	8	4	15	0	0	**4**	4	**2**	**13**	**1**	**16**	1	**8**	1	10	45
07:15 AM	**4**	**16**	**6**	**26**	1	2	3	6	1	10	0	11	0	4	1	5	48
07:30 AM	1	9	2	12	**3**	2	2	**7**	2	9	0	11	1	3	**3**	7	37
07:45 AM	4	12	3	19	0	**4**	3	7	2	11	0	13	**3**	6	2	**11**	**50**
Total Volume	12	45	15	72	4	8	12	24	7	43	1	51	5	21	7	33	180
% App. Total	16.7	62.5	20.8		16.7	33.3	50		13.7	84.3	2		15.2	63.6	21.2		
PHF	.750	.703	.625	.692	.333	.500	.750	.857	.875	.827	.250	.797	.417	.656	.583	.750	.900

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City of La Quinta
N/S: Jackson Street
E/W: 60th Avenue
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File Name : LQAJA60AM
Site Code : 05113410
Start Date : 10/30/2013
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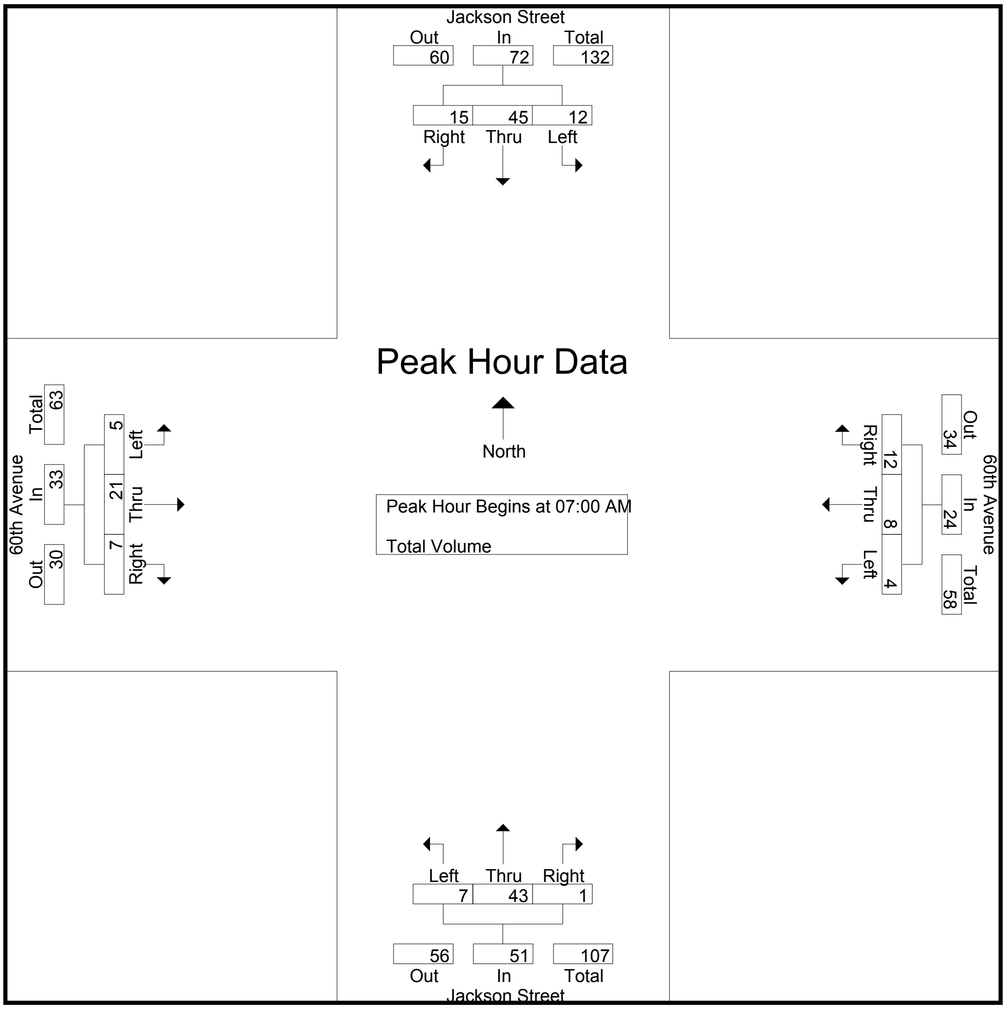

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				06:00 AM				06:30 AM				07:00 AM			
+0 mins.	**4**	**16**	**6**	**26**	1	2	1	4	**5**	**17**	**1**	**23**	1	**8**	1	10
+15 mins.	1	9	2	12	1	**6**	3	**10**	2	9	0	11	0	4	1	5
+30 mins.	4	12	3	19	0	4	3	7	2	13	1	16	1	3	**3**	7
+45 mins.	4	16	1	21	**2**	2	**4**	8	1	10	0	11	**3**	6	2	**11**
Total Volume	13	53	12	78	4	14	11	29	10	49	2	61	5	21	7	33
% App. Total	16.7	67.9	15.4		13.8	48.3	37.9		16.4	80.3	3.3		15.2	63.6	21.2	
PHF	.813	.828	.500	.750	.500	.583	.688	.725	.500	.721	.500	.663	.417	.656	.583	.750

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City of La Quinta
N/S: Jackson Street
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File Name : LQAJA60PM
Site Code : 05113410
Start Date : 10/30/2013
Page No : 1

Groups Printed- Total Volume

	Jackson Street Southbound				60th Avenue Westbound				Jackson Street Northbound				60th Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:30 PM	2	6	2	10	2	1	3	6	3	12	1	16	4	13	2	19	51
02:45 PM	1	5	1	7	2	2	0	4	2	14	0	16	2	4	2	8	35
Total	3	11	3	17	4	3	3	10	5	26	1	32	6	17	4	27	86
03:00 PM	3	8	2	13	1	3	2	6	6	11	1	18	1	3	3	7	44
03:15 PM	1	10	2	13	2	2	5	9	2	10	2	14	1	6	2	9	45
03:30 PM	1	12	0	13	0	5	3	8	3	17	0	20	2	3	2	7	48
03:45 PM	2	12	1	15	0	2	4	6	3	7	0	10	1	6	2	9	40
Total	7	42	5	54	3	12	14	29	14	45	3	62	5	18	9	32	177
04:00 PM	1	15	1	17	2	2	2	6	3	8	1	12	3	7	2	12	47
04:15 PM	1	8	3	12	1	5	3	9	1	9	3	13	2	4	1	7	41
04:30 PM	4	8	1	13	0	2	3	5	0	13	0	13	2	2	1	5	36
04:45 PM	3	11	2	16	0	2	1	3	2	16	1	19	3	3	1	7	45
Total	9	42	7	58	3	11	9	23	6	46	5	57	10	16	5	31	169
05:00 PM	2	5	0	7	0	2	2	4	4	9	0	13	3	5	2	10	34
05:15 PM	1	12	2	15	1	4	1	6	1	17	2	20	1	6	1	8	49
05:30 PM	3	11	1	15	0	2	1	3	0	12	1	13	1	1	1	3	34
05:45 PM	0	10	1	11	1	0	0	1	1	9	1	11	2	3	1	6	29
Total	6	38	4	48	2	8	4	14	6	47	4	57	7	15	5	27	146
Grand Total	25	133	19	177	12	34	30	76	31	164	13	208	28	66	23	117	578
Apprch %	14.1	75.1	10.7		15.8	44.7	39.5		14.9	78.8	6.2		23.9	56.4	19.7		
Total %	4.3	23	3.3	30.6	2.1	5.9	5.2	13.1	5.4	28.4	2.2	36	4.8	11.4	4	20.2	

	Jackson Street Southbound				60th Avenue Westbound				Jackson Street Northbound				60th Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:15 PM																	
03:15 PM	1	10	**2**	13	**2**	2	**5**	**9**	2	10	**2**	14	1	6	**2**	9	45
03:30 PM	1	12	0	13	0	**5**	3	8	**3**	**17**	0	**20**	2	3	2	7	**48**
03:45 PM	**2**	12	1	15	0	2	4	6	3	7	0	10	1	6	2	9	40
04:00 PM	1	**15**	1	**17**	2	2	2	6	3	8	1	12	**3**	**7**	2	**12**	47
Total Volume	5	49	4	58	4	11	14	29	11	42	3	56	7	22	8	37	180
% App. Total	8.6	84.5	6.9		13.8	37.9	48.3		19.6	75	5.4		18.9	59.5	21.6		
PHF	.625	.817	.500	.853	.500	.550	.700	.806	.917	.618	.375	.700	.583	.786	1.00	.771	.938

City of La Quinta
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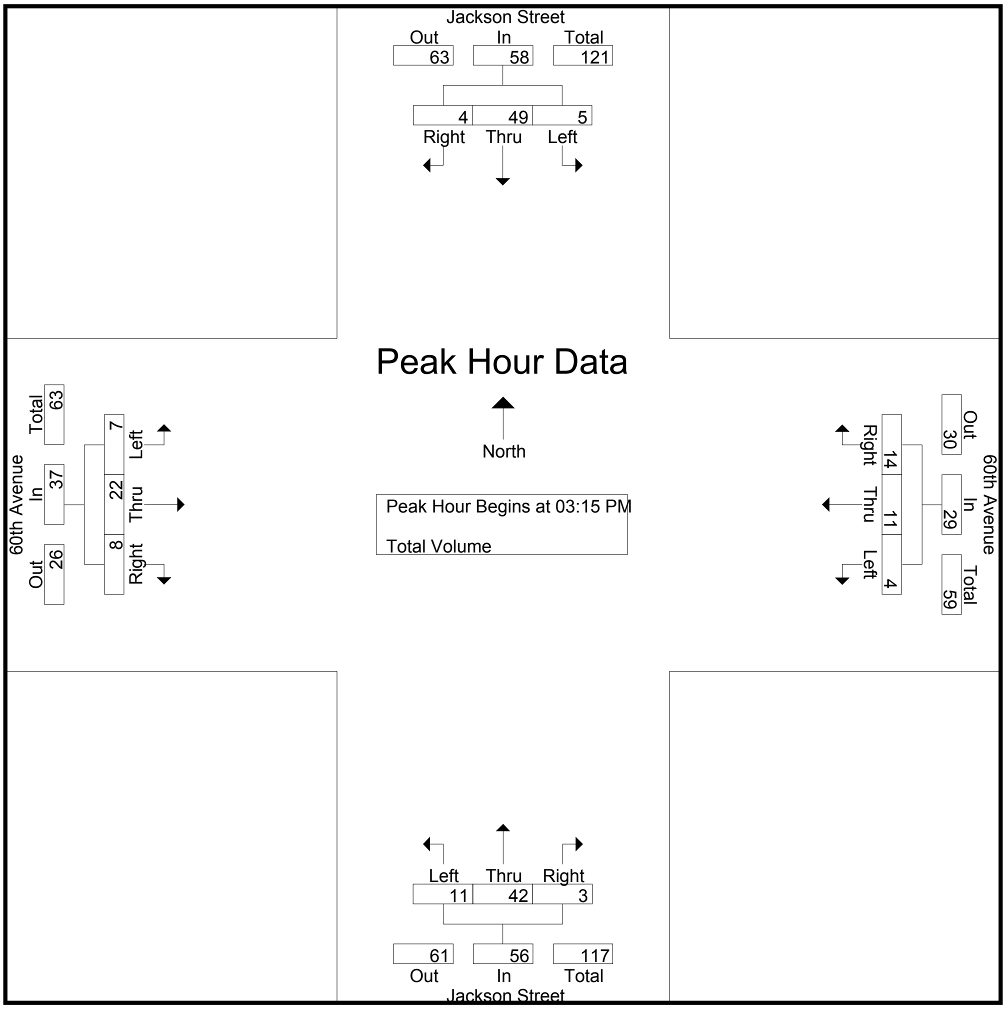

Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	03:15 PM				03:00 PM				02:45 PM				02:30 PM			
+0 mins.	1	10	**2**	13	1	3	2	6	2	14	0	16	**4**	**13**	2	**19**
+15 mins.	1	12	0	13	**2**	2	**5**	**9**	**6**	11	1	18	2	4	2	8
+30 mins.	**2**	12	1	15	0	**5**	3	8	2	10	**2**	14	1	3	**3**	7
+45 mins.	1	**15**	1	**17**	0	2	4	6	3	**17**	0	**20**	1	6	2	9
Total Volume	5	49	4	58	3	12	14	29	13	52	3	68	8	26	9	43
% App. Total	8.6	84.5	6.9		10.3	41.4	48.3		19.1	76.5	4.4		18.6	60.5	20.9	
PHF	.625	.817	.500	.853	.375	.600	.700	.806	.542	.765	.375	.850	.500	.500	.750	.566

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Groups Printed- Total Volume

	Jackson Street Southbound				61st Avenue Westbound				Jackson Street Northbound				61st Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00 AM	0	19	0	19	0	0	0	0	1	9	0	10	0	0	0	0	29
06:15 AM	0	11	1	12	0	0	0	0	2	9	0	11	0	0	0	0	23
06:30 AM	0	5	0	5	0	0	0	0	0	20	0	20	2	0	0	2	27
06:45 AM	0	8	0	8	0	0	0	0	0	11	0	11	0	0	0	0	19
Total	0	43	1	44	0	0	0	0	3	49	0	52	2	0	0	2	98
07:00 AM	0	9	0	9	0	2	0	2	1	12	1	14	0	0	0	0	25
07:15 AM	0	11	0	11	0	0	0	0	0	11	0	11	0	0	0	0	22
07:30 AM	0	10	3	13	0	0	1	1	0	9	0	9	0	0	0	0	23
07:45 AM	0	15	0	15	0	0	0	0	0	9	0	9	0	0	0	0	24
Total	0	45	3	48	0	2	1	3	1	41	1	43	0	0	0	0	94
08:00 AM	0	17	0	17	0	0	0	0	0	9	1	10	0	0	0	0	27
08:15 AM	0	14	0	14	0	0	0	0	0	9	0	9	0	0	0	0	23
08:30 AM	0	5	0	5	0	0	0	0	0	10	0	10	0	1	0	1	16
08:45 AM	0	7	0	7	0	0	0	0	0	8	0	8	0	1	0	1	16
Total	0	43	0	43	0	0	0	0	0	36	1	37	0	2	0	2	82
Grand Total	0	131	4	135	0	2	1	3	4	126	2	132	2	2	0	4	274
Apprch %	0	97	3		0	66.7	33.3		3	95.5	1.5		50	50	0		
Total %	0	47.8	1.5	49.3	0	0.7	0.4	1.1	1.5	46	0.7	48.2	0.7	0.7	0	1.5	

	Jackson Street Southbound				61st Avenue Westbound				Jackson Street Northbound				61st Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 06:00 AM																	
06:00 AM	0	**19**	0	**19**	0	0	0	0	1	9	0	10	0	0	0	0	**29**
06:15 AM	0	11	**1**	12	0	0	0	0	**2**	9	0	11	0	0	0	0	23
06:30 AM	0	5	0	5	0	0	0	0	0	**20**	0	**20**	**2**	0	0	**2**	27
06:45 AM	0	8	0	8	0	0	0	0	0	11	0	11	0	0	0	0	19
Total Volume	0	43	1	44	0	0	0	0	3	49	0	52	2	0	0	2	98
% App. Total	0	97.7	2.3		0	0	0		5.8	94.2	0		100	0	0		
PHF	.000	.566	.250	.579	.000	.000	.000	.000	.375	.613	.000	.650	.250	.000	.000	.250	.845

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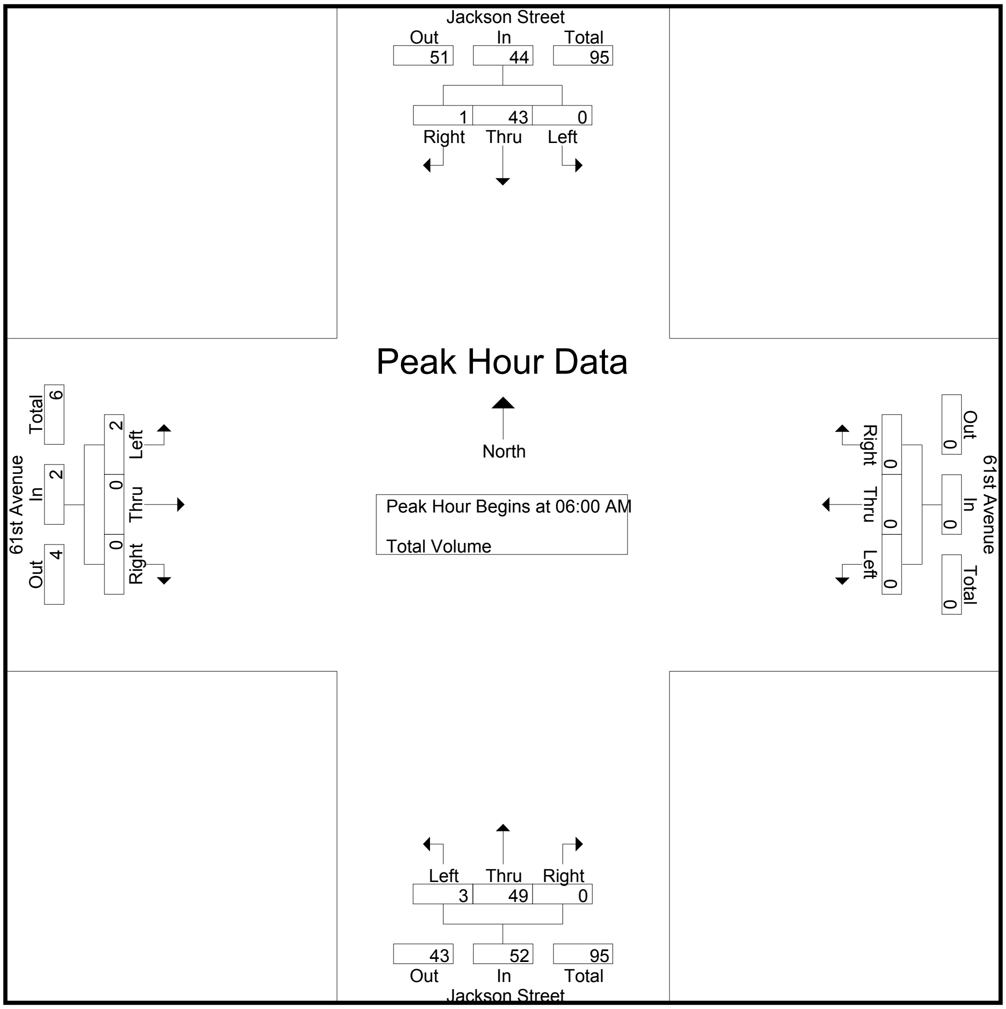
City of La Quinta
N/S: Jackson Street
E/W: 61st Avenue
Weather: Sunny

File Name : LQAJA61AM
Site Code : 05113410
Start Date : 10/30/2013
Page No : 2



Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				06:45 AM				06:15 AM				06:00 AM			
+0 mins.	0	10	**3**	13	0	0	0	0	**2**	9	0	11	0	0	0	0
+15 mins.	0	15	0	15	0	**2**	0	**2**	0	**20**	0	**20**	0	0	0	0
+30 mins.	0	**17**	0	**17**	0	0	0	0	0	11	0	11	**2**	0	0	**2**
+45 mins.	0	14	0	14	0	0	**1**	1	1	12	**1**	14	0	0	0	0
Total Volume	0	56	3	59	0	2	1	3	3	52	1	56	2	0	0	2
% App. Total	0	94.9	5.1		0	66.7	33.3		5.4	92.9	1.8		100	0	0	
PHF	.000	.824	.250	.868	.000	.250	.250	.375	.375	.650	.250	.700	.250	.000	.000	.250

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City of La Quinta
N/S: Jackson Street
E/W: 61st Avenue
Weather: Sunny

File Name : LQAJA61PM
Site Code : 05113410
Start Date : 10/30/2013
Page No : 1

Groups Printed- Total Volume

	Jackson Street Southbound				61st Avenue Westbound				Jackson Street Northbound				61st Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:30 PM	1	11	0	12	0	2	1	3	1	13	0	14	0	0	1	1	30
02:45 PM	0	10	2	12	0	1	1	2	0	16	0	16	0	0	1	1	31
Total	1	21	2	24	0	3	2	5	1	29	0	30	0	0	2	2	61
03:00 PM	0	7	0	7	0	0	0	0	0	12	0	12	0	0	0	0	19
03:15 PM	1	10	0	11	0	0	0	0	0	10	0	10	0	1	0	1	22
03:30 PM	0	12	0	12	0	0	0	0	1	18	0	19	0	0	0	0	31
03:45 PM	0	12	0	12	0	1	0	1	1	6	0	7	0	0	1	1	21
Total	1	41	0	42	0	1	0	1	2	46	0	48	0	1	1	2	93
04:00 PM	1	25	0	26	0	0	2	2	0	11	0	11	1	1	0	2	41
04:15 PM	2	7	0	9	0	1	0	1	0	12	0	12	1	0	0	1	23
04:30 PM	0	9	0	9	0	0	0	0	0	11	0	11	1	0	1	2	22
04:45 PM	0	10	0	10	0	0	0	0	0	18	0	18	0	0	0	0	28
Total	3	51	0	54	0	1	2	3	0	52	0	52	3	1	1	5	114
05:00 PM	0	10	0	10	0	0	0	0	0	6	0	6	0	1	1	2	18
05:15 PM	0	10	2	12	1	0	0	1	0	21	0	21	0	0	0	0	34
05:30 PM	1	8	0	9	0	0	1	1	1	8	0	9	1	0	2	3	22
05:45 PM	0	17	1	18	0	0	0	0	0	7	0	7	0	0	0	0	25
Total	1	45	3	49	1	0	1	2	1	42	0	43	1	1	3	5	99
Grand Total	6	158	5	169	1	5	5	11	4	169	0	173	4	3	7	14	367
Apprch %	3.6	93.5	3		9.1	45.5	45.5		2.3	97.7	0		28.6	21.4	50		
Total %	1.6	43.1	1.4	46	0.3	1.4	1.4	3	1.1	46	0	47.1	1.1	0.8	1.9	3.8	

	Jackson Street Southbound				61st Avenue Westbound				Jackson Street Northbound				61st Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:30 PM																	
03:30 PM	0	12	0	12	0	0	0	0	**1**	**18**	0	**19**	0	0	0	0	31
03:45 PM	0	12	0	12	0	**1**	0	1	1	6	0	7	0	0	**1**	1	21
04:00 PM	1	**25**	0	**26**	0	0	**2**	**2**	0	11	0	11	**1**	**1**	0	**2**	**41**
04:15 PM	**2**	7	0	9	0	1	0	1	0	12	0	12	1	0	0	1	23
Total Volume	3	56	0	59	0	2	2	4	2	47	0	49	2	1	1	4	116
% App. Total	5.1	94.9	0		0	50	50		4.1	95.9	0		50	25	25		
PHF	.375	.560	.000	.567	.000	.500	.250	.500	.500	.653	.000	.645	.500	.250	.250	.500	.707

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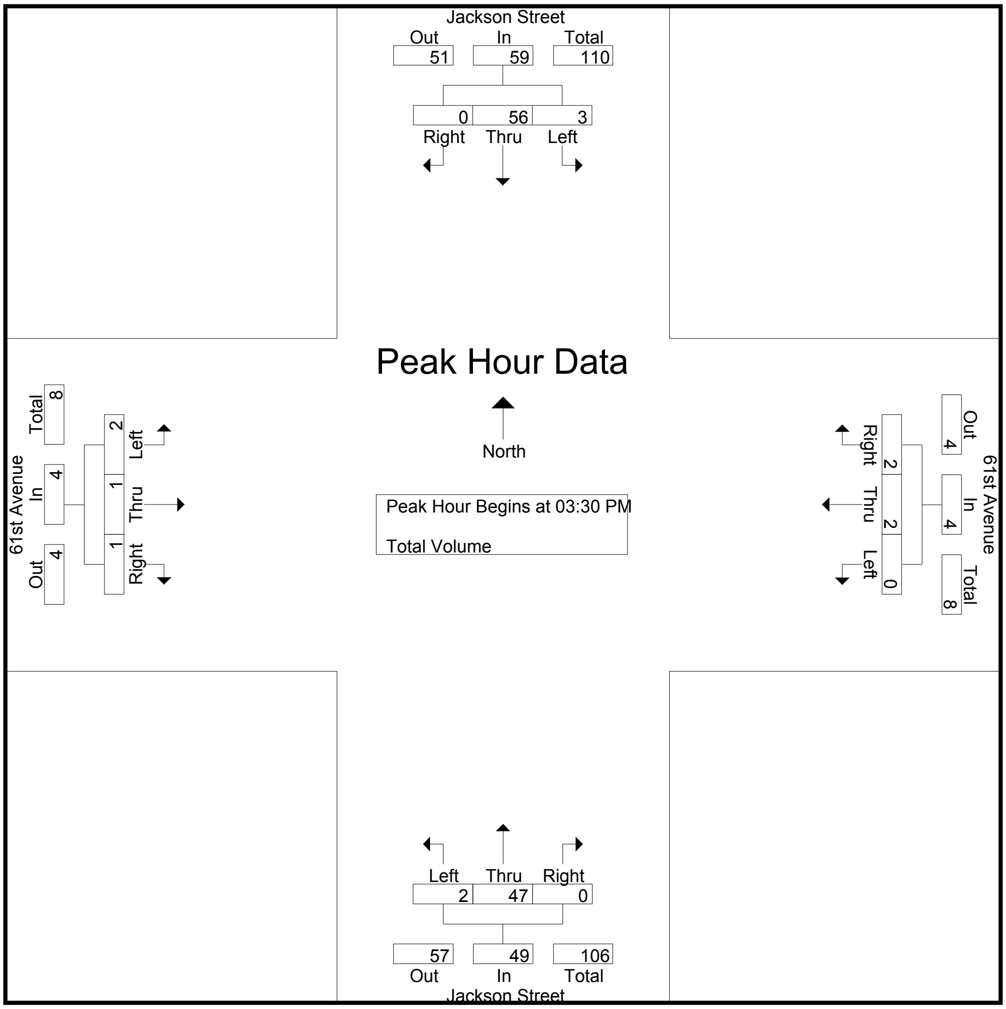
City of La Quinta
N/S: Jackson Street
E/W: 61st Avenue
Weather: Sunny

File Name : LQAJA61PM
Site Code : 05113410
Start Date : 10/30/2013
Page No : 2



Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	03:15 PM				02:30 PM				02:45 PM				03:45 PM			
+0 mins.	**1**	10	0	11	0	**2**	**1**	**3**	0	16	0	16	0	0	**1**	1
+15 mins.	0	12	0	12	0	1	1	2	0	12	0	12	**1**	**1**	0	**2**
+30 mins.	0	12	0	12	0	0	0	0	0	10	0	10	1	0	0	1
+45 mins.	1	**25**	0	**26**	0	0	0	0	**1**	**18**	0	**19**	1	0	1	2
Total Volume	2	59	0	61	0	3	2	5	1	56	0	57	3	1	2	6
% App. Total	3.3	96.7	0		0	60	40		1.8	98.2	0		50	16.7	33.3	
PHF	.500	.590	.000	.587	.000	.375	.500	.417	.250	.778	.000	.750	.750	.250	.500	.750

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City of La Quinta
N/S: Madison Street
E/W: 58th Avenue
Weather: Sunny

File Name : LQAMA58AM
Site Code : 05113410
Start Date : 10/30/2013
Page No : 1

Groups Printed- Total Volume

	Madison Street Southbound				58th Avenue Westbound				Madison Street Northbound				58th Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00 AM	1	7	6	14	1	4	9	14	0	12	1	13	3	0	1	4	45
06:15 AM	7	7	7	21	0	5	7	12	0	10	1	11	1	0	1	2	46
06:30 AM	12	18	7	37	0	9	11	20	0	14	0	14	2	1	0	3	74
06:45 AM	24	12	14	50	1	5	7	13	1	8	1	10	5	0	0	5	78
Total	44	44	34	122	2	23	34	59	1	44	3	48	11	1	2	14	243
07:00 AM	17	16	7	40	0	1	11	12	0	14	0	14	1	1	0	2	68
07:15 AM	8	19	9	36	1	1	17	19	0	18	0	18	7	0	0	7	80
07:30 AM	16	25	7	48	0	2	11	13	0	24	0	24	3	2	0	5	90
07:45 AM	14	16	11	41	0	6	12	18	0	19	1	20	3	0	1	4	83
Total	55	76	34	165	1	10	51	62	0	75	1	76	14	3	1	18	321
08:00 AM	16	17	10	43	0	2	10	12	4	22	1	27	15	1	0	16	98
08:15 AM	14	13	4	31	0	1	7	8	0	31	0	31	9	2	1	12	82
08:30 AM	15	17	14	46	0	2	17	19	0	43	0	43	11	2	0	13	121
08:45 AM	12	17	7	36	0	3	11	14	0	21	1	22	6	1	0	7	79
Total	57	64	35	156	0	8	45	53	4	117	2	123	41	6	1	48	380
Grand Total	156	184	103	443	3	41	130	174	5	236	6	247	66	10	4	80	944
Apprch %	35.2	41.5	23.3		1.7	23.6	74.7		2	95.5	2.4		82.5	12.5	5		
Total %	16.5	19.5	10.9	46.9	0.3	4.3	13.8	18.4	0.5	25	0.6	26.2	7	1.1	0.4	8.5	

	Madison Street Southbound				58th Avenue Westbound				Madison Street Northbound				58th Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	14	16	11	41	0	**6**	12	18	0	19	**1**	20	3	0	**1**	4	83
08:00 AM	**16**	**17**	10	43	0	2	10	12	**4**	22	1	27	**15**	1	0	**16**	98
08:15 AM	14	13	4	31	0	1	7	8	0	31	0	31	9	**2**	1	12	82
08:30 AM	15	17	**14**	**46**	0	2	**17**	**19**	0	**43**	0	**43**	11	2	0	13	**121**
Total Volume	59	63	39	161	0	11	46	57	4	115	2	121	38	5	2	45	384
% App. Total	36.6	39.1	24.2		0	19.3	80.7		3.3	95	1.7		84.4	11.1	4.4		
PHF	.922	.926	.696	.875	.000	.458	.676	.750	.250	.669	.500	.703	.633	.625	.500	.703	.793

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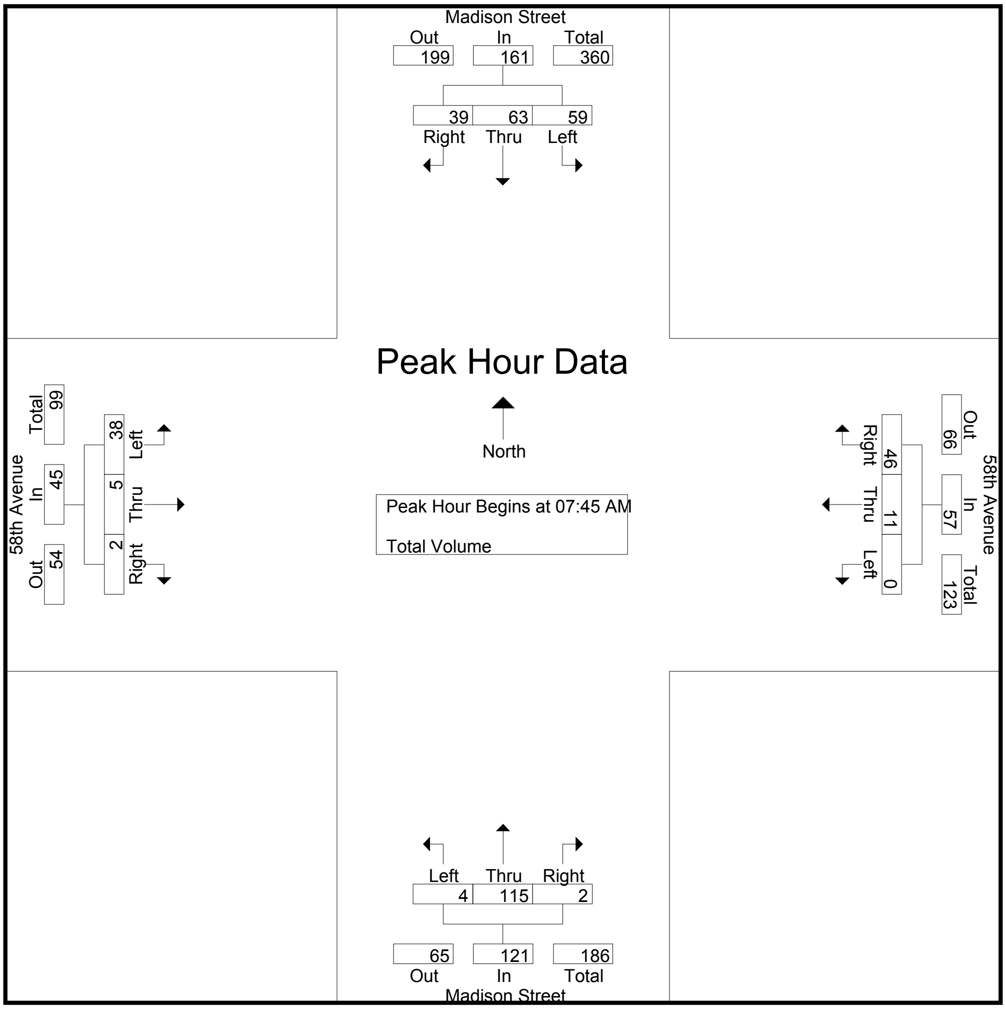
City of La Quinta
N/S: Madison Street
E/W: 58th Avenue
Weather: Sunny

File Name : LQAMA58AM
Site Code : 05113410
Start Date : 10/30/2013
Page No : 2



Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	06:45 AM				06:30 AM				08:00 AM				08:00 AM			
+0 mins.	**24**	12	**14**	**50**	0	**9**	11	**20**	**4**	22	**1**	27	**15**	1	0	**16**
+15 mins.	17	16	7	40	**1**	5	7	13	0	31	0	31	9	**2**	**1**	12
+30 mins.	8	19	9	36	0	1	11	12	0	**43**	0	**43**	11	2	0	13
+45 mins.	16	**25**	7	48	1	1	**17**	19	0	21	1	22	6	1	0	7
Total Volume	65	72	37	174	2	16	46	64	4	117	2	123	41	6	1	48
% App. Total	37.4	41.4	21.3		3.1	25	71.9		3.3	95.1	1.6		85.4	12.5	2.1	
PHF	.677	.720	.661	.870	.500	.444	.676	.800	.250	.680	.500	.715	.683	.750	.250	.750

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City of La Quinta
N/S: Madison Street
E/W: 58th Avenue
Weather: Sunny

File Name : LQAMA58PM
Site Code : 05113410
Start Date : 10/30/2013
Page No : 1

Groups Printed- Total Volume

	Madison Street Southbound				58th Avenue Westbound				Madison Street Northbound				58th Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:30 PM	18	36	8	62	0	2	9	11	0	42	0	42	11	7	1	19	134
02:45 PM	15	44	6	65	0	2	15	17	0	16	0	16	6	1	1	8	106
Total	33	80	14	127	0	4	24	28	0	58	0	58	17	8	2	27	240
03:00 PM	12	32	14	58	0	2	9	11	2	21	1	24	14	5	1	20	113
03:15 PM	12	41	9	62	0	3	13	16	0	20	0	20	17	19	1	37	135
03:30 PM	6	39	11	56	0	1	24	25	0	18	0	18	11	6	0	17	116
03:45 PM	3	43	2	48	1	1	12	14	0	25	0	25	8	5	0	13	100
Total	33	155	36	224	1	7	58	66	2	84	1	87	50	35	2	87	464
04:00 PM	11	36	9	56	2	0	17	19	0	14	2	16	10	20	0	30	121
04:15 PM	12	43	7	62	0	1	9	10	0	21	0	21	8	4	0	12	105
04:30 PM	6	35	2	43	1	2	11	14	0	14	0	14	8	4	1	13	84
04:45 PM	7	35	5	47	0	1	5	6	1	16	0	17	5	4	0	9	79
Total	36	149	23	208	3	4	42	49	1	65	2	68	31	32	1	64	389
05:00 PM	7	35	5	47	0	1	20	21	0	25	0	25	5	2	0	7	100
05:15 PM	6	21	6	33	0	0	14	14	0	26	0	26	11	1	0	12	85
05:30 PM	6	23	4	33	1	1	6	8	0	13	0	13	2	3	0	5	59
05:45 PM	7	22	4	33	0	0	6	6	0	15	0	15	3	0	0	3	57
Total	26	101	19	146	1	2	46	49	0	79	0	79	21	6	0	27	301
Grand Total	128	485	92	705	5	17	170	192	3	286	3	292	119	81	5	205	1394
Apprch %	18.2	68.8	13		2.6	8.9	88.5		1	97.9	1		58	39.5	2.4		
Total %	9.2	34.8	6.6	50.6	0.4	1.2	12.2	13.8	0.2	20.5	0.2	20.9	8.5	5.8	0.4	14.7	

	Madison Street Southbound				58th Avenue Westbound				Madison Street Northbound				58th Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:30 PM																	
02:30 PM	**18**	36	8	62	0	2	9	11	0	**42**	0	**42**	11	7	**1**	19	134
02:45 PM	15	**44**	6	**65**	0	2	**15**	**17**	0	16	0	16	6	1	1	8	106
03:00 PM	12	32	**14**	58	0	2	9	11	**2**	21	**1**	24	14	5	1	20	113
03:15 PM	12	41	9	62	0	**3**	13	16	0	20	0	20	**17**	**19**	1	**37**	**135**
Total Volume	57	153	37	247	0	9	46	55	2	99	1	102	48	32	4	84	488
% App. Total	23.1	61.9	15		0	16.4	83.6		2	97.1	1		57.1	38.1	4.8		
PHF	.792	.869	.661	.950	.000	.750	.767	.809	.250	.589	.250	.607	.706	.421	1.00	.568	.904

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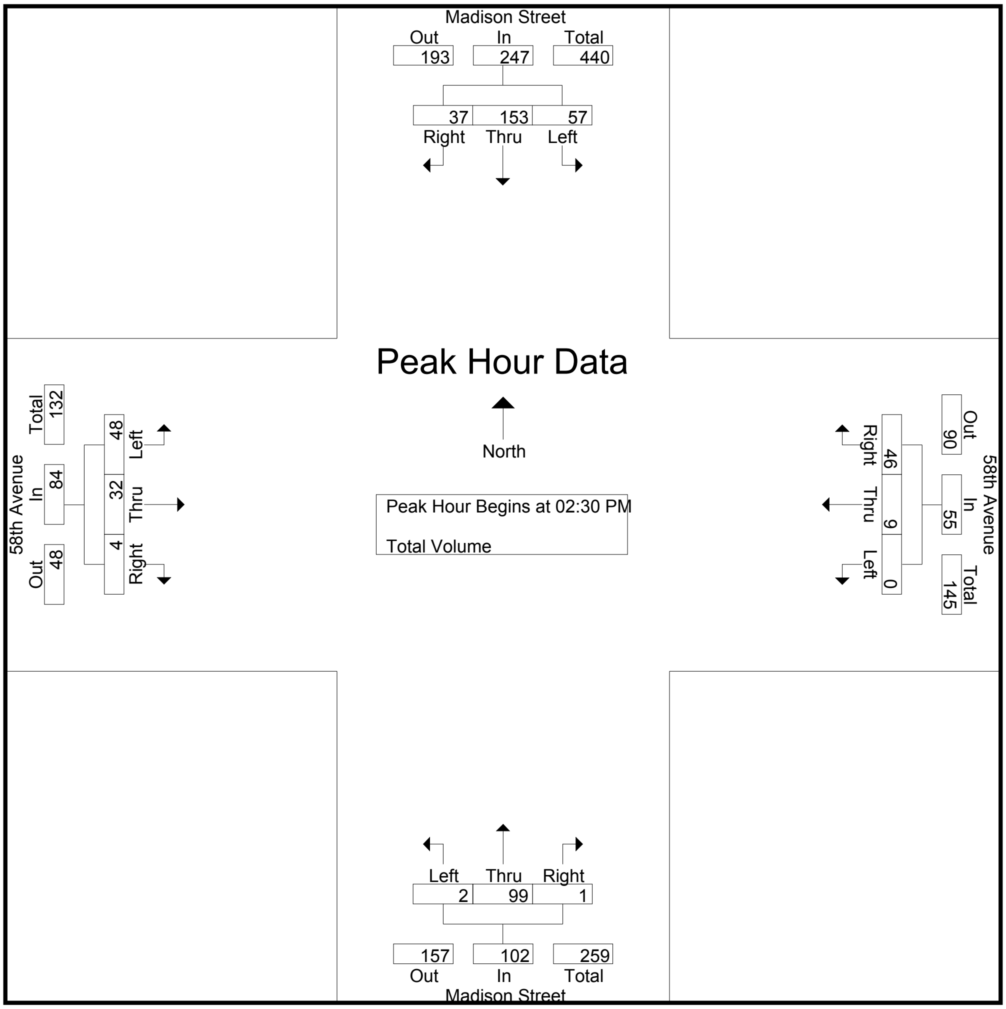
City of La Quinta
N/S: Madison Street
E/W: 58th Avenue
Weather: Sunny

File Name : LQAMA58PM
Site Code : 05113410
Start Date : 10/30/2013
Page No : 2



Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:30 PM				03:15 PM				02:30 PM				03:15 PM			
+0 mins.	**18**	36	8	62	0	**3**	13	16	0	**42**	0	**42**	**17**	19	**1**	**37**
+15 mins.	15	**44**	6	**65**	0	1	**24**	**25**	0	16	0	16	11	6	0	17
+30 mins.	12	32	**14**	58	1	1	12	14	**2**	21	**1**	24	8	5	0	13
+45 mins.	12	41	9	62	**2**	0	17	19	0	20	0	20	10	**20**	0	30
Total Volume	57	153	37	247	3	5	66	74	2	99	1	102	46	50	1	97
% App. Total	23.1	61.9	15		4.1	6.8	89.2		2	97.1	1		47.4	51.5	1	
PHF	.792	.869	.661	.950	.375	.417	.688	.740	.250	.589	.250	.607	.676	.625	.250	.655

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City of La Quinta
60th Avenue
E/ Monroe Street
24 Hour Directional Volume Count

LQA60EMO
Site Code: 051-13410
Date Start: 30-Oct-13
Date End: 30-Oct-13

Start	30-Oct-13	Eastbound		Hour Totals		Westbound		Hour Totals		Combined Totals	
Time	Wed	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		0	3			0	9				
12:15		1	1			0	5				
12:30		0	7			0	5				
12:45		1	11	2	22	0	3	0	22	2	44
01:00		0	6			0	7				
01:15		0	9			0	2				
01:30		0	3			0	8				
01:45		0	5	0	23	0	2	0	19	0	42
02:00		0	8			0	7				
02:15		0	**10**			0	5				
02:30		0	**23**			0	7				
02:45		0	**5**	0	46	0	5	0	24	0	70
03:00		0	**9**			0	7				
03:15		0	5			0	6				
03:30		0	10			0	**5**				
03:45		0	7	0	31	0	**4**	0	22	0	53
04:00		0	12			0	**7**				
04:15		0	11			0	**10**				
04:30		0	6			0	4				
04:45		0	4	0	33	2	3	2	24	2	57
05:00		1	8			4	4				
05:15		3	5			**3**	9				
05:30		1	6			**17**	3				
05:45		4	7	9	26	**16**	4	40	20	49	46
06:00		4	6			**6**	4				
06:15		5	2			3	3				
06:30		5	6			10	3				
06:45		8	3	22	17	4	1	23	11	45	28
07:00		**6**	2			10	0				
07:15		**6**	0			10	0				
07:30		**5**	2			8	3				
07:45		**11**	1	28	5	5	1	33	4	61	9
08:00		3	1			5	0				
08:15		4	4			3	1				
08:30		6	1			4	3				
08:45		5	0	18	6	2	0	14	4	32	10
09:00		3	2			4	0				
09:15		2	2			5	2				
09:30		7	0			4	1				
09:45		5	1	17	5	3	0	16	3	33	8
10:00		8	0			4	1				
10:15		4	0			2	0				
10:30		5	0			7	1				
10:45		4	0	21	0	8	0	21	2	42	2
11:00		10	2			7	0				
11:15		6	0			4	0				
11:30		3	0			5	2				
11:45		4	0	23	2	5	0	21	2	44	4
Total		140	216	140	216	170	157	170	157	310	373
Combined Total		356		356		327		327		683	
AM Peak		07:00				05:15					
Vol.		28				42					
P.H.F.		0.636				0.618					
PM Peak			02:15				03:30				
Vol.			47				26				
P.H.F.			0.511				0.650				
Percentage		39.3%	60.7%			52.0%	48.0%				
ADT/AADT		ADT 683		AADT 683							

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of La Quinta
Monroe Street
S/ 60th Avenue
24 Hour Directional Volume Count

LQAMOS60
Site Code: 051-13410
Date Start: 30-Oct-13
Date End: 30-Oct-13

Start Time	30-Oct-13 Wed	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		0	7			0	8				
12:15		1	5			1	9				
12:30		0	**16**			0	10				
12:45		1	**10**	2	38	1	11	2	38	4	76
01:00		0	**10**			0	9				
01:15		0	**17**			0	17				
01:30		0	6			0	14				
01:45		0	8	0	41	0	17	0	57	0	98
02:00		0	8			0	16				
02:15		0	16			0	6				
02:30		0	13			0	**18**				
02:45		0	11	0	48	0	**13**	0	53	0	101
03:00		0	13			0	**20**				
03:15		2	11			0	**20**				
03:30		0	11			0	15				
03:45		0	10	2	45	0	8	0	63	2	108
04:00		0	7			0	12				
04:15		2	10			0	12				
04:30		0	8			0	6				
04:45		2	4	4	29	3	12	3	42	7	71
05:00		3	12			0	15				
05:15		3	8			4	13				
05:30		7	3			1	9				
05:45		3	11	16	34	6	11	11	48	27	82
06:00		7	9			**9**	6				
06:15		5	3			**6**	2				
06:30		11	3			**13**	7				
06:45		9	5	32	20	**23**	8	51	23	83	43
07:00		9	3			7	4				
07:15		6	4			5	2				
07:30		11	2			10	4				
07:45		**13**	3	39	12	29	4	51	14	90	26
08:00		**11**	1			5	4				
08:15		**7**	0			3	8				
08:30		**19**	1			10	7				
08:45		8	0	45	2	9	4	27	23	72	25
09:00		10	2			7	2				
09:15		9	1			12	3				
09:30		11	1			5	3				
09:45		11	0	41	4	8	1	32	9	73	13
10:00		6	0			2	4				
10:15		6	2			3	1				
10:30		13	0			3	1				
10:45		10	1	35	3	8	1	16	7	51	10
11:00		10	0			8	3				
11:15		8	1			5	1				
11:30		11	0			12	0				
11:45		15	0	44	1	7	0	32	4	76	5
Total		260	277	260	277	225	381	225	381	485	658
Combined Total		537		537		606		606		1143	
AM Peak		07:45				06:00					
Vol.		50				51					
P.H.F.		0.658				0.554					
PM Peak			00:30				02:30				
Vol.			53				71				
P.H.F.			0.779				0.888				
Percentage		48.4%	51.6%			37.1%	62.9%				
ADT/AADT		ADT 1,143		AADT 1,143							

EXISTING PEAK HOUR-TO-DAILY TRAFFIC VOLUME RELATIONSHIP

Intsec NumID	Intersection	LEG	ADT Count	AM Peak Hour	AM Ratio	PM Peak Hour	PM Ratio
3	Monroe St. / 60th Av.	South	1,143	91	0.080	132	0.115
		East	683	61	0.089	67	0.098
	TOTAL		**1,826**	**152**		**199**	
				AVERAGE	8.300%		10.900%

ADT CALCULATION FACTOR **5.208**

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APPENDIX 3.2

Existing (2013) Conditions
Intersection Operations Analysis Worksheets

```
--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                          Existing (2013) Conditions
                                 AM Peak Hour
--------------------------------------------------------------------------------
                       Level Of Service Computation Report
            2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #1 Madison St. / Av. 60
********************************************************************************
Average Delay (sec/veh):      2.7       Worst Case Level Of Service: A[  8.8]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  0  0  0    1  0  0  1  0    0  0  1  0  0    0  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0    59    0     0     0    2     0     0    2   129
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0    59    0     0     0    2     0     0    2   129
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.81 0.81  0.81  0.81 0.81  0.81  0.81 0.81  0.81  0.81 0.81  0.81
PHF Volume:     0    0     0    73    0     0     0    2     0     0    2   159
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0    0     0    73    0     0     0    2     0     0    2   159
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4  6.5   6.2 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5  4.0   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx     5    5     2  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx  1022  894  1088  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx  1022  894  1088  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.07 0.00  0.00  xxxx xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   0.2 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx   8.8 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     A    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx     0  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:     xxxxxx              8.8             xxxxxx           xxxxxx
ApproachLOS:        *                 A                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

```
--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                          Existing (2013) Conditions
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #2 Monroe St. / 58th Av.
********************************************************************************
Cycle (sec):          100               Critical Vol./Cap.(X):        0.145
Loss Time (sec):        0               Average Delay (sec/veh):        7.8
Optimal Cycle:          0               Level Of Service:                 A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  1! 0  0   0  1  0  0  1   0  0  1! 0  0   0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      13   32     2   10   35    56   17   29     3   12   65    18
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:   13   32     2   10   35    56   17   29     3   12   65    18
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     0.81 0.81  0.81 0.81 0.81  0.81 0.81 0.81  0.81 0.81 0.81  0.81
PHF Volume:    16   40     2   12   43    69   21   36     4   15   80    22
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:   16   40     2   12   43    69   21   36     4   15   80    22
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:   16   40     2   12   43    69   21   36     4   15   80    22
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Lanes:       0.28 0.68  0.04 0.22 0.78  1.00 0.35 0.59  0.06 0.13 0.68  0.19
Final Sat.:   210  518    32  154  539   819  269  459    47  102  554   153
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.08 0.08  0.08 0.08 0.08  0.08 0.08 0.08  0.08 0.15 0.15  0.15
Crit Moves:  ****                       ****       ****       ****
Delay/Veh:    7.9  7.9   7.9  8.2  8.2   7.3  7.8  7.8   7.8  8.0  8.0   8.0
Delay Adj:   1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:   7.9  7.9   7.9  8.2  8.2   7.3  7.8  7.8   7.8  8.0  8.0   8.0
LOS by Move:    A    A     A    A    A     A    A    A     A    A    A     A
ApproachDel:       7.9              7.7              7.8              8.0
Delay Adj:        1.00             1.00             1.00             1.00
ApprAdjDel:        7.9              7.7              7.8              8.0
LOS by Appr:         A                A                A                A
AllWayAvgQ:   0.1  0.1   0.1  0.1  0.1   0.1  0.1  0.1   0.1  0.2  0.2   0.2
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Existing (2013) Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #3 Monroe St. / Av. 60

Cycle (sec):	100	Critical Vol./Cap.(X):	0.069
Loss Time (sec):	0	Average Delay (sec/veh):	7.7
Optimal Cycle:	0	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:		Stop Sign			Stop Sign			Stop Sign			Stop Sign	
Rights:		Include			Include			Include			Include	
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 0 1 0			1 0 1 0 1			0 1 0 0 1			0 0 1! 0 0		
Volume Module:												
Base Vol:	15	24	2	8	17	15	13	22	32	1	20	8
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	15	24	2	8	17	15	13	22	32	1	20	8
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
PHF Volume:	21	33	3	11	24	21	18	31	45	1	28	11
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	21	33	3	11	24	21	18	31	45	1	28	11
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	21	33	3	11	24	21	18	31	45	1	28	11
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.92	0.08	1.00	1.00	1.00	0.37	0.63	1.00	0.03	0.69	0.28
Final Sat.:	656	675	56	643	706	818	263	444	856	26	514	206
Capacity Analysis Module:												
Vol/Sat:	0.03	0.05	0.05	0.02	0.03	0.03	0.07	0.07	0.05	0.05	0.05	0.05
Crit Moves:			****		****			****			****	
Delay/Veh:	8.2	7.7	7.7	8.2	7.8	7.1	8.1	8.1	7.0	8.0	8.0	8.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	8.2	7.7	7.7	8.2	7.8	7.1	8.1	8.1	7.0	8.0	8.0	8.0
LOS by Move:	A	A	A	A	A	A	A	A	A	A	A	A
ApproachDel:		7.9			7.6			7.6			8.0	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		7.9			7.6			7.6			8.0	
LOS by Appr:		A			A			A			A	
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1

Note: Queue reported is the number of cars per lane.

```
--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                          Existing (2013) Conditions
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #4 Monroe St. / 61st Av.
********************************************************************************
Average Delay (sec/veh):      0.3      Worst Case Level Of Service: A[  8.5]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  0  1  0  0   0  0  1  0  0   0  0  0  0  0   0  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0   31     0     0   50     0     0    0     0     0    0     3
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0   31     0     0   50     0     0    0     0     0    0     3
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.68 0.68  0.68  0.68 0.68  0.68  0.68 0.68  0.68  0.68 0.68  0.68
PHF Volume:     0   46     0     0   74     0     0    0     0     0    0     4
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0   46     0     0   74     0     0    0     0     0    0     4
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   6.2
FollowUpTim:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx    46
Potent Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx  1030
Move Cap.:   xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx  1030
Volume/Cap:  xxxx xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  0.00
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   0.0
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   8.5
LOS by Move:    *    *     *     *    *     *     *    *     *     *    *     A
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx           xxxxxx             8.5
ApproachLOS:         *                *                *               A
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Existing (2013) Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #5 Jackson St. / Av. 60

Cycle (sec):	100	Critical Vol./Cap.(X):	0.090
Loss Time (sec):	0	Average Delay (sec/veh):	7.3
Optimal Cycle:	0	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1!	0 0	0 0	1!	0 0	0 0	1!	0 0	0 0	1!	0 0
Volume Module:												
Base Vol:	7	43	1	12	45	15	5	21	7	4	8	12
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	7	43	1	12	45	15	5	21	7	4	8	12
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	8	48	1	13	50	17	6	23	8	4	9	13
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	8	48	1	13	50	17	6	23	8	4	9	13
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	8	48	1	13	50	17	6	23	8	4	9	13
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.14	0.84	0.02	0.17	0.62	0.21	0.15	0.64	0.21	0.17	0.33	0.50
Final Sat.:	118	725	17	148	555	185	129	541	180	147	294	441
Capacity Analysis Module:												
Vol/Sat:	0.07	0.07	0.07	0.09	0.09	0.09	0.04	0.04	0.04	0.03	0.03	0.03
Crit Moves:		****			****			****		****		
Delay/Veh:	7.4	7.4	7.4	7.4	7.4	7.4	7.3	7.3	7.3	7.1	7.1	7.1
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	7.4	7.4	7.4	7.4	7.4	7.4	7.3	7.3	7.3	7.1	7.1	7.1
LOS by Move:	A	A	A	A	A	A	A	A	A	A	A	A
ApproachDel:		7.4			7.4			7.3			7.1	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		7.4			7.4			7.3			7.1	
LOS by Appr:		A			A			A			A	
AllWayAvgQ:	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0

Note: Queue reported is the number of cars per lane.

```
--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                        Existing (2013) Conditions
                               AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #6 Jackson St. / 61st Av.
********************************************************************************
Average Delay (sec/veh):      0.4      Worst Case Level Of Service: A[  9.1]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  1  0  0  0   0  0  0  1  0   1  0  0  0  0   0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       3   49     0     0   43     1     2    0     0     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    3   49     0     0   43     1     2    0     0     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.85 0.85  0.85  0.85 0.85  0.85  0.85 0.85  0.85  0.85 0.85  0.85
PHF Volume:     4   58     0     0   51     1     2    0     0     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    4   58     0     0   51     1     2    0     0     0    0     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx xxxxx xxxx xxxxx   6.4 xxxx xxxxx   7.1  6.5   6.2
FollowUpTim:  2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.5 xxxx xxxxx   3.5  4.0   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:   52 xxxx xxxxx  xxxx xxxx xxxxx   117 xxxx xxxxx   117  117    58
Potent Cap.: 1567 xxxx xxxxx  xxxx xxxx xxxxx   884 xxxx xxxxx   865  777  1014
Move Cap.:   1567 xxxx xxxxx  xxxx xxxx xxxxx   883 xxxx xxxxx   863  775  1014
Volume/Cap:  0.00 xxxx  xxxx  xxxx xxxx  xxxx  0.00 xxxx  xxxx  0.00 0.00  0.00
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.0 xxxx xxxxx  xxxx xxxx xxxxx   0.0 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:  7.3 xxxx xxxxx xxxxx xxxx xxxxx   9.1 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    A    *     *     *    *     *     A    *     *     *    *     *
Movement:     LT - LTR - RT   LT - LTR - RT   LT - LTR - RT   LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx    0 xxxxx
SharedQueue:  0.0 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:  7.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     A    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:     xxxxxx           xxxxxx              9.1           xxxxxx
ApproachLOS:        *                *                 A                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Existing (2013) Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #9 Madison St. / 58th Av.

Cycle (sec):	100	Critical Vol./Cap.(X):	0.136
Loss Time (sec):	0	Average Delay (sec/veh):	8.7
Optimal Cycle:	0	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:		Stop Sign			Stop Sign			Stop Sign			Stop Sign	
Rights:		Include			Include			Include			Include	
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:		1 0 2 0 1			1 0 2 0 1			1 0 1 0 1			1 0 2 0 1	
Volume Module:												
Base Vol:	4	127	2	65	69	43	42	6	2	0	12	51
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	4	127	2	65	69	43	42	6	2	0	12	51
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
PHF Volume:	5	160	3	82	87	54	53	8	3	0	15	64
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	5	160	3	82	87	54	53	8	3	0	15	64
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	5	160	3	82	87	54	53	8	3	0	15	64
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00
Final Sat.:	588	1284	731	602	1312	752	546	591	667	547	1185	672
Capacity Analysis Module:												
Vol/Sat:	0.01	0.12	0.00	0.14	0.07	0.07	0.10	0.01	0.00	0.00	0.01	0.10
Crit Moves:		****		****			****					****
Delay/Veh:	8.6	8.8	7.4	9.4	8.3	7.6	9.5	8.5	7.7	0.0	8.5	8.2
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	8.6	8.8	7.4	9.4	8.3	7.6	9.5	8.5	7.7	0.0	8.5	8.2
LOS by Move:	A	A	A	A	A	A	A	A	A	*	A	A
ApproachDel:		8.8			8.5			9.3			8.3	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		8.8			8.5			9.3			8.3	
LOS by Appr:		A			A			A			A	
AllWayAvgQ:	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1

Note: Queue reported is the number of cars per lane.

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                         Existing (2013) Conditions
                                PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #1 Madison St. / Av. 60
********************************************************************************
Average Delay (sec/veh):      5.6      Worst Case Level Of Service: A[  9.4]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  0  0  0    1  0  0  1  0    0  0  1  0  0    0  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0   163    0     2     0    4     0     0    3   102
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   163    0     2     0    4     0     0    3   102
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.83 0.83  0.83  0.83 0.83  0.83  0.83 0.83  0.83  0.83 0.83  0.83
PHF Volume:     0    0     0   196    0     2     0    5     0     0    4   122
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0    0     0   196    0     2     0    5     0     0    4   122
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4  6.5   6.2 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5  4.0   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx     8    8     4  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx  1017  891  1086  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx  1017  891  1086  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.19 0.00  0.00  xxxx xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   0.7 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx   9.4 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     A    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx  1086  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx   0.0 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx   8.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     A     *    *     *     *    *     *
ApproachDel:    xxxxxx               9.4             xxxxxx           xxxxxx
ApproachLOS:       *                  A                 *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

```
--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                         Existing (2013) Conditions
                                PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #2 Monroe St. / 58th Av.
********************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):         0.274
Loss Time (sec):        0              Average Delay (sec/veh):         8.7
Optimal Cycle:          0              Level Of Service:                  A
********************************************************************************
Approach:       North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  1! 0  0   0  1  0  0  1   0  0  1! 0  0   0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       8   73     8   22   42    36   72   81     4    3   18    13
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:    8   73     8   22   42    36   72   81     4    3   18    13
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     0.76 0.76  0.76 0.76 0.76  0.76 0.76 0.76  0.76 0.76 0.76  0.76
PHF Volume:    10   96    10   29   55    47   94  106     5    4   24    17
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:   10   96    10   29   55    47   94  106     5    4   24    17
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:   10   96    10   29   55    47   94  106     5    4   24    17
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Lanes:       0.09 0.82  0.09 0.34 0.66  1.00 0.46 0.52  0.02 0.09 0.53  0.38
Final Sat.:    66  599    66  222  424   764  344  387    19   66  397   287
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.16 0.16  0.16 0.13 0.13  0.06 0.27 0.27  0.27 0.06 0.06  0.06
Crit Moves:  ****                 ****              ****              ****
Delay/Veh:    8.5  8.5   8.5  8.8  8.8   7.5  9.3  9.3   9.3  7.8  7.8   7.8
Delay Adj:   1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:   8.5  8.5   8.5  8.8  8.8   7.5  9.3  9.3   9.3  7.8  7.8   7.8
LOS by Move:    A    A     A    A    A     A    A    A     A    A    A     A
ApproachDel:       8.5              8.3              9.3              7.8
Delay Adj:        1.00             1.00             1.00             1.00
ApprAdjDel:        8.5              8.3              9.3              7.8
LOS by Appr:         A                A                A                A
AllWayAvgQ:   0.2  0.2   0.2  0.1  0.1   0.1  0.3  0.3   0.3  0.1  0.1   0.1
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                         Existing (2013) Conditions
                                PM Peak Hour
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #3 Monroe St. / Av. 60
********************************************************************************
Cycle (sec):         100              Critical Vol./Cap.(X):        0.082
Loss Time (sec):       0              Average Delay (sec/veh):        7.8
Optimal Cycle:         0              Level Of Service:                 A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  0  1  0   1  0  1  0  1   0  1  0  0  1   0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      24   30     2     9   33     9    14   32    39     4   10    10
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   24   30     2     9   33     9    14   32    39     4   10    10
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.80 0.80  0.80  0.80 0.80  0.80  0.80 0.80  0.80  0.80 0.80  0.80
PHF Volume:    30   37     2    11   41    11    17   40    49     5   12    12
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   30   37     2    11   41    11    17   40    49     5   12    12
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   30   37     2    11   41    11    17   40    49     5   12    12
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.94  0.06  1.00 1.00  1.00  0.30 0.70  1.00  0.16 0.42  0.42
Final Sat.:   655  682    45   639  701   812   214  489   843   123  309   309
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.05 0.05  0.05  0.02 0.06  0.01  0.08 0.08  0.06  0.04 0.04  0.04
Crit Moves:       ****             ****             ****             ****
Delay/Veh:    8.3  7.8   7.8   8.3  8.0   7.0   8.1  8.1   7.1   7.9  7.9   7.9
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   8.3  7.8   7.8   8.3  8.0   7.0   8.1  8.1   7.1   7.9  7.9   7.9
LOS by Move:    A    A     A     A    A     A     A    A     A     A    A     A
ApproachDel:       8.0              7.9              7.7              7.9
Delay Adj:        1.00             1.00             1.00             1.00
ApprAdjDel:        8.0              7.9              7.7              7.9
LOS by Appr:         A                A                A                A
AllWayAvgQ:   0.0  0.1   0.1   0.0  0.1   0.0   0.1  0.1   0.1   0.0  0.0   0.0
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                         Existing (2013) Conditions
                                PM Peak Hour
--------------------------------------------------------------------------------
                       Level Of Service Computation Report
            2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #4 Monroe St. / 61st Av.
********************************************************************************
Average Delay (sec/veh):      0.4      Worst Case Level Of Service: A[  8.9]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled       Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  0  0  1  0   0  1  0  0  0   0  0  0  0  0   0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0   41     1     3   59     0     0    0     0     1    0     1
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0   41     1     3   59     0     0    0     0     1    0     1
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.81 0.81  0.81  0.81 0.81  0.81  0.81 0.81  0.81  0.81 0.81  0.81
PHF Volume:     0   51     1     4   73     0     0    0     0     1    0     1
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0   51     1     4   73     0     0    0     0     1    0     1
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   4.1 xxxx xxxxx xxxxx xxxx xxxxx   6.4  6.5   6.2
FollowUpTim:xxxxx xxxx xxxxx   2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.5  4.0   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx    52 xxxx xxxxx  xxxx xxxx xxxxx   132  132    51
Potent Cap.: xxxx xxxx xxxxx  1567 xxxx xxxxx  xxxx xxxx xxxxx   867  763  1022
Move Cap.:   xxxx xxxx xxxxx  1567 xxxx xxxxx  xxxx xxxx xxxxx   865  761  1022
Volume/Cap:  xxxx xxxx  xxxx  0.00 xxxx  xxxx  xxxx xxxx  xxxx  0.00 0.00  0.00
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   0.0 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx   7.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     A    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  937 xxxxx
SharedQueue:xxxxx xxxx xxxxx   0.0 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.0 xxxxx
Shrd ConDel:xxxxx xxxx xxxxx   7.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  8.9 xxxxx
Shared LOS:     *    *     *     A    *     *     *    *     *     *    A     *
ApproachDel:      xxxxxx           xxxxxx           xxxxxx              8.9
ApproachLOS:        *                *                *                 A
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                          Existing (2013) Conditions
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #5 Jackson St. / Av. 60
********************************************************************************
Cycle (sec):          100               Critical Vol./Cap.(X):         0.071
Loss Time (sec):        0               Average Delay (sec/veh):         7.3
Optimal Cycle:          0               Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0     0     0     0     0     0     0     0     0     0     0     0
Lanes:        0  0  1! 0  0   0  0  1! 0  0   0  0  1! 0  0   0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      11    42     3     5    49     4     7    22     8     4    11    14
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   11    42     3     5    49     4     7    22     8     4    11    14
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.94 0.94  0.94  0.94 0.94  0.94  0.94 0.94  0.94  0.94 0.94  0.94
PHF Volume:    12    45     3     5    52     4     7    23     9     4    12    15
Reduct Vol:     0     0     0     0     0     0     0     0     0     0     0     0
Reduced Vol:   12    45     3     5    52     4     7    23     9     4    12    15
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   12    45     3     5    52     4     7    23     9     4    12    15
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.20 0.75  0.05  0.09 0.84  0.07  0.19 0.59  0.22  0.14 0.38  0.48
Final Sat.:   169  645    46    75  733    60   162  509   185   123  337   429
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.07 0.07  0.07  0.07 0.07  0.07  0.05 0.05  0.05  0.03 0.03  0.03
Crit Moves:  ****                  ****              ****              ****
Delay/Veh:    7.4  7.4   7.4   7.4  7.4   7.4   7.3  7.3   7.3   7.1  7.1   7.1
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   7.4  7.4   7.4   7.4  7.4   7.4   7.3  7.3   7.3   7.1  7.1   7.1
LOS by Move:    A    A     A     A    A     A     A    A     A     A    A     A
ApproachDel:       7.4              7.4               7.3               7.1
Delay Adj:        1.00             1.00              1.00              1.00
ApprAdjDel:        7.4              7.4               7.3               7.1
LOS by Appr:         A                A                 A                 A
AllWayAvgQ:   0.1  0.1   0.1   0.1  0.1   0.1   0.0  0.0   0.0   0.0  0.0   0.0
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

```
--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                        Existing (2013) Conditions
                               PM Peak Hour
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
            2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #6 Jackson St. / 61st Av.
********************************************************************************
Average Delay (sec/veh):      1.0       Worst Case Level Of Service: A[  9.4]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  1  0  0  0   0  1  0  0  0   0  0  1! 0  0   0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:        2   47     0     3   56     0     2    1     1     0    2     2
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:     2   47     0     3   56     0     2    1     1     0    2     2
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.71 0.71  0.71  0.71 0.71  0.71  0.71 0.71  0.71  0.71 0.71  0.71
PHF Volume:      3   66     0     4   79     0     3    1     1     0    3     3
Reduct Vol:      0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:     3   66     0     4   79     0     3    1     1     0    3     3
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx   4.1 xxxx xxxxx   7.1  6.5   6.2 xxxxx  6.5   6.2
FollowUpTim:  2.2 xxxx xxxxx   2.2 xxxx xxxxx   3.5  4.0   3.3 xxxxx  4.0   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:   79 xxxx xxxxx    66 xxxx xxxxx   163  160    79  xxxx  160    66
Potent Cap.: 1532 xxxx xxxxx  1548 xxxx xxxxx   807  736   987  xxxx  736  1003
Move Cap.:   1532 xxxx xxxxx  1548 xxxx xxxxx   799  733   987  xxxx  733  1003
Volume/Cap:  0.00 xxxx  xxxx  0.00 xxxx  xxxx  0.00 0.00  0.00  xxxx 0.00  0.00
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.0 xxxx xxxxx   0.0 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:  7.4 xxxx xxxxx   7.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    A    *     *     A    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  820 xxxxx  xxxx xxxx   847
SharedQueue:  0.0 xxxx xxxxx   0.0 xxxx xxxxx xxxxx  0.0 xxxxx xxxxx xxxx   0.0
Shrd ConDel:  7.4 xxxx xxxxx   7.3 xxxx xxxxx xxxxx  9.4 xxxxx xxxxx xxxx   9.3
Shared LOS:     A    *     *     A    *     *     *    A     *     *    *     A
ApproachDel:     xxxxxx           xxxxxx               9.4               9.3
ApproachLOS:        *                *                  A                 A
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

```
--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                          Existing (2013) Conditions
                                 PM Peak Hour
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
          2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #9 Madison St. / 58th Av.
********************************************************************************
Cycle (sec):          100               Critical Vol./Cap.(X):        0.125
Loss Time (sec):        0               Average Delay (sec/veh):        8.6
Optimal Cycle:          0               Level Of Service:                 A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  2  0  1    1  0  2  0  1    1  0  1  0  1    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       2  109     1    63  168    41    53   35     4     0   10    51
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    2  109     1    63  168    41    53   35     4     0   10    51
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     2  109     1    63  168    41    53   35     4     0   10    51
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    2  109     1    63  168    41    53   35     4     0   10    51
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    2  109     1    63  168    41    53   35     4     0   10    51
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 2.00  1.00  1.00 2.00  1.00  1.00 1.00  1.00  1.00 2.00  1.00
Final Sat.:   575 1251   709   612 1340   769   554  601   680   544 1178   666
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.09  0.00  0.10 0.13  0.05  0.10 0.06  0.01  0.00 0.01  0.08
Crit Moves:       ****             ****        ****                          ****
Delay/Veh:    8.7  8.7   7.5   9.0  8.6   7.5   9.5  8.7   7.7   0.0  8.5   8.1
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   8.7  8.7   7.5   9.0  8.6   7.5   9.5  8.7   7.7   0.0  8.5   8.1
LOS by Move:    A    A     A     A    A     A     A    A     A     *    A     A
ApproachDel:       8.7              8.5              9.1              8.2
Delay Adj:        1.00             1.00             1.00             1.00
ApprAdjDel:        8.7              8.5              9.1              8.2
LOS by Appr:         A                A                A                A
AllWayAvgQ:   0.0  0.1   0.0   0.1  0.1   0.1   0.1  0.1   0.0   0.0  0.0   0.1
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

APPENDIX 3.3

Traffic Signal Warrant Analysis Worksheets

Existing (2013) Conditions

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

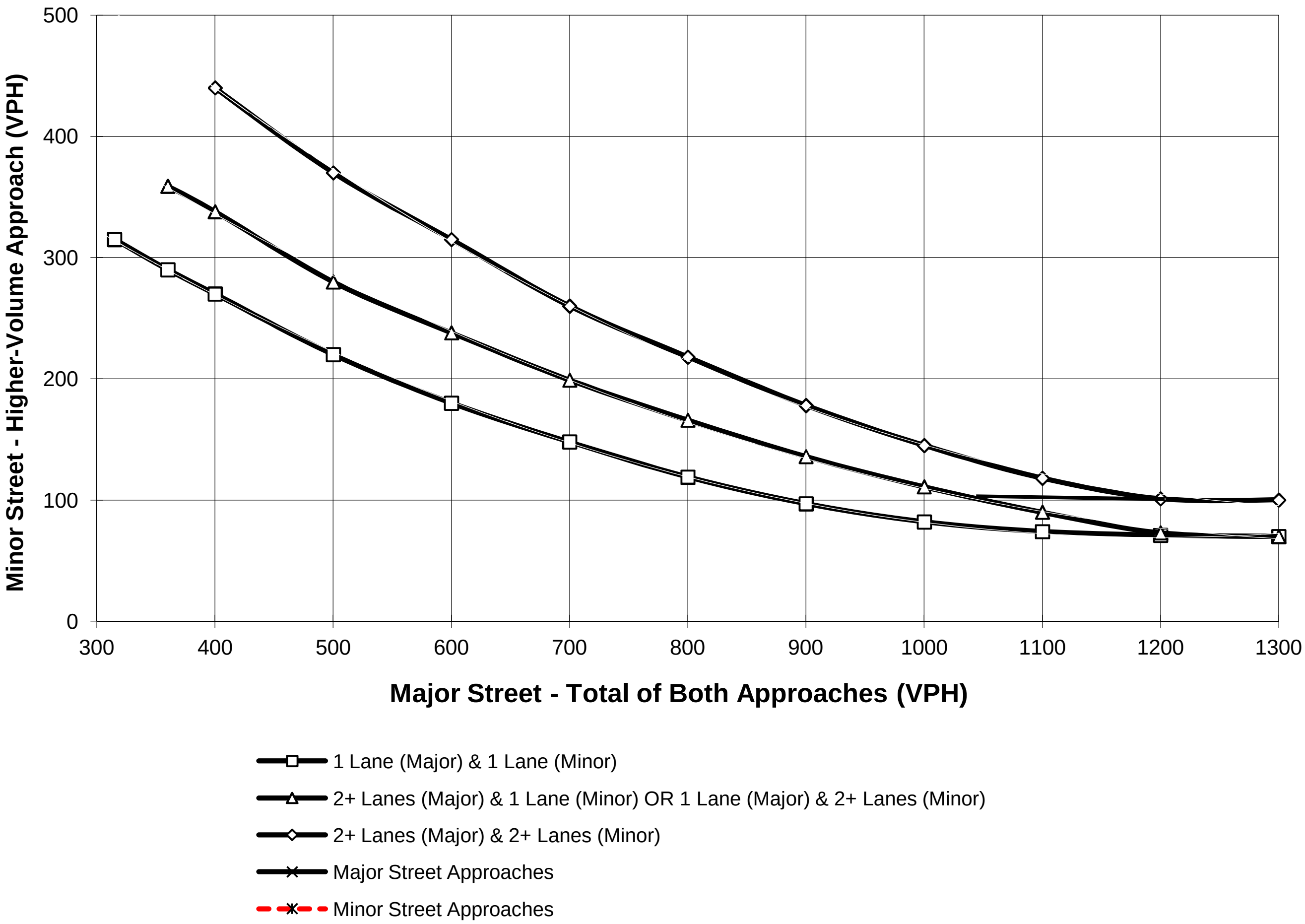
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing (2013) Conditions - Weekday AM Peak Hour**

Major Street Name = **60th Av.**
Total of Both Approaches (VPH) = **133**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Madison Street**
High Volume Approach (VPH) = **59**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing (2013) Conditions - Weekday PM Peak Hour**

Major Street Name = **Madison Street**

Total of Both Approaches (VPH) = **165**

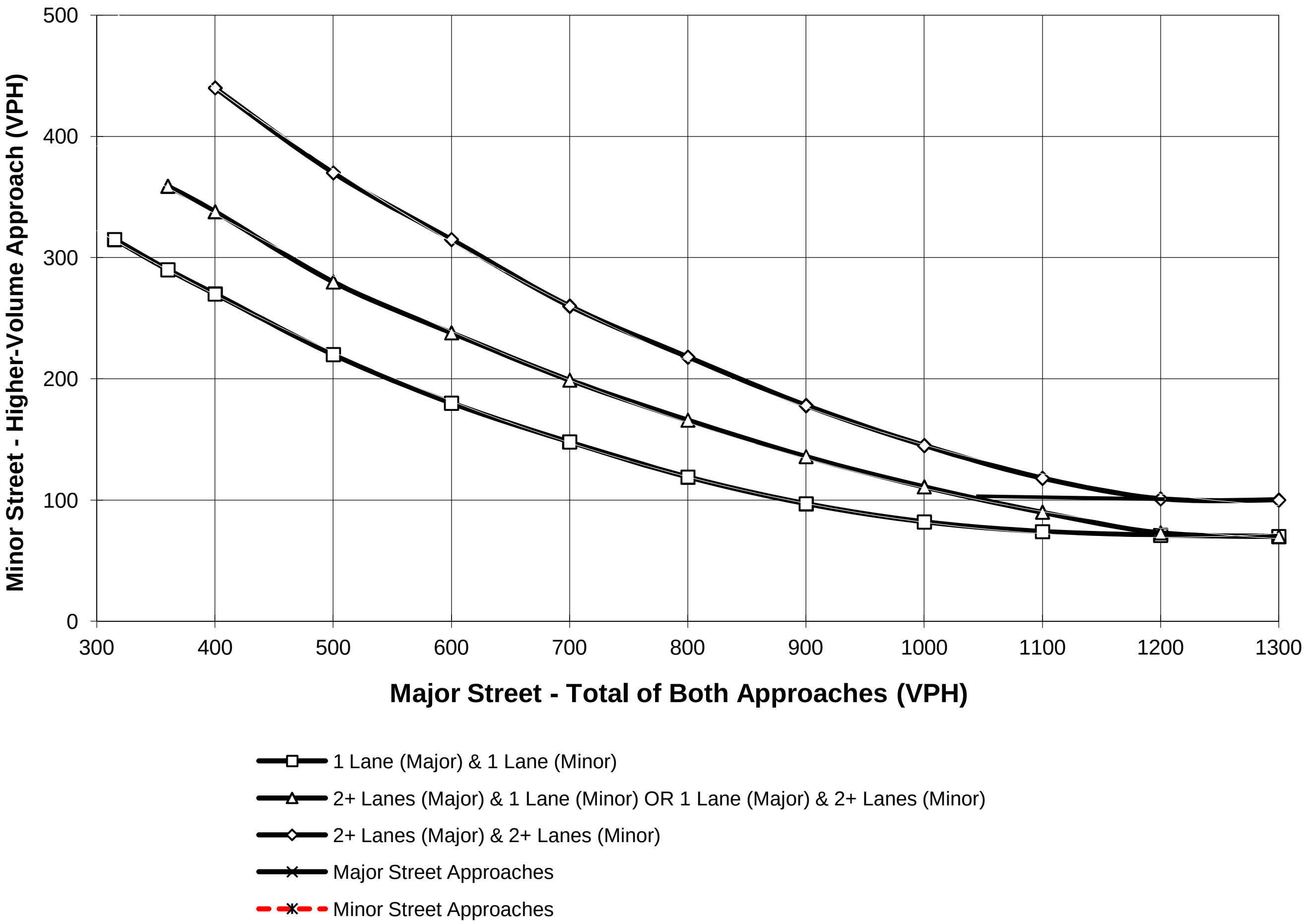
Number of Approach Lanes Major Street = **1**

Minor Street Name = **60th Av.**

High Volume Approach (VPH) = **105**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing (2013) Conditions - Weekday AM Peak Hour**

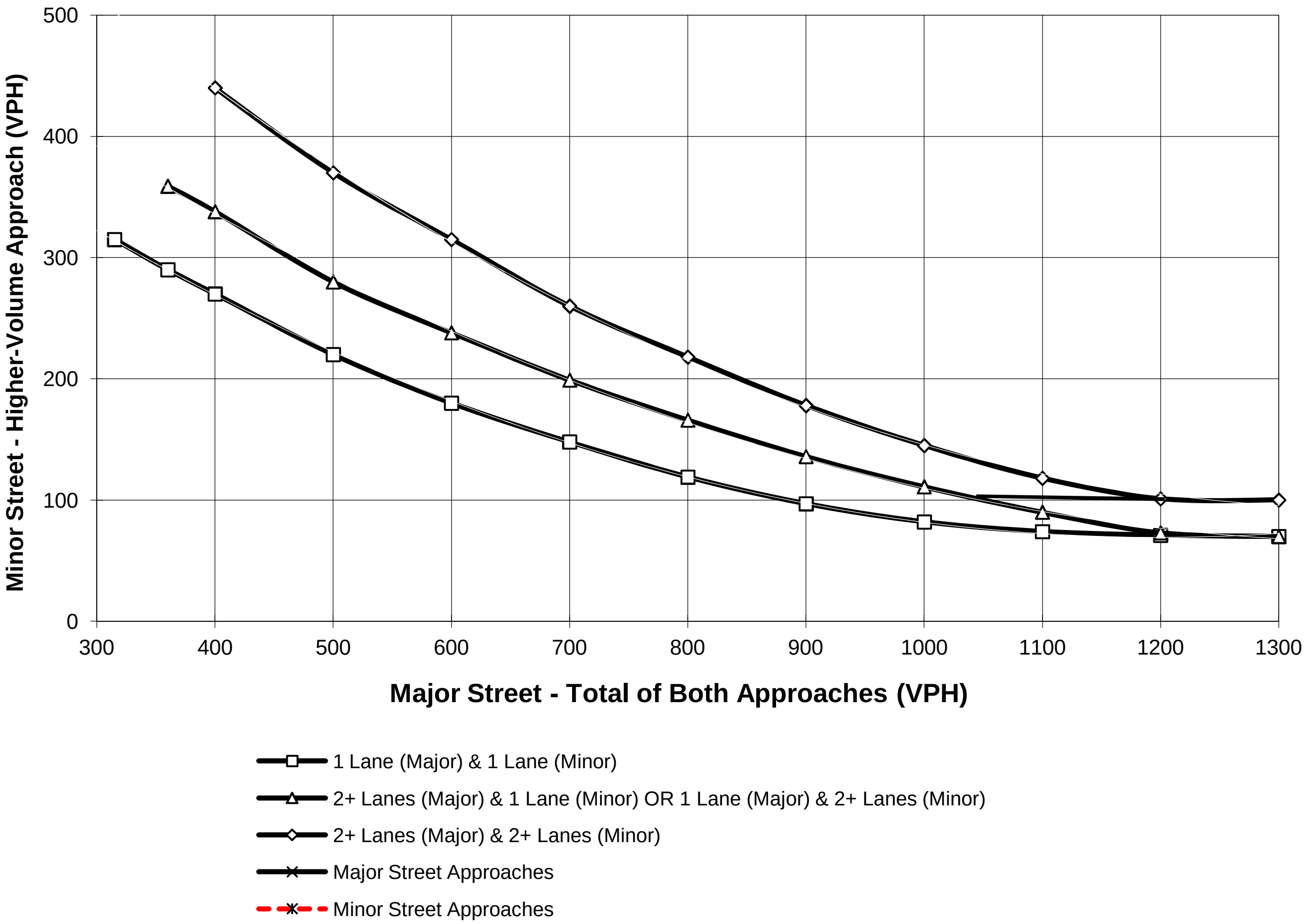
Major Street Name = **Monroe Street**

Total of Both Approaches (VPH) = **148**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **58th Avenue**

High Volume Approach (VPH) = **95**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing (2013) Conditions - Weekday PM Peak Hour**

Major Street Name = **58th Avenue**

Total of Both Approaches (VPH) = **191**

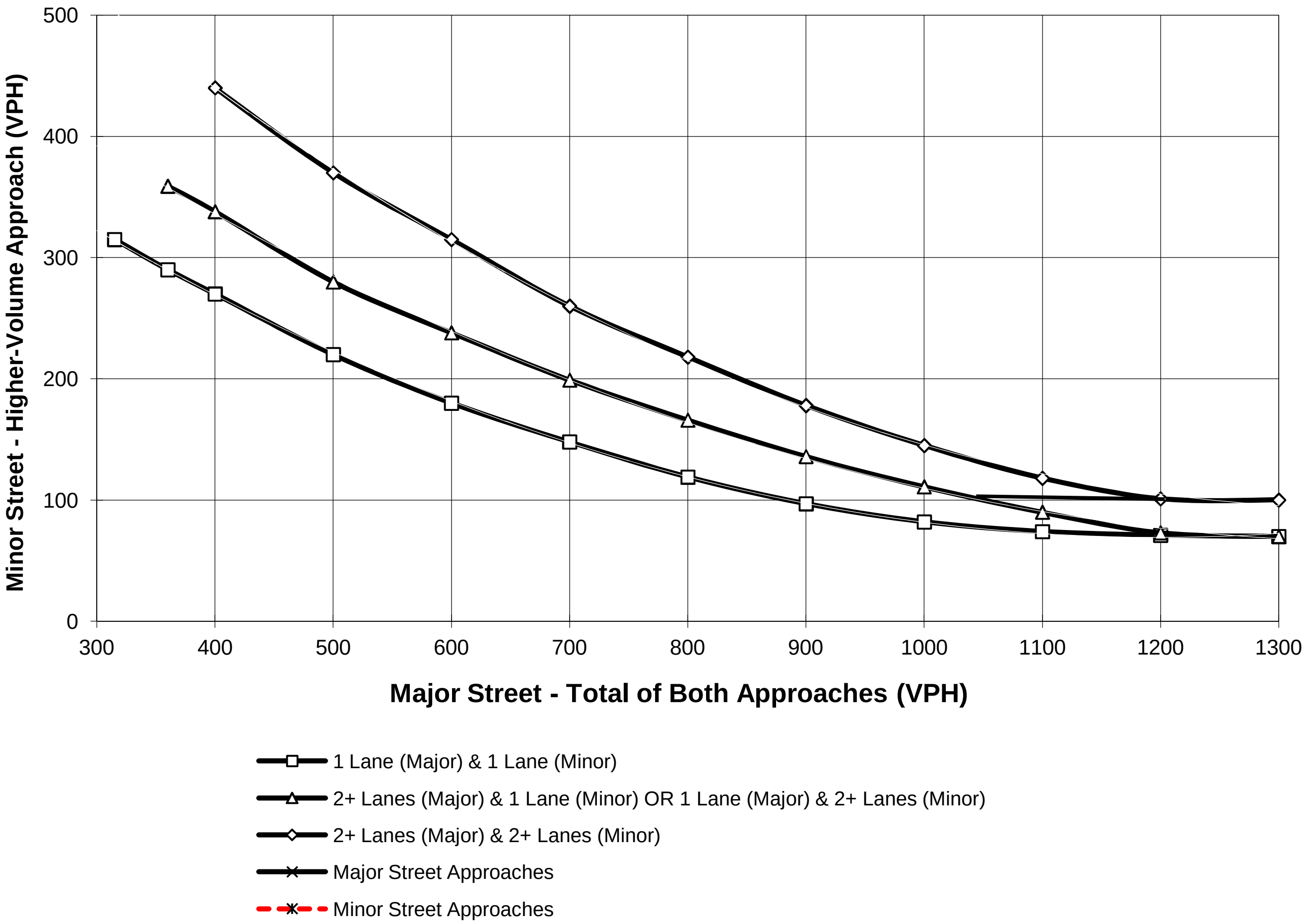
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Monroe Street**

High Volume Approach (VPH) = **100**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing (2013) Conditions - Weekday AM Peak Hour**

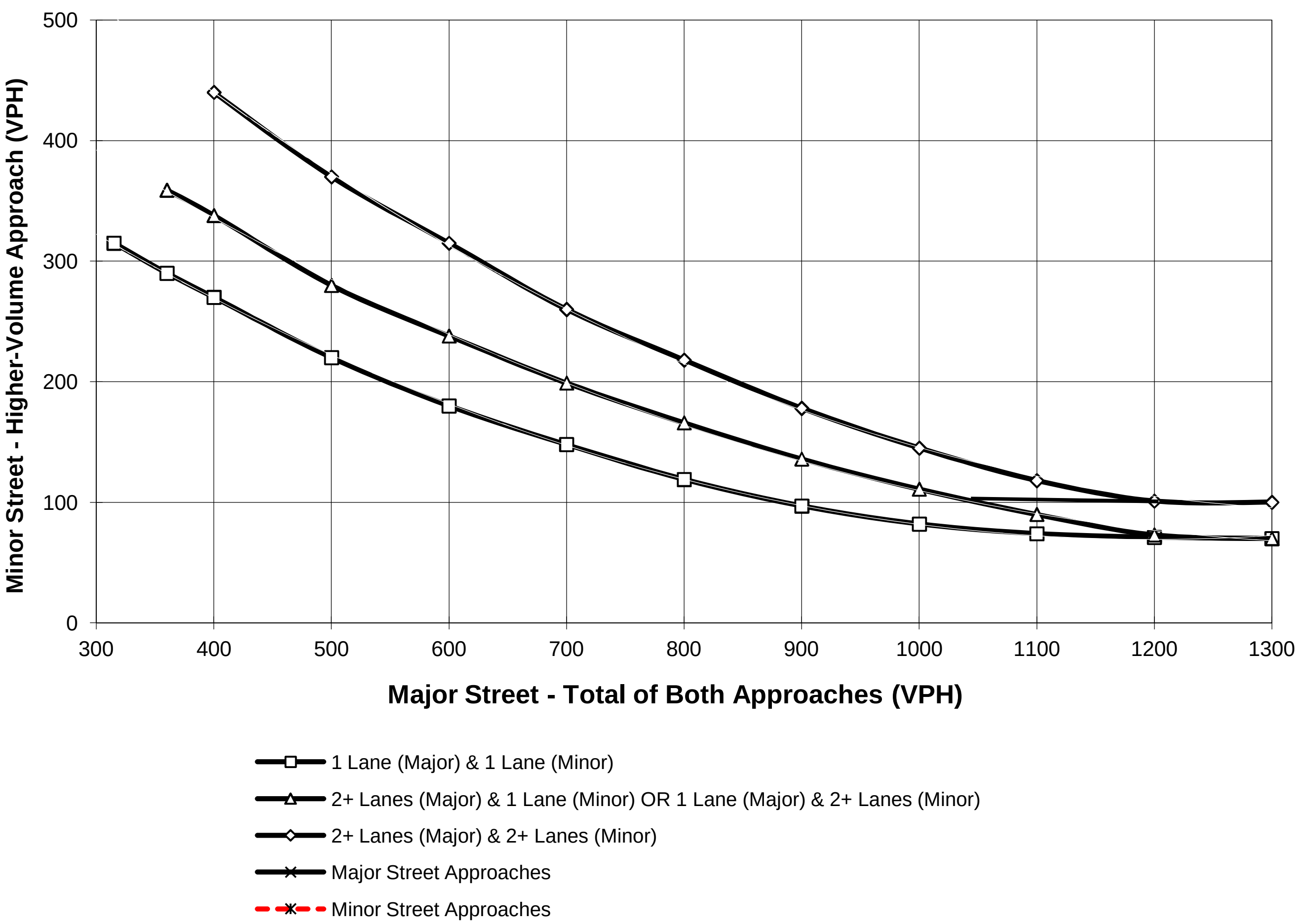
Major Street Name = **60th Av.**

Total of Both Approaches (VPH) = **96**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Monroe Street**

High Volume Approach (VPH) = **41**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing (2013) Conditions - Weekday PM Peak Hour**

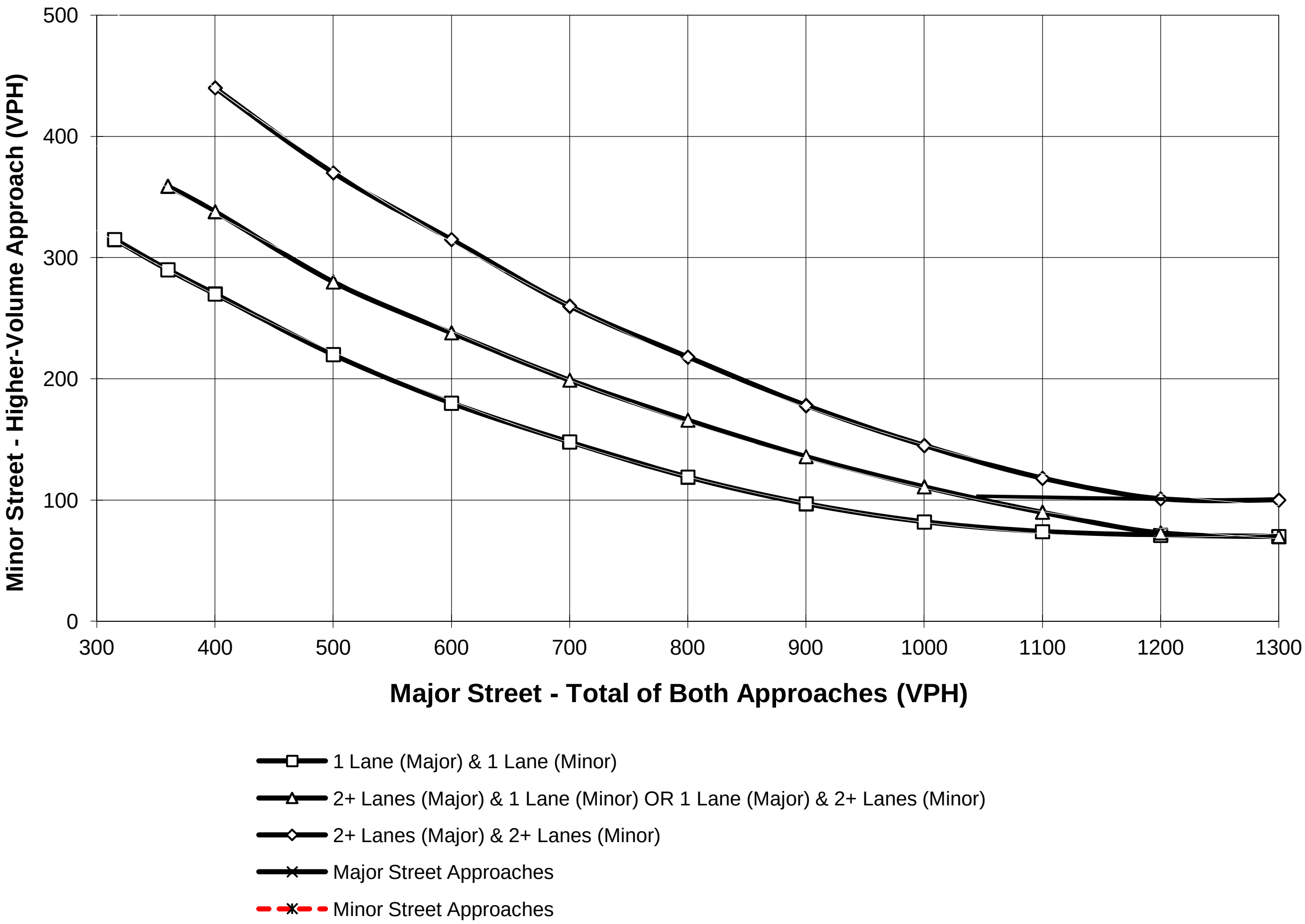
Major Street Name = **60th Av.**

Total of Both Approaches (VPH) = **109**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Monroe Street**

High Volume Approach (VPH) = **56**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing (2013) Conditions - Weekday AM Peak Hour**

Major Street Name = **Monroe Street**

Total of Both Approaches (VPH) = **81**

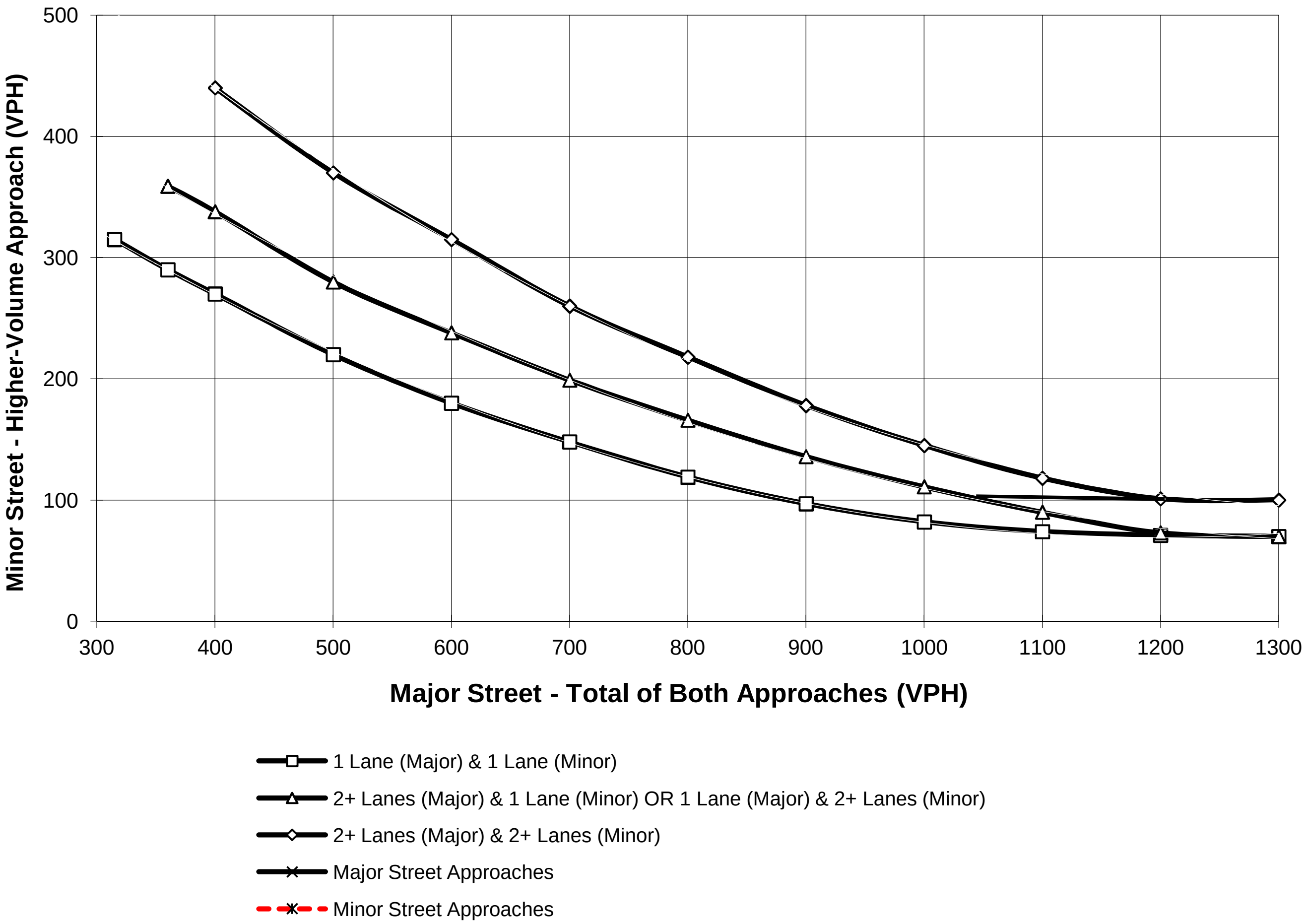
Number of Approach Lanes Major Street = **1**

Minor Street Name = **61st Avenue**

High Volume Approach (VPH) = **3**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing (2013) Conditions - Weekday PM Peak Hour**

Major Street Name = **Monroe Street**

Total of Both Approaches (VPH) = **104**

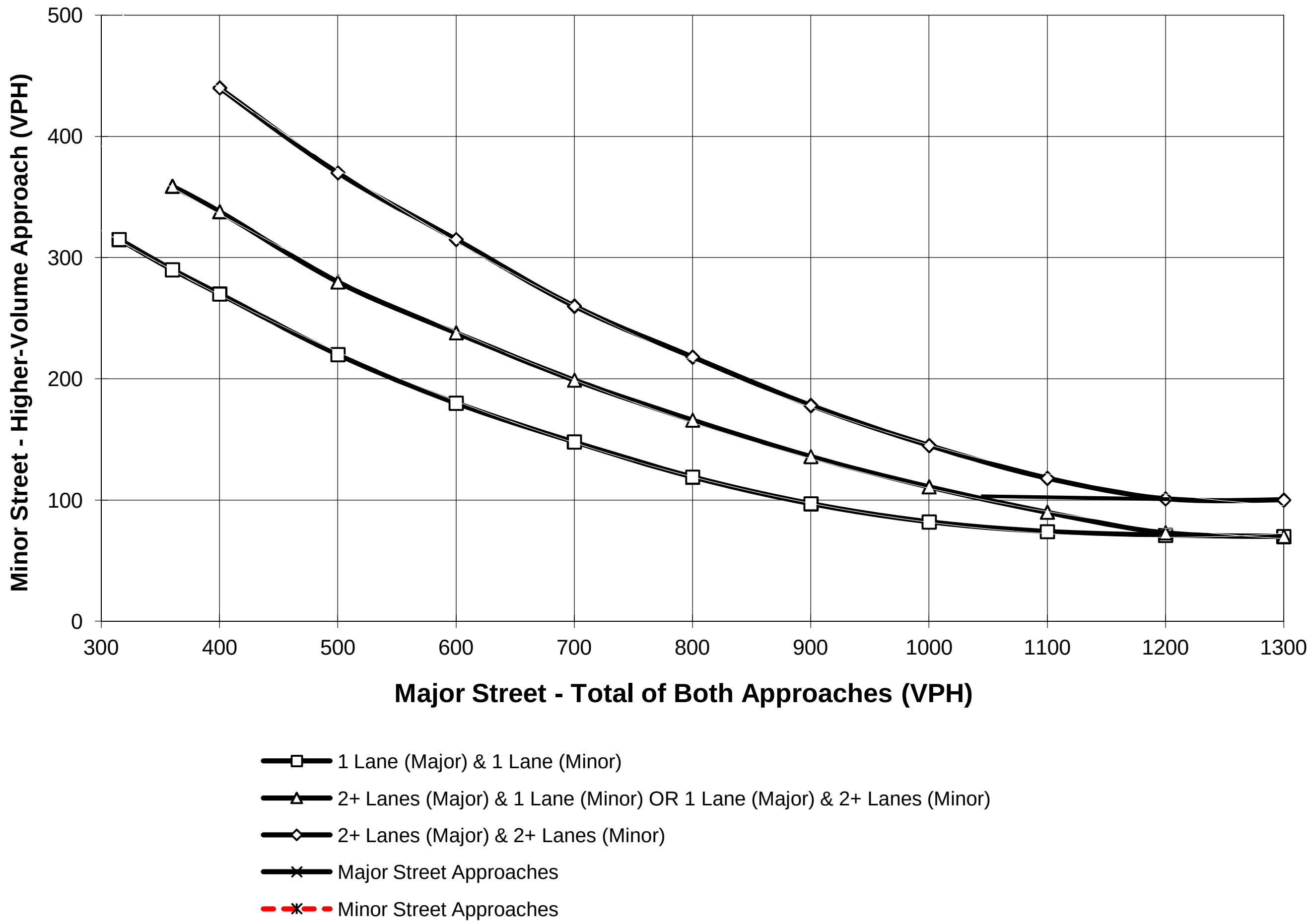
Number of Approach Lanes Major Street = **1**

Minor Street Name = **61st Avenue**

High Volume Approach (VPH) = **2**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing (2013) Conditions - Weekday AM Peak Hour**

Major Street Name = **Jackson Street**

Total of Both Approaches (VPH) = **123**

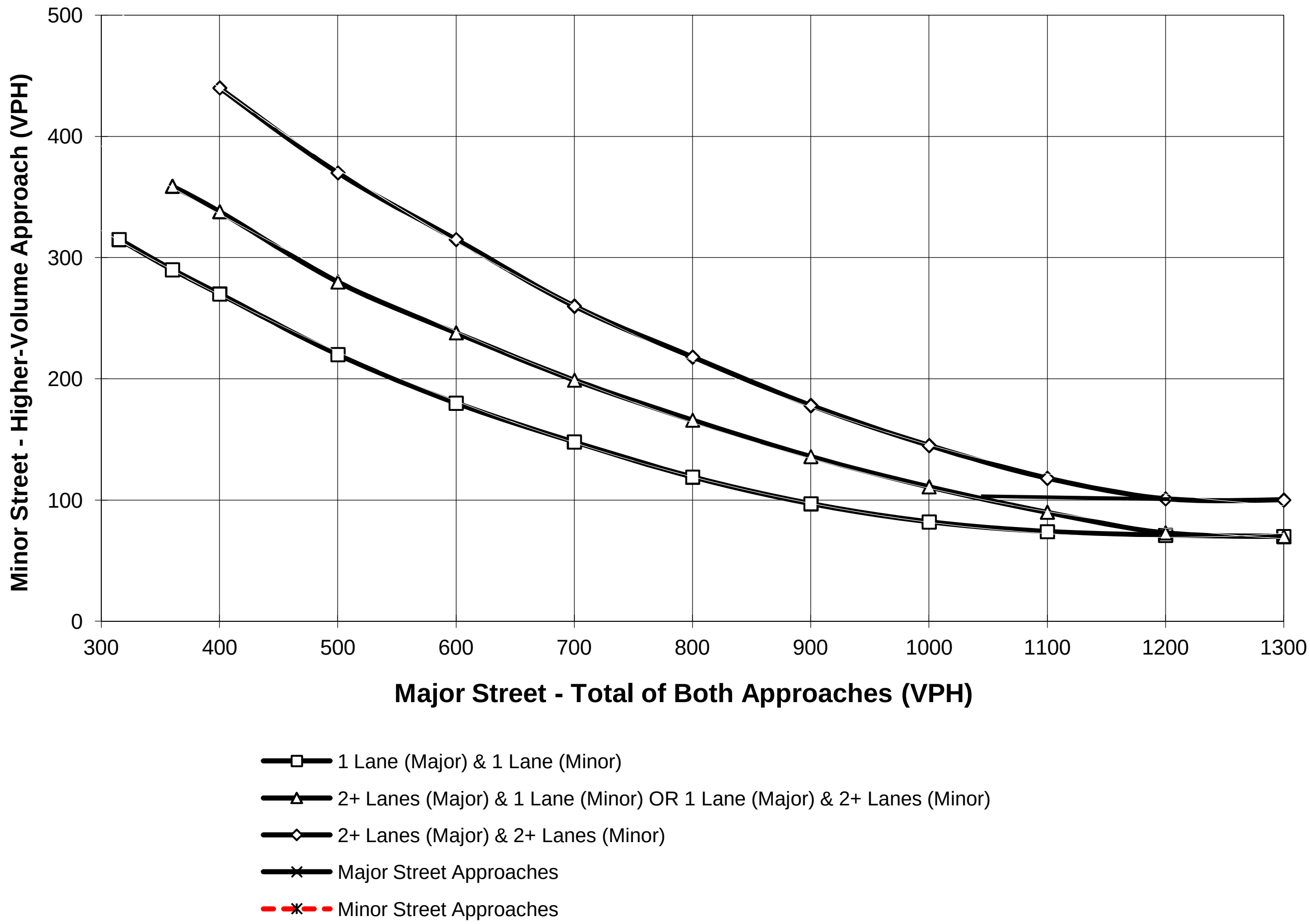
Number of Approach Lanes Major Street = **1**

Minor Street Name = **60th Av.**

High Volume Approach (VPH) = **33**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing (2013) Conditions - Weekday PM Peak Hour**

Major Street Name = **Jackson Street**

Total of Both Approaches (VPH) = **114**

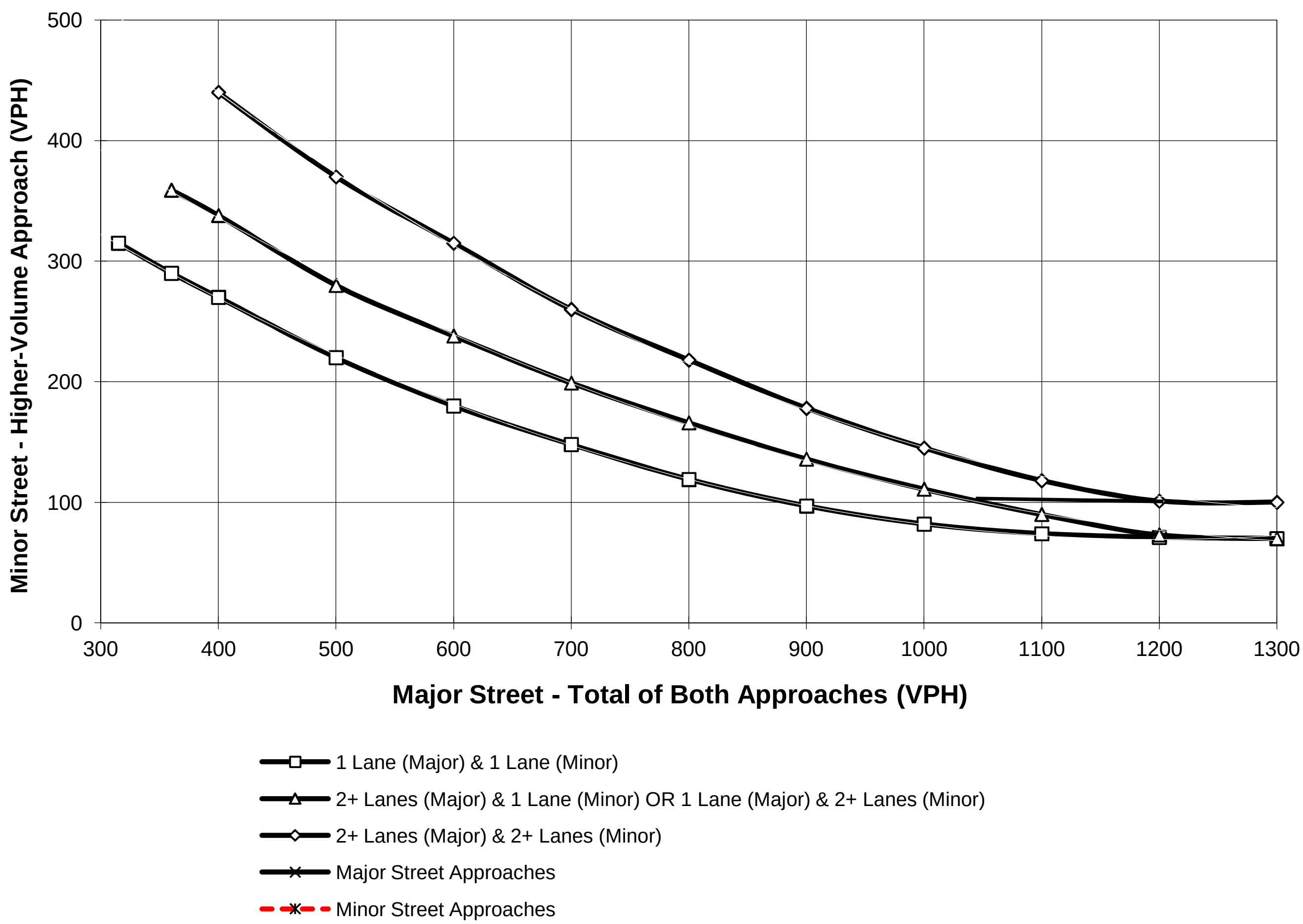
Number of Approach Lanes Major Street = **1**

Minor Street Name = **60th Av.**

High Volume Approach (VPH) = **37**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing (2013) Conditions - Weekday AM Peak Hour**

Major Street Name = **Jackson Street**

Total of Both Approaches (VPH) = **96**

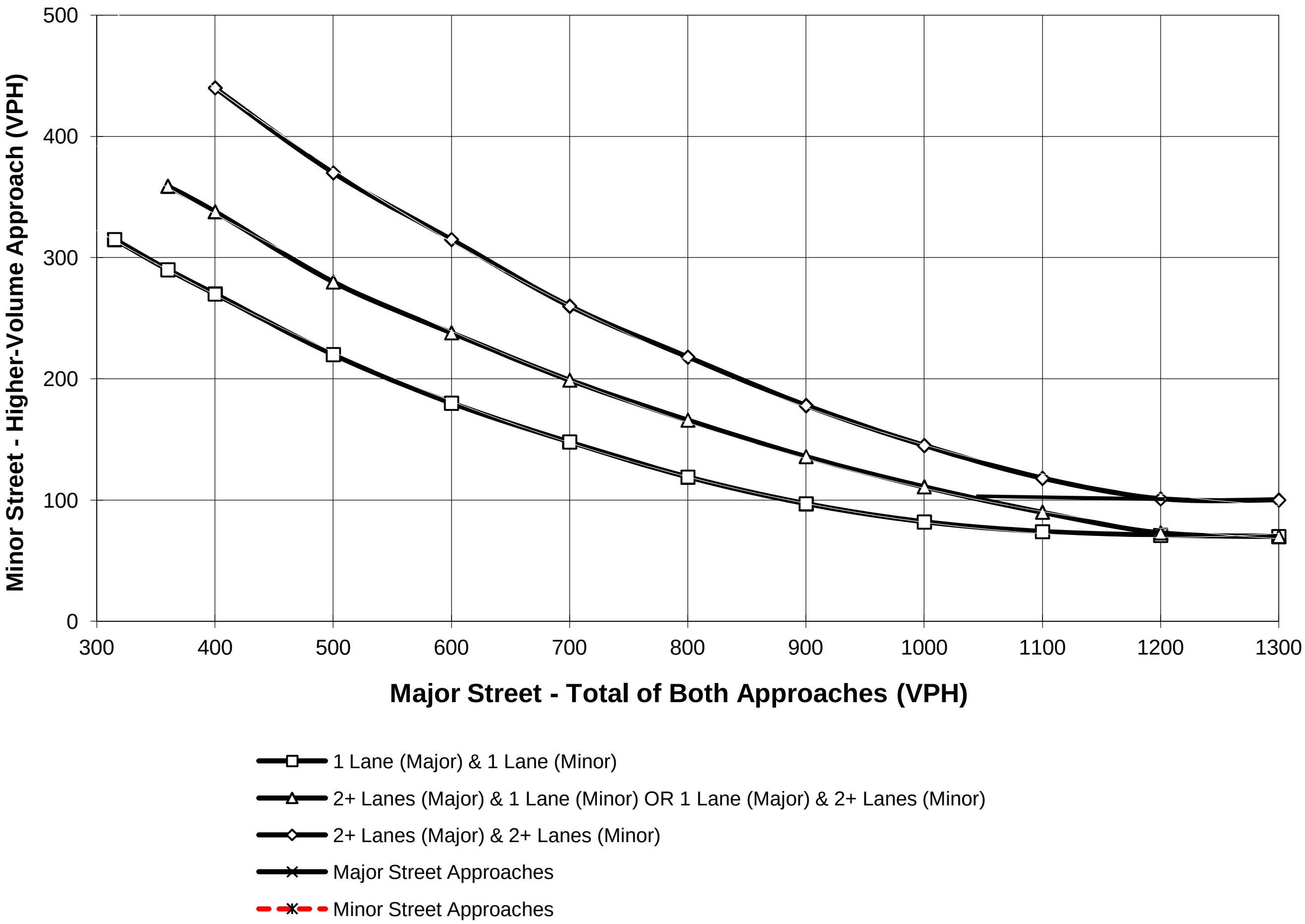
Number of Approach Lanes Major Street = **1**

Minor Street Name = **61st Avenue**

High Volume Approach (VPH) = **2**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing (2013) Conditions - Weekday PM Peak Hour**

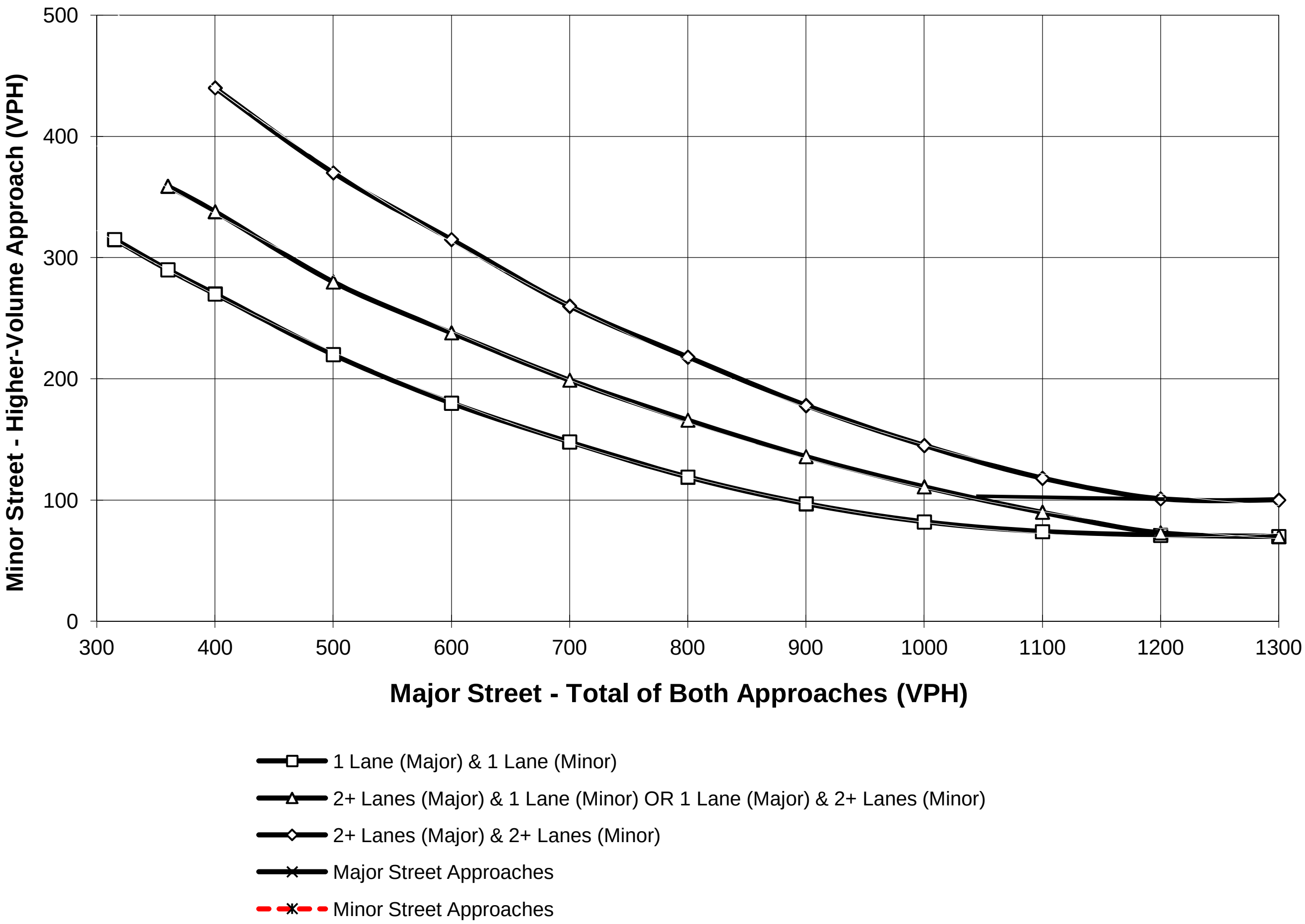
Major Street Name = **Jackson Street**

Total of Both Approaches (VPH) = **108**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **61st Avenue**

High Volume Approach (VPH) = **4**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing (2013) Conditions - Weekday AM Peak Hour**

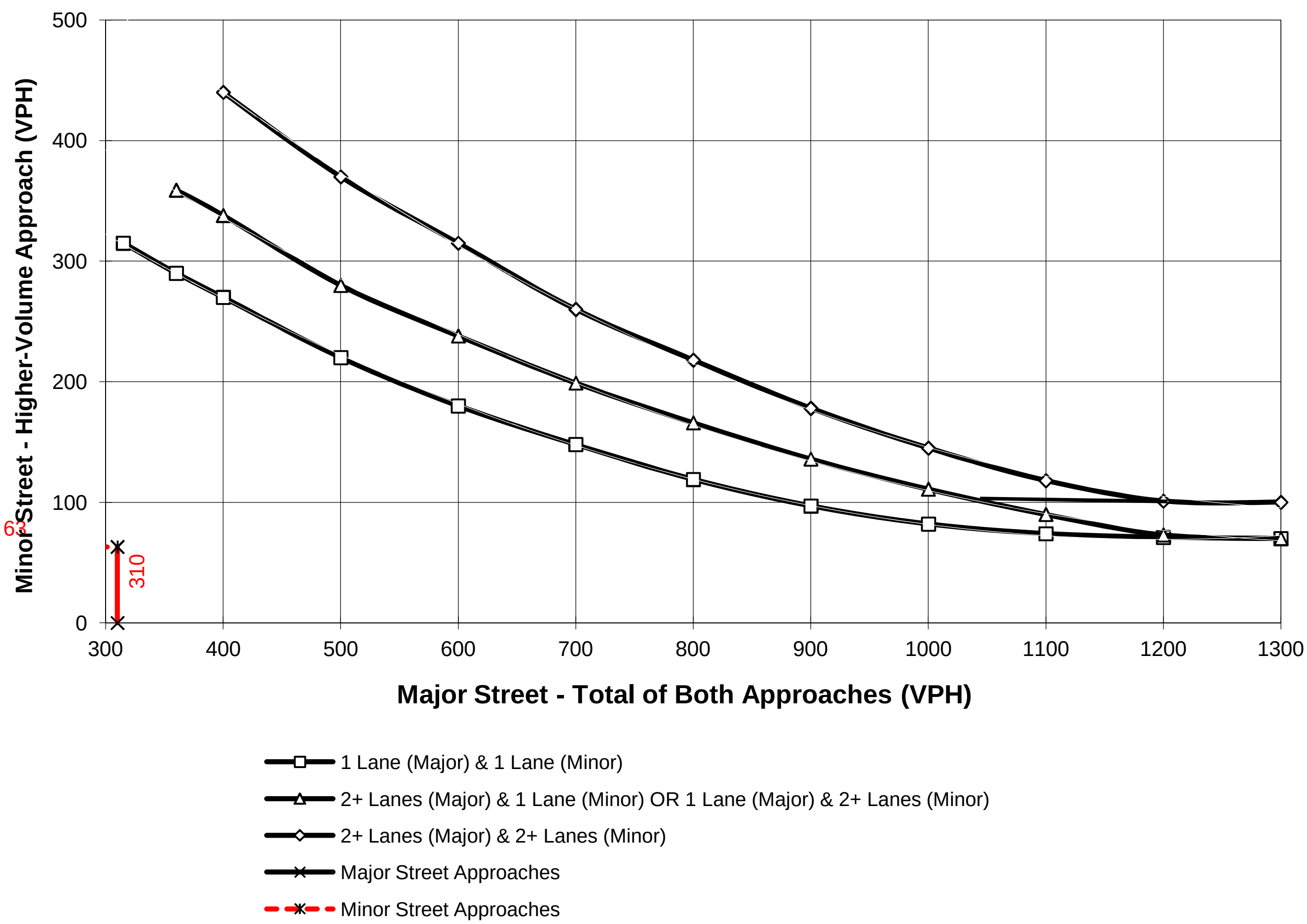
Major Street Name = **Madison Street**

Total of Both Approaches (VPH) = **310**
Number of Approach Lanes Major Street = **2**

Minor Street Name = **58th Avenue**

High Volume Approach (VPH) = **63**
Number of Approach Lanes Minor Street = **2**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing (2013) Conditions - Weekday PM Peak Hour**

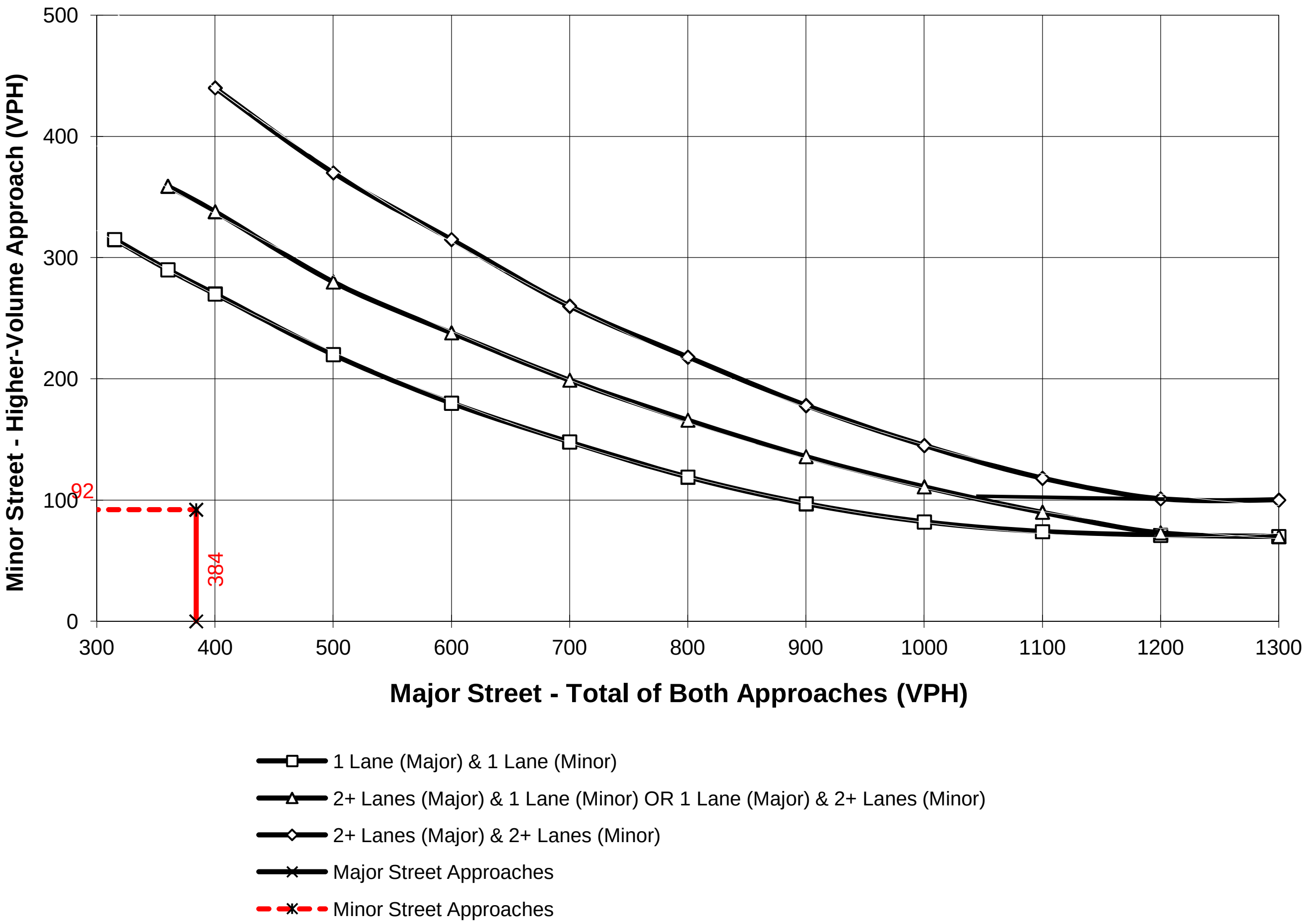
Major Street Name = **Madison Street**

Total of Both Approaches (VPH) = **384**
Number of Approach Lanes Major Street = **2**

Minor Street Name = **58th Avenue**

High Volume Approach (VPH) = **92**
Number of Approach Lanes Minor Street = **2**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Existing plus Project Conditions

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **E+P Conditions - Weekday AM Peak Hour**

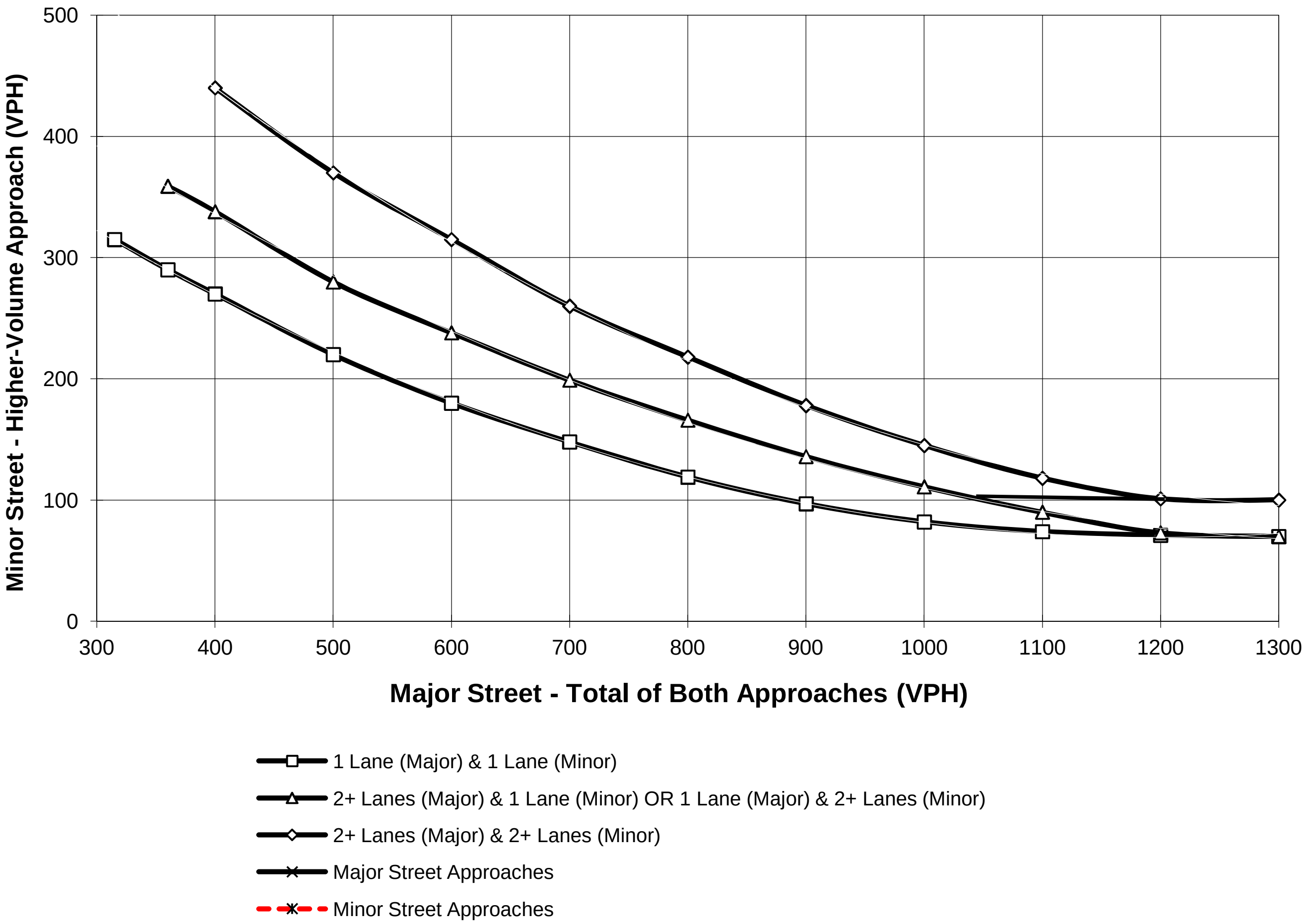
Major Street Name = **60th Av.**

Total of Both Approaches (VPH) = **152**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Madison Street**

High Volume Approach (VPH) = **66**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **E+P Conditions - Weekday PM Peak Hour**

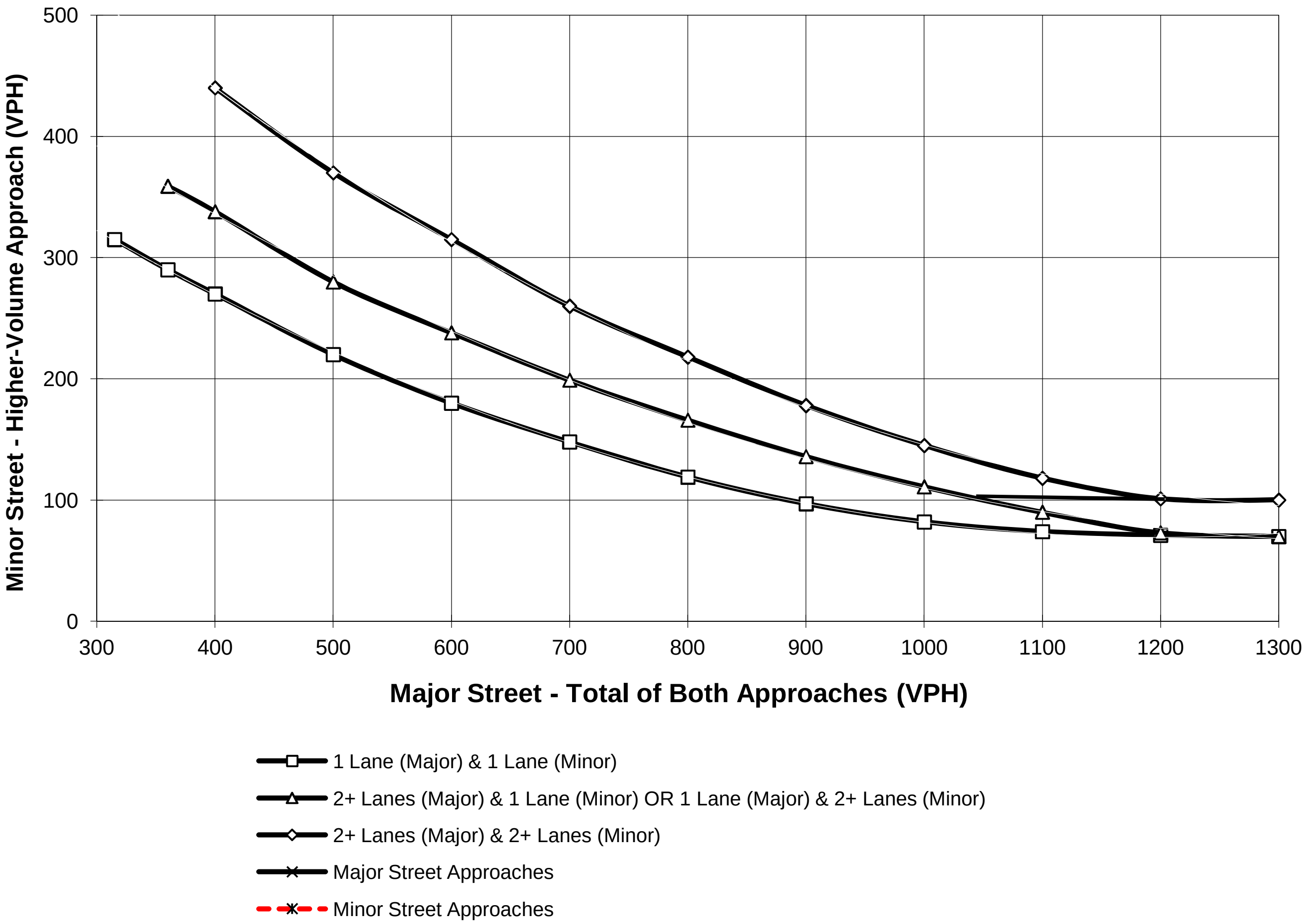
Major Street Name = **Madison Street**

Total of Both Approaches (VPH) = **187**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **60th Av.**

High Volume Approach (VPH) = **118**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **E+P Conditions - Weekday AM Peak Hour**

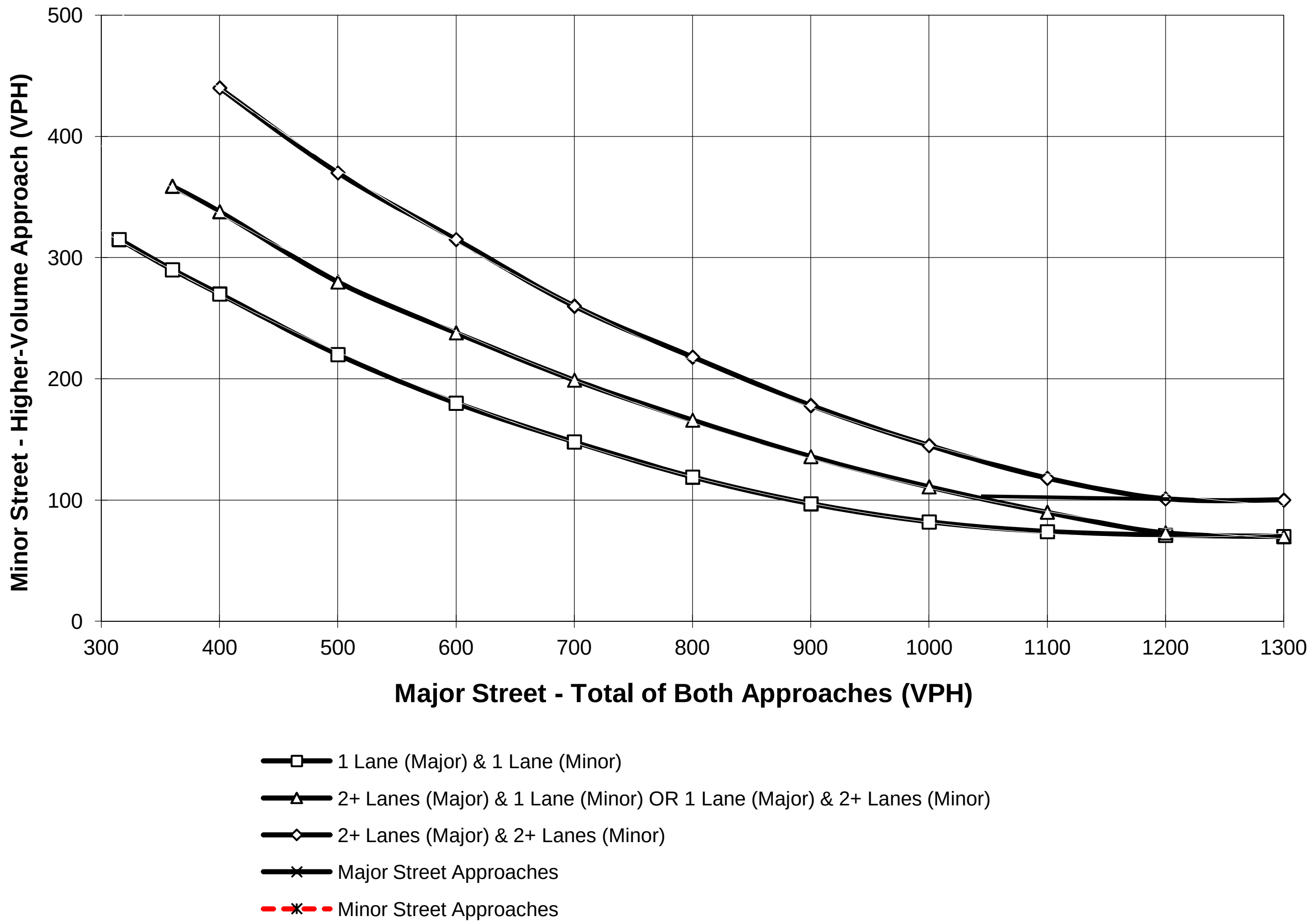
Major Street Name = **Monroe Street**

Total of Both Approaches (VPH) = **209**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **58th Avenue**

High Volume Approach (VPH) = **95**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **E+P Conditions - Weekday PM Peak Hour**

Major Street Name = **Monroe Street**

Total of Both Approaches (VPH) = **252**

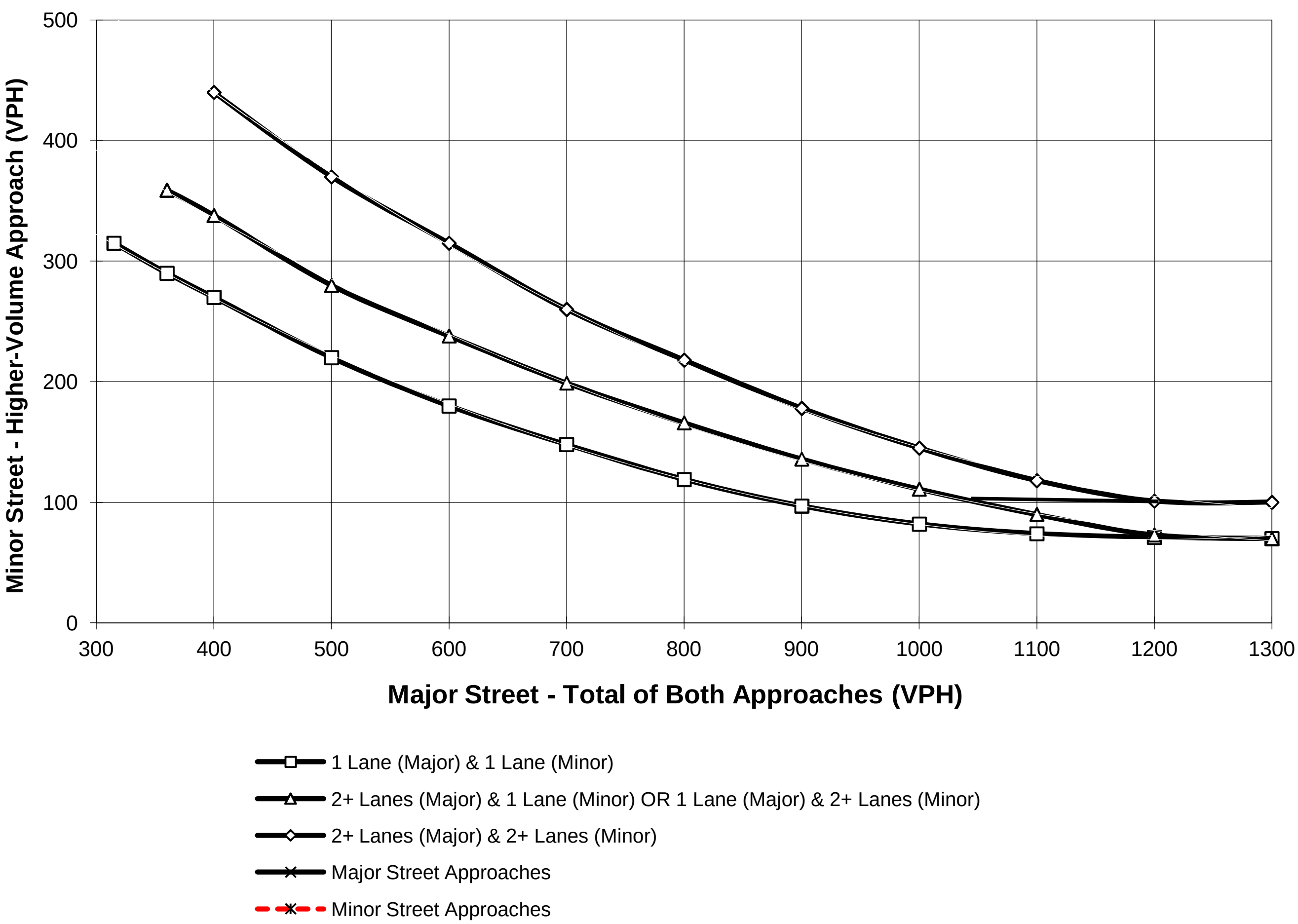
Number of Approach Lanes Major Street = **1**

Minor Street Name = **58th Avenue**

High Volume Approach (VPH) = **186**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **E+P Conditions - Weekday AM Peak Hour**

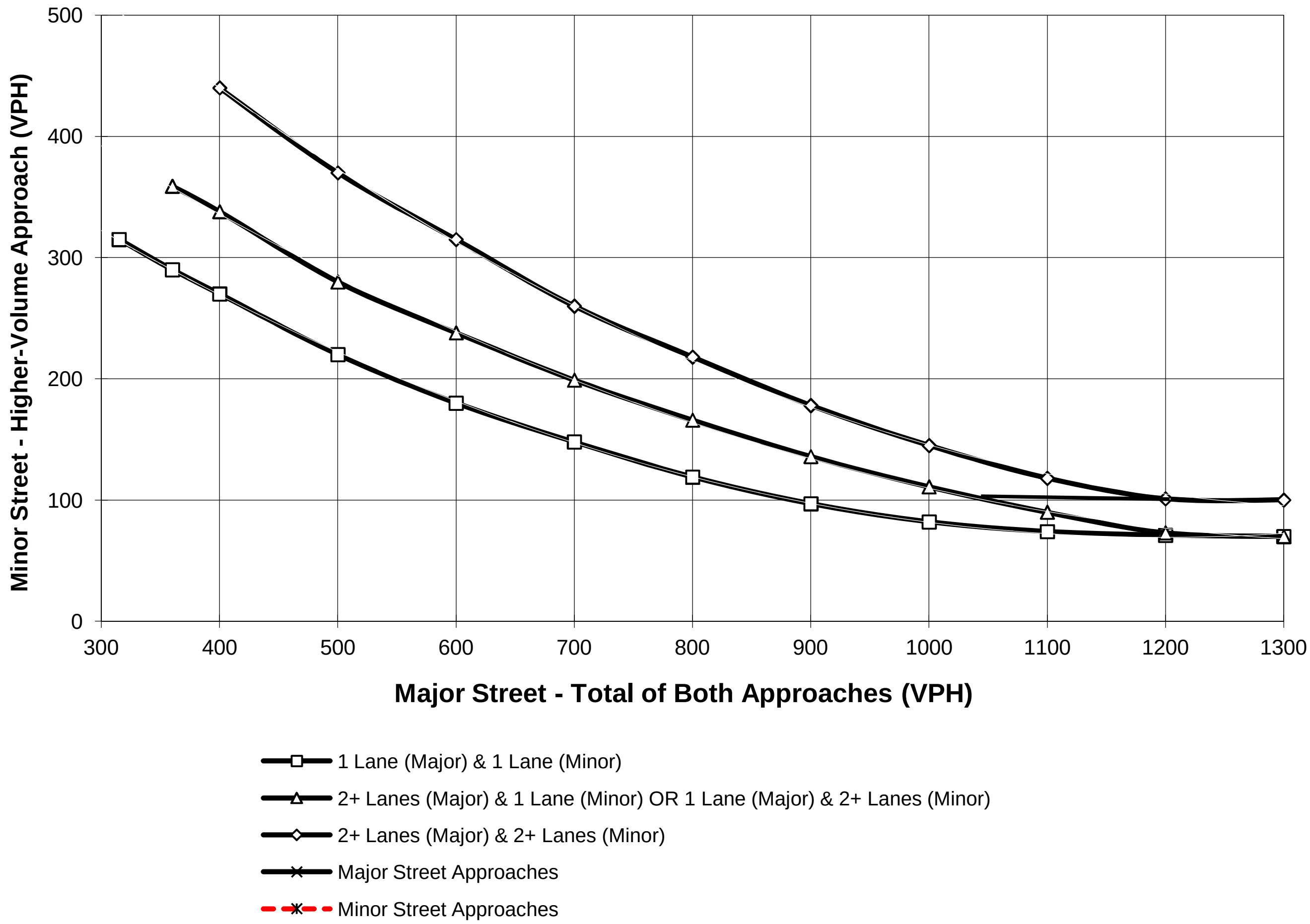
Major Street Name = **60th Av.**

Total of Both Approaches (VPH) = **170**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Monroe Street**

High Volume Approach (VPH) = **61**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **E+P Conditions - Weekday PM Peak Hour**

Major Street Name = **Monroe Street**

Total of Both Approaches (VPH) = **185**

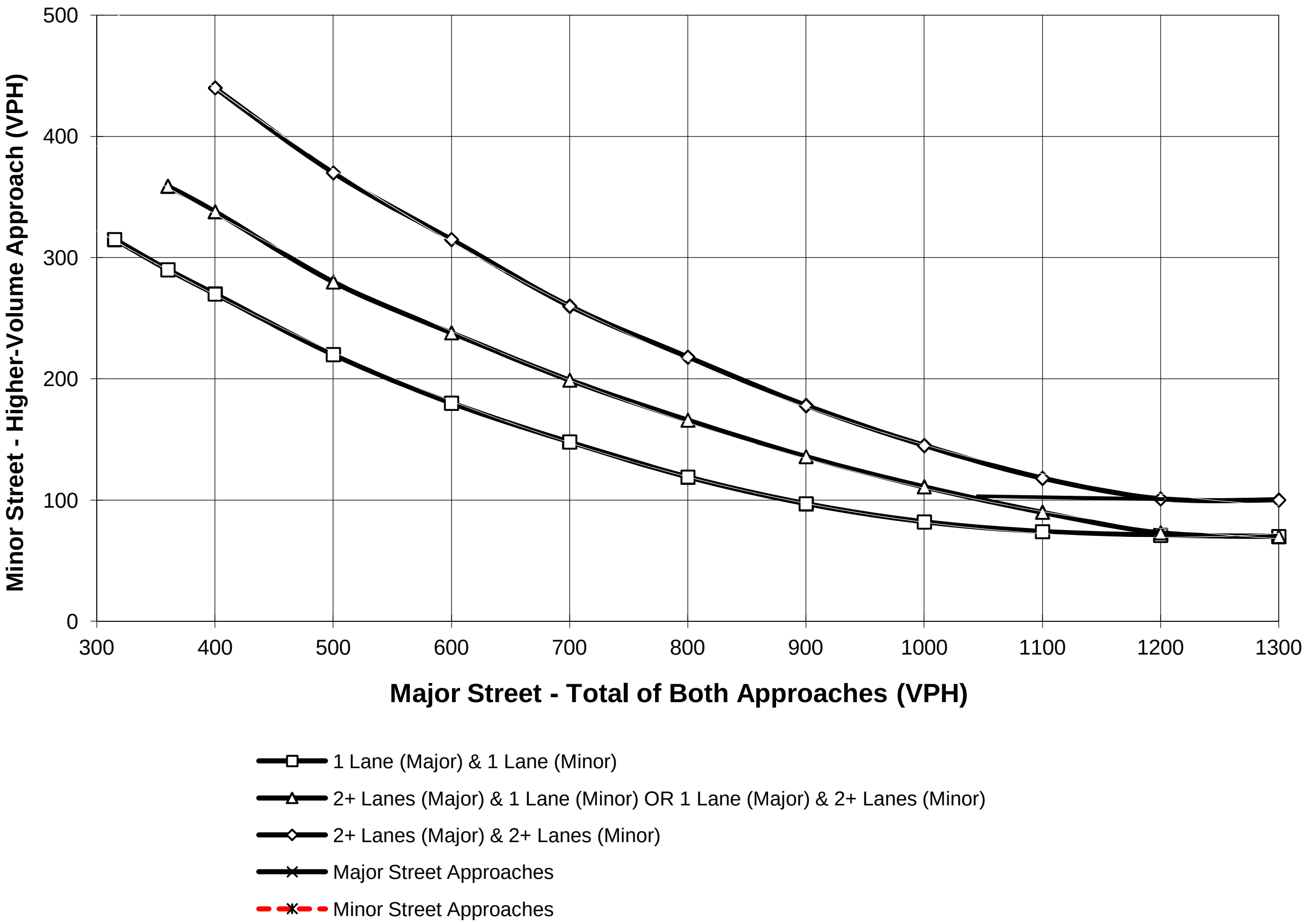
Number of Approach Lanes Major Street = **1**

Minor Street Name = **60th Av.**

High Volume Approach (VPH) = **115**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **E+P Conditions - Weekday AM Peak Hour**

Major Street Name = **Monroe Street**

Total of Both Approaches (VPH) = **88**

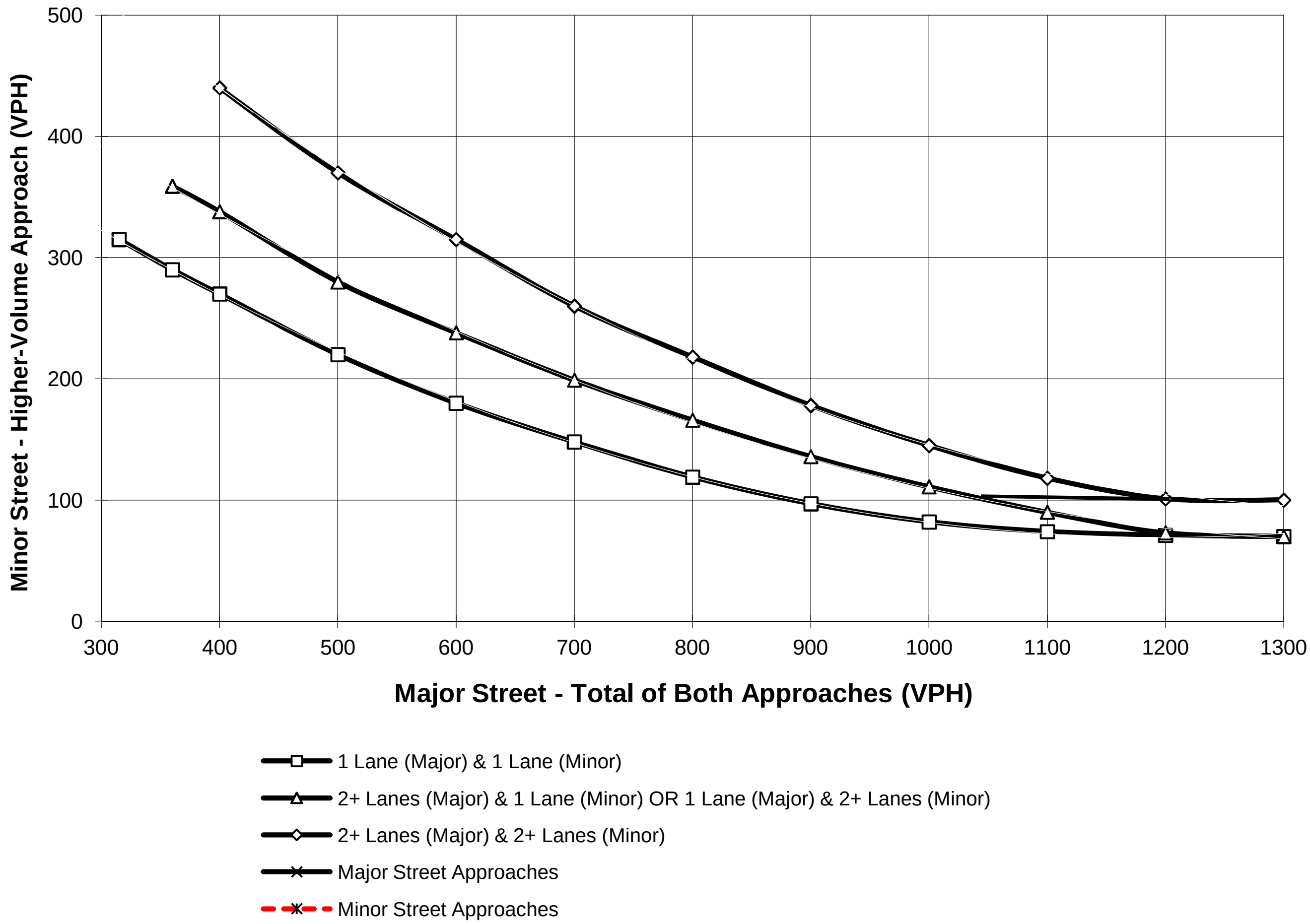
Number of Approach Lanes Major Street = **1**

Minor Street Name = **61st Avenue**

High Volume Approach (VPH) = **22**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **E+P Conditions - Weekday PM Peak Hour**

Major Street Name = **Monroe Street**

Total of Both Approaches (VPH) = **126**

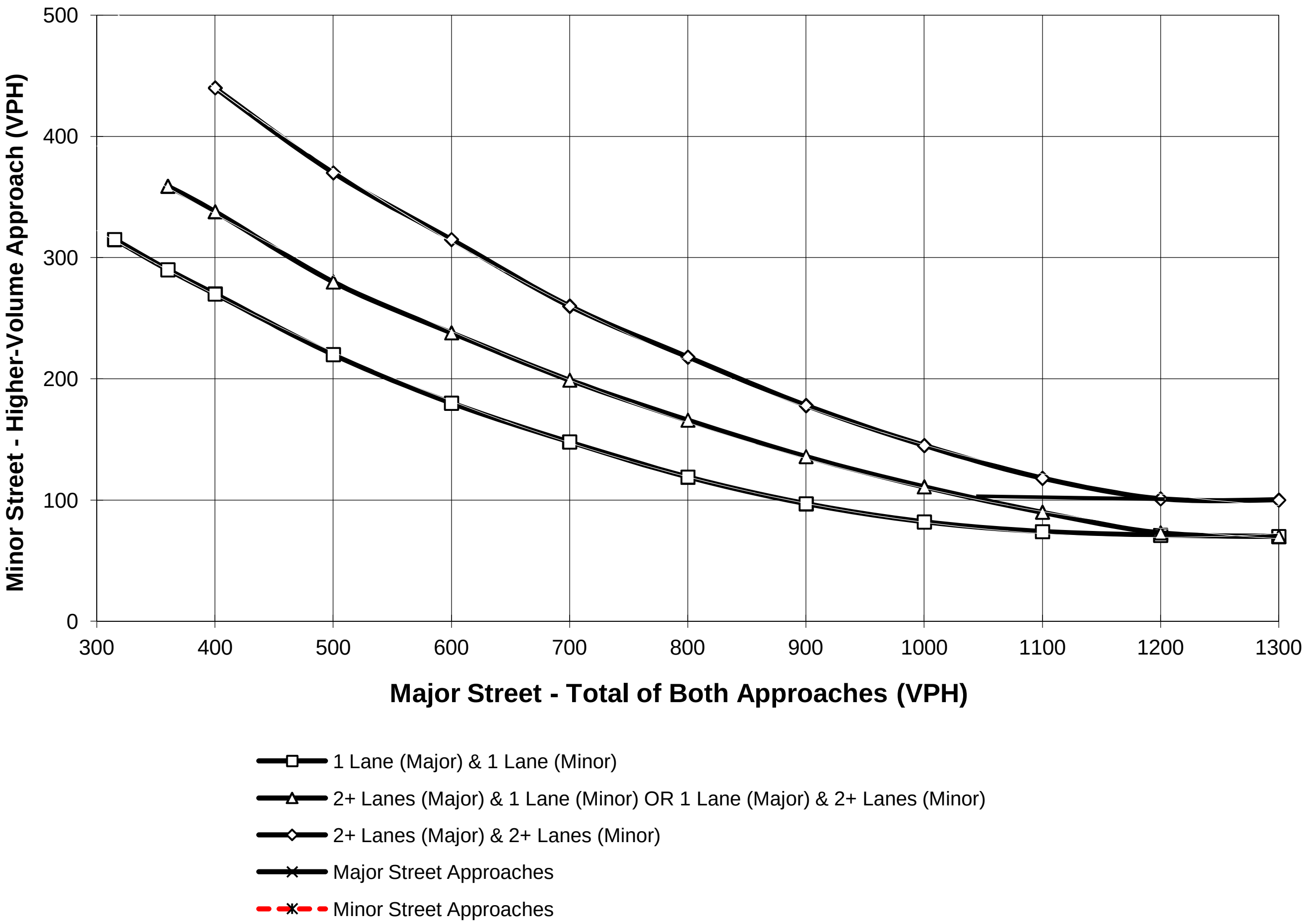
Number of Approach Lanes Major Street = **1**

Minor Street Name = **61st Avenue**

High Volume Approach (VPH) = **15**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **E+P Conditions - Weekday AM Peak Hour**

Major Street Name = **Jackson Street**

Total of Both Approaches (VPH) = **139**

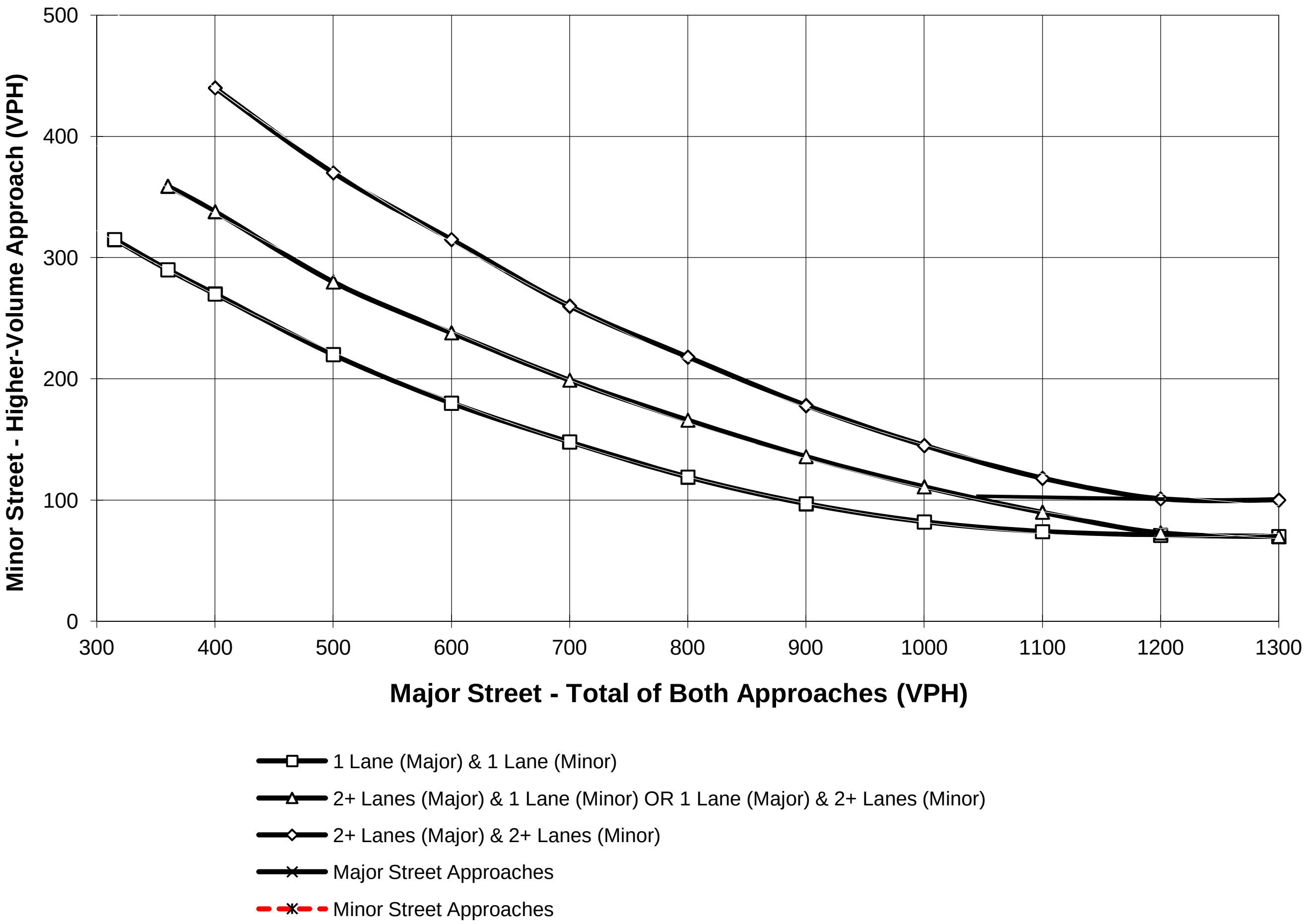
Number of Approach Lanes Major Street = **1**

Minor Street Name = **60th Av.**

High Volume Approach (VPH) = **60**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **E+P Conditions - Weekday PM Peak Hour**

Major Street Name = **Jackson Street**

Total of Both Approaches (VPH) = **147**

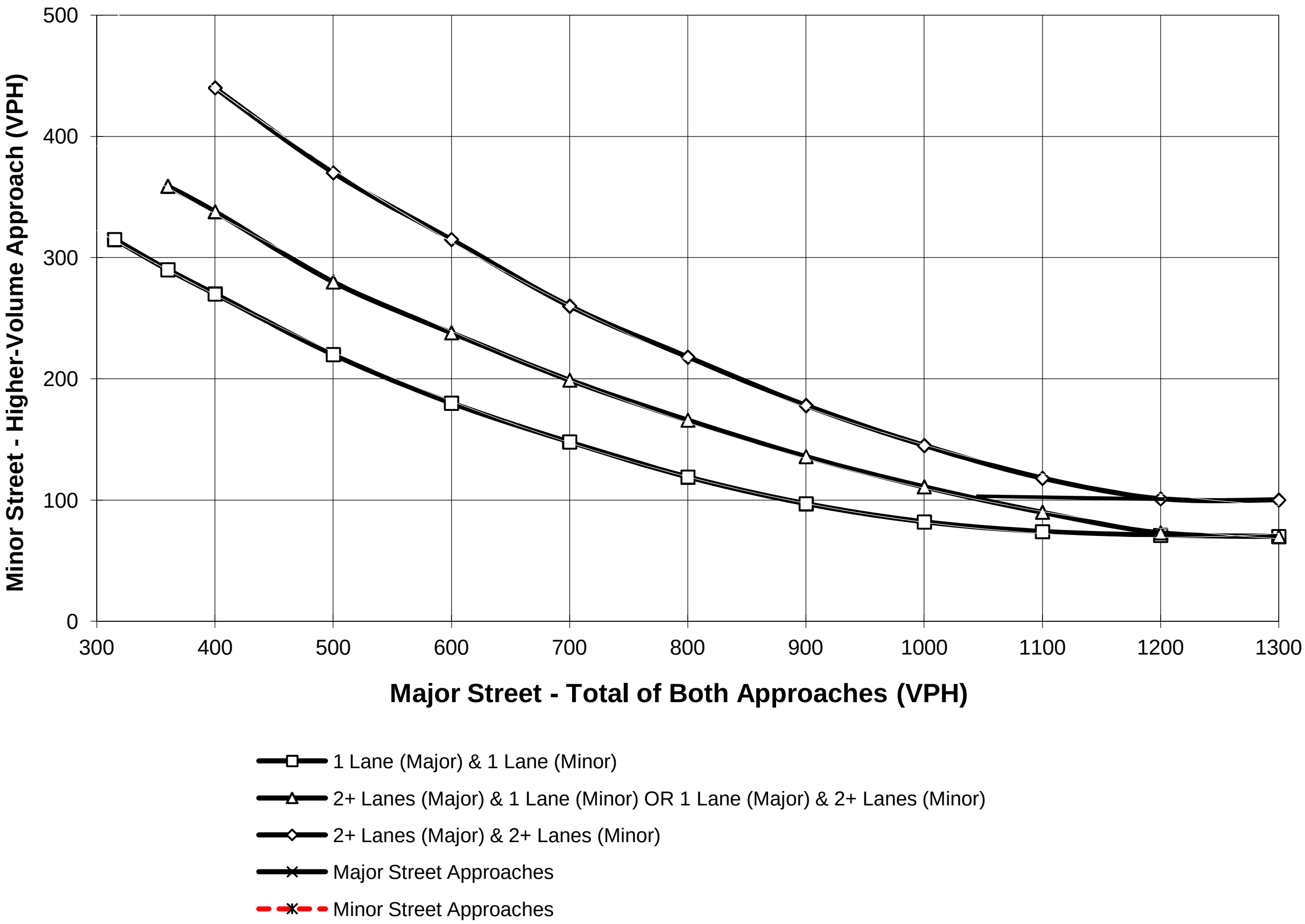
Number of Approach Lanes Major Street = **1**

Minor Street Name = **60th Av.**

High Volume Approach (VPH) = **54**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **E+P Conditions - Weekday AM Peak Hour**

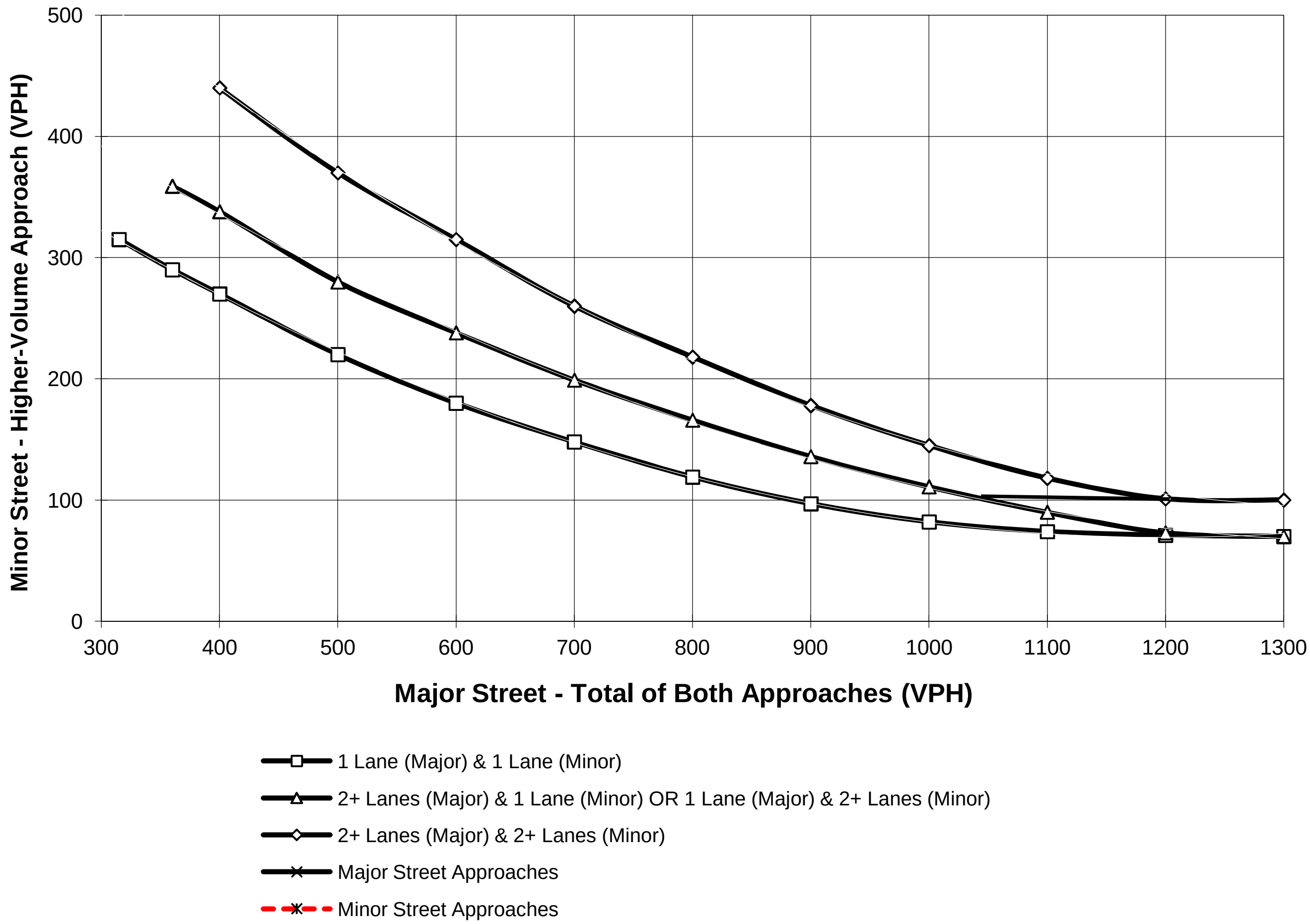
Major Street Name = **Jackson Street**

Total of Both Approaches (VPH) = **100**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **61st Avenue**

High Volume Approach (VPH) = **23**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **E+P Conditions - Weekday PM Peak Hour**

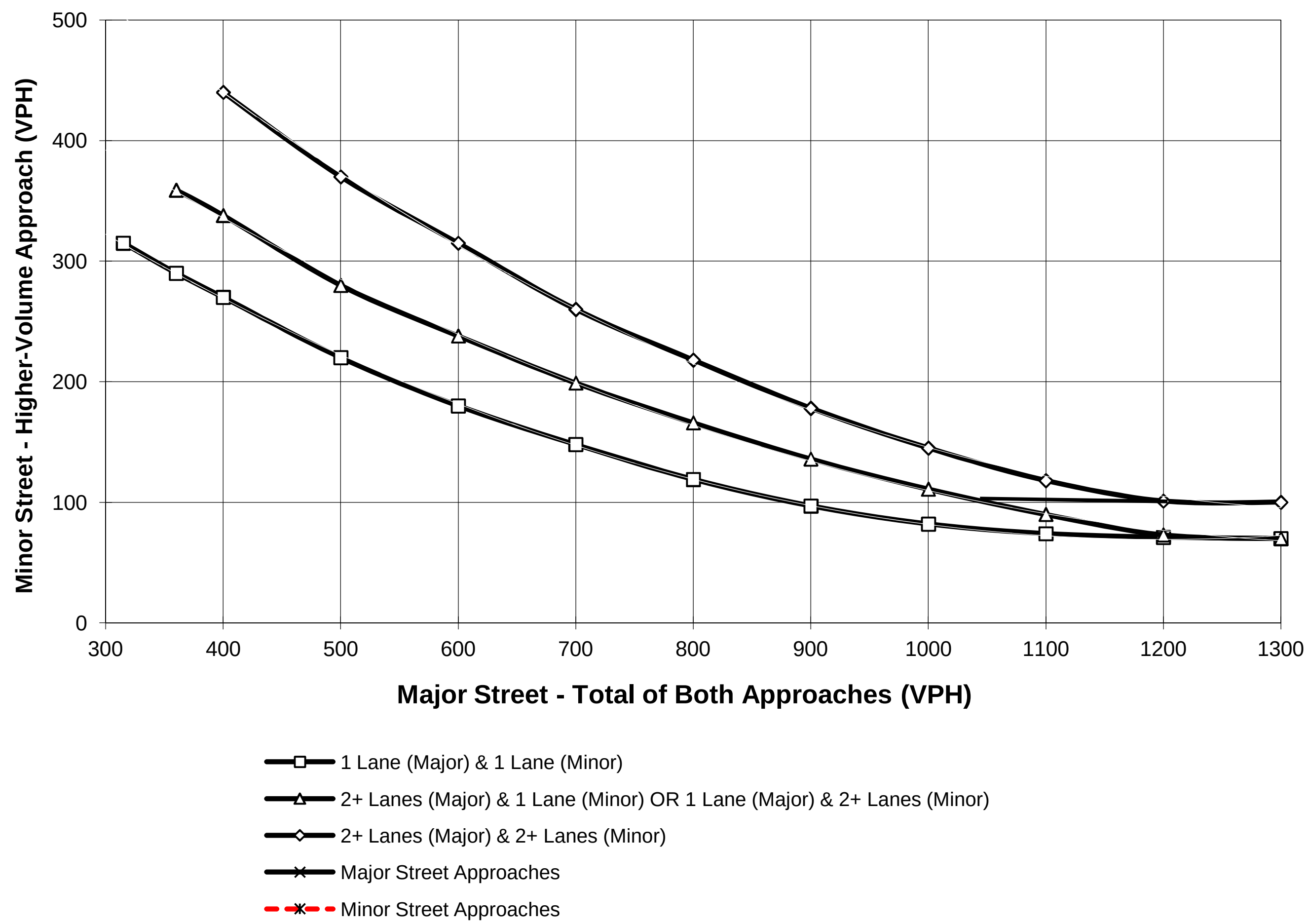
Major Street Name = **Jackson Street**

Total of Both Approaches (VPH) = **122**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **61st Avenue**

High Volume Approach (VPH) = **16**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **E+P Conditions - Weekday AM Peak Hour**

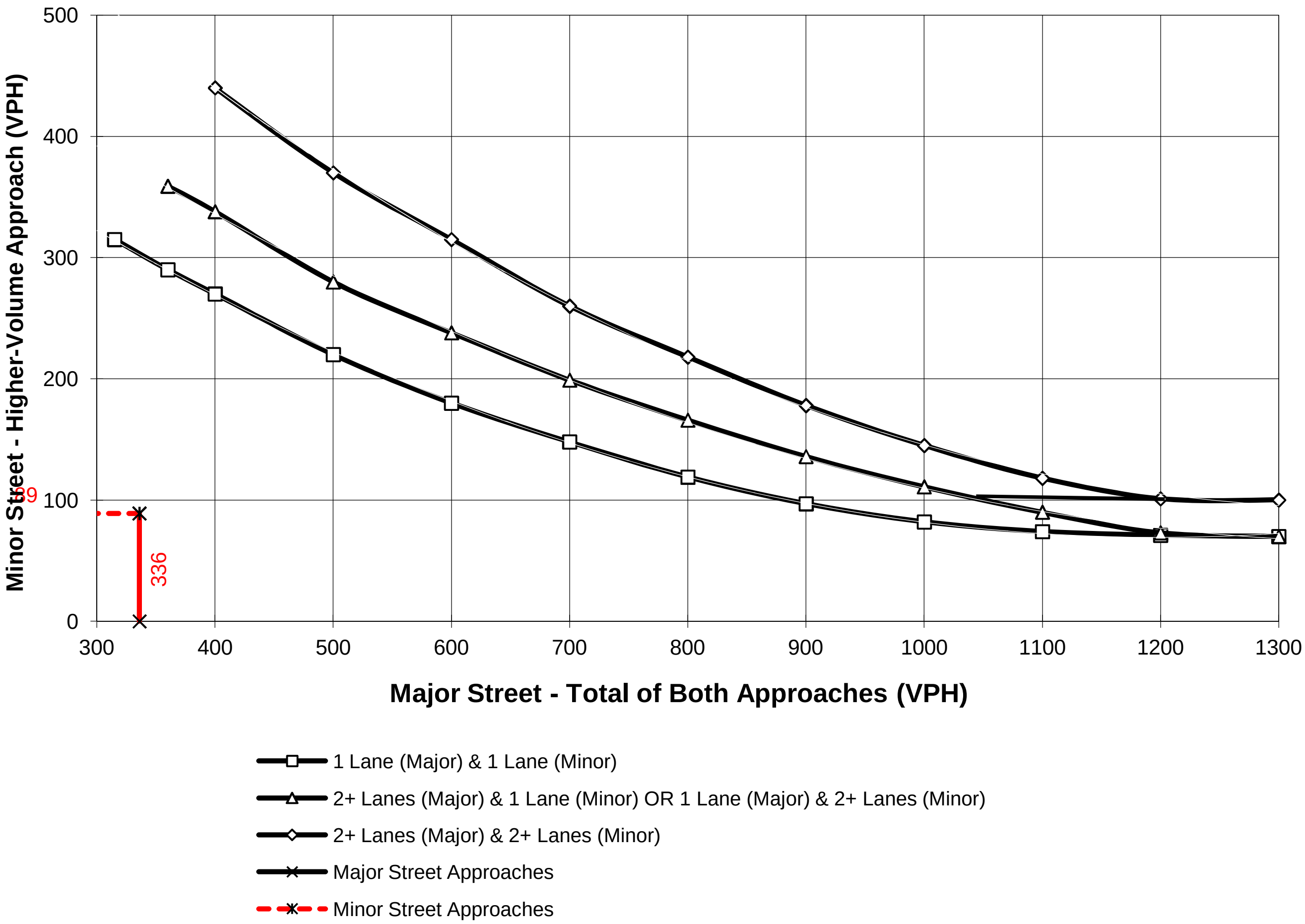
Major Street Name = **Madison Street**

Total of Both Approaches (VPH) = **336**
Number of Approach Lanes Major Street = **2**

Minor Street Name = **58th Avenue**

High Volume Approach (VPH) = **89**
Number of Approach Lanes Minor Street = **2**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **E+P Conditions - Weekday PM Peak Hour**

Major Street Name = **Madison Street**

Total of Both Approaches (VPH) = **419**

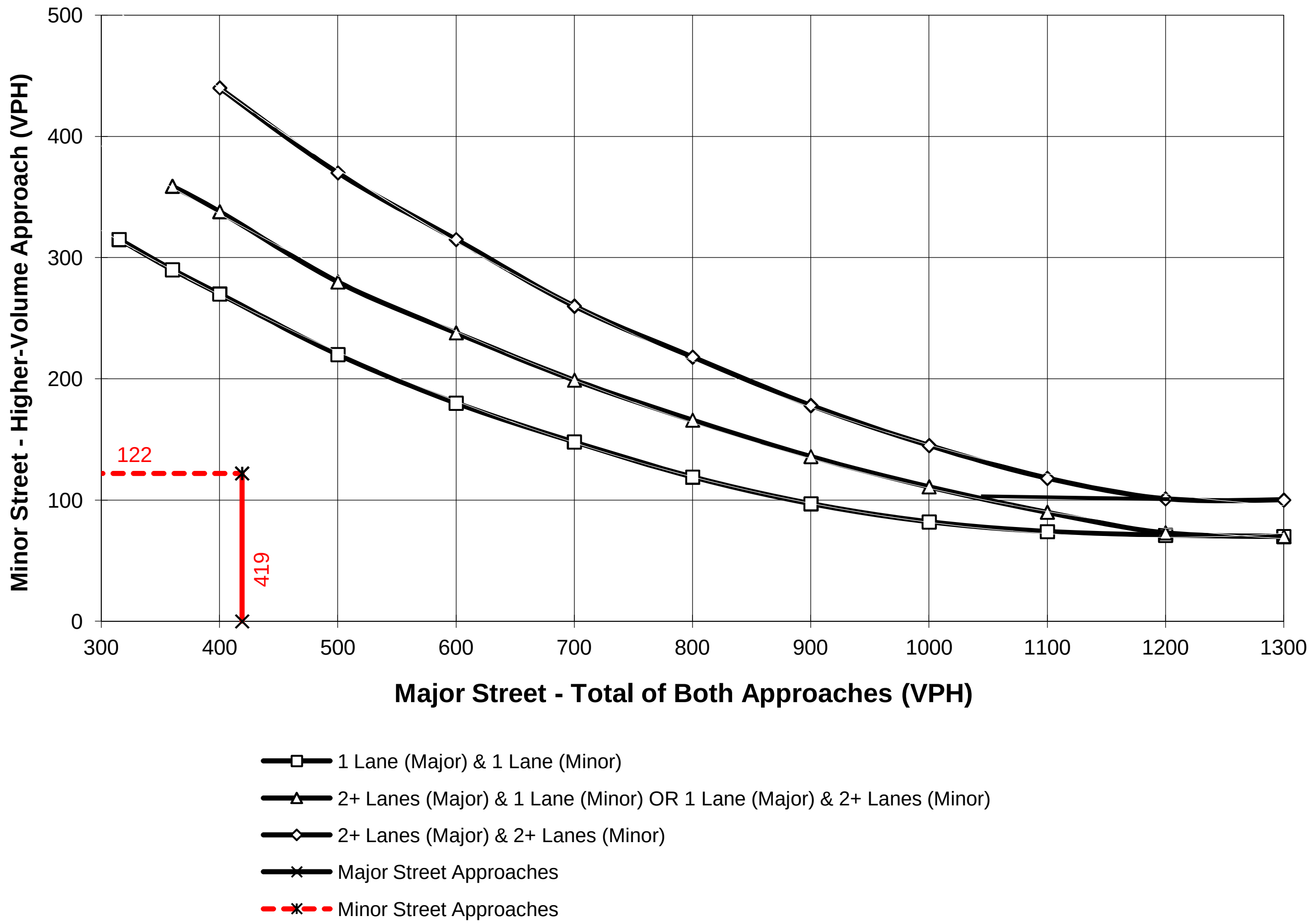
Number of Approach Lanes Major Street = **2**

Minor Street Name = **58th Avenue**

High Volume Approach (VPH) = **122**

Number of Approach Lanes Minor Street = **2**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

___ DIST	___ CO	___ RTE	___ PM	TRAFFIC CONDITIONS	**E+P**
				CALC JC	DATE 12/16/13
				CHK	DATE

Jurisdiction: **County of Riverside**
Major Street: **60th Avenue (EW)**
Minor Street: **Driveway 1 (NS)**

Critical Approach Speed (Major) 55 mph
Critical Approach Speed (Minor) 35 mph

Major Street Approach Lanes = **1** lane
Minor Street Approach Lanes **1** lane

Major Street Future ADT = **1,521** vpd
Minor Street Future ADT = **770** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); .... [√]
or **RURAL (R)**
In built up area of isolated community of < 10,000 population .... [ ]

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
	XX				
CONDITION A - Minimum Vehicular Volume		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **1,521**	1 **770**	8,000	5,600	2,400	1,680
2 +	1	9,600	6,720	2,400	1,680
2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **1,521**	1 **770**	12,000	8,400	1,200	850
2 +	1	14,400	10,080	1,200	850
2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B		2 CONDITIONS 80%		2 CONDITIONS 80%	
Satisfied	Not Satisfied				
	XX				
No one condition satisfied, but following conditions fulfilled 80% of more					
A 27%	B 18%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

TRAFFIC CONDITIONS **E+P**

DIST	CO	RTE	PM	CALC JC	DATE 12/16/13
				CHK	DATE

Jurisdiction: **County of Riverside**
Major Street: **Driveway 2 (NS)**
Minor Street: **61st Avenue (EW)**
Critical Approach Speed (Major) 40 mph
Critical Approach Speed (Minor) 35 mph

Major Street Approach Lanes = **1** lane — Minor Street Approach Lanes **1** lane

Major Street Future ADT = **329** vpd — Minor Street Future ADT = **191** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); .... ☐

or **RURAL (R)**

In built up area of isolated community of < 10,000 population .... ☐

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
XX					
CONDITION A - Minimum Vehicular Volume		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **329**	1 **191**	8,000	5,600	2,400	1,680
2 +	1	9,600	6,720	2,400	1,680
2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **329**	1 **191**	12,000	8,400	1,200	850
2 +	1	14,400	10,080	1,200	850
2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B		2 CONDITIONS 80%		2 CONDITIONS 80%	
Satisfied	Not Satisfied				
	XX				
No one condition satisfied, but following conditions fulfilled 80% of more					
A **4%**	**B** **3%**				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

EAP (2016) Conditions

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAP (2016) Conditions - Weekday AM Peak Hour**

Major Street Name = **60th Av.**

Total of Both Approaches (VPH) = **160**

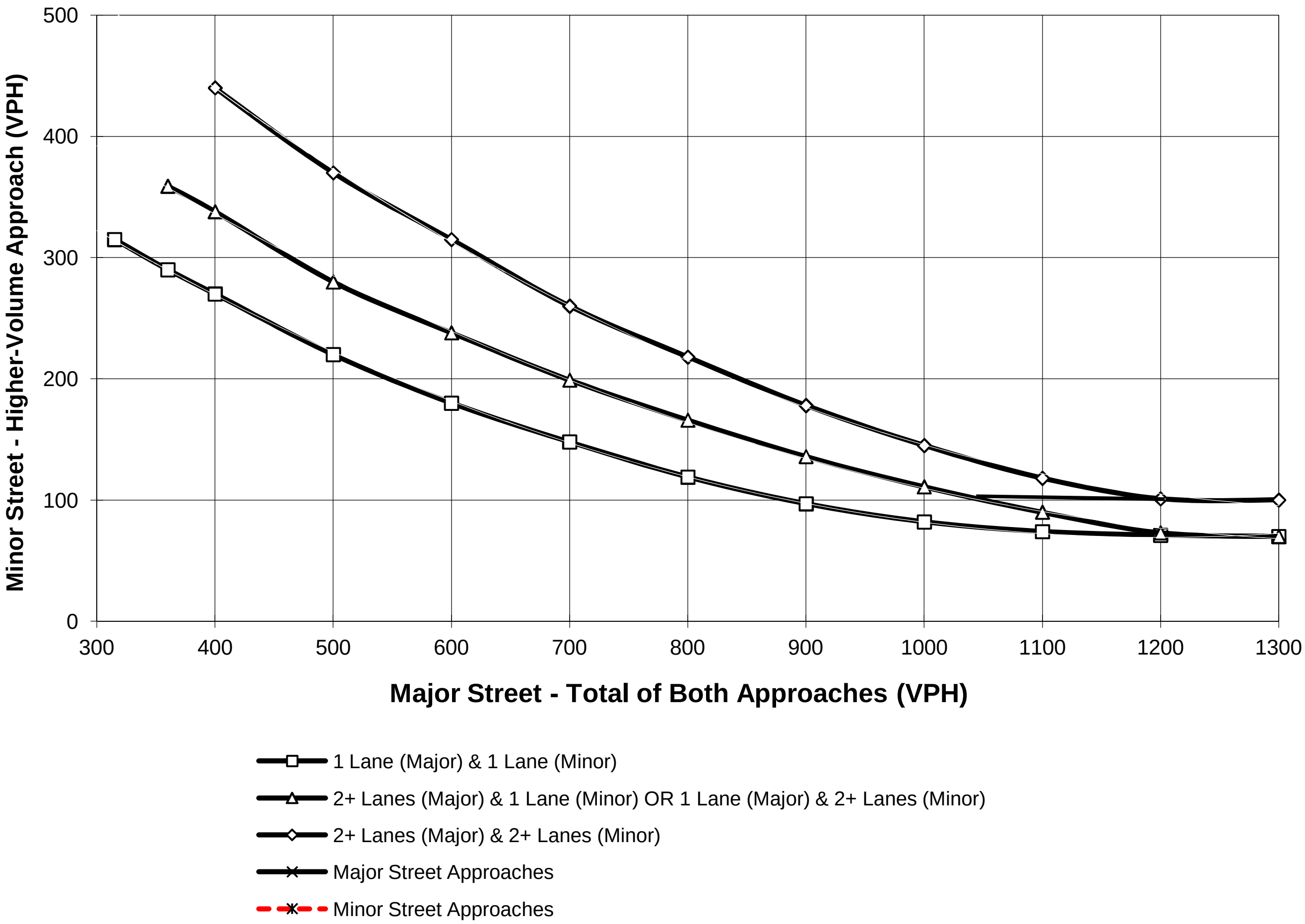
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Madison Street**

High Volume Approach (VPH) = **70**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAP (2016) Conditions - Weekday PM Peak Hour**

Major Street Name = **Madison Street**

Total of Both Approaches (VPH) = **197**

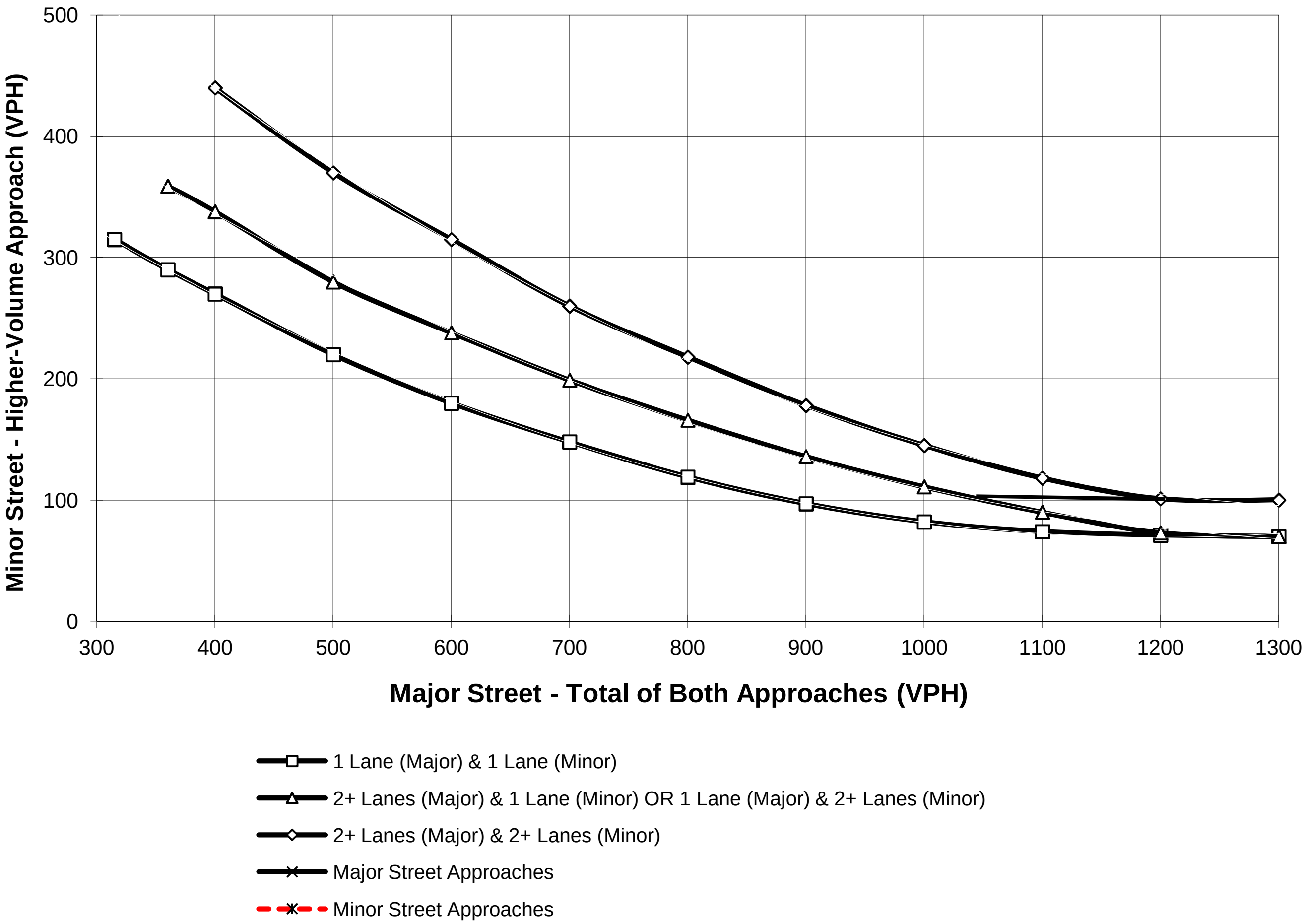
Number of Approach Lanes Major Street = **1**

Minor Street Name = **60th Av.**

High Volume Approach (VPH) = **124**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

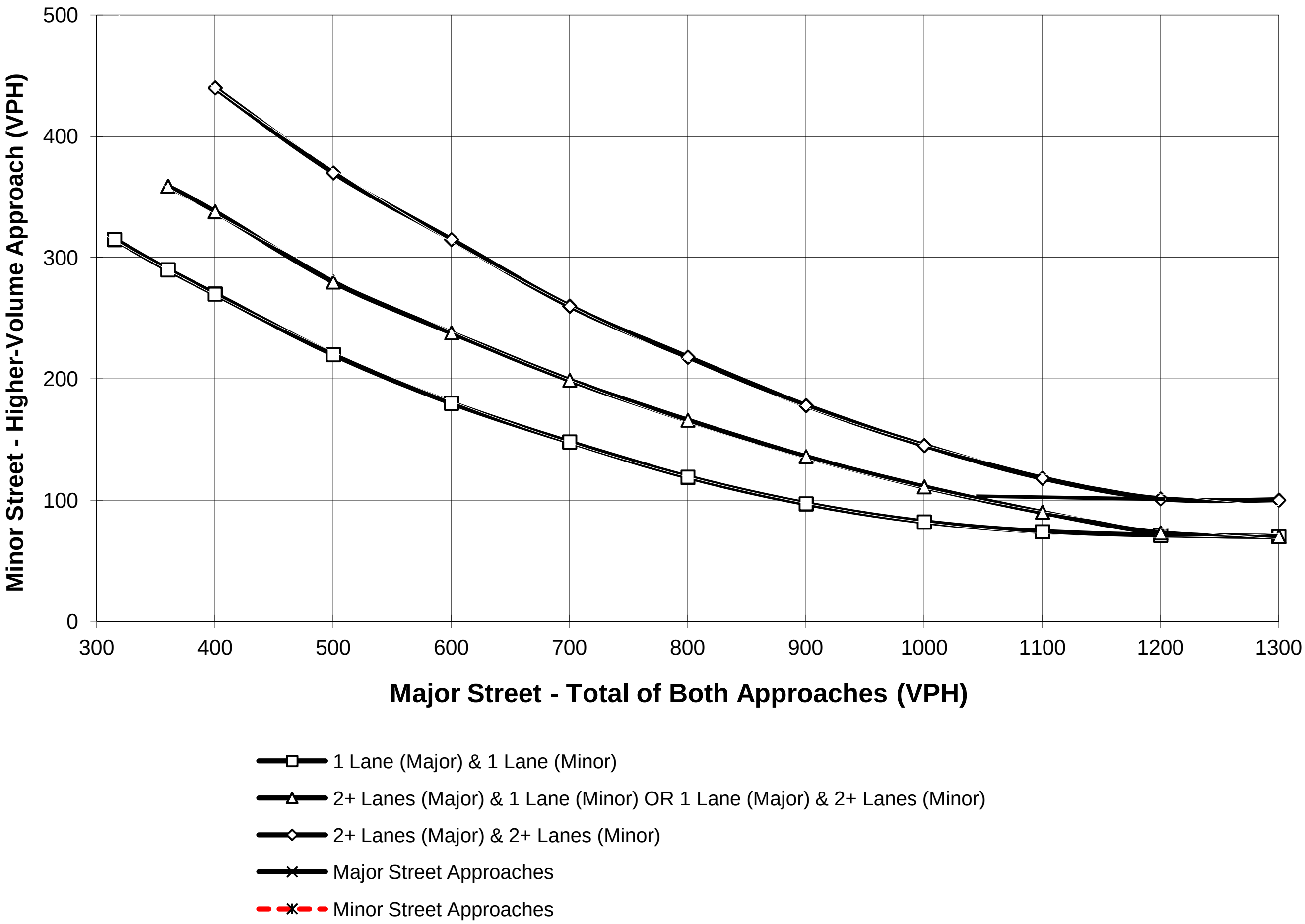
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAP (2016) Conditions - Weekday AM Peak Hour**

Major Street Name = **Monroe Street**
Total of Both Approaches (VPH) = **218**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **58th Avenue**
High Volume Approach (VPH) = **101**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAP (2016) Conditions - Weekday PM Peak Hour**

Major Street Name = **Monroe Street**

Total of Both Approaches (VPH) = **262**

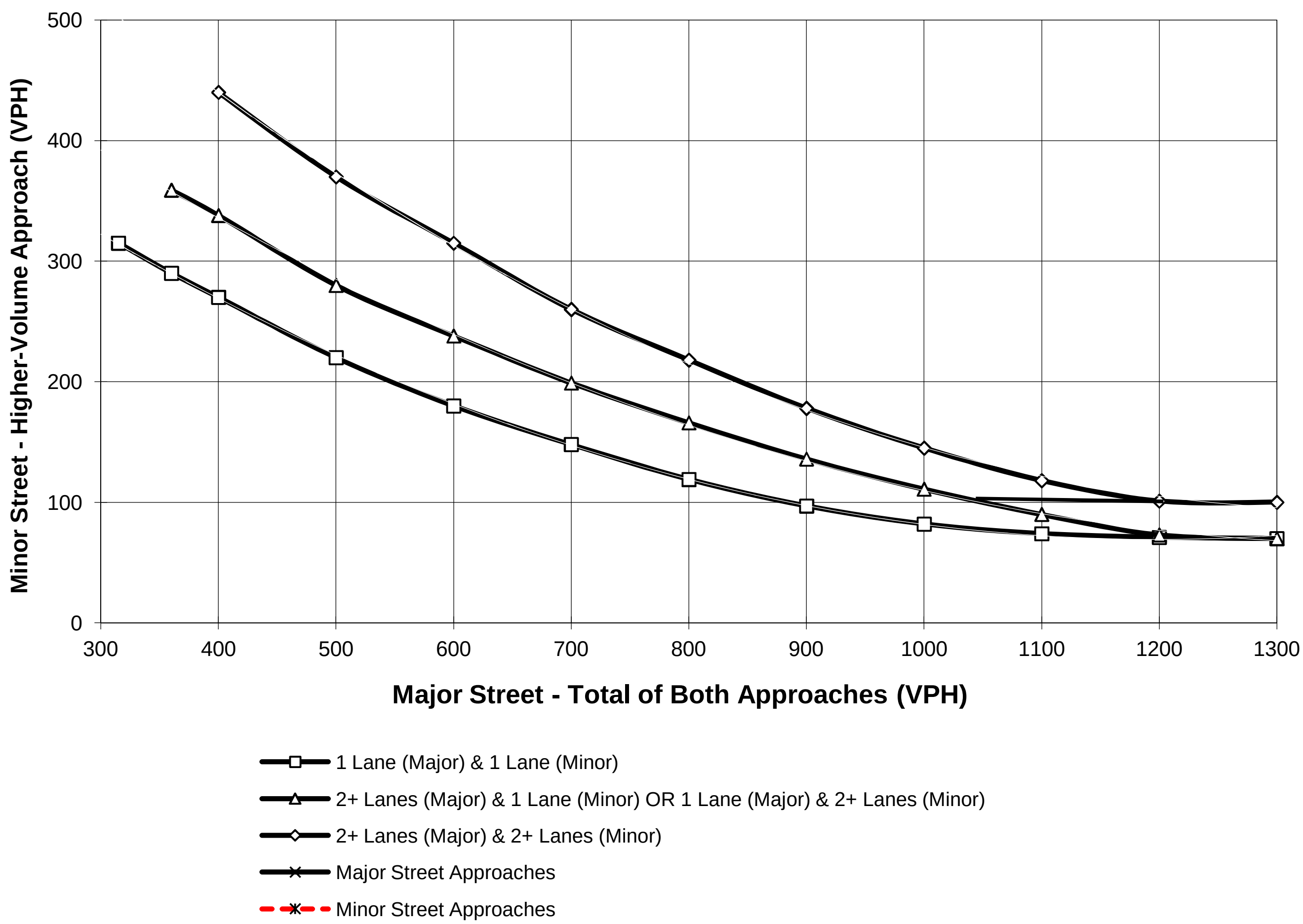
Number of Approach Lanes Major Street = **1**

Minor Street Name = **58th Avenue**

High Volume Approach (VPH) = **195**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAP (2016) Conditions - Weekday AM Peak Hour**

Major Street Name = **60th Av.**

Total of Both Approaches (VPH) = **175**

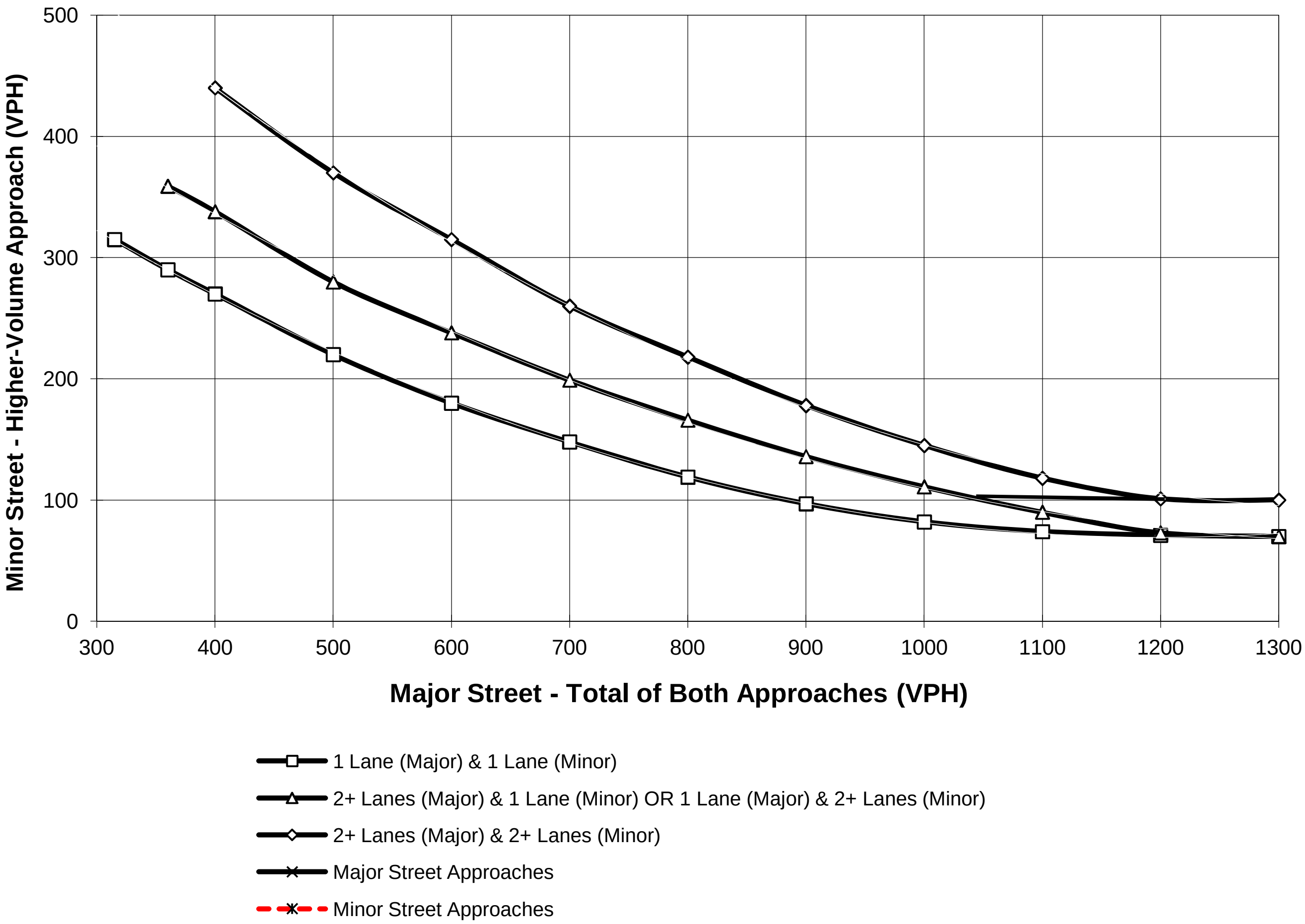
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Monroe Street**

High Volume Approach (VPH) = **63**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAP (2016) Conditions - Weekday PM Peak Hour**

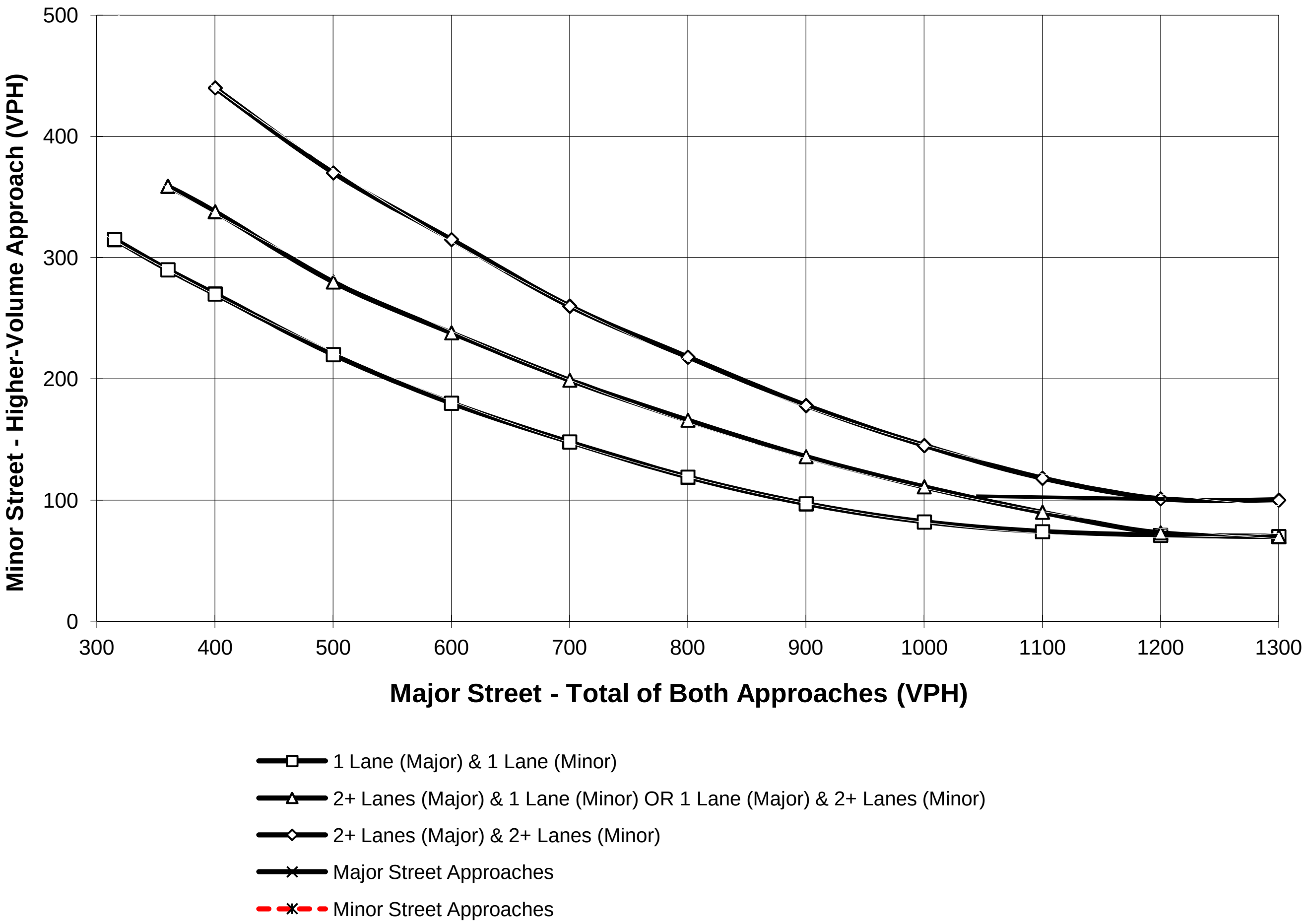
Major Street Name = **Monroe Street**

Total of Both Approaches (VPH) = **192**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **60th Av.**

High Volume Approach (VPH) = **120**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAP (2016) Conditions - Weekday AM Peak Hour**

Major Street Name = **Monroe Street**

Total of Both Approaches (VPH) = **93**

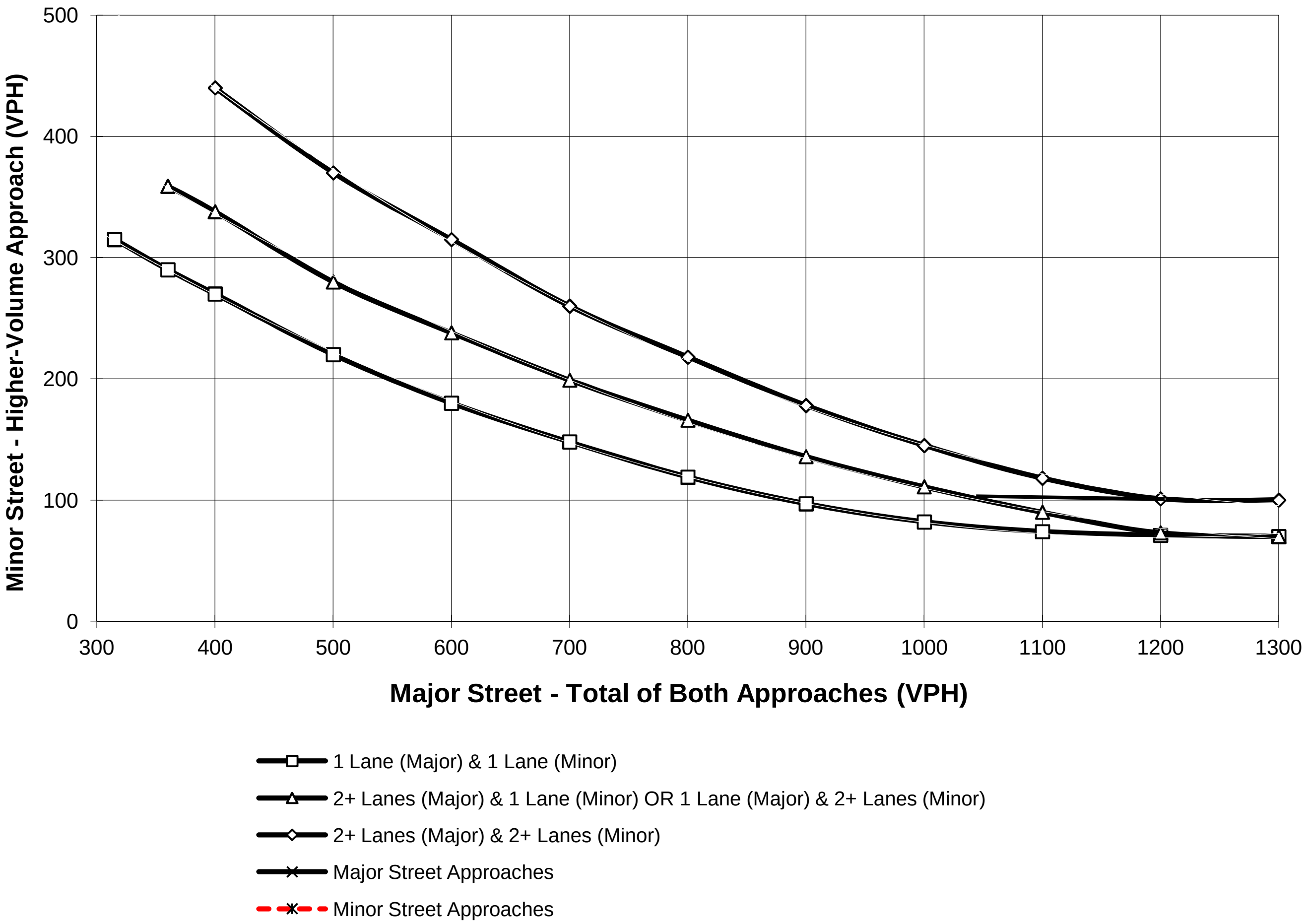
Number of Approach Lanes Major Street = **1**

Minor Street Name = **61st Avenue**

High Volume Approach (VPH) = **22**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAP (2016) Conditions - Weekday PM Peak Hour**

Major Street Name = **Monroe Street**

Total of Both Approaches (VPH) = **133**

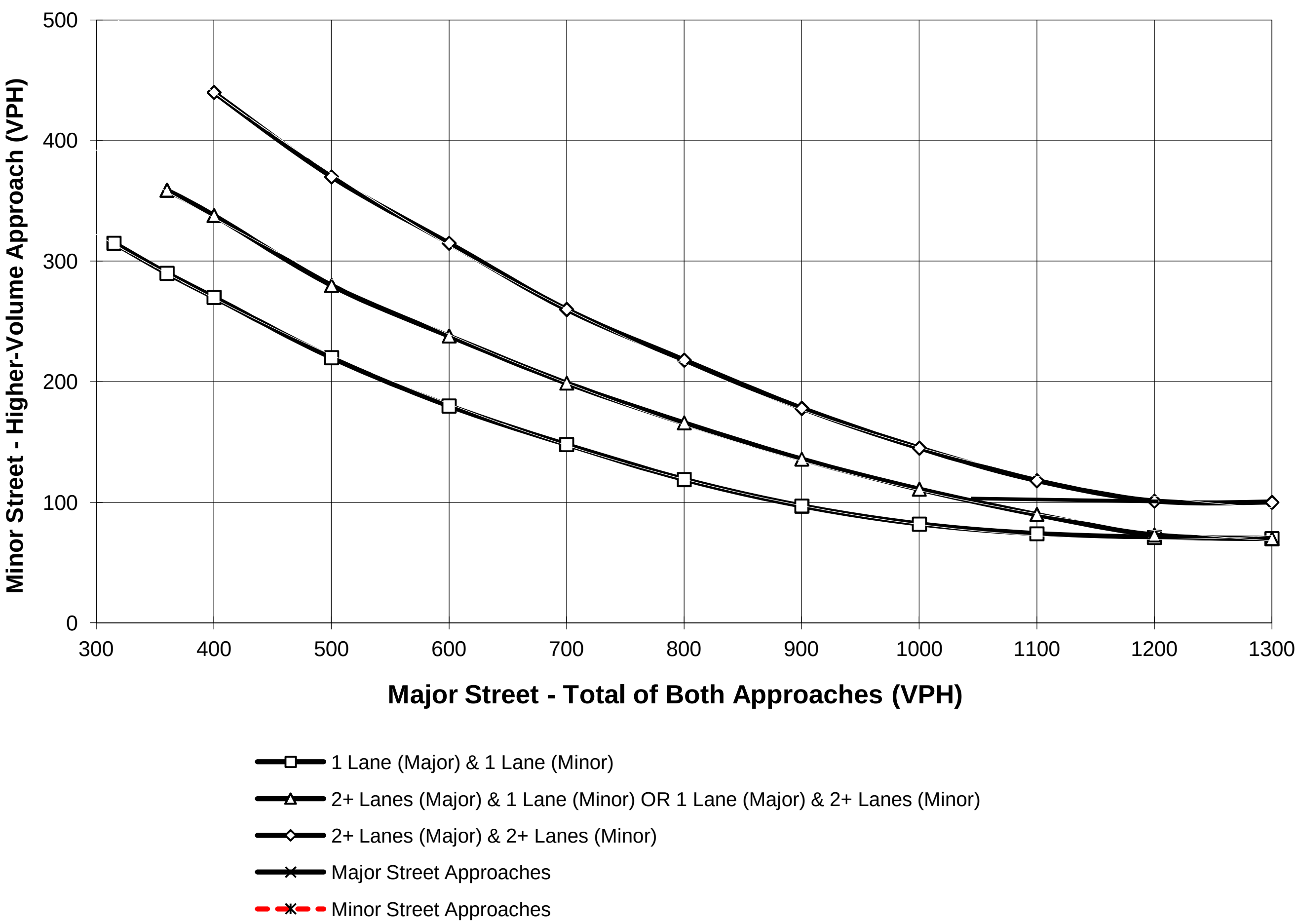
Number of Approach Lanes Major Street = **1**

Minor Street Name = **61st Avenue**

High Volume Approach (VPH) = **15**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAP (2016) Conditions - Weekday AM Peak Hour**

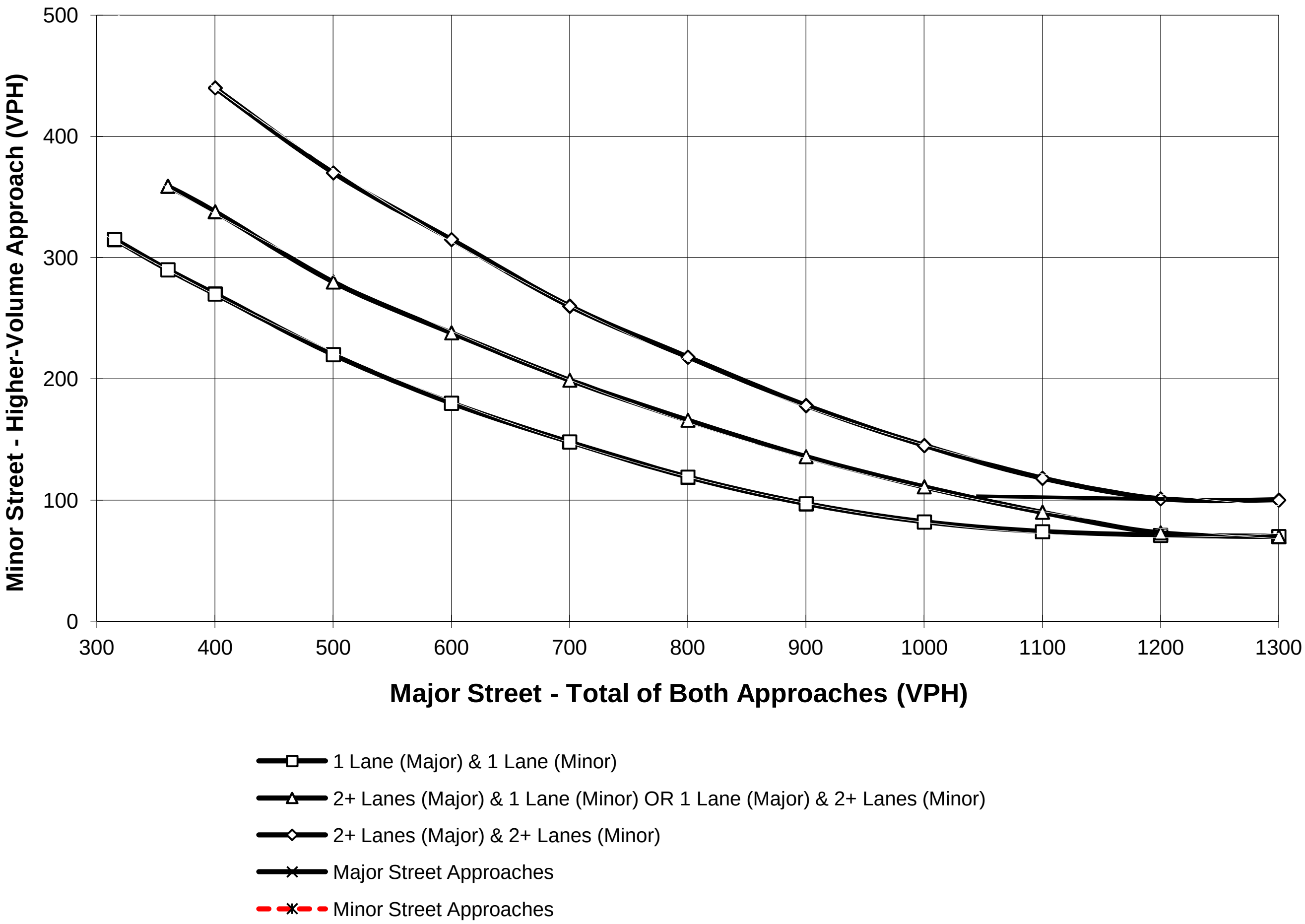
Major Street Name = **Jackson Street**

Total of Both Approaches (VPH) = **147**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **60th Av.**

High Volume Approach (VPH) = **61**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAP (2016) Conditions - Weekday PM Peak Hour**

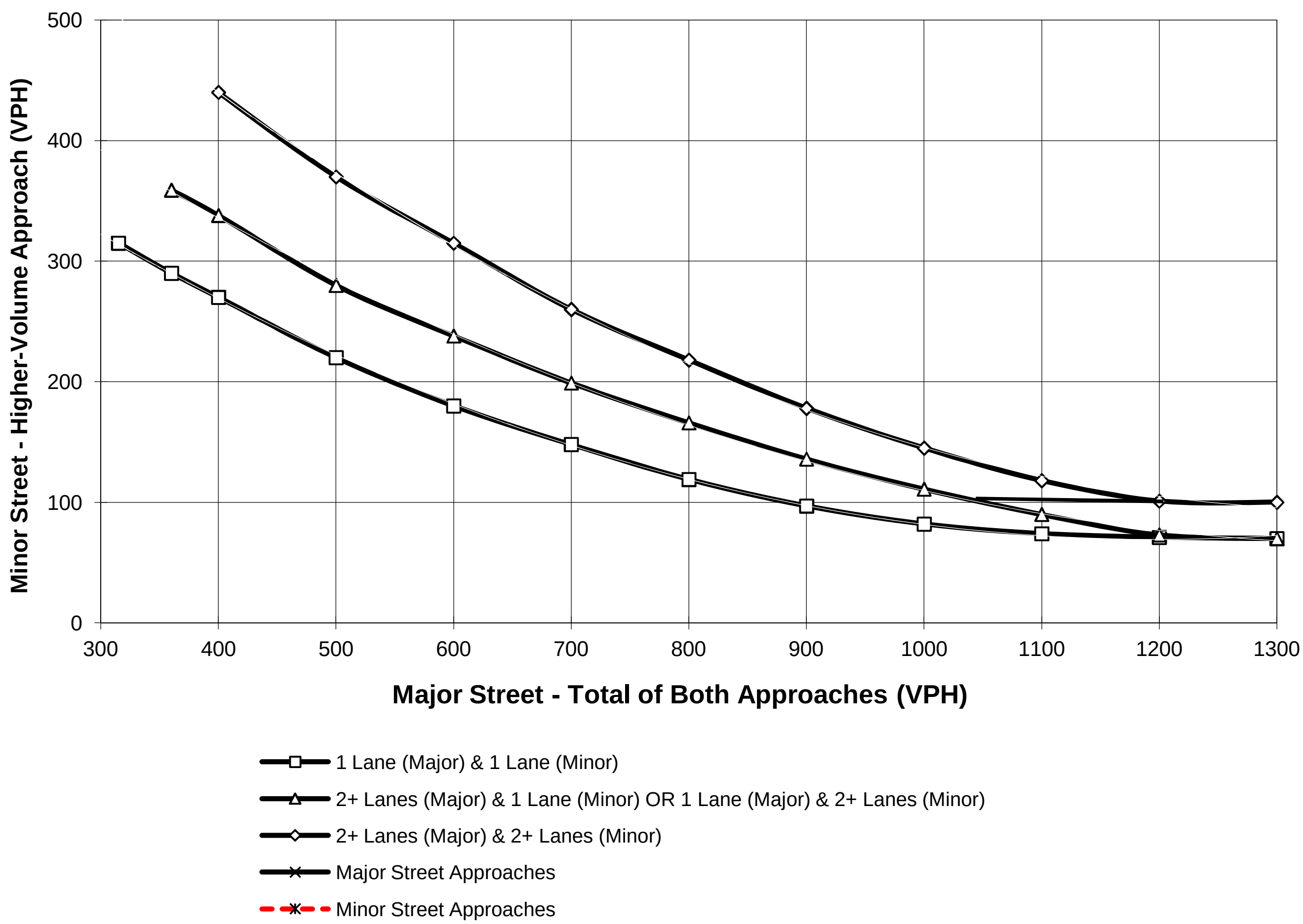
Major Street Name = **Jackson Street**

Total of Both Approaches (VPH) = **154**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **60th Av.**

High Volume Approach (VPH) = **55**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAP (2016) Conditions - Weekday AM Peak Hour**

Major Street Name = **Jackson Street**

Total of Both Approaches (VPH) = **106**

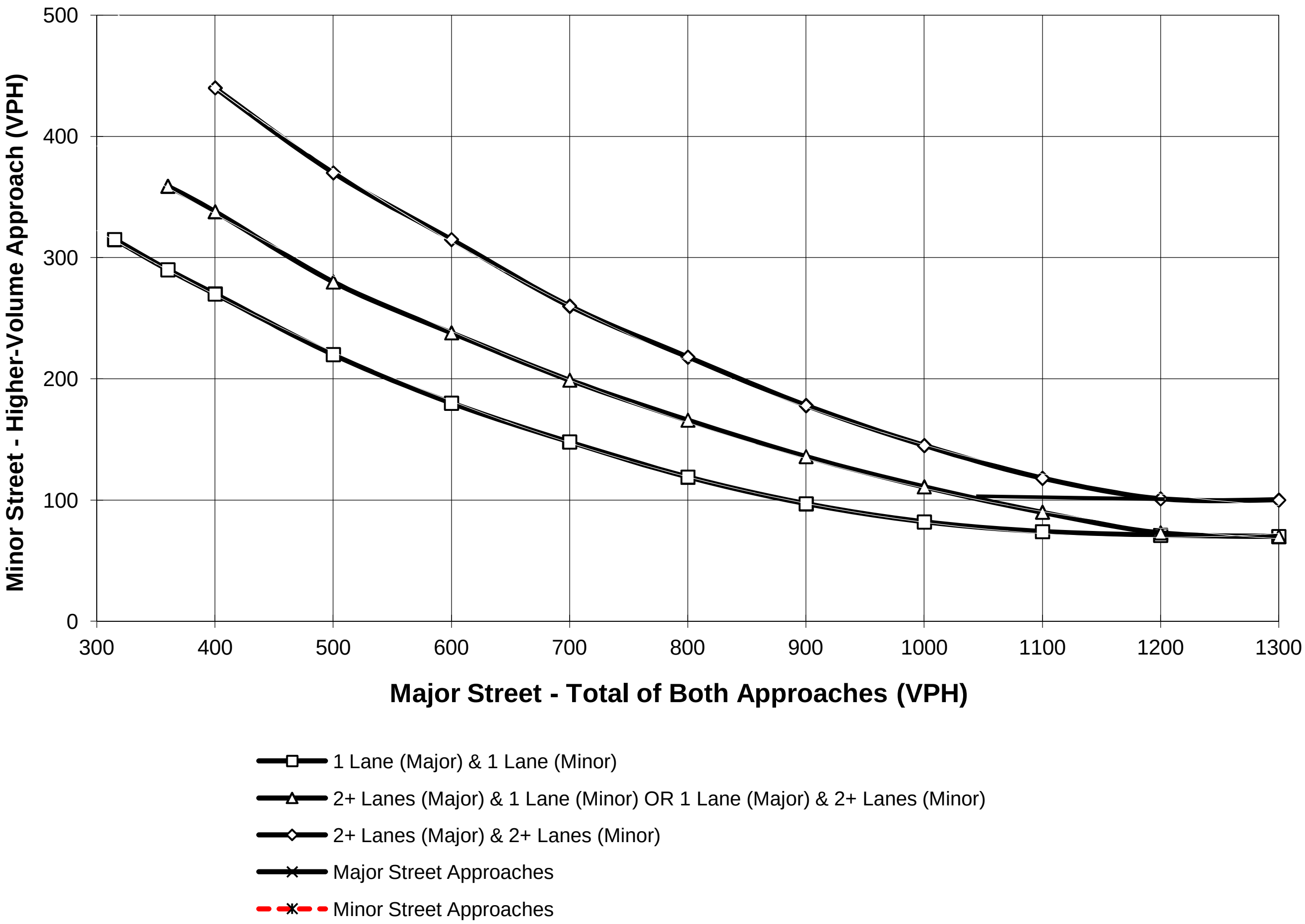
Number of Approach Lanes Major Street = **1**

Minor Street Name = **61st Avenue**

High Volume Approach (VPH) = **23**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAP (2016) Conditions - Weekday PM Peak Hour**

Major Street Name = **Jackson Street**

Total of Both Approaches (VPH) = **128**

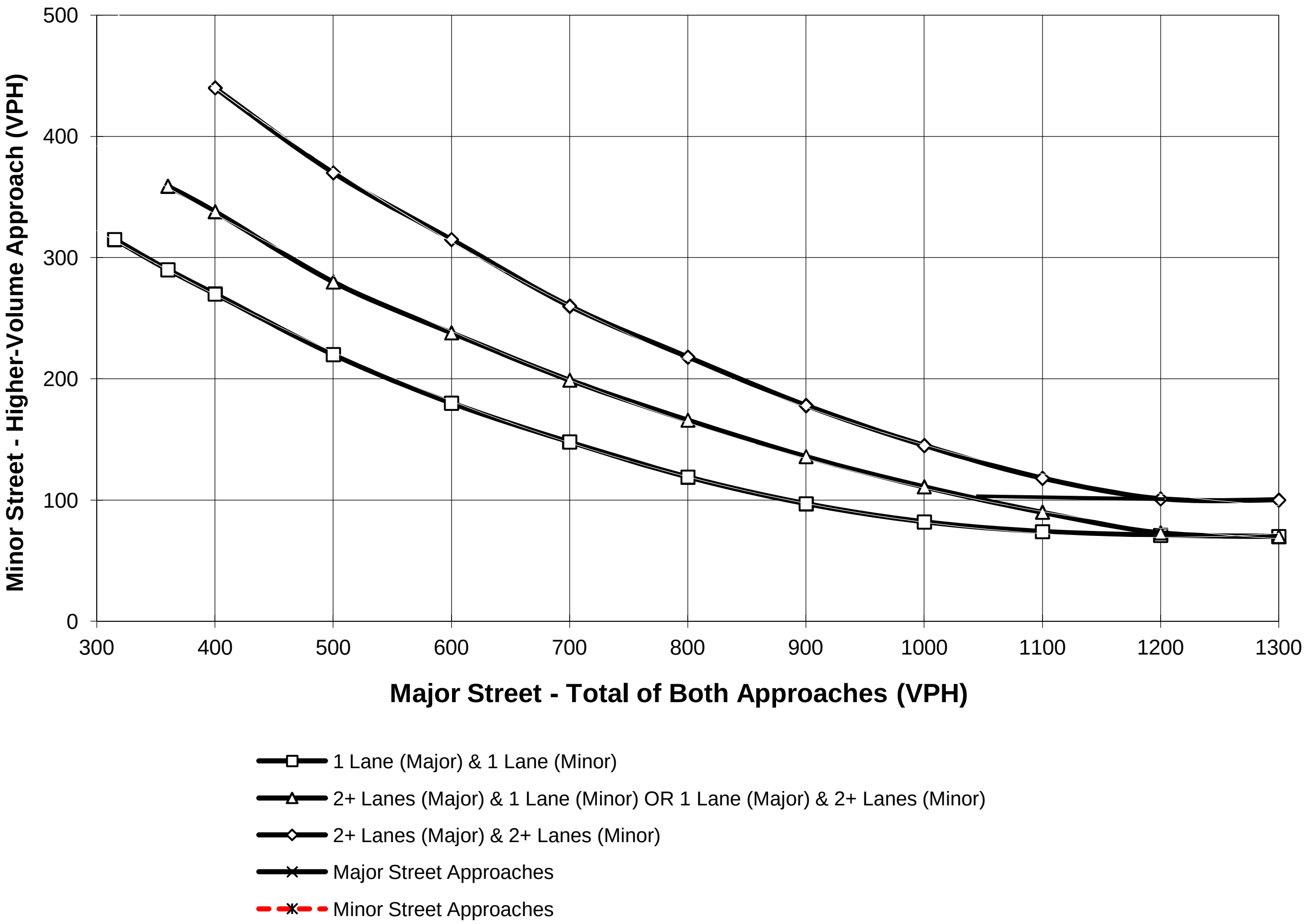
Number of Approach Lanes Major Street = **1**

Minor Street Name = **61st Avenue**

High Volume Approach (VPH) = **16**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAP (2016) Conditions - Weekday AM Peak Hour**

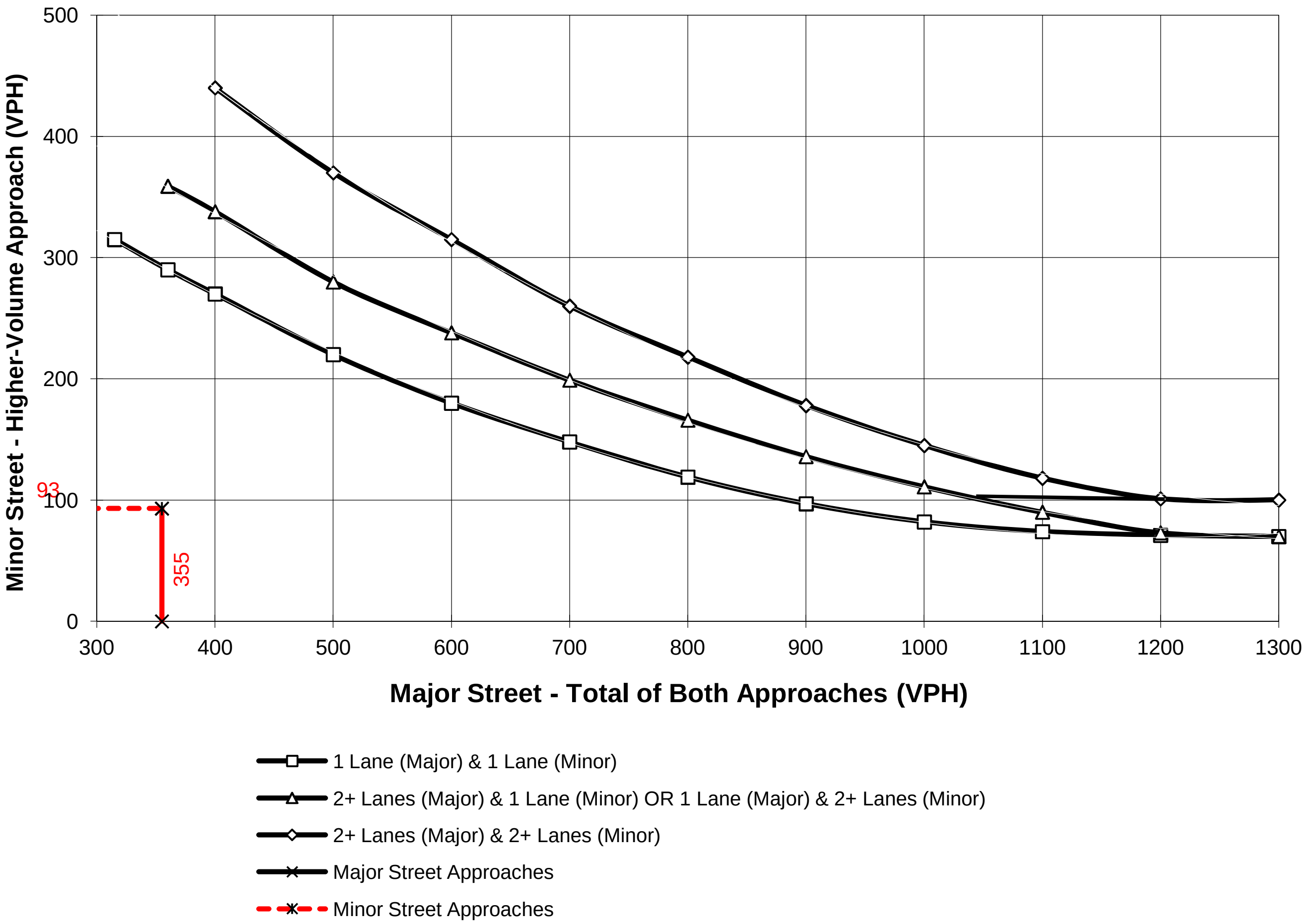
Major Street Name = **Madison Street**

Total of Both Approaches (VPH) = **355**
Number of Approach Lanes Major Street = **2**

Minor Street Name = **58th Avenue**

High Volume Approach (VPH) = **93**
Number of Approach Lanes Minor Street = **2**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAP (2016) Conditions - Weekday PM Peak Hour**

Major Street Name = **Madison Street**

Total of Both Approaches (VPH) = **443**

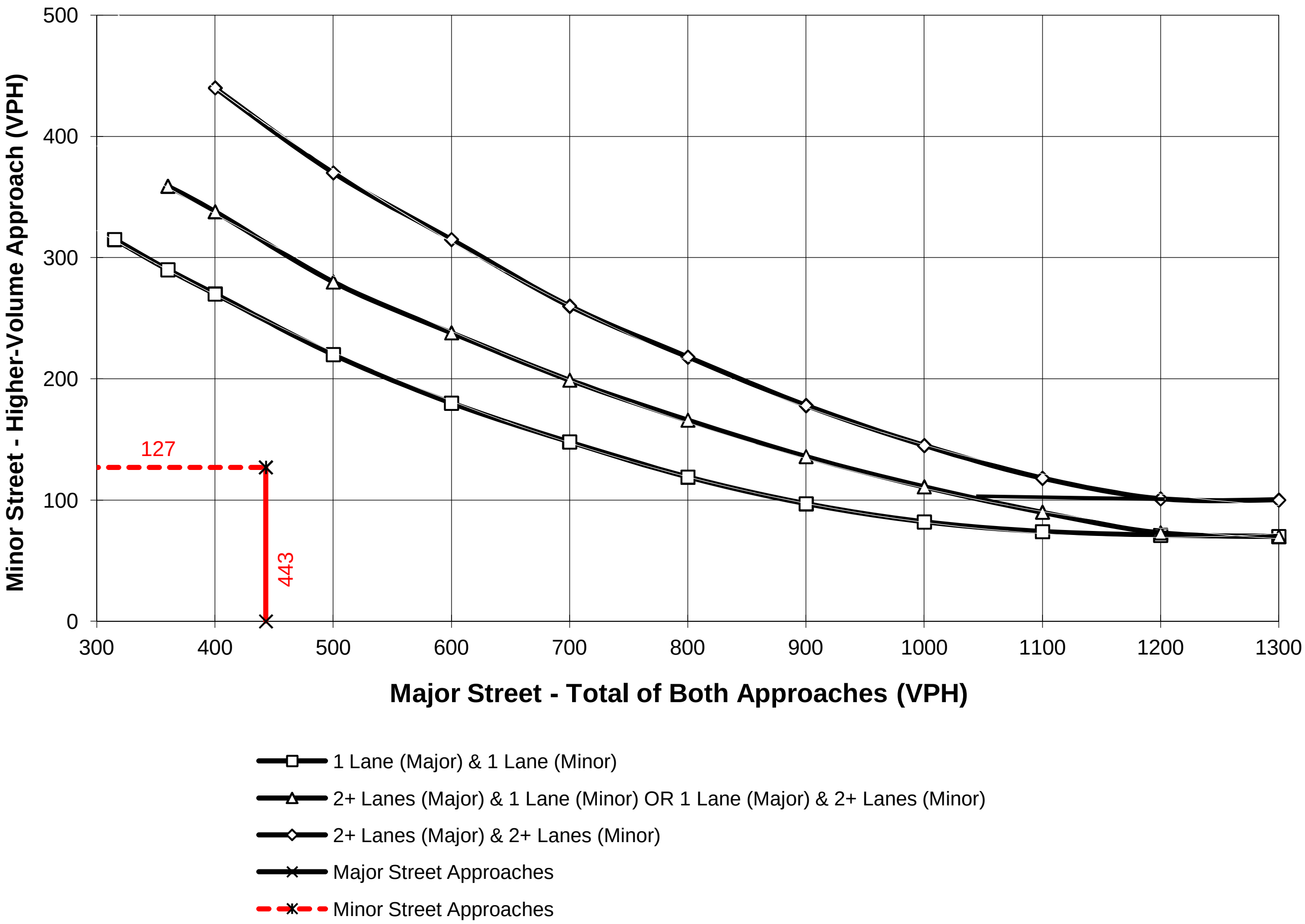
Number of Approach Lanes Major Street = **2**

Minor Street Name = **58th Avenue**

High Volume Approach (VPH) = **127**

Number of Approach Lanes Minor Street = **2**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

EAPC (2016) Conditions

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EACP (2016) Conditions - Weekday AM Peak Hour**

Major Street Name = **60th Av.**

Total of Both Approaches (VPH) = **167**

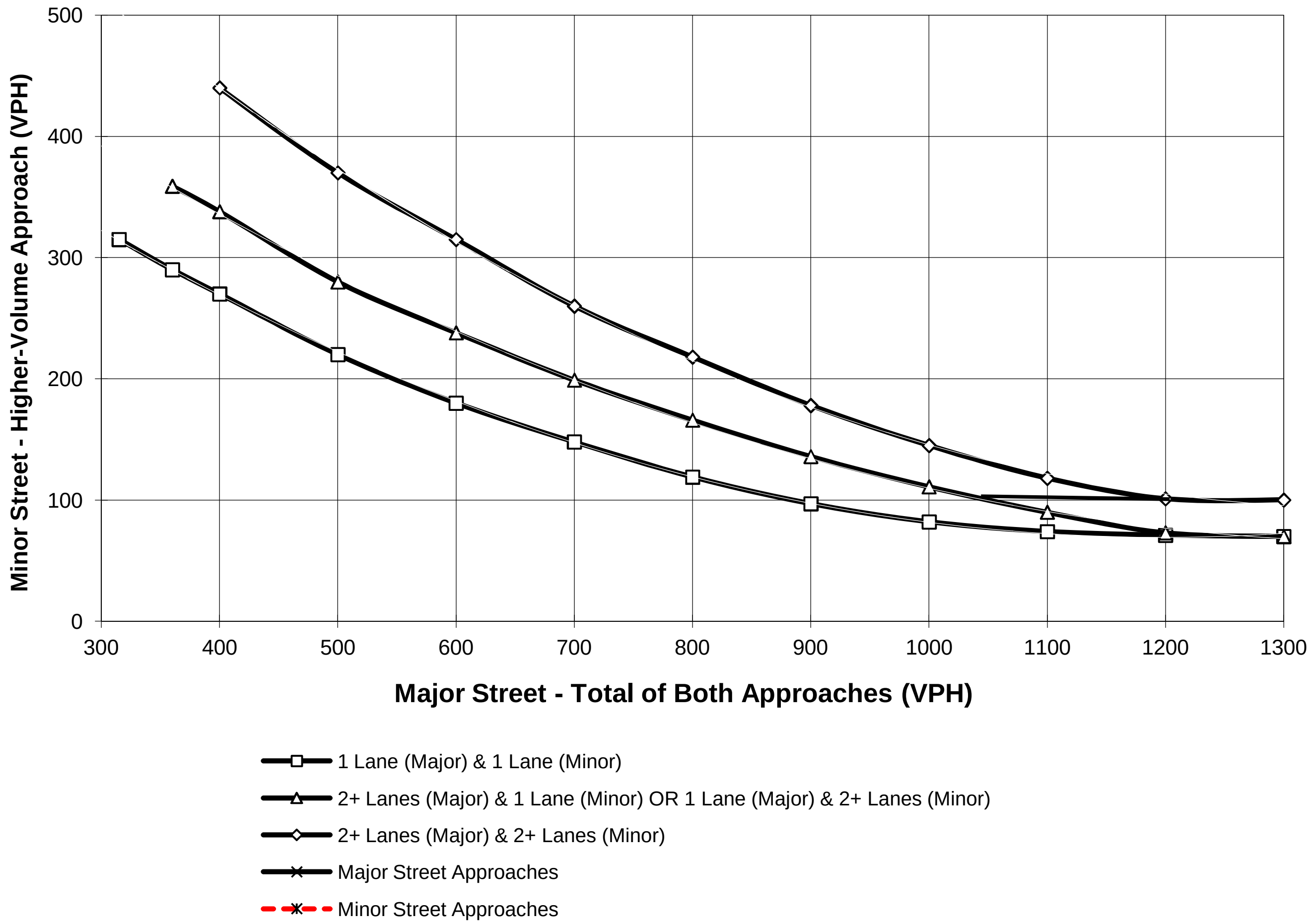
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Madison Street**

High Volume Approach (VPH) = **72**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EACP (2016) Conditions - Weekday PM Peak Hour**

Major Street Name = **Madison Street**

Total of Both Approaches (VPH) = **205**

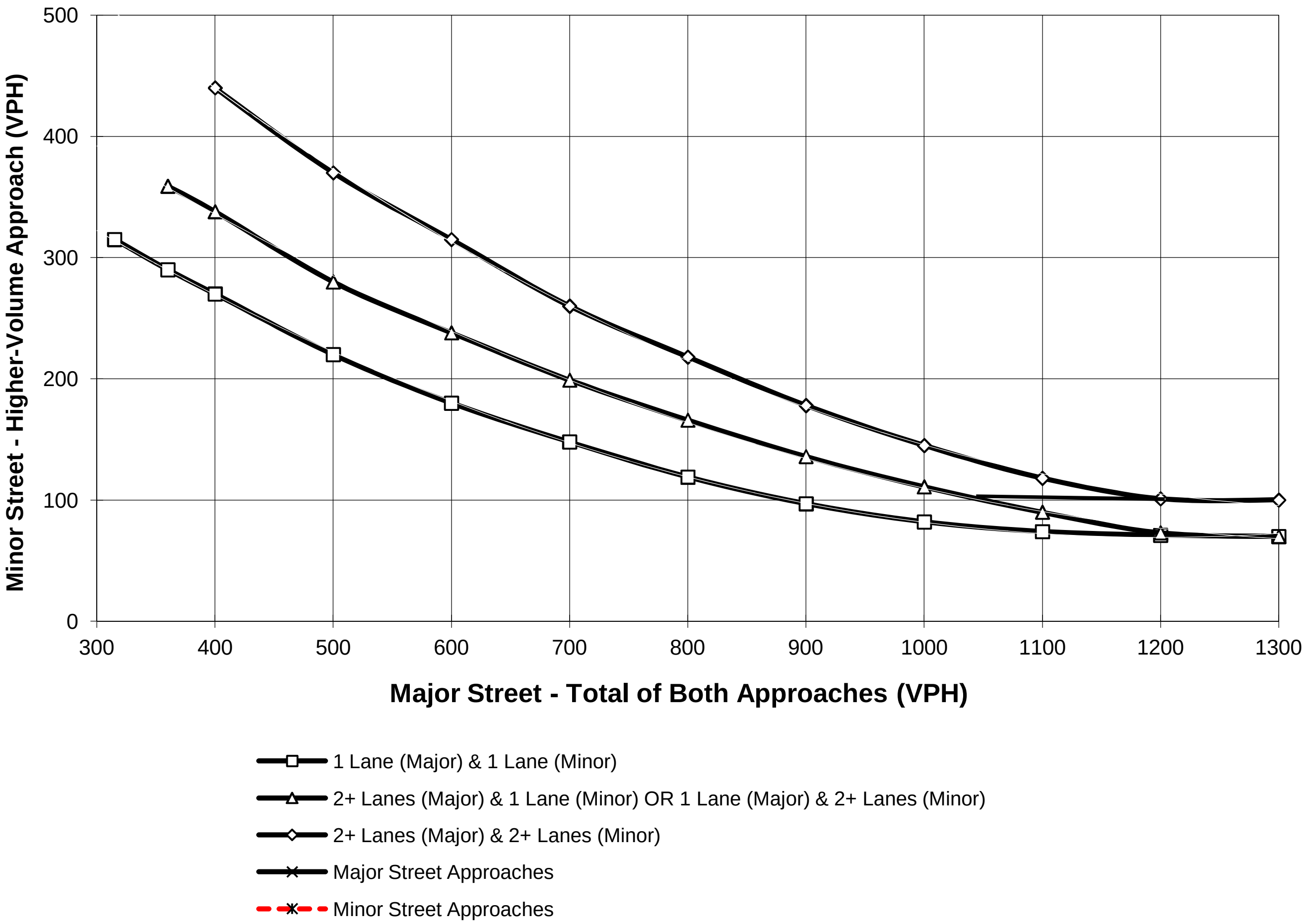
Number of Approach Lanes Major Street = **1**

Minor Street Name = **60th Av.**

High Volume Approach (VPH) = **128**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EACP (2016) Conditions - Weekday AM Peak Hour**

Major Street Name = **Monroe Street**

Total of Both Approaches (VPH) = **320**

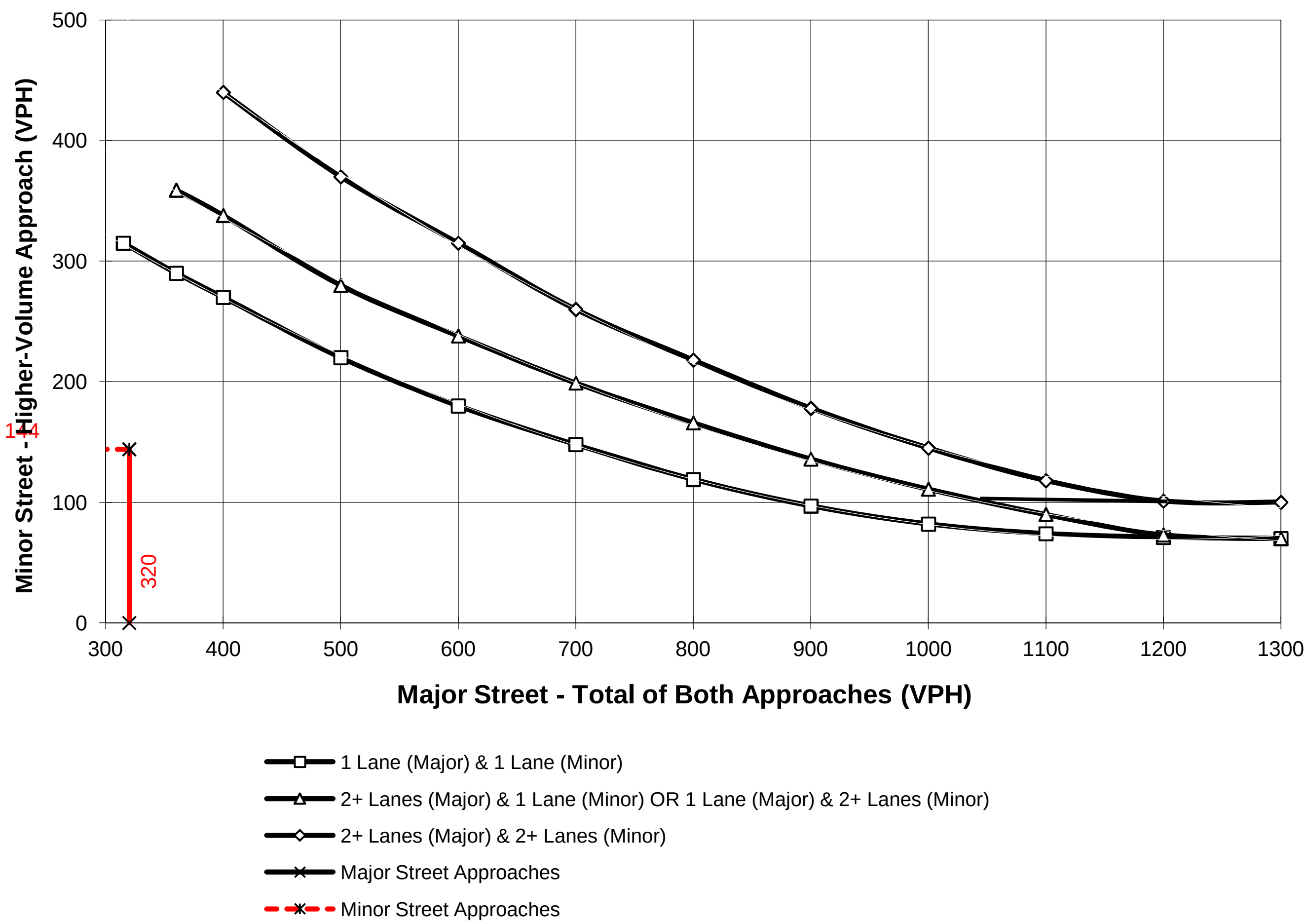
Number of Approach Lanes Major Street = **1**

Minor Street Name = **58th Avenue**

High Volume Approach (VPH) = **144**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EACP (2016) Conditions - Weekday PM Peak Hour**

Major Street Name = **Monroe Street**

Total of Both Approaches (VPH) = **379**

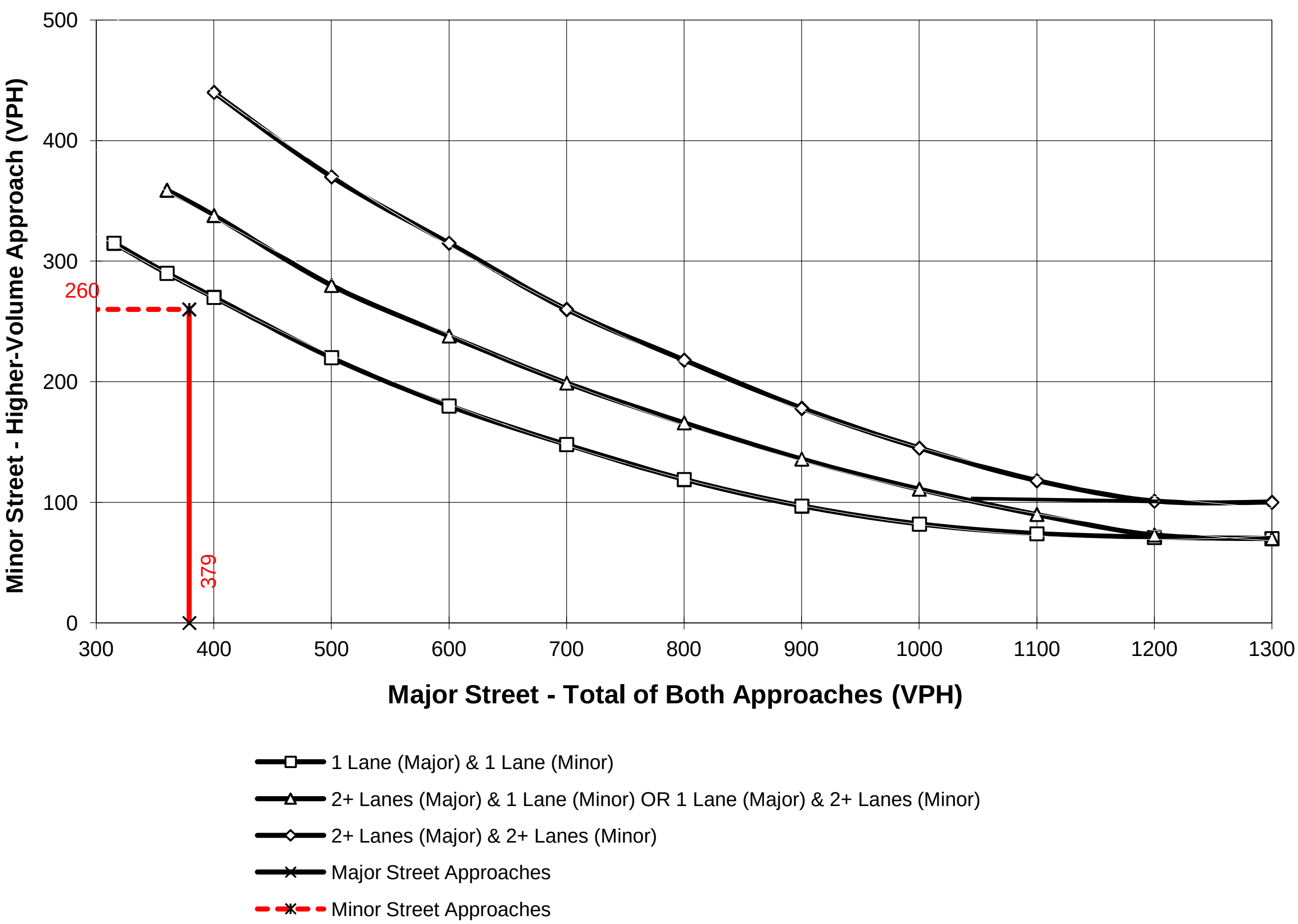
Number of Approach Lanes Major Street = **1**

Minor Street Name = **58th Avenue**

High Volume Approach (VPH) = **260**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EACP (2016) Conditions - Weekday AM Peak Hour**

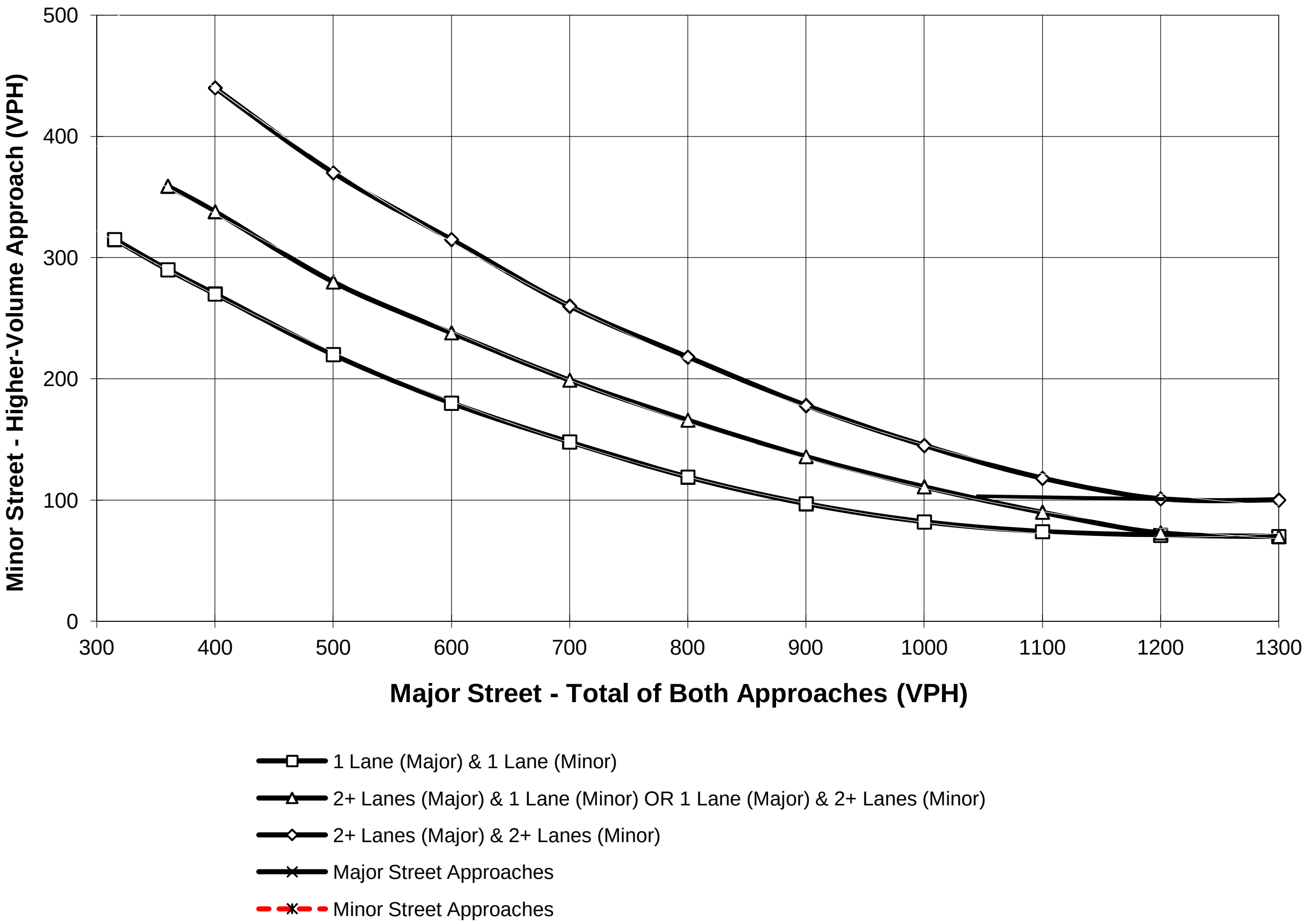
Major Street Name = **Monroe Street**

Total of Both Approaches (VPH) = **205**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **60th Av.**

High Volume Approach (VPH) = **111**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EACP (2016) Conditions - Weekday PM Peak Hour**

Major Street Name = **Monroe Street**

Total of Both Approaches (VPH) = **302**

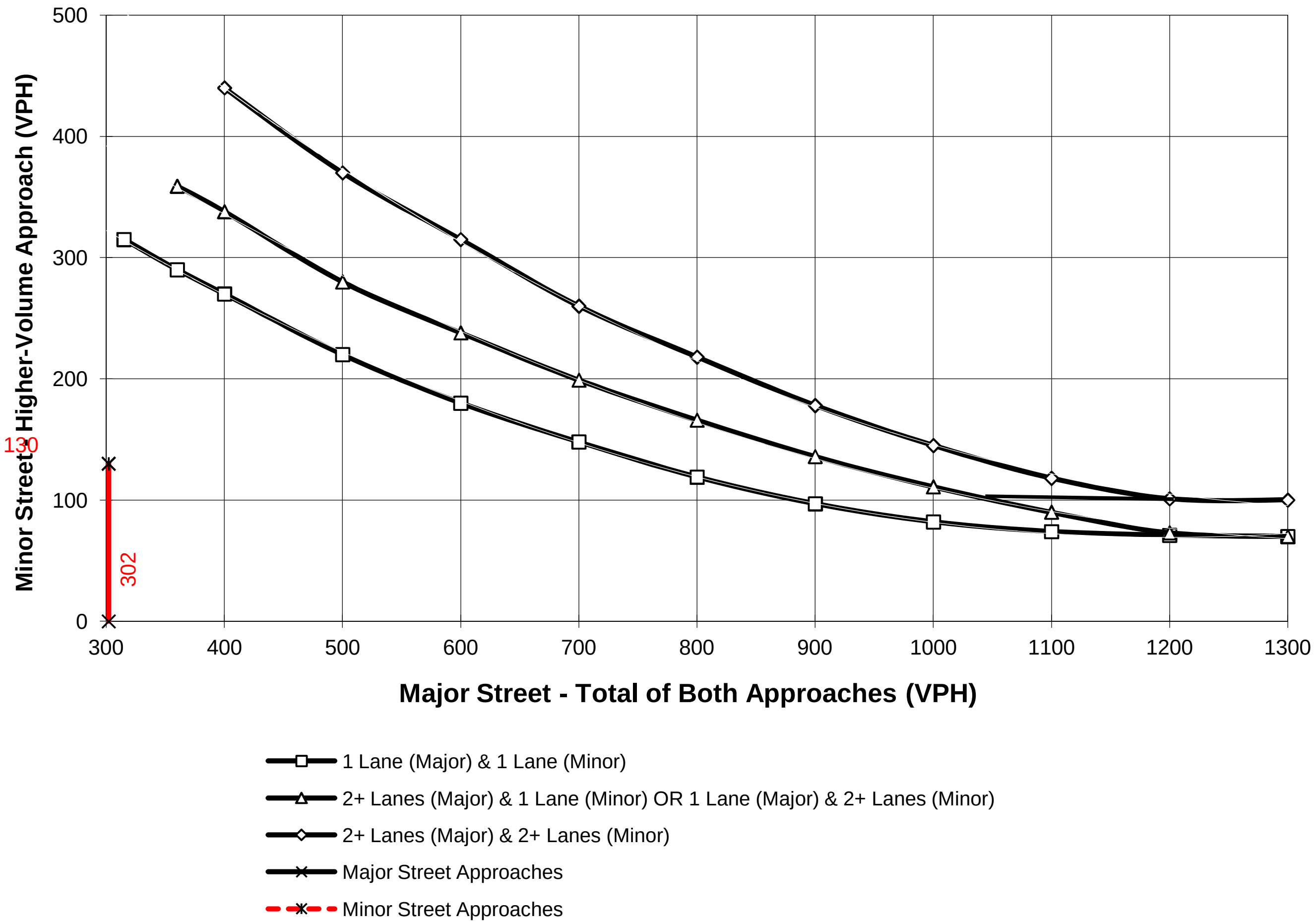
Number of Approach Lanes Major Street = **1**

Minor Street Name = **60th Av.**

High Volume Approach (VPH) = **130**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EACP (2016) Conditions - Weekday AM Peak Hour**

Major Street Name = **Monroe Street**

Total of Both Approaches (VPH) = **111**

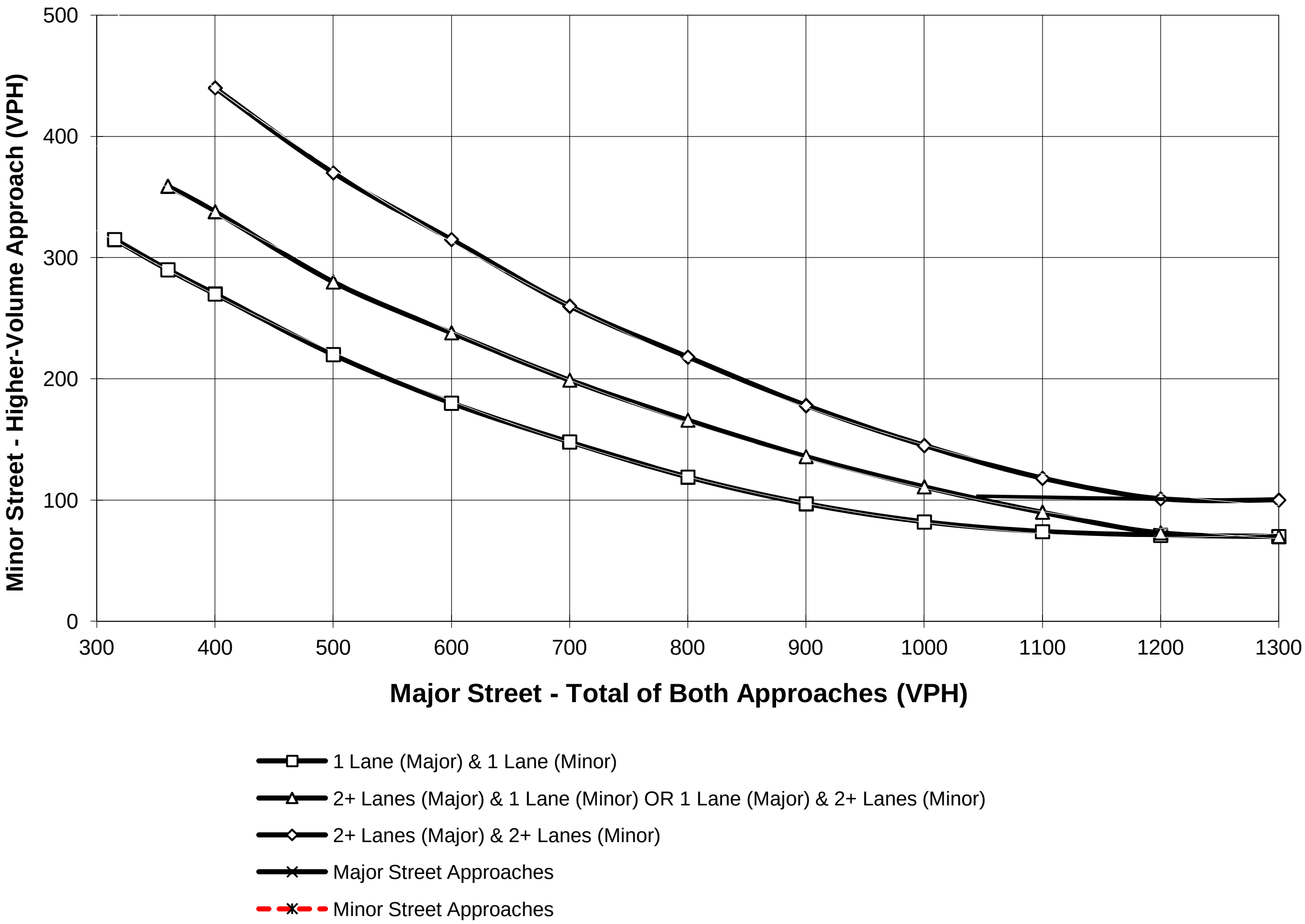
Number of Approach Lanes Major Street = **1**

Minor Street Name = **61st Avenue**

High Volume Approach (VPH) = **68**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

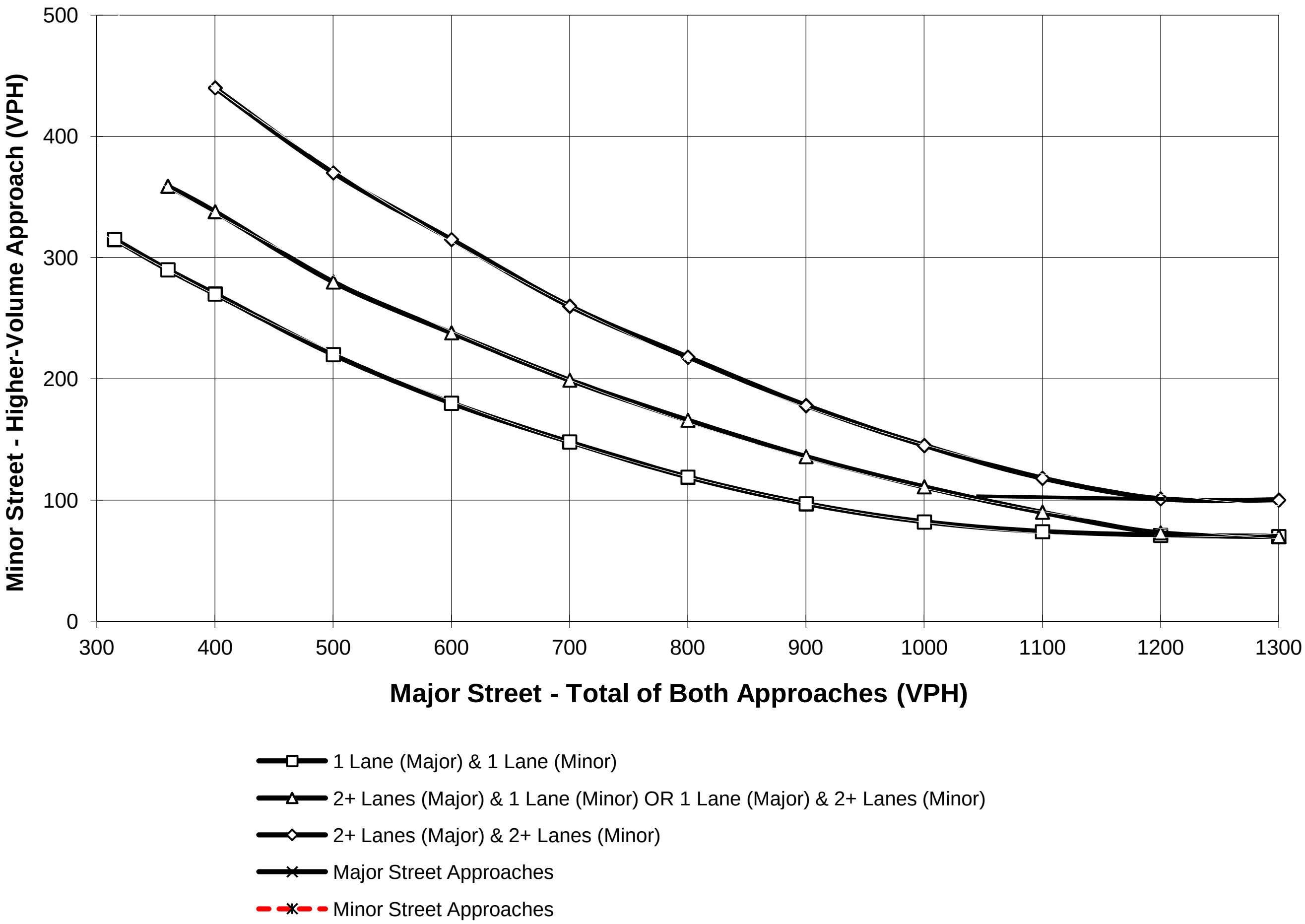
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EACP (2016) Conditions - Weekday PM Peak Hour**

Major Street Name = **Monroe Street**
Total of Both Approaches (VPH) = **193**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **61st Avenue**
High Volume Approach (VPH) = **46**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EACP (2016) Conditions - Weekday AM Peak Hour**

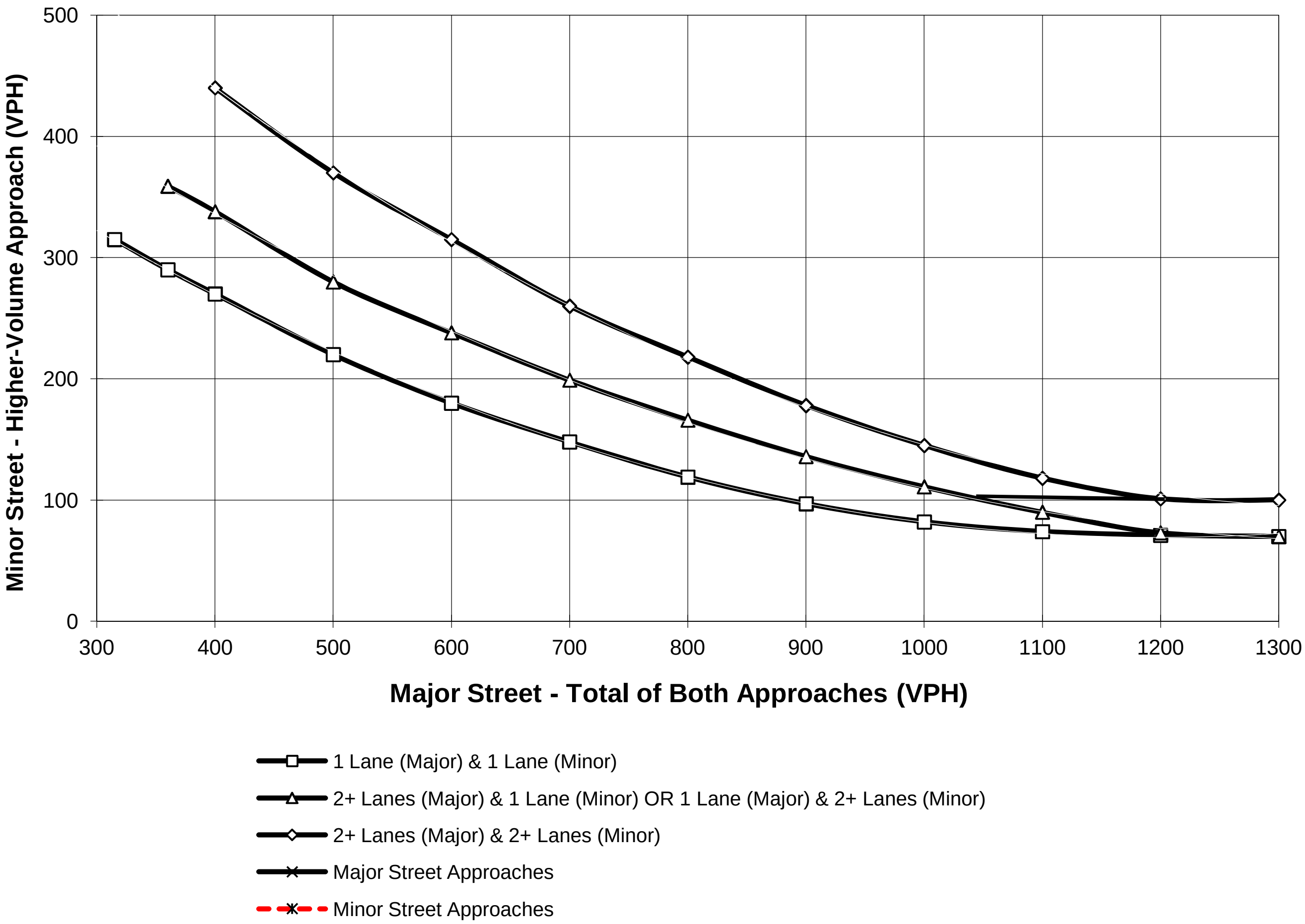
Major Street Name = **Jackson Street**

Total of Both Approaches (VPH) = **161**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **60th Av.**

High Volume Approach (VPH) = **68**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EACP (2016) Conditions - Weekday PM Peak Hour**

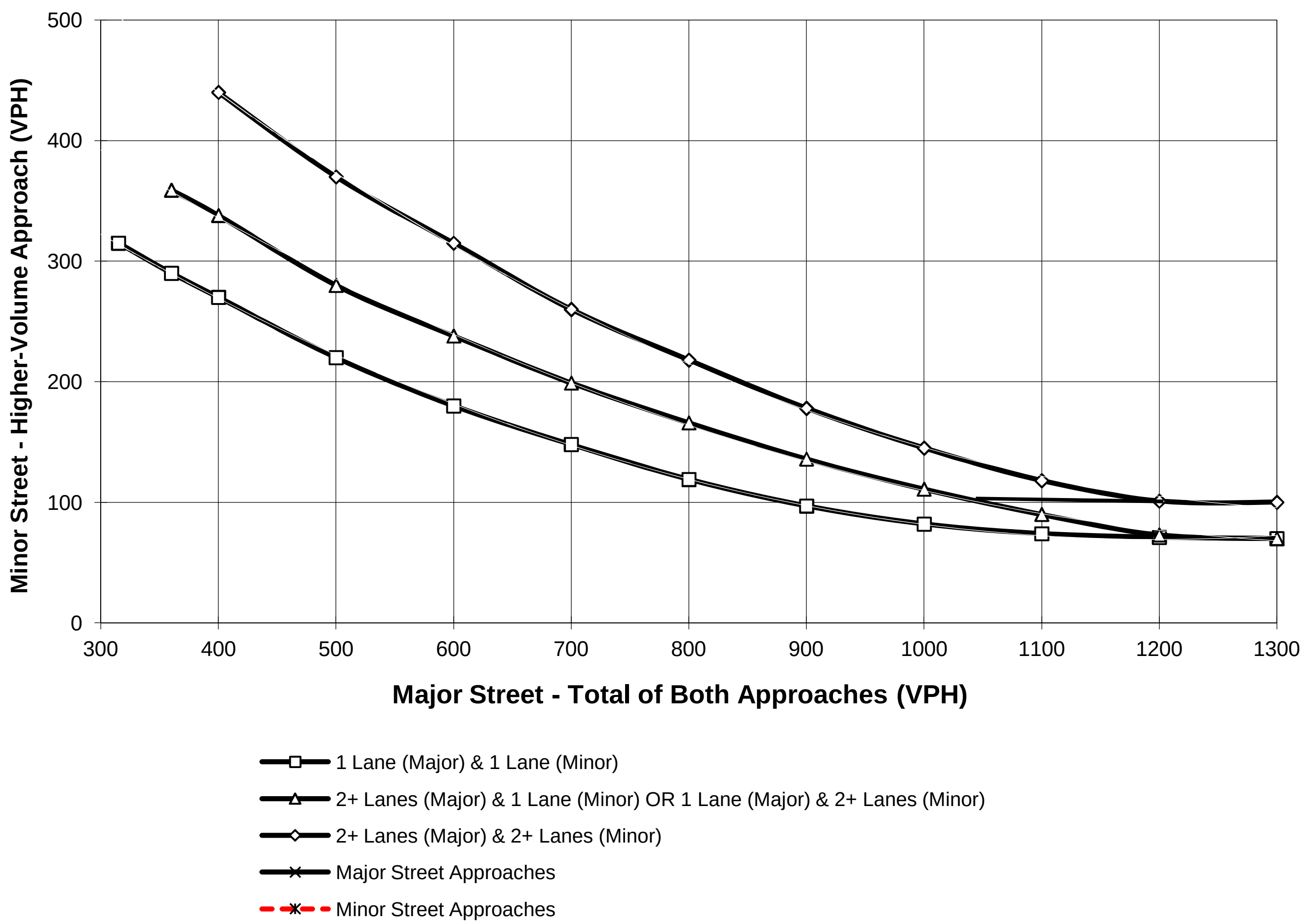
Major Street Name = **Jackson Street**

Total of Both Approaches (VPH) = **170**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **60th Av.**

High Volume Approach (VPH) = **64**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EACP (2016) Conditions - Weekday AM Peak Hour**

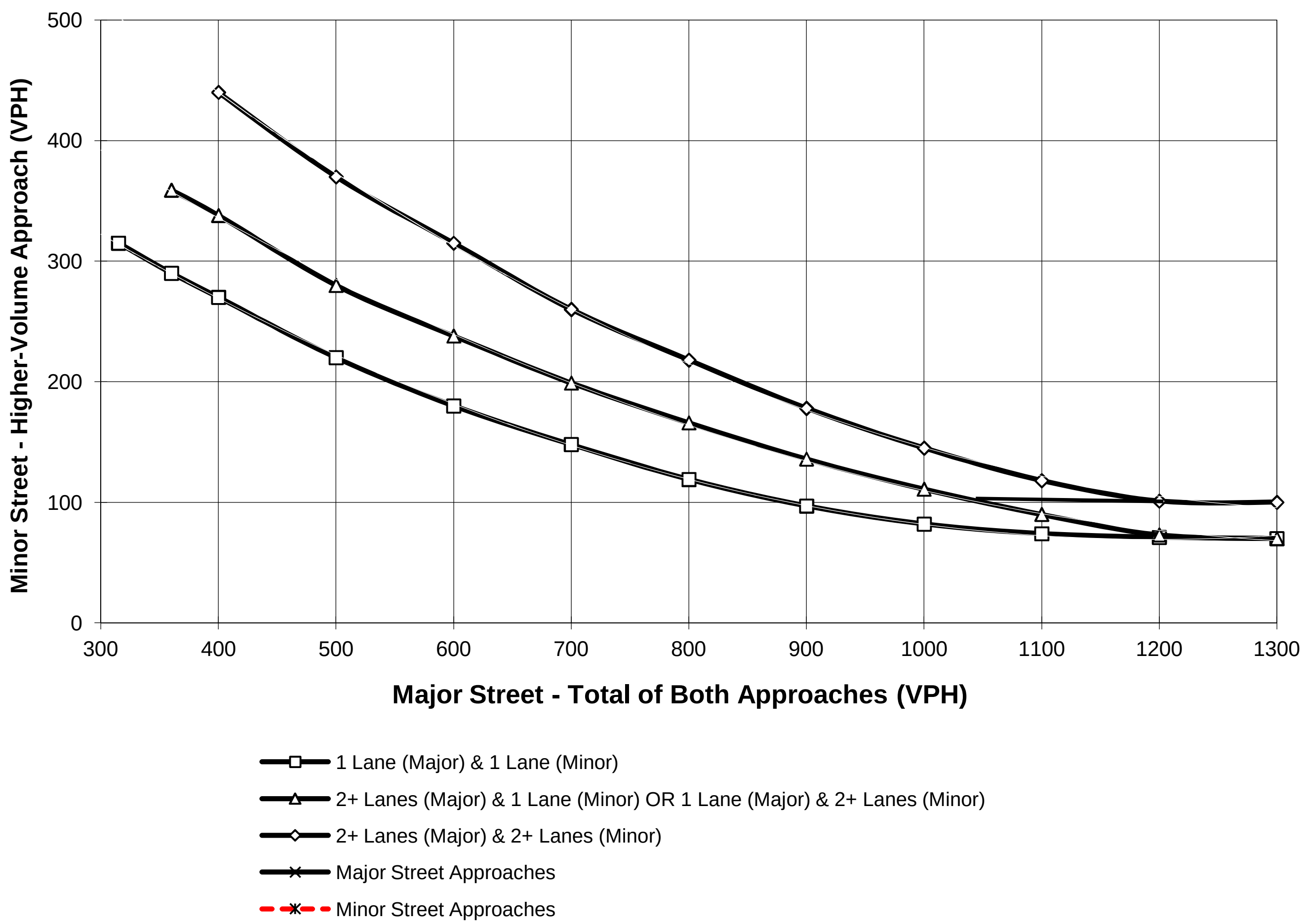
Major Street Name = **Jackson Street**

Total of Both Approaches (VPH) = **110**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **61st Avenue**

High Volume Approach (VPH) = **46**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EACP (2016) Conditions - Weekday PM Peak Hour**

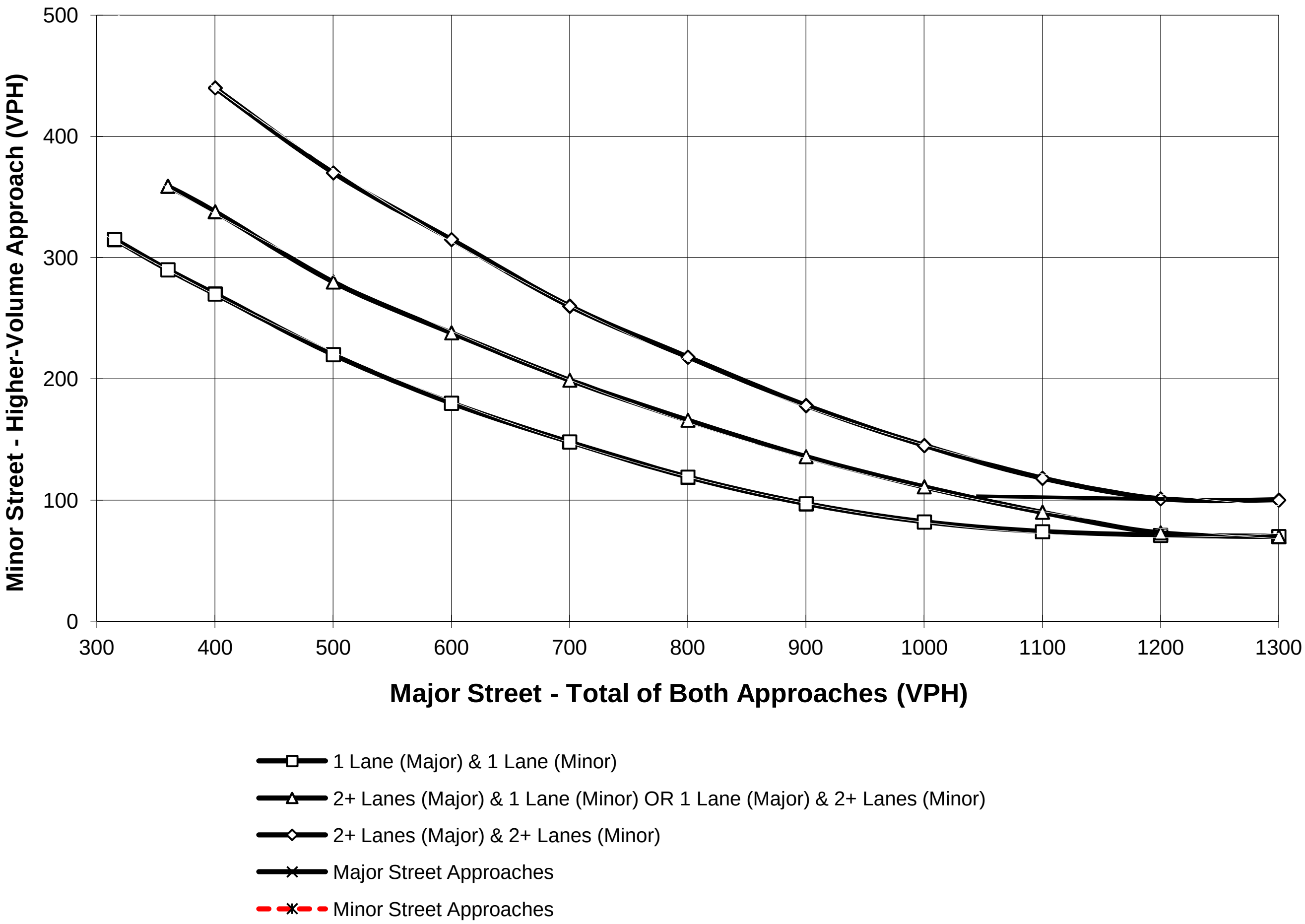
Major Street Name = **Jackson Street**

Total of Both Approaches (VPH) = **135**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **61st Avenue**

High Volume Approach (VPH) = **68**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EACP (2016) Conditions - Weekday AM Peak Hour**

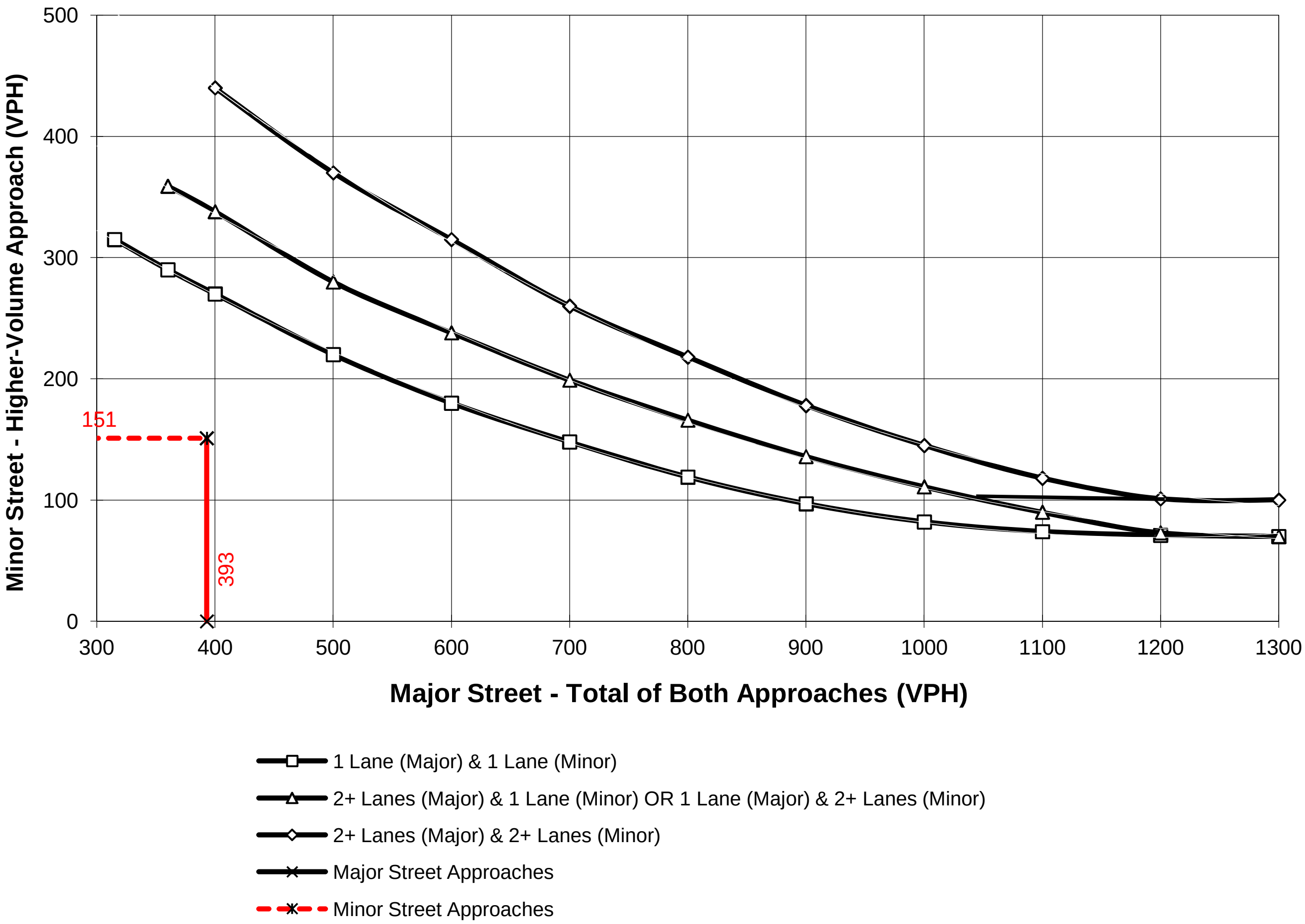
Major Street Name = **Madison Street**

Total of Both Approaches (VPH) = **393**
Number of Approach Lanes Major Street = **2**

Minor Street Name = **58th Avenue**

High Volume Approach (VPH) = **151**
Number of Approach Lanes Minor Street = **2**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

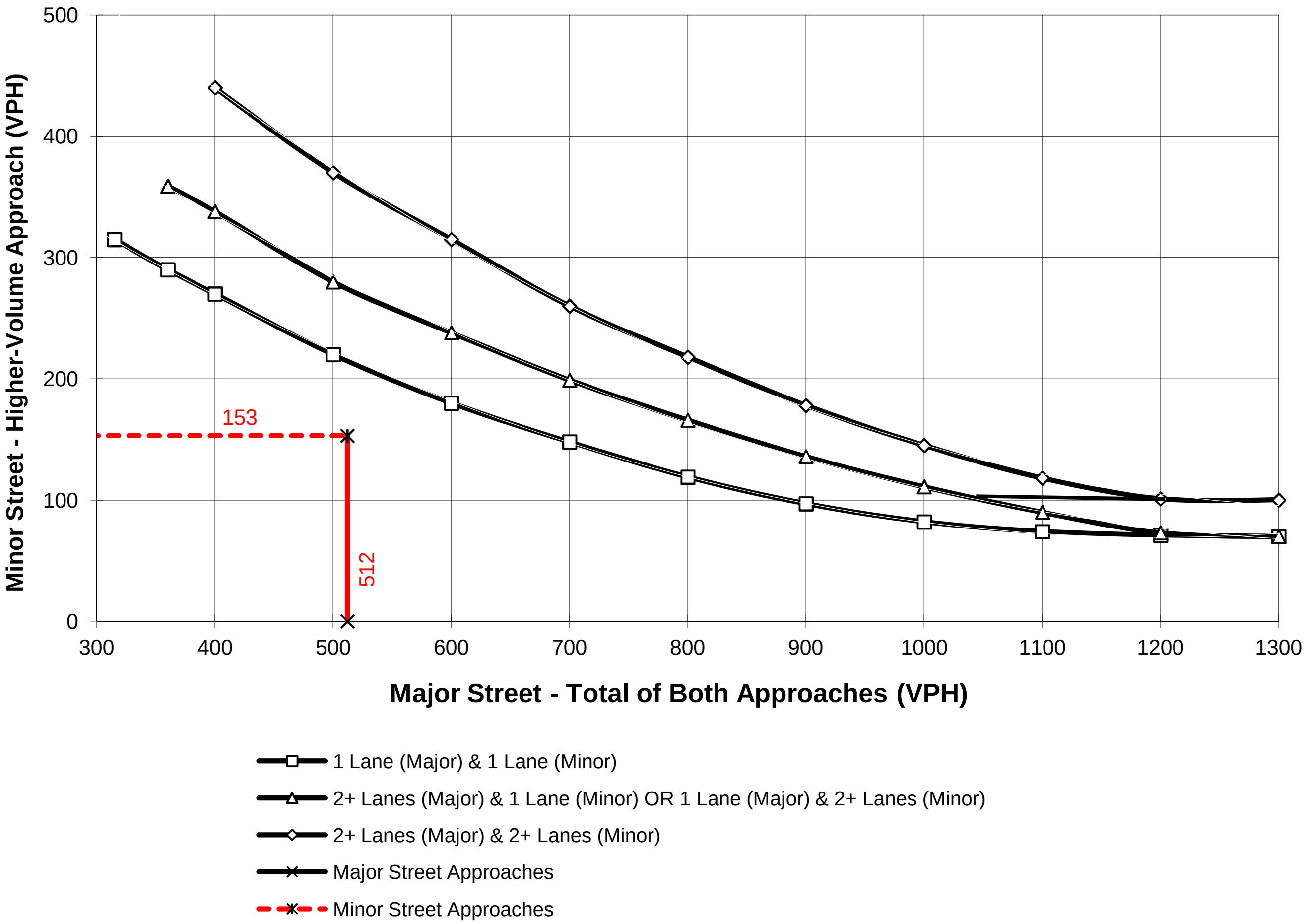
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EACP (2016) Conditions - Weekday PM Peak Hour**

Major Street Name = **Madison Street**
Total of Both Approaches (VPH) = **512**
Number of Approach Lanes Major Street = **2**

Minor Street Name = **58th Avenue**
High Volume Approach (VPH) = **153**
Number of Approach Lanes Minor Street = **2**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM		TRAFFIC CONDITIONS	**2016 With Project**
___	___	___	___	CALC	JC	DATE 12/16/13
				CHK		DATE

Jurisdiction: **County of Riverside**
Major Street: **Monroe St. (NS)**
Minor Street: **61st Avenue - TAZ 6 Dwy. (EW)**

Critical Approach Speed (Major) 55 mph
Critical Approach Speed (Minor) 35 mph

Major Street Approach Lanes = **1** lane
Minor Street Approach Lanes **1** lane

Major Street Future ADT = **1,843** vpd
Minor Street Future ADT = **584** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ………. √
or **RURAL (R)**
In built up area of isolated community of < 10,000 population …………………….

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
	XX				
CONDITION A - Minimum Vehicular Volume		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **1,843**	1 **584**	8,000	5,600	2,400	1,680
2 +	1	9,600	6,720	2,400	1,680
2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **1,843**	1 **584**	12,000	8,400	1,200	850
2 +	1	14,400	10,080	1,200	850
2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B		2 CONDITIONS 80%		2 CONDITIONS 80%	
Satisfied	Not Satisfied				
	XX				
No one condition satisfied, but following conditions fulfilled 80% of more …..	A: 33% / B: 22%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

TRAFFIC CONDITIONS **2016 With Project**

DIST ___ CO ___ RTE ___ PM ___ CALC JC DATE 12/16/13

CHK ______ DATE ______

Jurisdiction: **County of Riverside**

Major Street: **60th Avenue (EW)**

Minor Street: **Driveway 1 (NS)**

Critical Approach Speed (Major) 55 mph

Critical Approach Speed (Minor) 35 mph

Major Street Approach Lanes = **1** lane   Minor Street Approach Lanes **1** lane

Major Street Future ADT = **1,739** vpd   Minor Street Future ADT = **770** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); .... [√]

or   **RURAL (R)**

In built up area of isolated community of < 10,000 population .... [ ]

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
	XX				
CONDITION A - Minimum Vehicular Volume		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **1,739**	*1* **770**	8,000	5,600	2,400	1,680
2 +	*1*	9,600	6,720	2,400	1,680
2 +	*2 +*	9,600	6,720	3,200	2,240
1	*2 +*	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **1,739**	*1* **770**	12,000	8,400	1,200	850
2 +	*1*	14,400	10,080	1,200	850
2 +	*2 +*	14,400	10,080	1,600	1,120
1	*2 +*	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B		2 CONDITIONS 80%		2 CONDITIONS 80%	
Satisfied	Not Satisfied XX				
No one condition satisfied, but following conditions fulfilled 80% of more	A 31% / B 21%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

TRAFFIC CONDITIONS **2016 With Project**

DIST ___ CO ___ RTE ___ PM ___ CALC JC DATE 12/16/13

Jurisdiction: **County of Riverside** CHK ___ DATE ___

Major Street: **61st Avenue (EW)** Critical Approach Speed (Major) 40 mph

Minor Street: **Driveway 2 (NS)** Critical Approach Speed (Minor) 35 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **1,189** vpd Minor Street Future ADT = **329** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ………. ☐

or **RURAL (R)**

In built up area of isolated community of < 10,000 population …………………… ☐

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
XX					
CONDITION A - Minimum Vehicular Volume		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **1,189**	1 **329**	8,000	5,600	2,400	1,680
2 +	1	9,600	6,720	2,400	1,680
2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **1,189**	1 **329**	12,000	8,400	1,200	850
2 +	1	14,400	10,080	1,200	850
2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B		2 CONDITIONS 80%		2 CONDITIONS 80%	
Satisfied	Not Satisfied				
	XX				
No one condition satisfied, but following conditions fulfilled 80% of more …..					
A: 14%	B: 10%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Long Range (2035) Without Project Conditions

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **2035NP Conditions - Weekday AM Peak Hour**

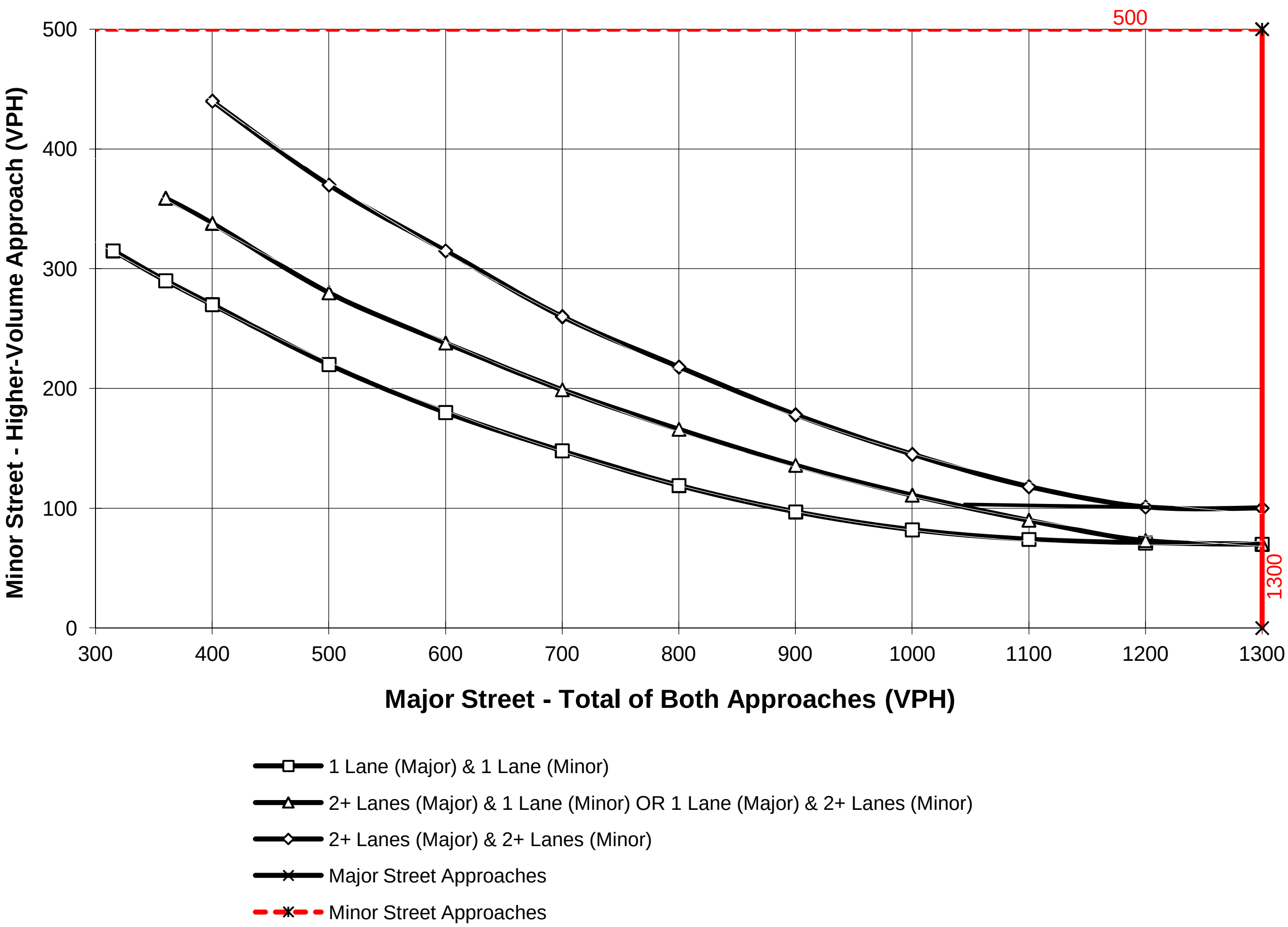
Major Street Name = **Madison Street**

Total of Both Approaches (VPH) = **1,830**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **60th Av.**

High Volume Approach (VPH) = **787**
Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **2035NP Conditions - Weekday PM Peak Hour**

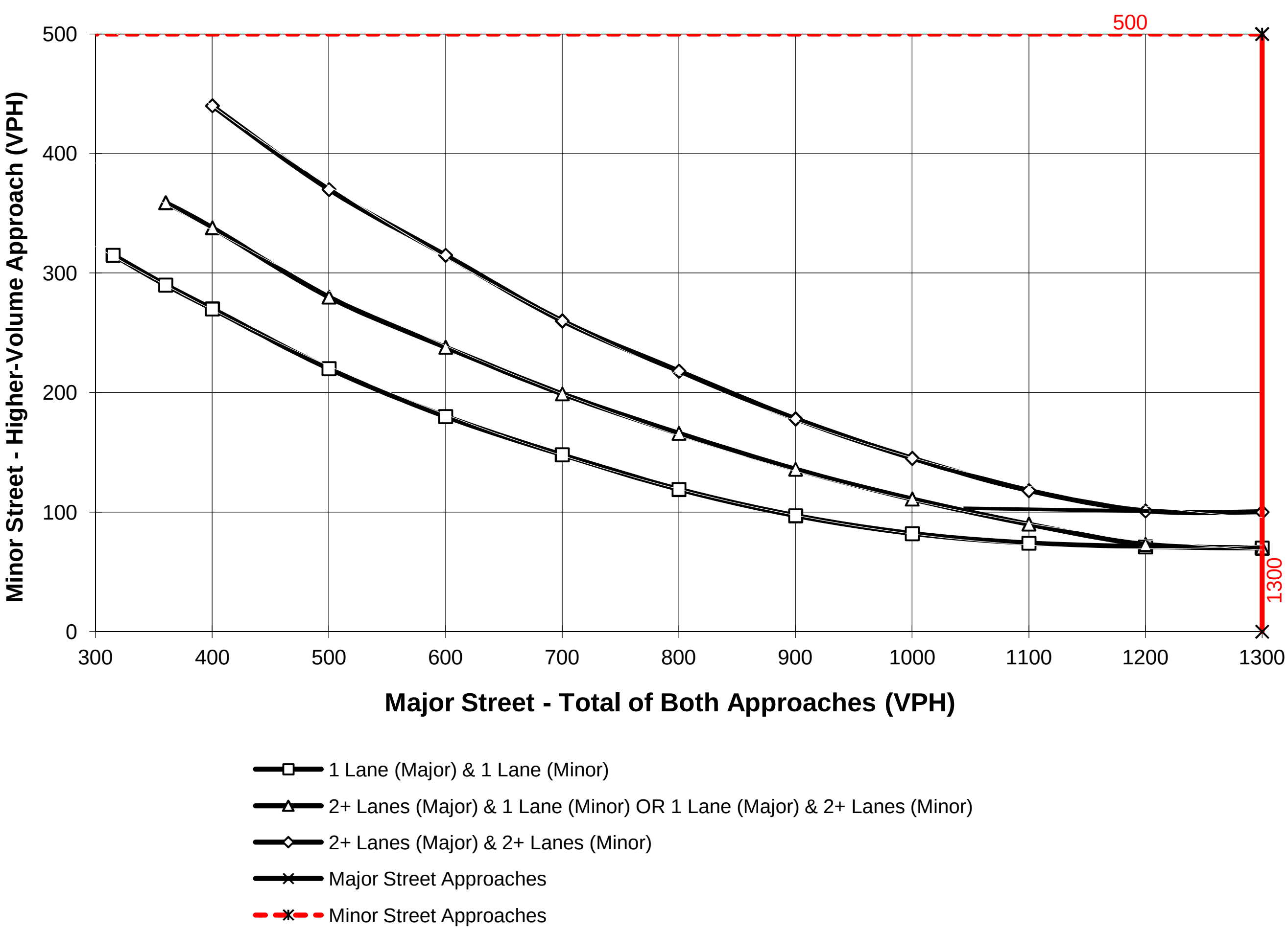
Major Street Name = **60th Av.**

Total of Both Approaches (VPH) = **2,353**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Madison Street**

High Volume Approach (VPH) = **1,233**
Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **2035NP Conditions - Weekday AM Peak Hour**

Major Street Name = **Monroe Street**

Total of Both Approaches (VPH) = **1,953**

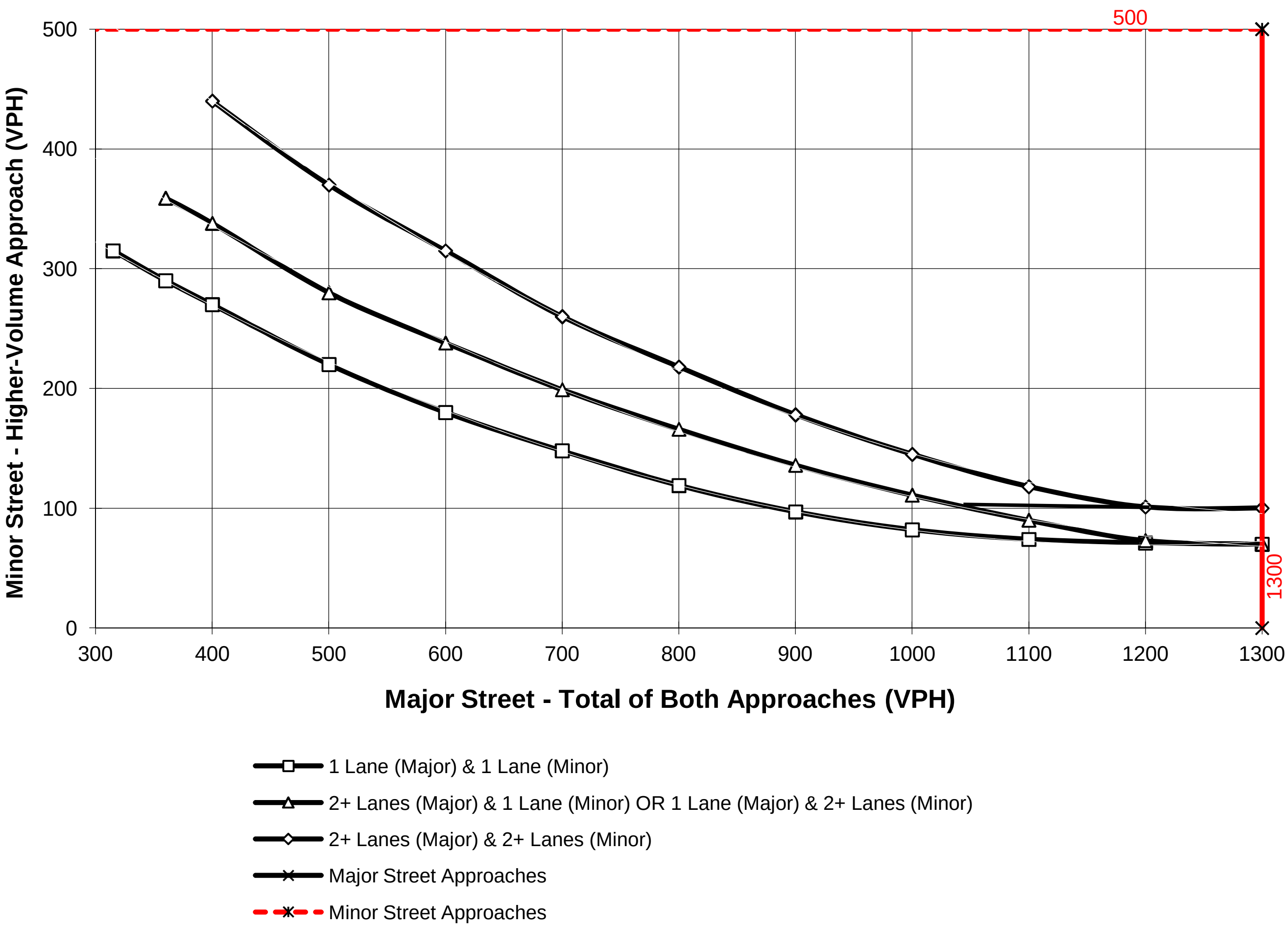
Number of Approach Lanes Major Street = **1**

Minor Street Name = **58th Avenue**

High Volume Approach (VPH) = **571**

Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **2035NP Conditions - Weekday PM Peak Hour**

Major Street Name = **Monroe Street**

Total of Both Approaches (VPH) = **2,549**

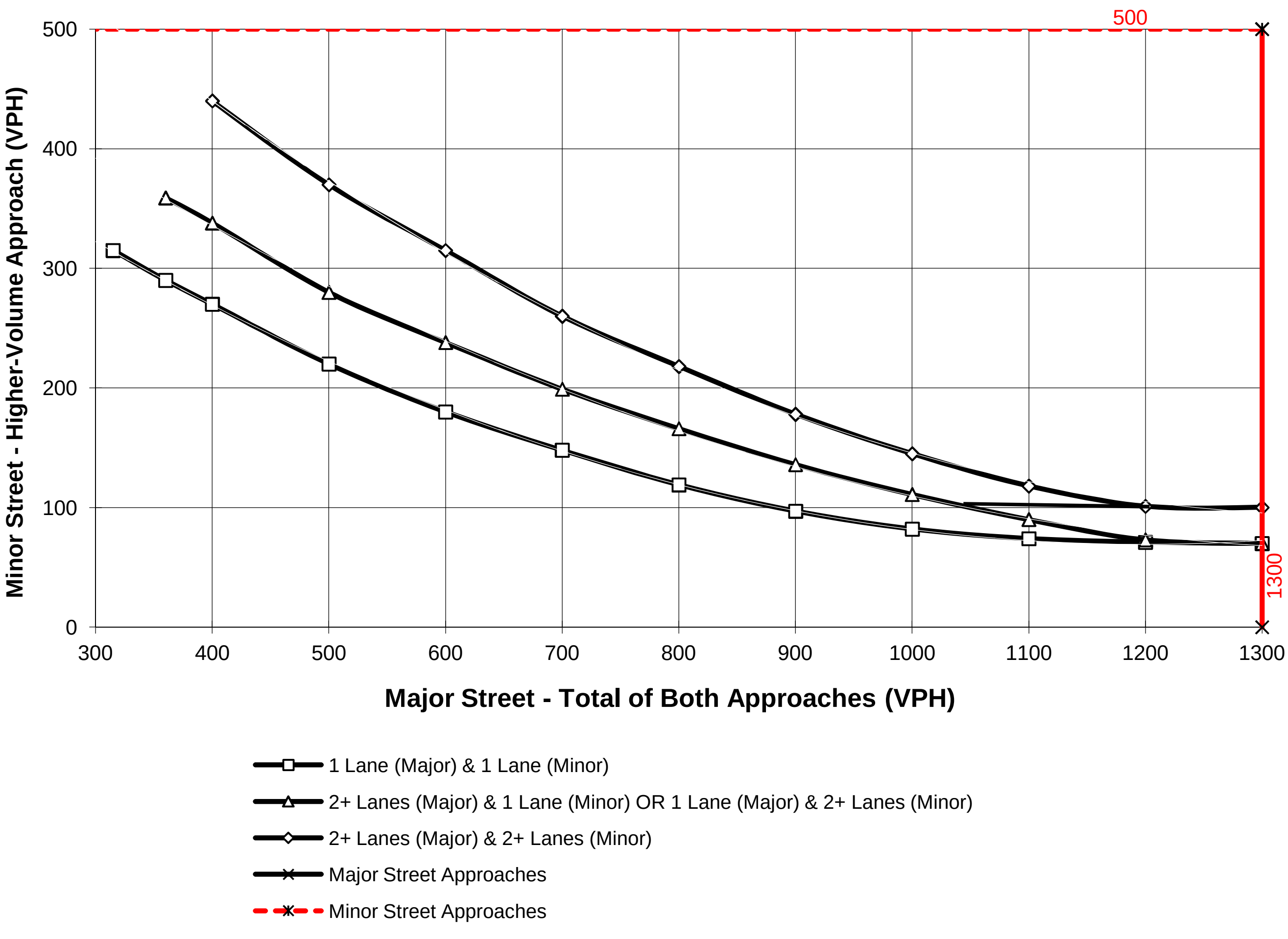
Number of Approach Lanes Major Street = **1**

Minor Street Name = **58th Avenue**

High Volume Approach (VPH) = **1,062**

Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **2035NP Conditions - Weekday AM Peak Hour**

Major Street Name = **Monroe Street**

Total of Both Approaches (VPH) = **1,436**

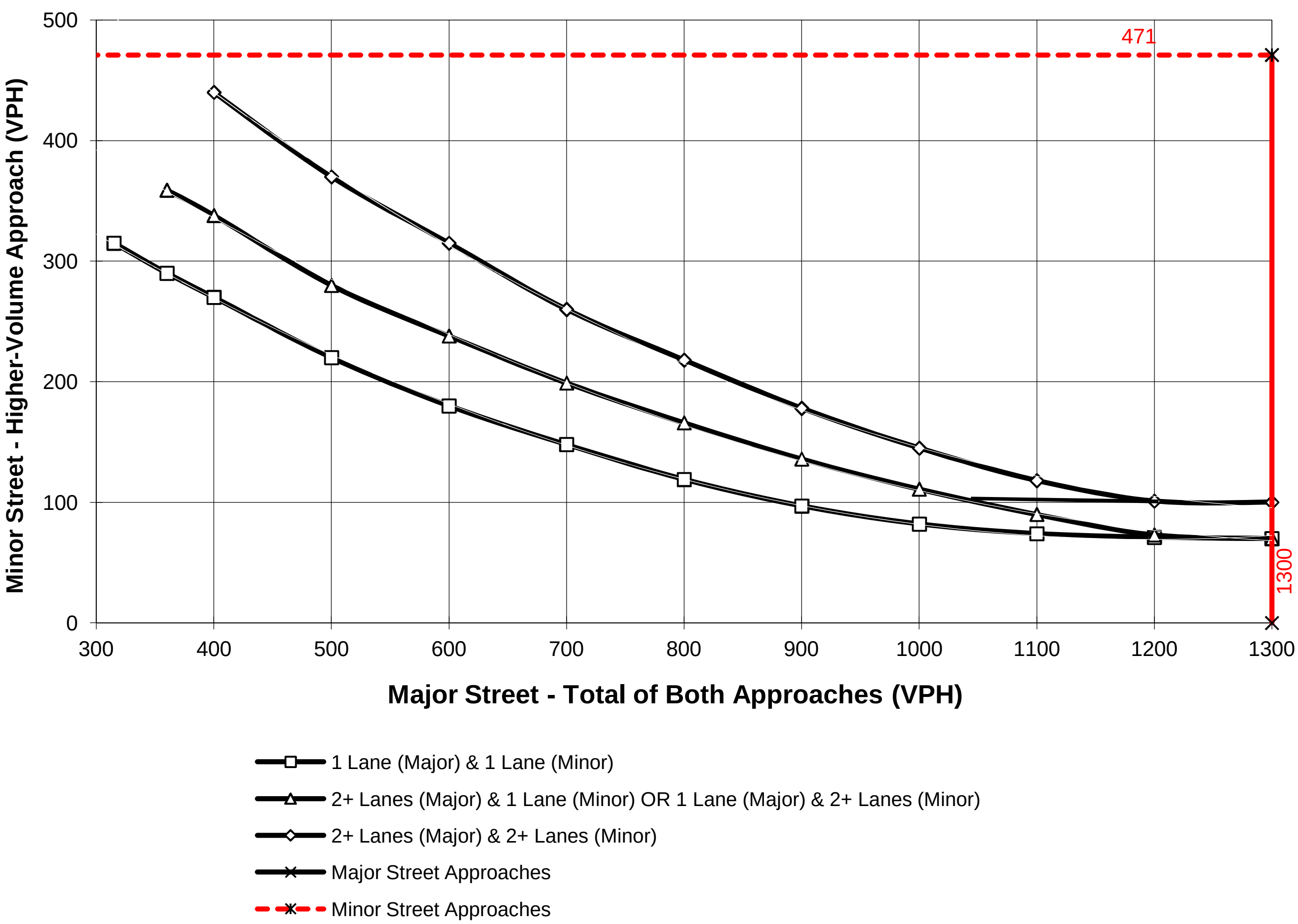
Number of Approach Lanes Major Street = **1**

Minor Street Name = **60th Av.**

High Volume Approach (VPH) = **471**

Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **2035NP Conditions - Weekday PM Peak Hour**

Major Street Name = **Monroe Street**

Total of Both Approaches (VPH) = **2,257**

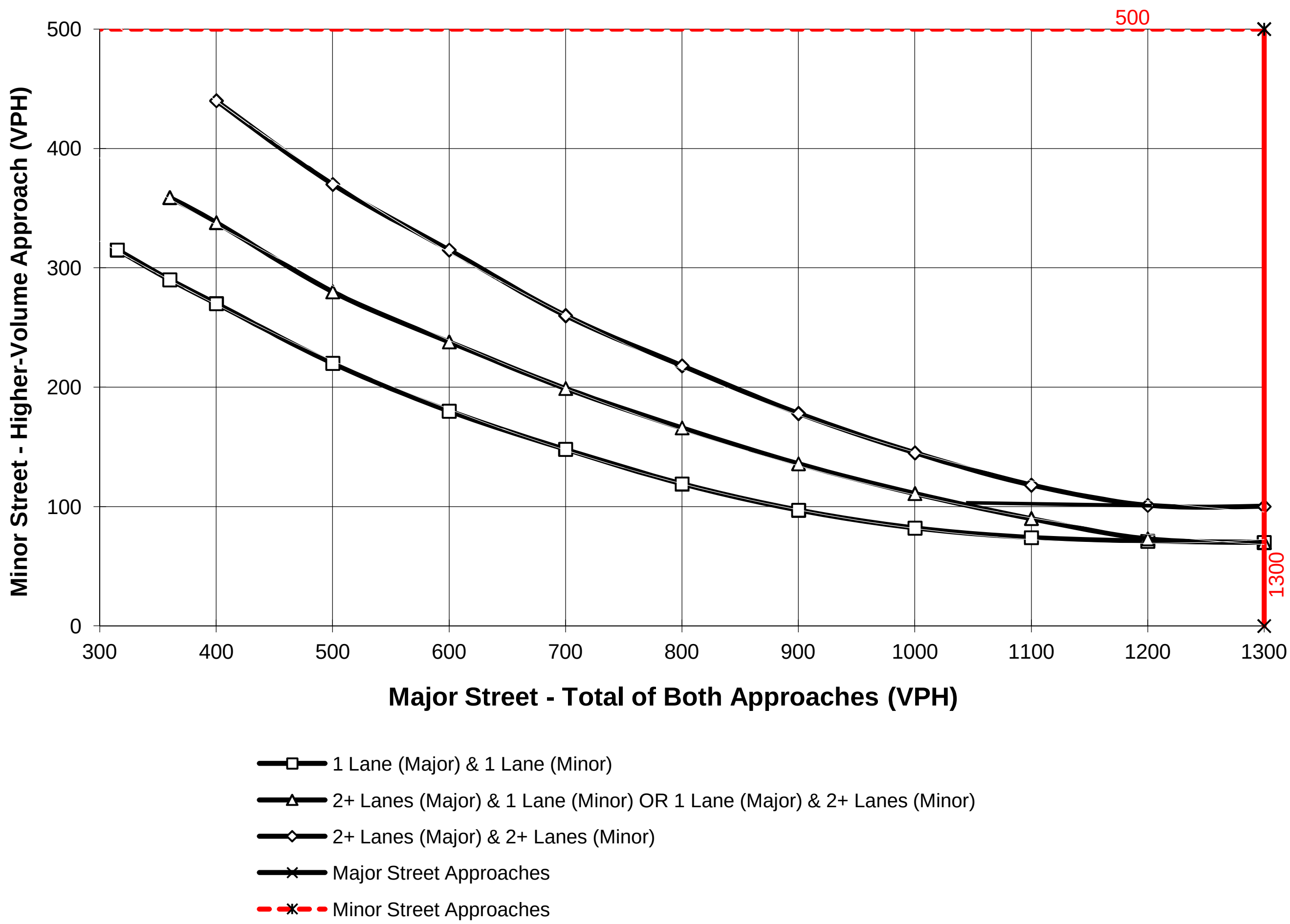
Number of Approach Lanes Major Street = **1**

Minor Street Name = **60th Av.**

High Volume Approach (VPH) = **761**

Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **2035NP Conditions - Weekday AM Peak Hour**

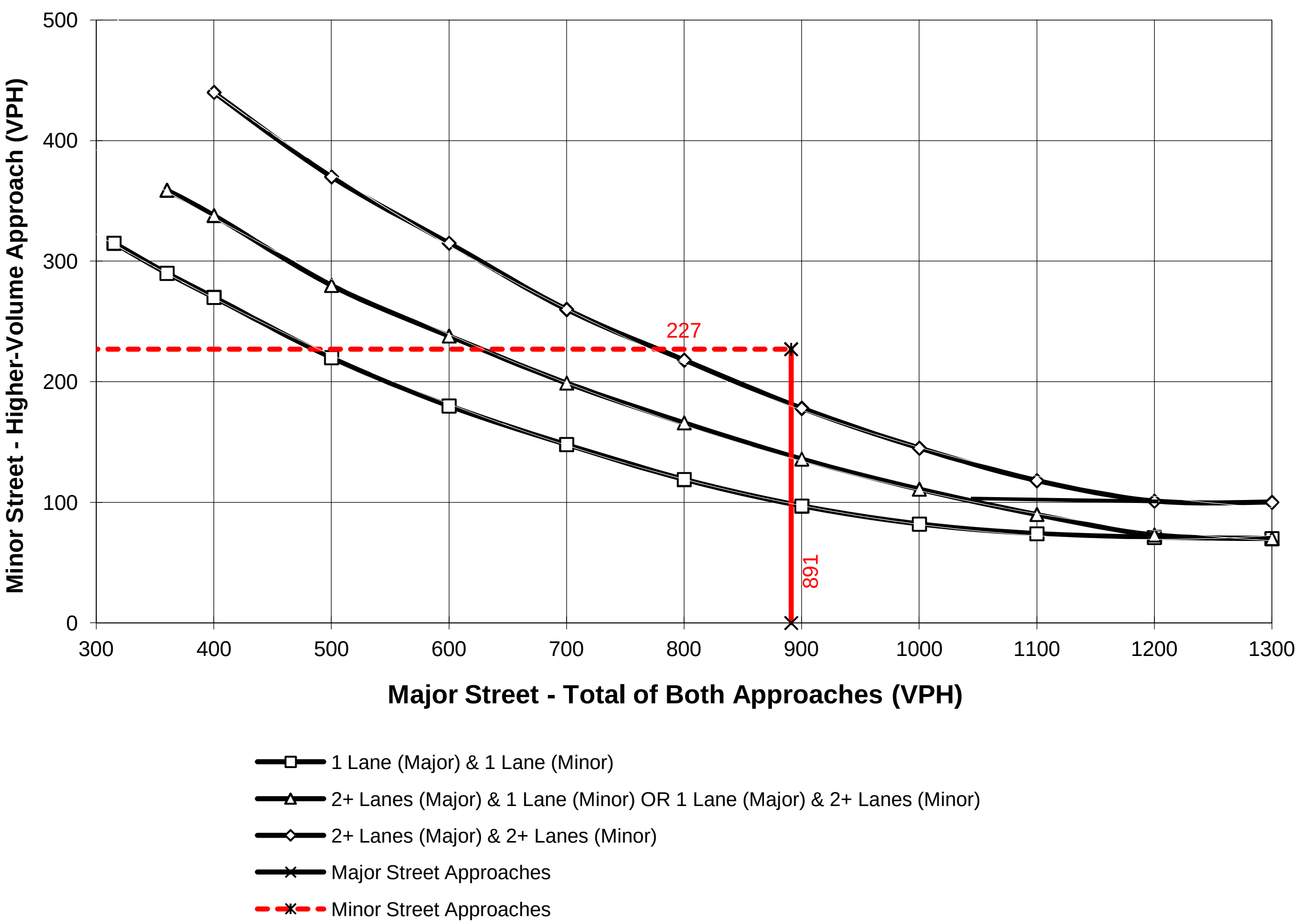
Major Street Name = **Monroe Street**

Total of Both Approaches (VPH) = **891**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **61st Avenue**

High Volume Approach (VPH) = **227**
Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **2035NP Conditions - Weekday PM Peak Hour**

Major Street Name = **Monroe Street**

Total of Both Approaches (VPH) = **1,255**

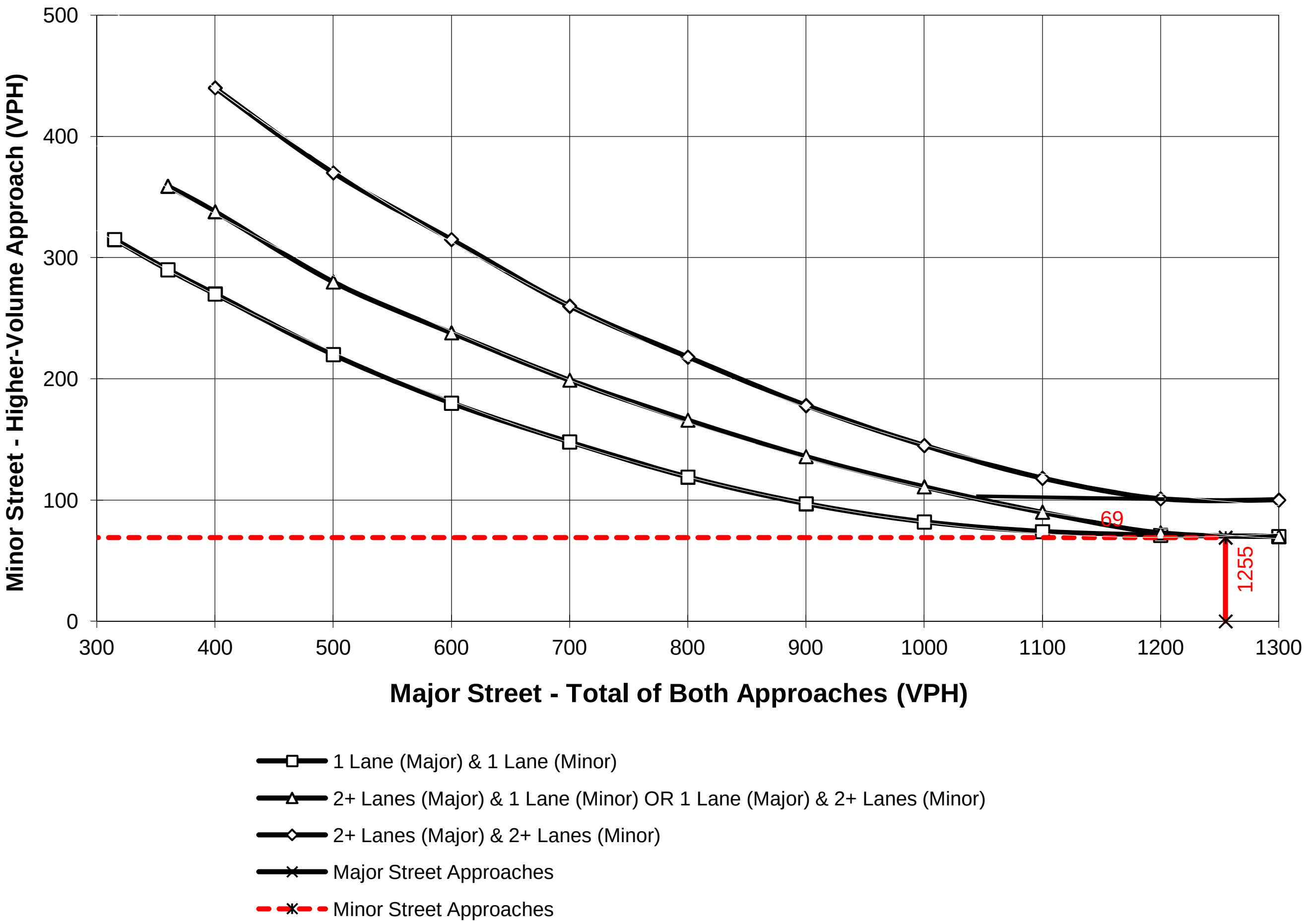
Number of Approach Lanes Major Street = **1**

Minor Street Name = **61st Avenue**

High Volume Approach (VPH) = **69**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **2035NP Conditions - Weekday AM Peak Hour**

Major Street Name = **Jackson Street**

Total of Both Approaches (VPH) = **1,492**

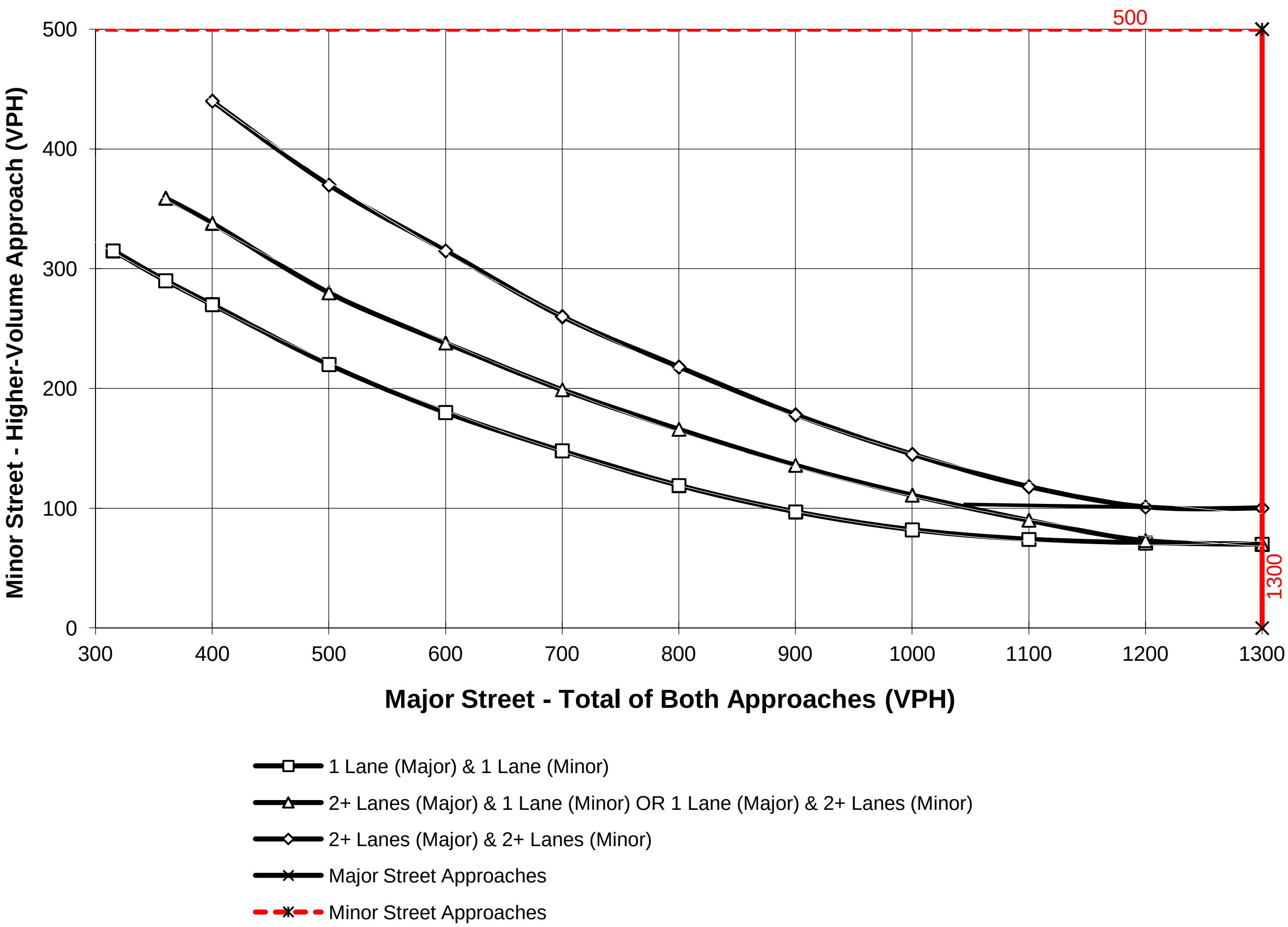
Number of Approach Lanes Major Street = **1**

Minor Street Name = **60th Av.**

High Volume Approach (VPH) = **779**

Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **2035NP Conditions - Weekday PM Peak Hour**

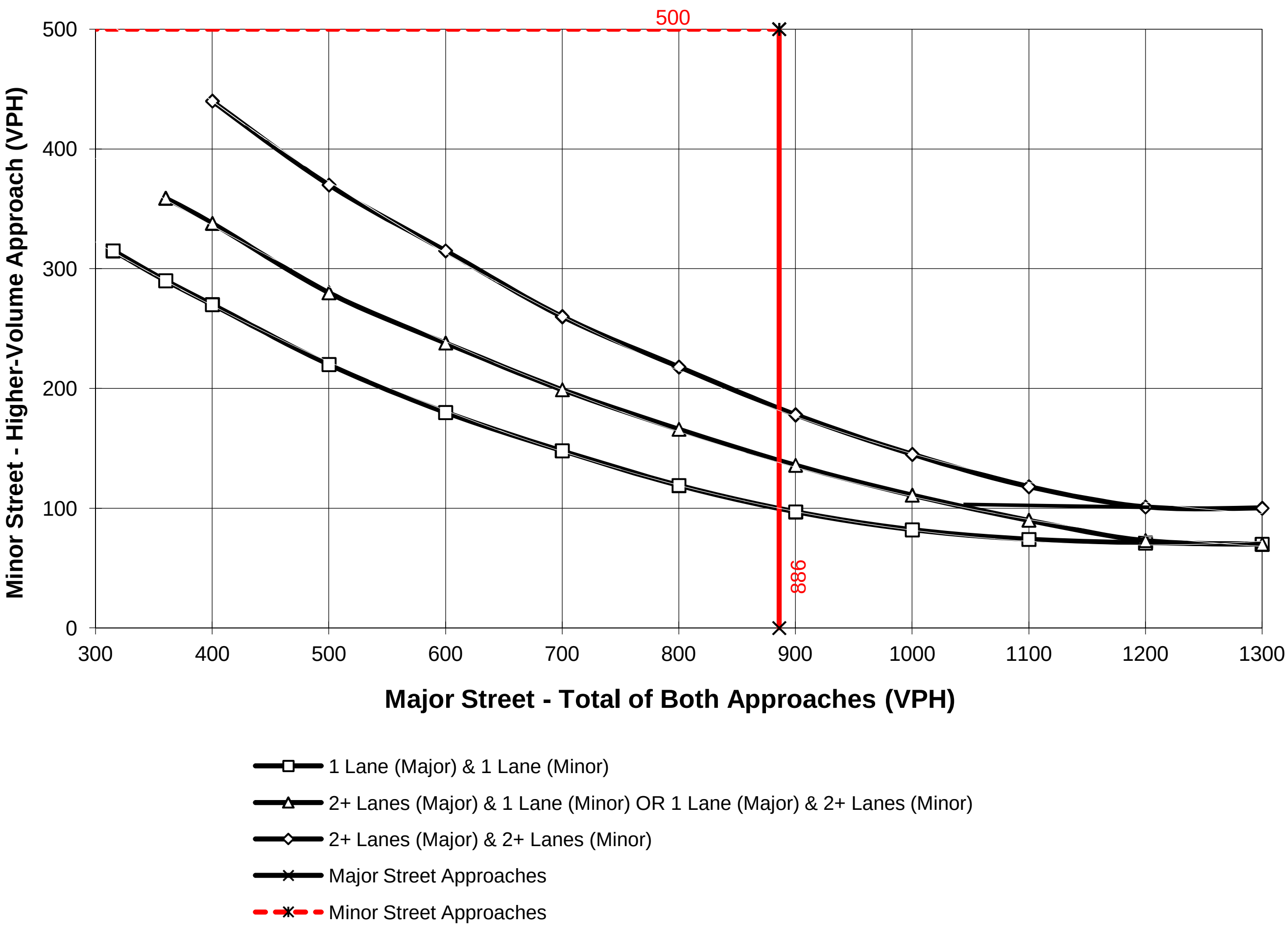
Major Street Name = **60th Av.**

Total of Both Approaches (VPH) = **886**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Jackson Street**

High Volume Approach (VPH) = **625**
Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **2035NP Conditions - Weekday AM Peak Hour**

Major Street Name = **Jackson Street**

Total of Both Approaches (VPH) = **1,051**

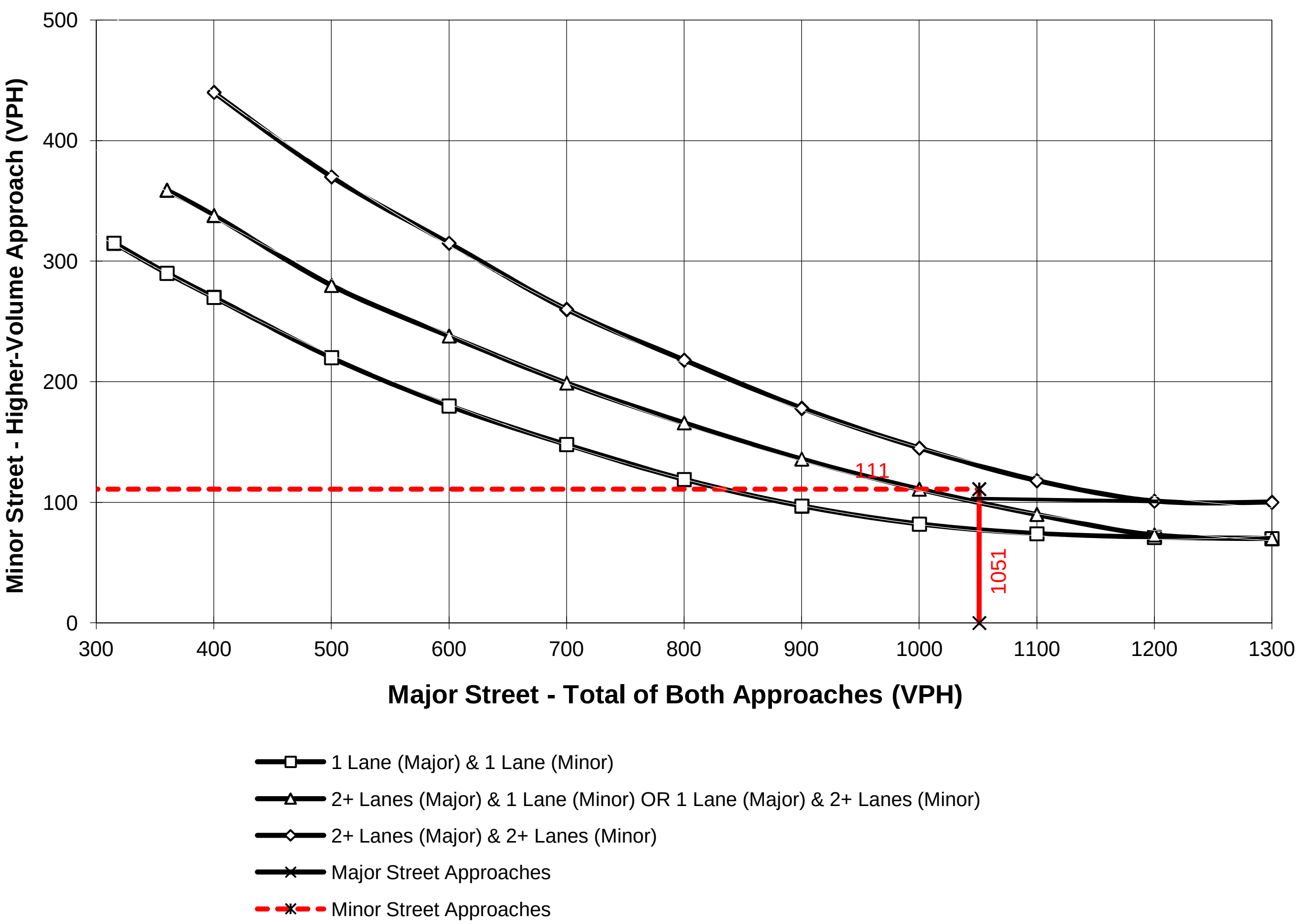
Number of Approach Lanes Major Street = **1**

Minor Street Name = **61st Avenue**

High Volume Approach (VPH) = **111**

Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **2035NP Conditions - Weekday PM Peak Hour**

Major Street Name = **Jackson Street**

Total of Both Approaches (VPH) = **708**

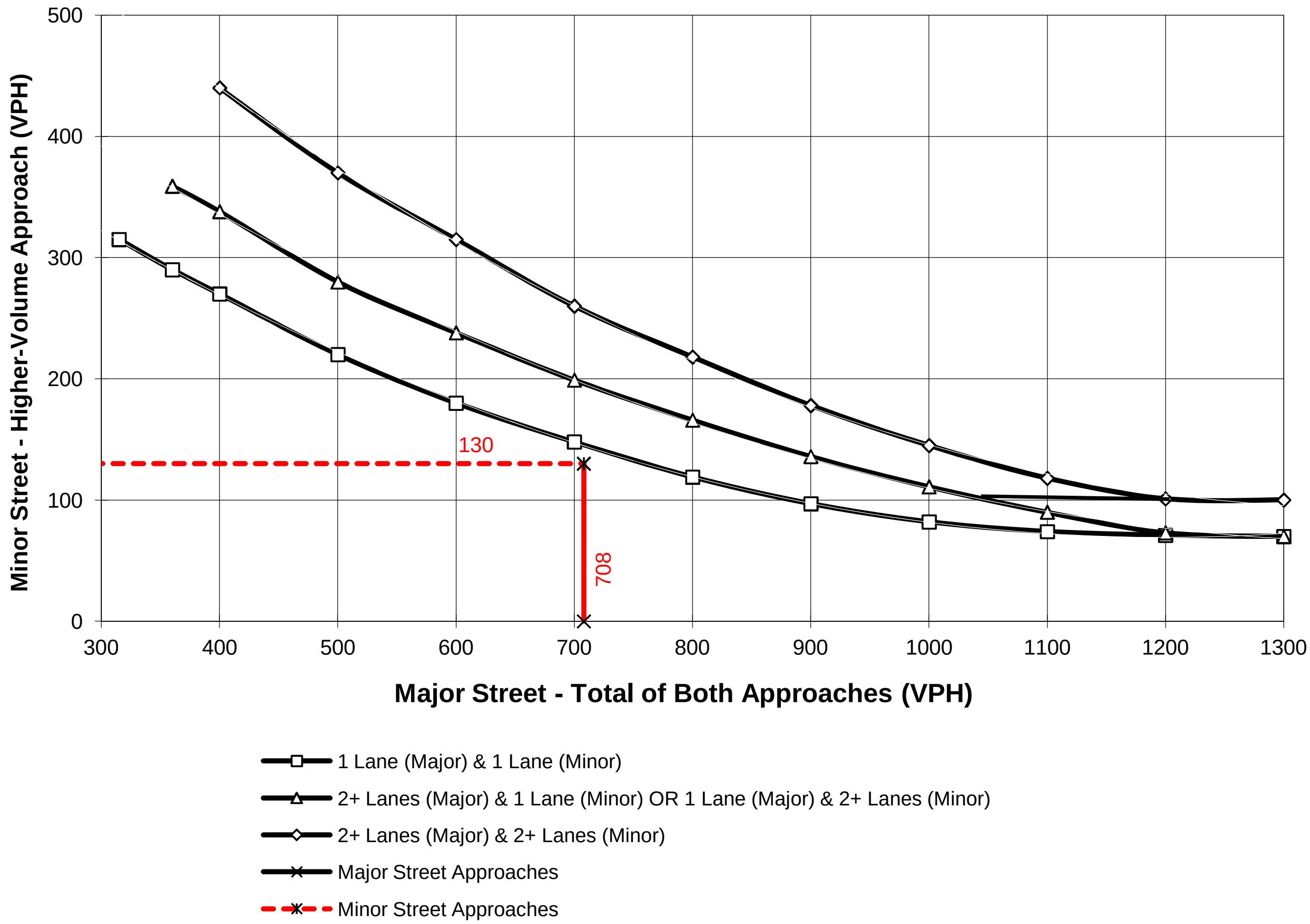
Number of Approach Lanes Major Street = **1**

Minor Street Name = **61st Avenue**

High Volume Approach (VPH) = **130**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **2035NP Conditions - Weekday AM Peak Hour**

Major Street Name = **Madison Street**

Total of Both Approaches (VPH) = **2,540**

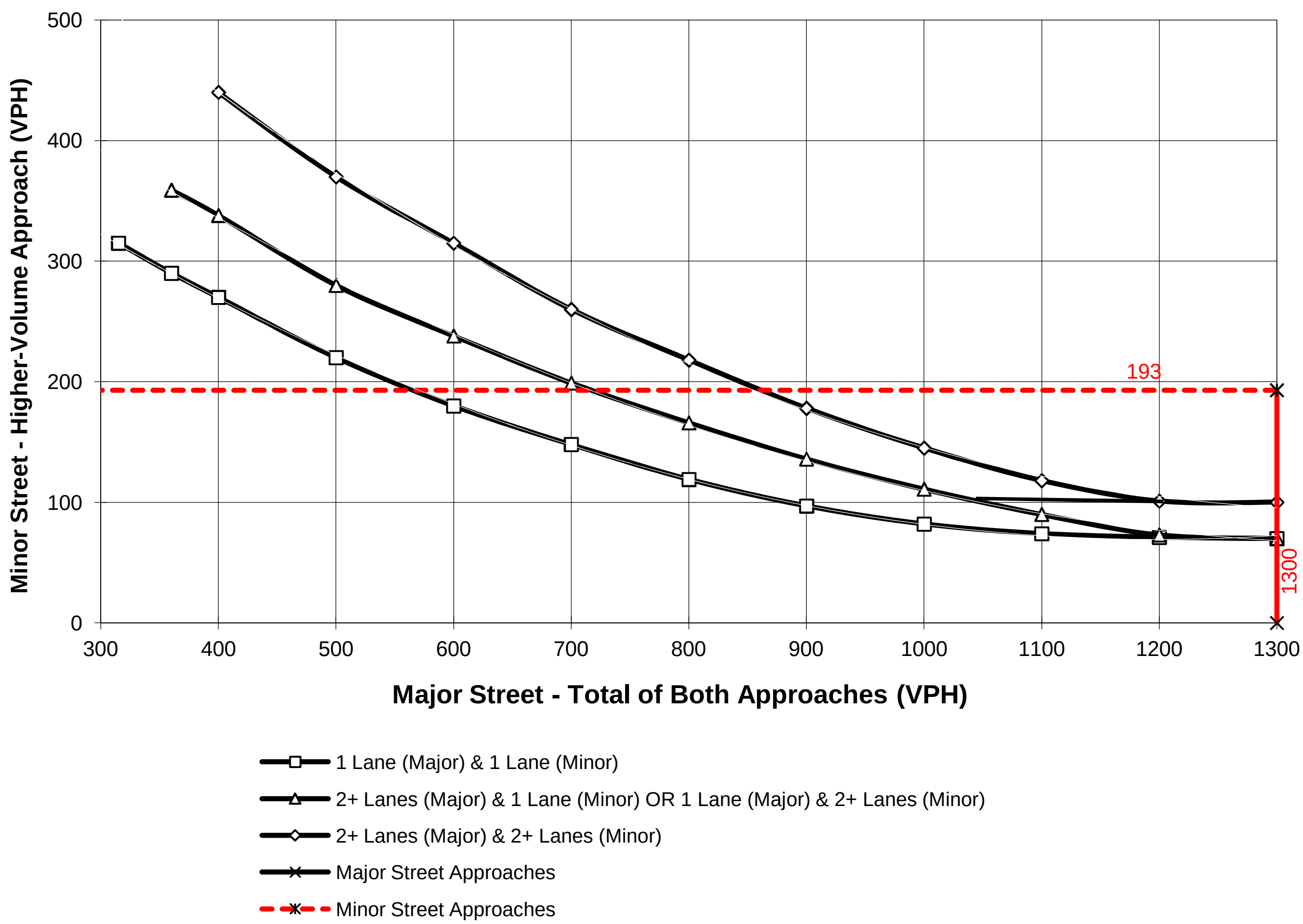
Number of Approach Lanes Major Street = **2**

Minor Street Name = **58th Avenue**

High Volume Approach (VPH) = **193**

Number of Approach Lanes Minor Street = **2**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **2035NP Conditions - Weekday PM Peak Hour**

Major Street Name = **Madison Street**

Total of Both Approaches (VPH) = **3,078**

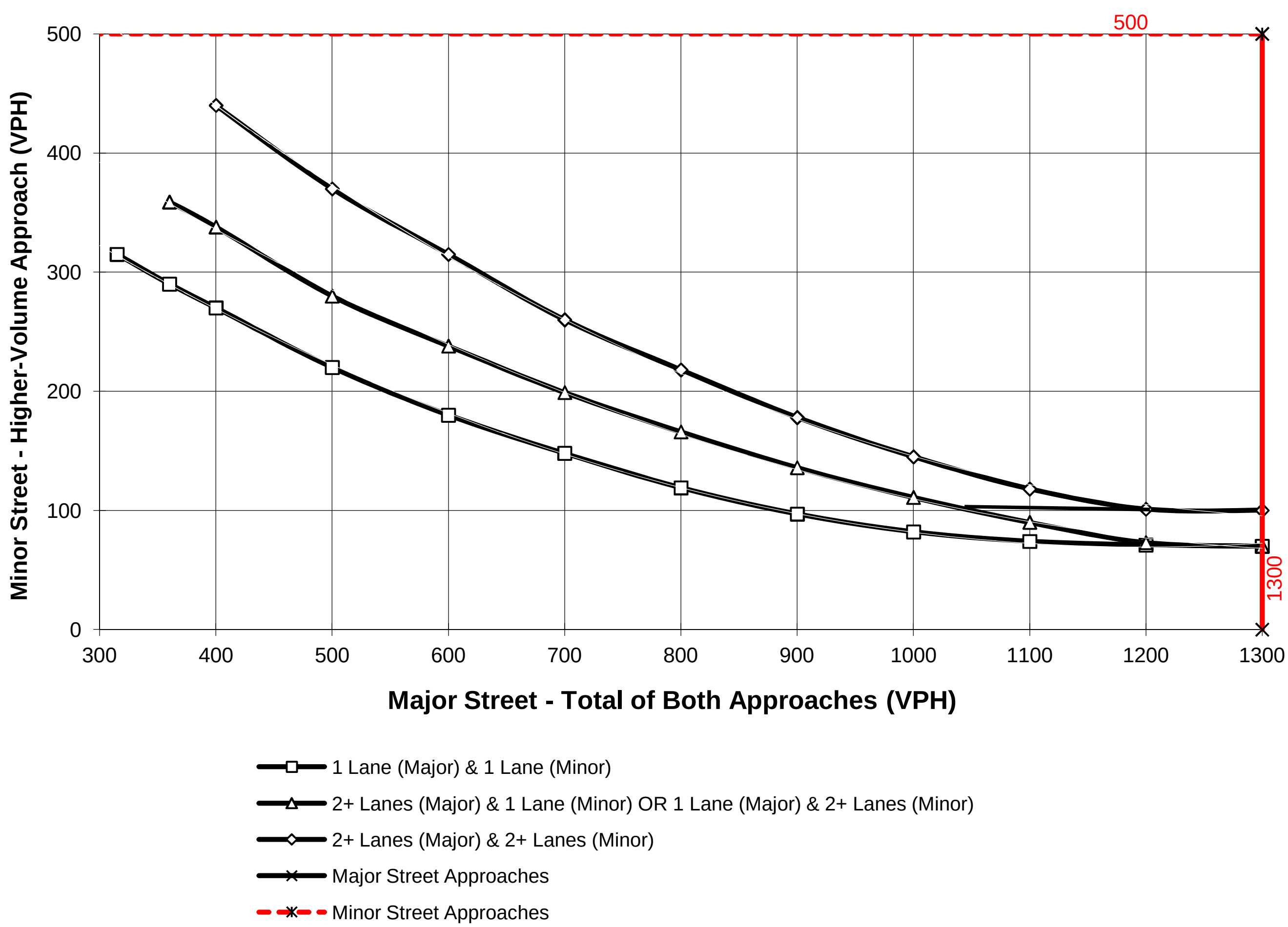
Number of Approach Lanes Major Street = **2**

Minor Street Name = **58th Avenue**

High Volume Approach (VPH) = **589**

Number of Approach Lanes Minor Street = **2**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Long Range (2035) With Project Conditions

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST ___ CO ___ RTE ___ PM ___

TRAFFIC CONDITIONS **2035WP**

CALC JC DATE 12/16/13

CHK DATE

Jurisdiction: **County of Riverside**

Major Street: **Monroe St. (NS)**

Minor Street: **61st Avenue - TAZ 6 Dwy. (EW)**

Critical Approach Speed (Major) 55 mph

Critical Approach Speed (Minor) 35 mph

Major Street Approach Lanes = **1** lane

Minor Street Approach Lanes **1** lane

Major Street Future ADT = **22,500** vpd

Minor Street Future ADT = **2,164** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ………. √

or **RURAL (R)**

In built up area of isolated community of < 10,000 population ……………………

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
	XX				
CONDITION A - Minimum Vehicular Volume		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
XX					
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **22,500**	1 **2,164**	8,000	5,600 *	2,400	1,680 *
2 +	1	9,600	6,720	2,400	1,680
2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
XX					
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **22,500**	1 **2,164**	12,000	8,400 *	1,200	850 *
2 +	1	14,400	10,080	1,200	850
2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B		2 CONDITIONS 80%		2 CONDITIONS 80%	
Satisfied	Not Satisfied				
XX					
No one condition satisfied, but following conditions fulfilled 80% of more …..	A: 100% B: 100%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM		TRAFFIC CONDITIONS	2035WP
				CALC JC	DATE	12/16/13
				CHK	DATE	

Jurisdiction: County of Riverside
Major Street: **60th Avenue (EW)**
Minor Street: **Driveway 1 (NS)**

Critical Approach Speed (Major) 55 mph
Critical Approach Speed (Minor) 35 mph

Major Street Approach Lanes = **1** lane　　Minor Street Approach Lanes **1** lane

Major Street Future ADT = **20,720** vpd　　Minor Street Future ADT = **770** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); .... [√]
or　　**RURAL (R)**
In built up area of isolated community of < 10,000 population .... [ ]

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
	XX				
CONDITION A - Minimum Vehicular Volume		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **20,720**	1 **770**	8,000	5,600 *	2,400	1,680
2 +	1	9,600	6,720	2,400	1,680
2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **20,720**	1 **770**	12,000	8,400 *	1,200	850
2 +	1	14,400	10,080	1,200	850
2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B		2 CONDITIONS 80%		2 CONDITIONS 80%	
Satisfied	Not Satisfied				
	XX				
No one condition satisfied, but following conditions fulfilled 80% of more ..... A: 46%	B: 91%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

TRAFFIC CONDITIONS **2035WP**

DIST	CO	RTE	PM	CALC JC	DATE 12/16/13
				CHK	DATE

Jurisdiction: **County of Riverside**
Major Street: **61st Avenue (EW)**
Minor Street: **Driveway 2 (NS)**

Critical Approach Speed (Major) 40 mph
Critical Approach Speed (Minor) 35 mph

Major Street Approach Lanes = **1** lane
Minor Street Approach Lanes **1** lane

Major Street Future ADT = **4,329** vpd
Minor Street Future ADT = **329** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ....
or **RURAL (R)**
In built up area of isolated community of < 10,000 population ....

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
XX					
CONDITION A - Minimum Vehicular Volume		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **4,329**	1 **329**	8,000	5,600	2,400	1,680
2 +	1	9,600	6,720	2,400	1,680
2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **4,329**	1 **329**	12,000	8,400	1,200	850
2 +	1	14,400	10,080	1,200	850
2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B		2 CONDITIONS 80%		2 CONDITIONS 80%	
Satisfied	Not Satisfied				
	XX				
No one condition satisfied, but following conditions fulfilled 80% of more ..... A: **14%**	B: **27%**				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

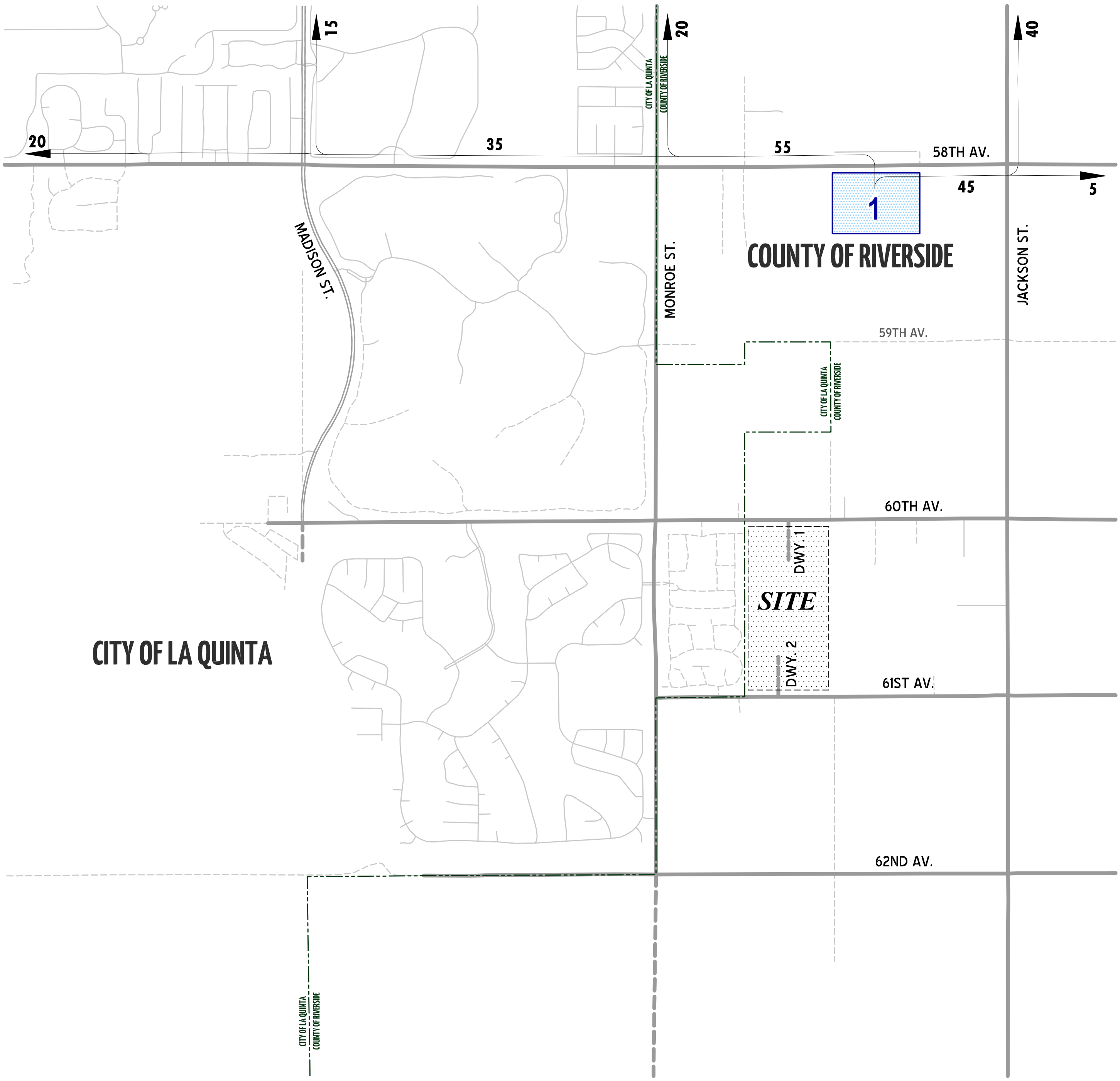
The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

APPENDIX 4.1

Cumulative Development Trip Distribution Patterns

EXHIBIT 1

TAZ 1 (TR 34302) CUMULATIVE PROJECT DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

EXHIBIT 2
TAZ 2 (TR 36234) CUMULATIVE PROJECT DISTRIBUTION

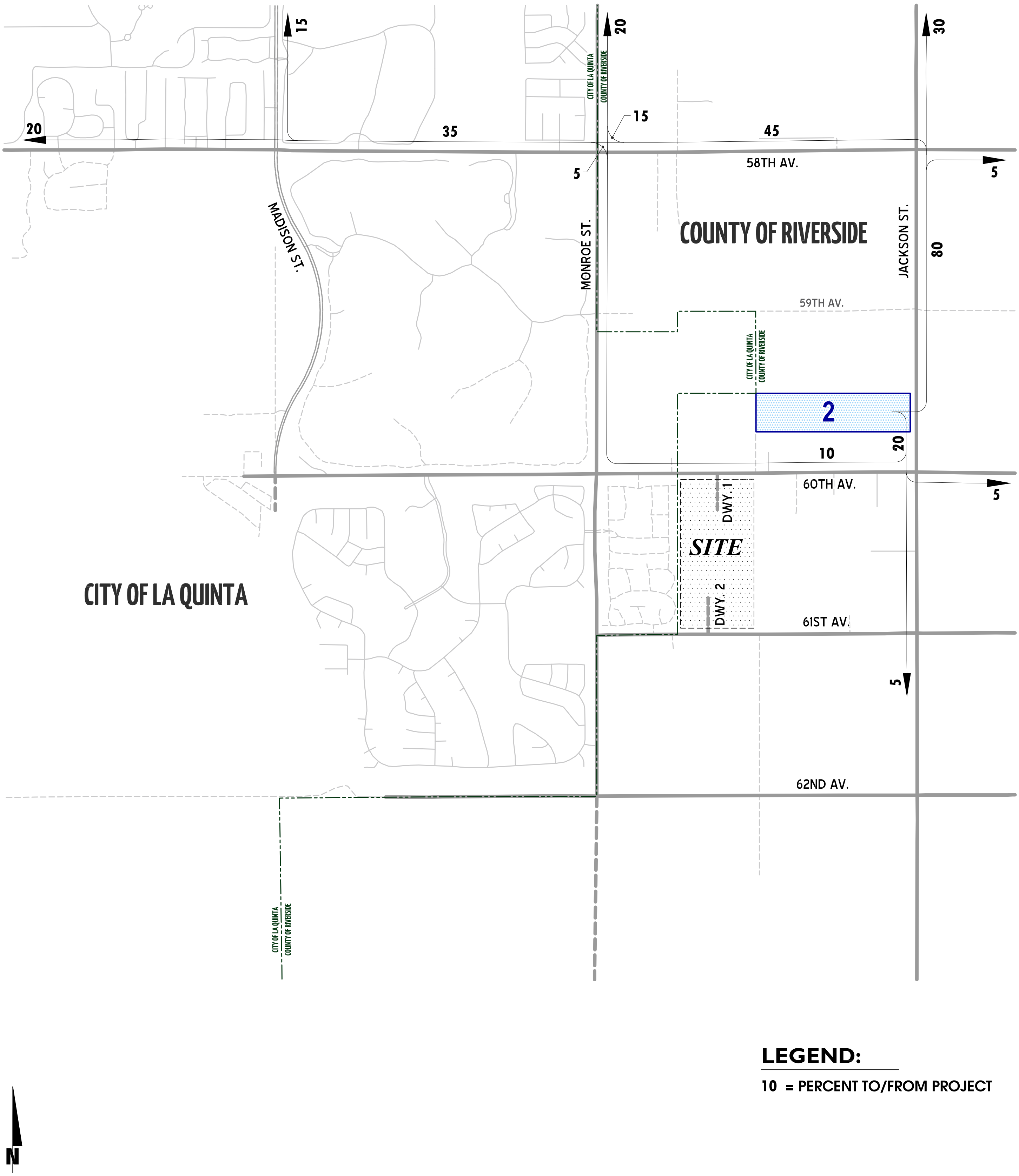
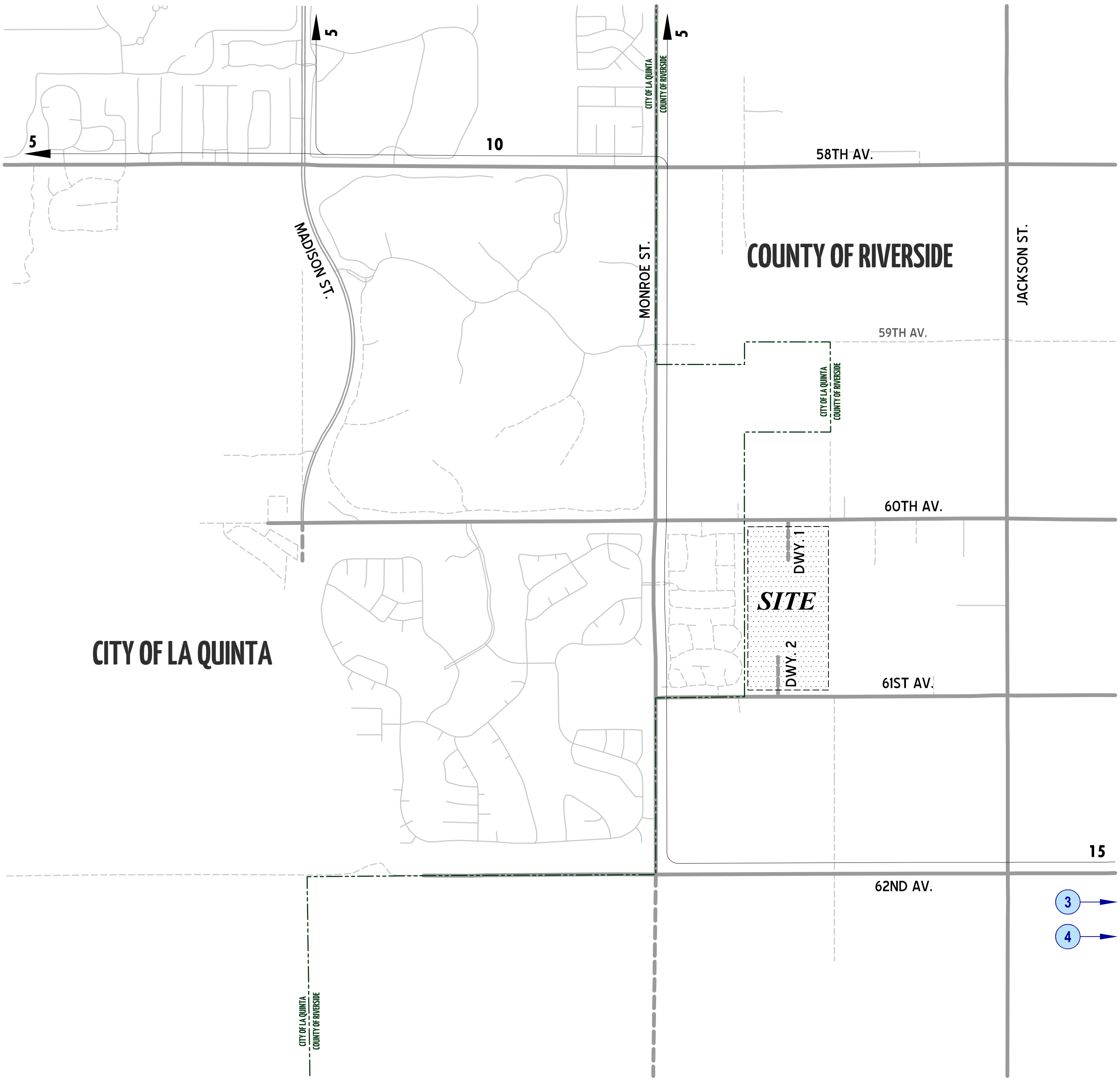


EXHIBIT 3

TAZ 3 (TR 32693) AND TAZ 4 (TR 32694) CUMULATIVE PROJECT DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

EXHIBIT 4

TAZ 5 (SP 2003-067 - ANDALUSIA) CUMULATIVE PROJECT DISTRIBUTION

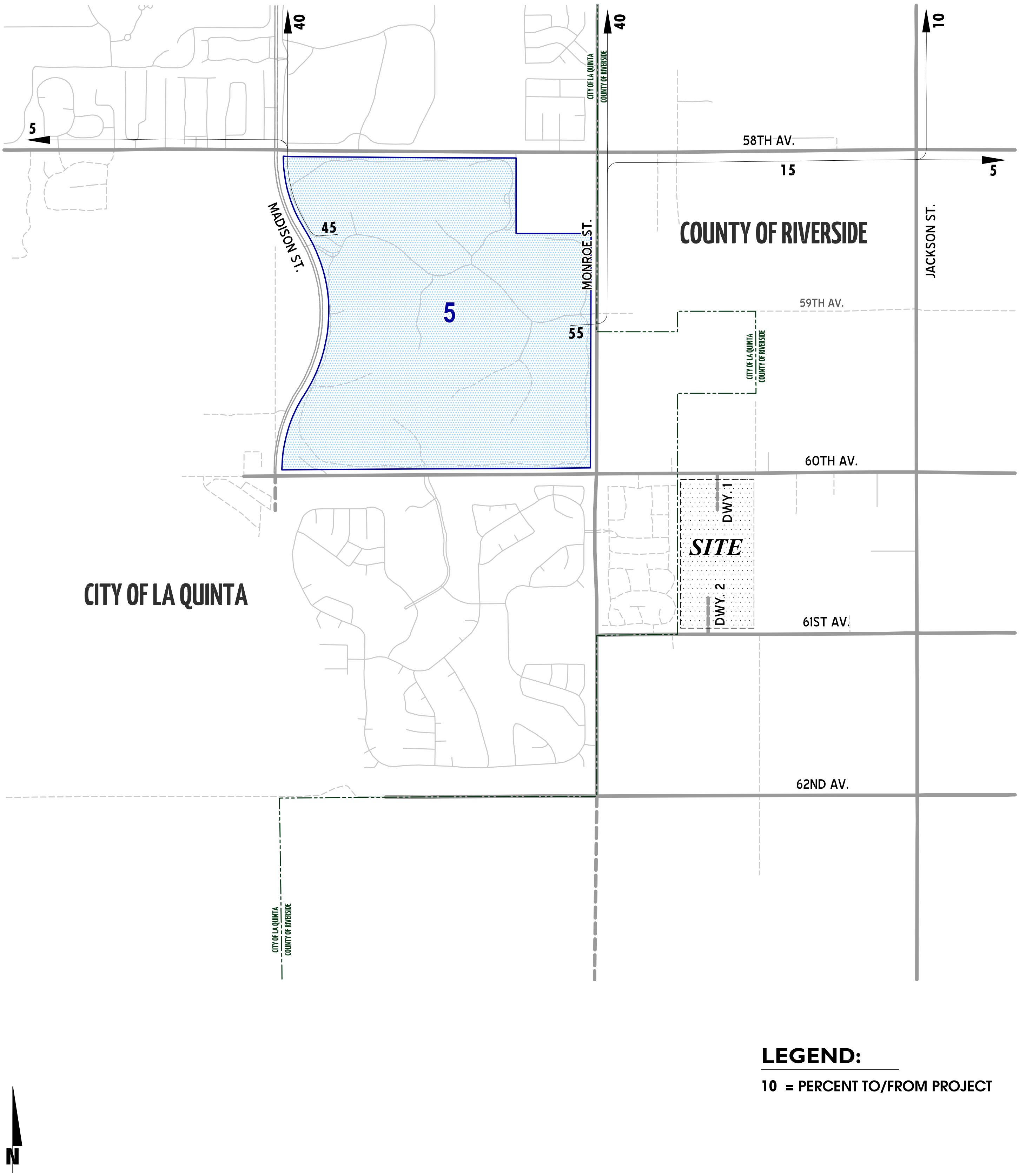
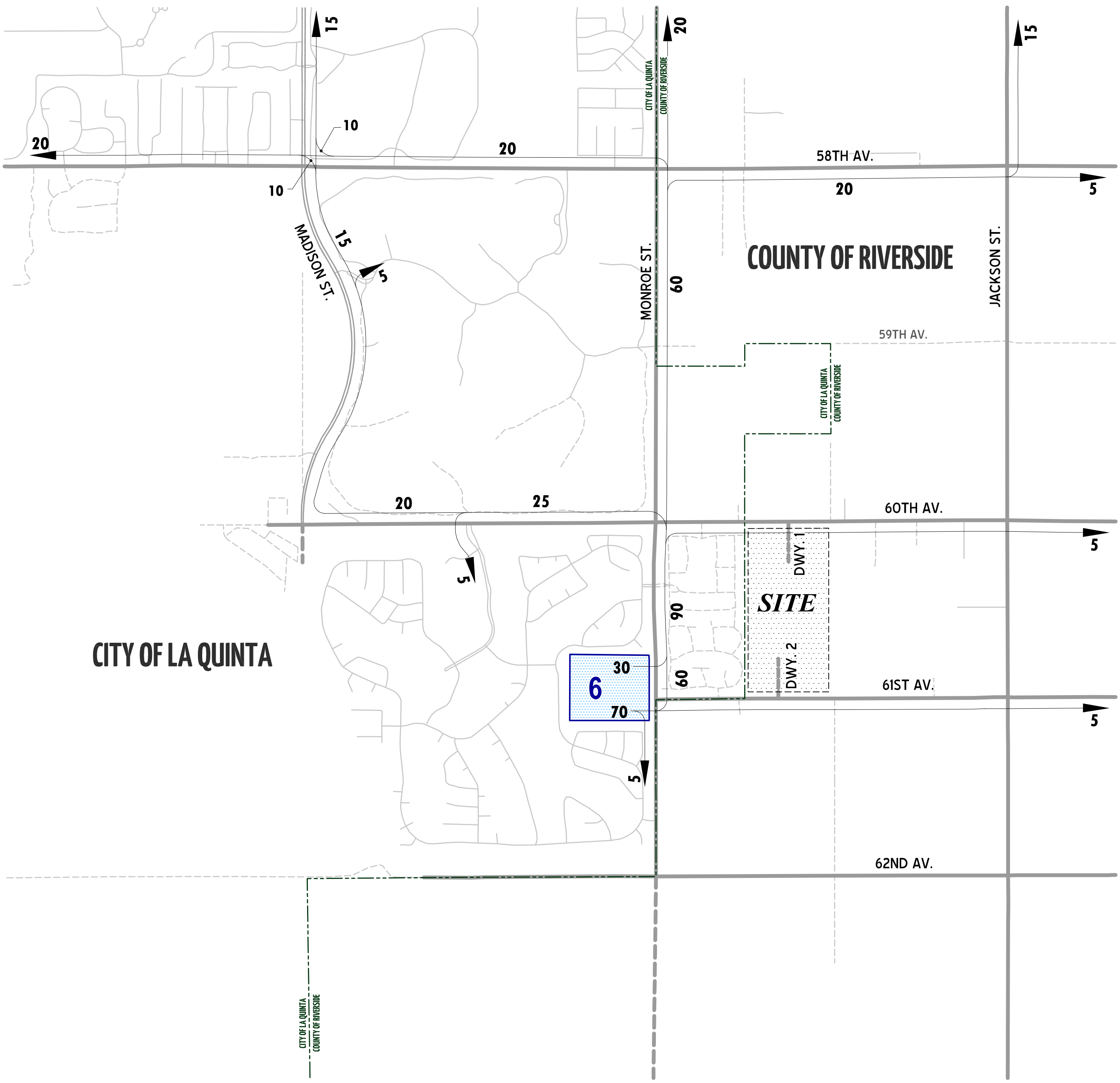


EXHIBIT 5

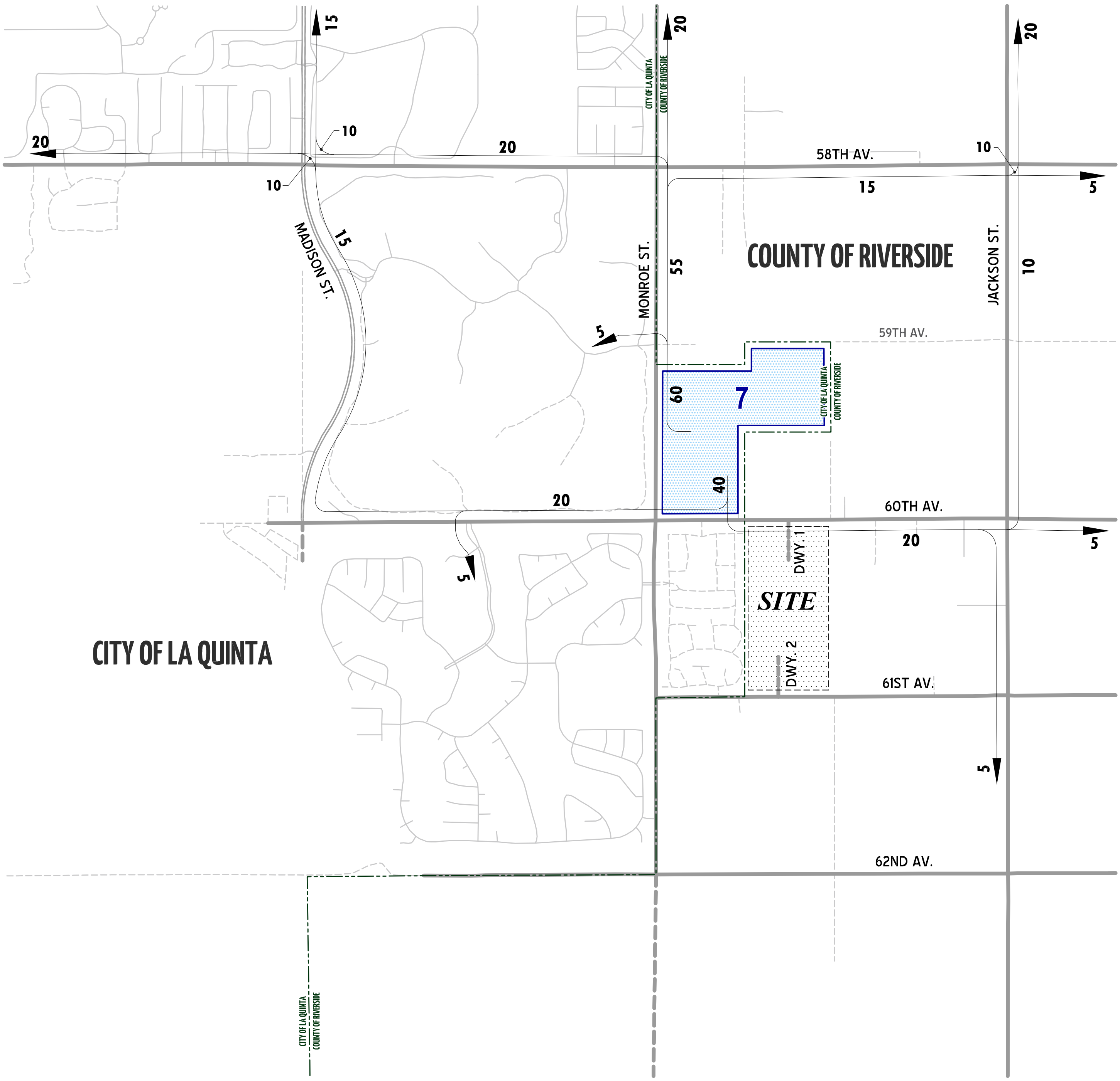
TAZ 6 (TM 31434) CUMULATIVE PROJECT DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

EXHIBIT 6
TAZ 7 (SP 2004-072) CUMULATIVE PROJECT DISTRIBUTION (2035 ONLY)



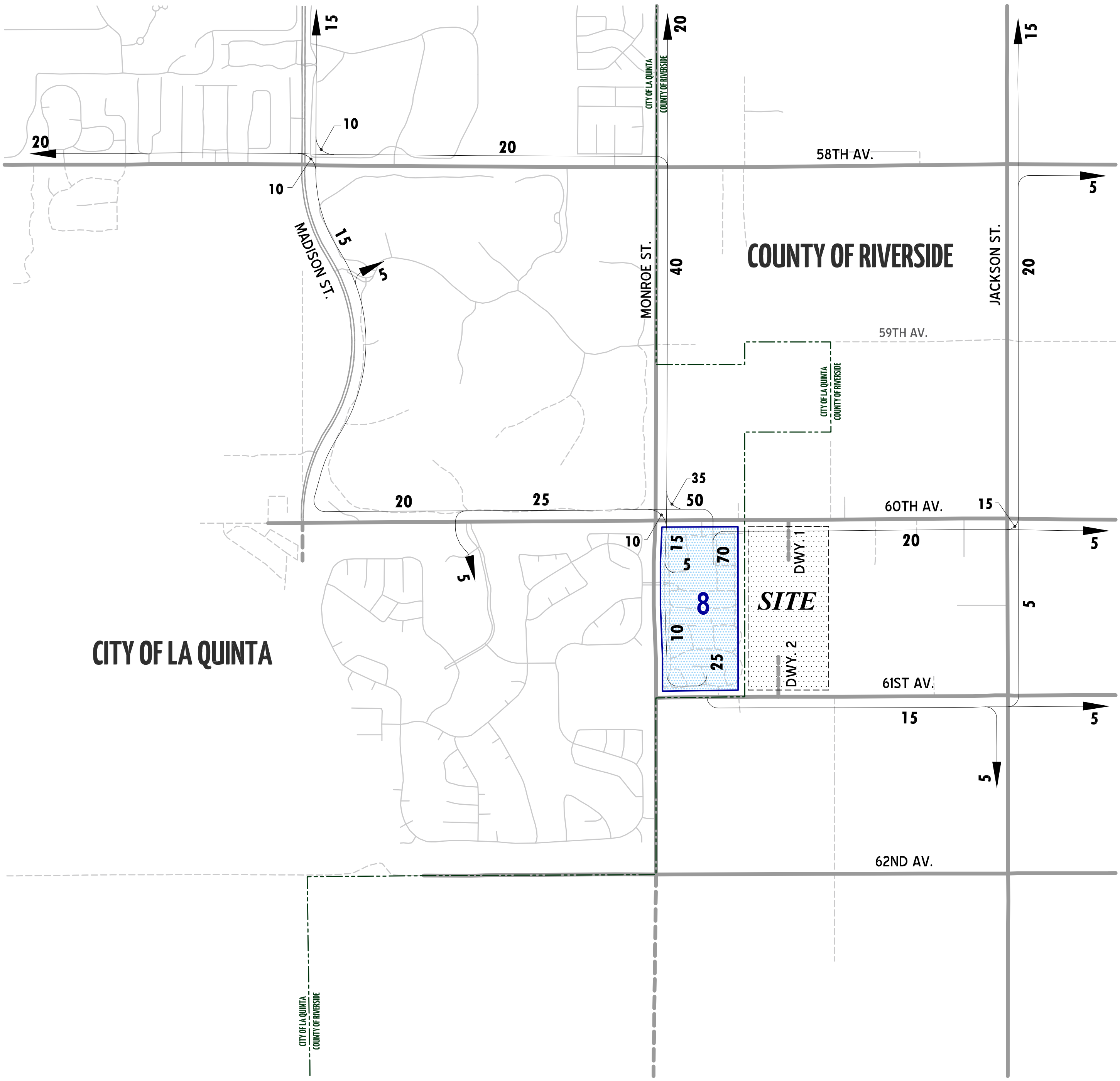
LEGEND:

10 = PERCENT TO/FROM PROJECT

URBAN CROSSROADS

EXHIBIT 7

TAZ 18 (TT 31732 & 31733 - PALIZADA) CUMULATIVE PROJECT DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

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APPENDIX 5.1

Existing plus Project Conditions
Intersection Operations Analysis Worksheets

Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Existing + Project Conditions
AM Peak Hour

Trip Generation Report

Forecast for AM Trip Gen (P)

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
1	SITE (2016)	1.00	RESIDENTIAL	45.00	130.00	45	130	175	100.0
	Zone 1 Subtotal					45	130	175	100.0
TOTAL						45	130	175	100.0

```
--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                        Existing + Project Conditions
                                AM Peak Hour
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #1 Madison St. / Av. 60
********************************************************************************
Average Delay (sec/veh):      2.7       Worst Case Level Of Service: A[  8.8]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:          Include          Include          Include          Include
Lanes:        0  0  0  0  0   1  0  0  1  0   0  0  1  0  0   0  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0    59    0     0     0    2     0     0    2   129
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0    59    0     0     0    2     0     0    2   129
Added Vol:      0    0     0     7    0     0     0    0     0     0    0    19
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0    66    0     0     0    2     0     0    2   148
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.81 0.81  0.81  0.81 0.81  0.81  0.81 0.81  0.81  0.81 0.81  0.81
PHF Volume:     0    0     0    81    0     0     0    2     0     0    2   183
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0    0     0    81    0     0     0    2     0     0    2   183
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4  6.5   6.2 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5  4.0   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx     5    5     2  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx  1022  894  1088  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx  1022  894  1088  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.08 0.00  0.00  xxxx xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   0.3 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx   8.8 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     A    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx     0  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:    xxxxxx              8.8            xxxxxx           xxxxxx
ApproachLOS:         *                A                 *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                         Existing + Project Conditions
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #2 Monroe St. / 58th Av.
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):        0.164
Loss Time (sec):       0                Average Delay (sec/veh):        8.2
Optimal Cycle:         0                Level Of Service:                 A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  1! 0  0   0  1  0  0  1   0  0  1! 0  0   0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      13   32     2   10   35    56   17   29     3   12   65    18
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:   13   32     2   10   35    56   17   29     3   12   65    18
Added Vol:     26   26     0    0    9     0    0    0     9    0    0     0
PasserByVol:    0    0     0    0    0     0    0    0     0    0    0     0
Initial Fut:   39   58     2   10   44    56   17   29    12   12   65    18
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     0.81 0.81  0.81 0.81 0.81  0.81 0.81 0.81  0.81 0.81 0.81  0.81
PHF Volume:    48   72     2   12   54    69   21   36    15   15   80    22
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:   48   72     2   12   54    69   21   36    15   15   80    22
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:   48   72     2   12   54    69   21   36    15   15   80    22
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Lanes:       0.39 0.59  0.02 0.19 0.81  1.00 0.29 0.50  0.21 0.13 0.68  0.19
Final Sat.:   294  438    15  126  555   800  220  375   155   97  524   145
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.16 0.16  0.16 0.10 0.10  0.09 0.10 0.10  0.10 0.15 0.15  0.15
Crit Moves:             ****      ****             ****         ****
Delay/Veh:    8.5  8.5   8.5  8.4  8.4   7.4  8.0  8.0   8.0  8.2  8.2   8.2
Delay Adj:   1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:   8.5  8.5   8.5  8.4  8.4   7.4  8.0  8.0   8.0  8.2  8.2   8.2
LOS by Move:    A    A     A    A    A     A    A    A     A    A    A     A
ApproachDel:         8.5              7.9              8.0              8.2
Delay Adj:          1.00             1.00             1.00             1.00
ApprAdjDel:          8.5              7.9              8.0              8.2
LOS by Appr:           A                A                A                A
AllWayAvgQ:   0.2  0.2   0.2  0.1  0.1   0.1  0.1  0.1   0.1  0.2  0.2   0.2
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Existing + Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #3 Monroe St. / Av. 60

Cycle (sec):	100	Critical Vol./Cap.(X):	0.175
Loss Time (sec):	0	Average Delay (sec/veh):	8.3
Optimal Cycle:	0	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 0 1 0			1 0 1 0 1			0 1 0 0 1			0 0 1! 0 0		
Volume Module:												
Base Vol:	15	24	2	8	17	15	13	22	32	1	20	8
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	15	24	2	8	17	15	13	22	32	1	20	8
Added Vol:	13	7	0	18	2	0	0	5	4	0	13	52
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	28	31	2	26	19	15	13	27	36	1	33	60
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
PHF Volume:	39	43	3	36	26	21	18	38	50	1	46	83
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	39	43	3	36	26	21	18	38	50	1	46	83
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	39	43	3	36	26	21	18	38	50	1	46	83
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.94	0.06	1.00	1.00	1.00	0.33	0.67	1.00	0.01	0.35	0.64
Final Sat.:	614	636	41	596	651	745	218	452	798	8	263	477
Capacity Analysis Module:												
Vol/Sat:	0.06	0.07	0.07	0.06	0.04	0.03	0.08	0.08	0.06	0.17	0.17	0.17
Crit Moves:		****		****				****		****		
Delay/Veh:	8.7	8.1	8.1	8.9	8.2	7.4	8.4	8.4	7.3	8.6	8.6	8.6
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	8.7	8.1	8.1	8.9	8.2	7.4	8.4	8.4	7.3	8.6	8.6	8.6
LOS by Move:	A	A	A	A	A	A	A	A	A	A	A	A
ApproachDel:		8.4			8.3			7.9			8.6	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		8.4			8.3			7.9			8.6	
LOS by Appr:		A			A			A			A	
AllWayAvgQ:	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2

Note: Queue reported is the number of cars per lane.

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                         Existing + Project Conditions
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #4 Monroe St. / 61st Av.
********************************************************************************
Average Delay (sec/veh):      2.2       Worst Case Level Of Service: A[  8.6]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  0  1  0  0   0  1  0  0  0   0  0  0  0  0   0  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0   31    0     0   50    0     0    0    0     0    0     3
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0   31    0     0   50    0     0    0    0     0    0     3
Added Vol:      0    0    0     7    0    0     0    0    0     0    0    19
PasserByVol:    0    0    0     0    0    0     0    0    0     0    0     0
Initial Fut:    0   31    0     7   50    0     0    0    0     0    0    22
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.68 0.68  0.68  0.68 0.68  0.68  0.68 0.68  0.68  0.68 0.68  0.68
PHF Volume:     0   46    0    10   74    0     0    0    0     0    0    32
Reduct Vol:     0    0    0     0    0    0     0    0    0     0    0     0
FinalVolume:    0   46    0    10   74    0     0    0    0     0    0    32
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   4.1 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   6.2
FollowUpTim:xxxxx xxxx xxxxx   2.2 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx    46 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx    46
Potent Cap.: xxxx xxxx xxxxx  1575 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx  1030
Move Cap.:   xxxx xxxx xxxxx  1575 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx  1030
Volume/Cap:  xxxx xxxx  xxxx  0.01 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  0.03
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   0.0 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   0.1
Control Del:xxxxx xxxx xxxxx   7.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   8.6
LOS by Move:    *    *     *     A    *     *     *    *     *     *    *     A
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx   0.0 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx   7.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     A    *     *     *    *     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx           xxxxxx              8.6
ApproachLOS:       *                *                *                 A
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

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-------------------------------------------------------------------------------
          Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                         Existing + Project Conditions
                                 AM Peak Hour
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #5 Jackson St. / Av. 60
********************************************************************************
Cycle (sec):          100               Critical Vol./Cap.(X):         0.103
Loss Time (sec):        0               Average Delay (sec/veh):         7.5
Optimal Cycle:          0               Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       7   43     1    12   45    15     5   21     7     4    8    12
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    7   43     1    12   45    15     5   21     7     4    8    12
Added Vol:      0    7     0     0    2     7    20    7     0     0    2     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    7   50     1    12   47    22    25   28     7     4   10    12
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.90 0.90  0.90  0.90 0.90  0.90  0.90 0.90  0.90  0.90 0.90  0.90
PHF Volume:     8   56     1    13   52    24    28   31     8     4   11    13
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    8   56     1    13   52    24    28   31     8     4   11    13
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    8   56     1    13   52    24    28   31     8     4   11    13
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.12 0.86  0.02  0.15 0.58  0.27  0.41 0.47  0.12  0.15 0.38  0.47
Final Sat.:   101  721    14   129  506   237   341  382    95   132  330   396
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.08 0.08  0.08  0.10 0.10  0.10  0.08 0.08  0.08  0.03 0.03  0.03
Crit Moves:  ****                  ****        ****              ****
Delay/Veh:    7.5  7.5   7.5   7.5  7.5   7.5   7.6  7.6   7.6   7.2  7.2   7.2
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   7.5  7.5   7.5   7.5  7.5   7.5   7.6  7.6   7.6   7.2  7.2   7.2
LOS by Move:    A    A     A     A    A     A     A    A     A     A    A     A
ApproachDel:       7.5              7.5              7.6              7.2
Delay Adj:        1.00             1.00             1.00             1.00
ApprAdjDel:        7.5              7.5              7.6              7.2
LOS by Appr:         A                A                A                A
AllWayAvgQ:   0.1  0.1   0.1   0.1  0.1   0.1   0.1  0.1   0.1   0.0  0.0   0.0
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                         Existing + Project Conditions
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #6 Jackson St. / 61st Av.
********************************************************************************
Average Delay (sec/veh):      2.2       Worst Case Level Of Service: A[  9.7]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled       Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  1  0  0  0    0  0  0  1  0    0  0  1! 0  0    0  0  1  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       3   49     0     0   43     1     2    0     0     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    3   49     0     0   43     1     2    0     0     0    0     0
Added Vol:      2    0     0     0    0     2     7    7     7     0    2     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    5   49     0     0   43     3     9    7     7     0    2     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.85 0.85  0.85  0.85 0.85  0.85  0.85 0.85  0.85  0.85 0.85  0.85
PHF Volume:     6   58     0     0   51     4    11    8     8     0    2     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    6   58     0     0   51     4    11    8     8     0    2     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx xxxxx xxxx xxxxx   7.1  6.5   6.2 xxxxx  6.5 xxxxx
FollowUpTim:  2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.5  4.0   3.3 xxxxx  4.0 xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:   54 xxxx xxxxx  xxxx xxxx xxxxx   124  122    53  xxxx  124 xxxxx
Potent Cap.: 1564 xxxx xxxxx  xxxx xxxx xxxxx   855  772  1021  xxxx  770 xxxxx
Move Cap.:   1564 xxxx xxxxx  xxxx xxxx xxxxx   851  769  1021  xxxx  767 xxxxx
Volume/Cap:  0.00 xxxx  xxxx  xxxx xxxx  xxxx  0.01 0.01  0.01  xxxx 0.00  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.0 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  0.0 xxxxx
Control Del:  7.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx  9.7 xxxxx
LOS by Move:    A    *     *     *    *     *     *    *     *     *    A     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  867 xxxxx  xxxx xxxx xxxxx
SharedQueue:  0.0 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.1 xxxxx xxxxx xxxx xxxxx
Shrd ConDel:  7.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  9.3 xxxxx xxxxx xxxx xxxxx
Shared LOS:     A    *     *     *    *     *     *    A     *     *    *     *
ApproachDel:     xxxxxx           xxxxxx              9.3              9.7
ApproachLOS:          *                *                A                A
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

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---------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                         Existing + Project Conditions
                                 AM Peak Hour
---------------------------------------------------------------------------------

                       Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
*********************************************************************************
Intersection #7 Dwy. 1 / 60th Av.
*********************************************************************************
Average Delay (sec/veh):      4.9       Worst Case Level Of Service: A[  9.1]
*********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        1  0  0  0  1    0  0  0  0  0    0  0  0  1  0    1  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0     0    0     0     0   32     0     0   29     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0     0    0     0     0   32     0     0   29     0
Added Vol:     65    0    26     0    0     0     0    0    23     9    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   65    0    26     0    0     0     0   32    23     9   29     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    71    0    28     0    0     0     0   35    25    10   32     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   71    0    28     0    0     0     0   35    25    10   32     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  6.4 xxxx   6.2 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5 xxxx   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:   98 xxxx    47  xxxx xxxx xxxxx  xxxx xxxx xxxxx    60 xxxx xxxxx
Potent Cap.:  905 xxxx  1028  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1557 xxxx xxxxx
Move Cap.:    901 xxxx  1028  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1557 xxxx xxxxx
Volume/Cap:  0.08 xxxx  0.03  xxxx xxxx  xxxx  xxxx xxxx  xxxx  0.01 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.3 xxxx   0.1  xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.0 xxxx xxxxx
Control Del:  9.3 xxxx   8.6 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.3 xxxx xxxxx
LOS by Move:    A    *     A     *    *     *     *    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:        9.1            xxxxxx           xxxxxx           xxxxxx
ApproachLOS:         A                *                *                *
*********************************************************************************
Note: Queue reported is the number of cars per lane.
*********************************************************************************
```

```
--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                        Existing + Project Conditions
                                AM Peak Hour
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #8 Dwy. 2 / 61st Av.
********************************************************************************
Average Delay (sec/veh):      6.9       Worst Case Level Of Service: A[  8.6]
********************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled      Uncontrolled
Rights:          Include          Include          Include           Include
Lanes:        0  0  0  0  0    0  0  1! 0  0    1  0  1  0  0    0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0     0    0     0     0    0     0     0    3     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0     0    0     0     0    0     0     0    3     0
Added Vol:      0    0     0    20    0    19     7    0     0     0    0     7
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0    20    0    19     7    0     0     0    3     7
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     0    0     0    22    0    21     8    0     0     0    3     8
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0    0     0    22    0    21     8    0     0     0    3     8
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4  6.5   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5  4.0   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx    22   22     7    11 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   999  875  1081  1622 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   996  871  1081  1622 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.02 0.00  0.02  0.00 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.0 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.2 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx 1036 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx  0.1 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx  8.6 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    A     *     *    *     *     *    *     *
ApproachDel:   xxxxxx              8.6             xxxxxx            xxxxxx
ApproachLOS:        *                A                *                 *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Existing + Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #9 Madison St. / 58th Av.

Cycle (sec):	100	Critical Vol./Cap.(X):	0.152
Loss Time (sec):	0	Average Delay (sec/veh):	8.9
Optimal Cycle:	0	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	2 0	1	1 0	2 0	1	1 0	1 0	1	1 0	2 0	1
Volume Module:												
Base Vol:	4	127	2	65	69	43	42	6	2	0	12	51
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	4	127	2	65	69	43	42	6	2	0	12	51
Added Vol:	13	6	0	5	2	0	0	5	5	0	13	13
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	17	133	2	70	71	43	42	11	7	0	25	64
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
PHF Volume:	21	168	3	88	90	54	53	14	9	0	32	81
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	21	168	3	88	90	54	53	14	9	0	32	81
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	21	168	3	88	90	54	53	14	9	0	32	81
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00
Final Sat.:	570	1241	702	579	1258	717	529	570	641	534	1155	653
Capacity Analysis Module:												
Vol/Sat:	0.04	0.14	0.00	0.15	0.07	0.08	0.10	0.02	0.01	0.00	0.03	0.12
Crit Moves:		****		****			****					****
Delay/Veh:	9.0	9.1	7.6	9.7	8.6	7.9	9.8	8.7	8.0	0.0	8.7	8.5
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.0	9.1	7.6	9.7	8.6	7.9	9.8	8.7	8.0	0.0	8.7	8.5
LOS by Move:	A	A	A	A	A	A	A	A	A	*	A	A
ApproachDel:		9.0			8.8			9.4			8.6	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		9.0			8.8			9.4			8.6	
LOS by Appr:		A			A			A			A	
AllWayAvgQ:	0.0	0.1	0.0	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1

Note: Queue reported is the number of cars per lane.

Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Existing + Project Conditions
PM Peak Hour

Trip Generation Report

Forecast for PM Trip Gen (P)

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
1	SITE (2016)	1.00	RESIDENTIAL	146.00	86.00	146	86	232	100.0
	Zone 1 Subtotal					146	86	232	100.0
TOTAL						146	86	232	100.0

```
--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                         Existing + Project Conditions
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #1 Madison St. / Av. 60
********************************************************************************
Average Delay (sec/veh):      5.8       Worst Case Level Of Service: A[  9.5]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:          Include          Include          Include          Include
Lanes:        0  0  0  0  0   1  0  0  1  0   0  0  1  0  0   0  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0   163    0     2    0    4     0     0    3   102
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   163    0     2    0    4     0     0    3   102
Added Vol:      0    0     0    22    0     0    0    0     0     0    0    13
PasserByVol:    0    0     0     0    0     0    0    0     0     0    0     0
Initial Fut:    0    0     0   185    0     2    0    4     0     0    3   115
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.83 0.83  0.83  0.83 0.83  0.83  0.83 0.83  0.83  0.83 0.83  0.83
PHF Volume:     0    0     0   222    0     2    0    5     0     0    4   138
Reduct Vol:     0    0     0     0    0     0    0    0     0     0    0     0
FinalVolume:    0    0     0   222    0     2    0    5     0     0    4   138
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4  6.5   6.2 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5  4.0   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx     8    8     4  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx  1017  891  1086  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx  1017  891  1086  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.22 0.00  0.00  xxxx xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   0.8 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx   9.5 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     A    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx  1086  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx   0.0 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx   8.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     A     *    *     *     *    *     *
ApproachDel:    xxxxxx              9.5            xxxxxx           xxxxxx
ApproachLOS:         *                A                 *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

```
--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                         Existing + Project Conditions
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #2 Monroe St. / 58th Av.
********************************************************************************
Cycle (sec):          100                Critical Vol./Cap.(X):         0.335
Loss Time (sec):        0                Average Delay (sec/veh):         9.4
Optimal Cycle:          0                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  1! 0  0    0  1  0  0  1    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       8   73     8    22   42    36    72   81     4     3   18    13
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    8   73     8    22   42    36    72   81     4     3   18    13
Added Vol:     17   17     0     0   29     0     0    0    29     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   25   90     8    22   71    36    72   81    33     3   18    13
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.76 0.76  0.76  0.76 0.76  0.76  0.76 0.76  0.76  0.76 0.76  0.76
PHF Volume:    33  118    10    29   93    47    94  106    43     4   24    17
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   33  118    10    29   93    47    94  106    43     4   24    17
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   33  118    10    29   93    47    94  106    43     4   24    17
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.20 0.73  0.07  0.24 0.76  1.00  0.39 0.43  0.18  0.09 0.53  0.38
Final Sat.:   142  511    45   149  481   735   282  317   129    61  367   265
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.23 0.23  0.23  0.19 0.19  0.06  0.33 0.33  0.33  0.06 0.06  0.06
Crit Moves:             ****       ****        ****              ****
Delay/Veh:    9.3  9.3   9.3   9.4  9.4   7.6   9.9  9.9   9.9   8.1  8.1   8.1
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   9.3  9.3   9.3   9.4  9.4   7.6   9.9  9.9   9.9   8.1  8.1   8.1
LOS by Move:    A    A     A     A    A     A     A    A     A     A    A     A
ApproachDel:       9.3              8.9              9.9              8.1
Delay Adj:        1.00             1.00             1.00             1.00
ApprAdjDel:        9.3              8.9              9.9              8.1
LOS by Appr:         A                A                A                A
AllWayAvgQ:   0.3  0.3   0.3   0.2  0.2   0.1   0.4  0.4   0.4   0.1  0.1   0.1
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

```
--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                         Existing + Project Conditions
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #3 Monroe St. / Av. 60
********************************************************************************
Cycle (sec):          100               Critical Vol./Cap.(X):         0.139
Loss Time (sec):        0               Average Delay (sec/veh):         8.5
Optimal Cycle:          0               Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  0  1  0    1  0  1  0  1    0  1  0  0  1    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      24   30     2     9   33     9    14   32    39     4   10    10
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   24   30     2     9   33     9    14   32    39     4   10    10
Added Vol:      9    4     0    58    7     0     0   15    15     0    9    34
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   33   34     2    67   40     9    14   47    54     4   19    44
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.80 0.80  0.80  0.80 0.80  0.80  0.80 0.80  0.80  0.80 0.80  0.80
PHF Volume:    41   42     2    83   50    11    17   59    67     5   24    55
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   41   42     2    83   50    11    17   59    67     5   24    55
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   41   42     2    83   50    11    17   59    67     5   24    55
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.94  0.06  1.00 1.00  1.00  0.23 0.77  1.00  0.06 0.28  0.66
Final Sat.:   608  631    37   601  655   750   151  505   769    42  200   464
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.07 0.07  0.07  0.14 0.08  0.01  0.12 0.12  0.09  0.12 0.12  0.12
Crit Moves:  ****              ****              ****              ****
Delay/Veh:    8.8  8.2   8.2   9.4  8.4   7.4   8.7  8.7   7.6   8.5  8.5   8.5
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   8.8  8.2   8.2   9.4  8.4   7.4   8.7  8.7   7.6   8.5  8.5   8.5
LOS by Move:    A    A     A     A    A     A     A    A     A     A    A     A
ApproachDel:       8.5              8.9              8.2              8.5
Delay Adj:        1.00             1.00             1.00             1.00
ApprAdjDel:        8.5              8.9              8.2              8.5
LOS by Appr:         A                A                A                A
AllWayAvgQ:   0.1  0.1   0.1   0.1  0.1   0.0   0.1  0.1   0.1   0.1  0.1   0.1
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

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```
--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                         Existing + Project Conditions
                                 PM Peak Hour
--------------------------------------------------------------------------------
                       Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #4 Monroe St. / 61st Av.
********************************************************************************
Average Delay (sec/veh):      2.2       Worst Case Level Of Service: A[  8.7]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  0  0  1  0   0  1  0  0  0   0  0  0  0  0   0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0   41     1     3   59     0     0    0     0     1    0     1
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0   41     1     3   59     0     0    0     0     1    0     1
Added Vol:      0    0     0    22    0     0     0    0     0     0    0    13
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0   41     1    25   59     0     0    0     0     1    0    14
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.81 0.81  0.81  0.81 0.81  0.81  0.81 0.81  0.81  0.81 0.81  0.81
PHF Volume:     0   51     1    31   73     0     0    0     0     1    0    17
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0   51     1    31   73     0     0    0     0     1    0    17
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   4.1 xxxx xxxxx xxxxx xxxx xxxxx   6.4  6.5   6.2
FollowUpTim:xxxxx xxxx xxxxx   2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.5  4.0   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx    52 xxxx xxxxx  xxxx xxxx xxxxx   186  186    51
Potent Cap.: xxxx xxxx xxxxx  1567 xxxx xxxxx  xxxx xxxx xxxxx   808  712  1022
Move Cap.:   xxxx xxxx xxxxx  1567 xxxx xxxxx  xxxx xxxx xxxxx   795  697  1022
Volume/Cap:  xxxx xxxx  xxxx  0.02 xxxx  xxxx  xxxx xxxx  xxxx  0.00 0.00  0.02
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   0.1 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx   7.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     A    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx 1003 xxxxx
SharedQueue:xxxxx xxxx xxxxx   0.1 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.1 xxxxx
Shrd ConDel:xxxxx xxxx xxxxx   7.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  8.7 xxxxx
Shared LOS:     *    *     *     A    *     *     *    *     *     *    A     *
ApproachDel:    xxxxxx            xxxxxx            xxxxxx             8.7
ApproachLOS:         *                 *                 *                A
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

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Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Existing + Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #5 Jackson St. / Av. 60

Cycle (sec):	100	Critical Vol./Cap.(X):	0.105
Loss Time (sec):	0	Average Delay (sec/veh):	7.5
Optimal Cycle:	0	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:		Stop Sign			Stop Sign			Stop Sign			Stop Sign	
Rights:		Include			Include			Include			Include	
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:		0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0	
Volume Module:												
Base Vol:	11	42	3	5	49	4	7	22	8	4	11	14
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	11	42	3	5	49	4	7	22	8	4	11	14
Added Vol:	0	4	0	0	7	22	13	4	0	0	7	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	11	46	3	5	56	26	20	26	8	4	18	14
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	12	49	3	5	60	28	21	28	9	4	19	15
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	12	49	3	5	60	28	21	28	9	4	19	15
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	12	49	3	5	60	28	21	28	9	4	19	15
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.18	0.77	0.05	0.06	0.64	0.30	0.37	0.48	0.15	0.11	0.50	0.39
Final Sat.:	154	642	42	51	566	263	304	395	122	95	426	331
Capacity Analysis Module:												
Vol/Sat:	0.08	0.08	0.08	0.11	0.11	0.11	0.07	0.07	0.07	0.05	0.05	0.05
Crit Moves:		****			****			****		****		
Delay/Veh:	7.5	7.5	7.5	7.5	7.5	7.5	7.6	7.6	7.6	7.3	7.3	7.3
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	7.5	7.5	7.5	7.5	7.5	7.5	7.6	7.6	7.6	7.3	7.3	7.3
LOS by Move:	A	A	A	A	A	A	A	A	A	A	A	A
ApproachDel:		7.5			7.5			7.6			7.3	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		7.5			7.5			7.6			7.3	
LOS by Appr:		A			A			A			A	
AllWayAvgQ:	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0

Note: Queue reported is the number of cars per lane.

```
--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                        Existing + Project Conditions
                                PM Peak Hour
--------------------------------------------------------------------------------

                     Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #6 Jackson St. / 61st Av.
********************************************************************************
Average Delay (sec/veh):      2.4       Worst Case Level Of Service: A[ 10.0]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  1  0  0  0   0  0  1! 0  0   0  0  1! 0  0   0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:        2   47     0     3   56     0     2    1     1     0    2     2
Growth Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:     2   47     0     3   56     0     2    1     1     0    2     2
Added Vol:       7    0     0     0    0     7     4    4     4     0    7     0
PasserByVol:     0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:     9   47     0     3   56     7     6    5     5     0    9     2
User Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:      0.71 0.71  0.71  0.71 0.71  0.71  0.71 0.71  0.71  0.71 0.71  0.71
PHF Volume:     13   66     0     4   79    10     8    7     7     0   13     3
Reduct Vol:      0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    13   66     0     4   79    10     8    7     7     0   13     3
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:   4.1 xxxx xxxxx   4.1 xxxx xxxxx   7.1  6.5   6.2 xxxxx  6.5   6.2
FollowUpTim:   2.2 xxxx xxxxx   2.2 xxxx xxxxx   3.5  4.0   3.3 xxxxx  4.0   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:    89 xxxx xxxxx    66 xxxx xxxxx   192  185    84  xxxx  190    66
Potent Cap.: 1519 xxxx xxxxx  1548 xxxx xxxxx   772  713   981  xxxx  709  1003
Move Cap.:   1519 xxxx xxxxx  1548 xxxx xxxxx   752  705   981  xxxx  701  1003
Volume/Cap:  0.01 xxxx  xxxx  0.00 xxxx  xxxx  0.01 0.01  0.01  xxxx 0.02  0.00
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:     0.0 xxxx xxxxx   0.0 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:   7.4 xxxx xxxxx   7.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:     A    *     *     A    *     *     *    *     *     *    *     *
Movement:      LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  794 xxxxx  xxxx xxxx   742
SharedQueue:   0.0 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.1 xxxxx xxxxx xxxx   0.1
Shrd ConDel:   7.4 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  9.7 xxxxx xxxxx xxxx  10.0
Shared LOS:      A    *     *     *    *     *     *    A     *     *    *     A
ApproachDel:     xxxxxx           xxxxxx              9.7              10.0
ApproachLOS:        *                *                 A                 A
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

```
--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                        Existing + Project Conditions
                                PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
          2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #7 Dwy. 1 / 60th Av.
********************************************************************************
Average Delay (sec/veh):      3.4      Worst Case Level Of Service: A[  9.5]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        1  0  0  0  1    0  0  0  0  0    0  0  0  1  0    1  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0     0    0     0     0   43     0     0   24     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0     0    0     0     0   43     0     0   24     0
Added Vol:     43    0    17     0    0     0     0    0    73    29    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   43    0    17     0    0     0     0   43    73    29   24     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    47    0    18     0    0     0     0   47    79    32   26     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   47    0    18     0    0     0     0   47    79    32   26     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  6.4 xxxx   6.2 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5 xxxx   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  176 xxxx    86  xxxx xxxx xxxxx  xxxx xxxx xxxxx   126 xxxx xxxxx
Potent Cap.:  819 xxxx   978  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1473 xxxx xxxxx
Move Cap.:    806 xxxx   978  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1473 xxxx xxxxx
Volume/Cap:  0.06 xxxx  0.02  xxxx xxxx  xxxx  xxxx xxxx  xxxx  0.02 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.2 xxxx   0.1  xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.0 xxxx xxxxx
Control Del:  9.7 xxxx   8.8 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.5 xxxx xxxxx
LOS by Move:    A    *     A     *    *     *     *    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:        9.5            xxxxxx           xxxxxx           xxxxxx
ApproachLOS:         A                *                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

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```
--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                         Existing + Project Conditions
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #8 Dwy. 2 / 61st Av.
********************************************************************************
Average Delay (sec/veh):      5.1       Worst Case Level Of Service: A[  8.7]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  0  0  0    0  0  1! 0  0    1  0  1  0  0    0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0     0    0     0     0    4     0     0    2     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0     0    0     0     0    4     0     0    2     0
Added Vol:      0    0     0    13    0    13    22    0     0     0    0    22
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0    13    0    13    22    4     0     0    2    22
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     0    0     0    14    0    14    24    4     0     0    2    24
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0    0     0    14    0    14    24    4     0     0    2    24
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4  6.5   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5  4.0   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx    66   66    14    26 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   944  828  1072  1601 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   933  816  1072  1601 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.02 0.00  0.01  0.01 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.0 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.3 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx  998 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx  0.1 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx  8.7 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    A     *     *    *     *     *    *     *
ApproachDel:    xxxxxx              8.7            xxxxxx           xxxxxx
ApproachLOS:       *                 A                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

```
--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                         Existing + Project Conditions
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #9 Madison St. / 58th Av.
********************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):        0.136
Loss Time (sec):        0              Average Delay (sec/veh):        8.9
Optimal Cycle:          0              Level Of Service:                 A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  2  0  1    1  0  2  0  1    1  0  1  0  1    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      2  109     1    63  168    41    53   35     4     0   10    51
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   2  109     1    63  168    41    53   35     4     0   10    51
Added Vol:     9    4     0    15    7     0     0   15    15     0    9     9
PasserByVol:   0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:  11  113     1    78  175    41    53   50    19     0   19    60
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   11  113     1    78  175    41    53   50    19     0   19    60
Reduct Vol:    0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  11  113     1    78  175    41    53   50    19     0   19    60
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  11  113     1    78  175    41    53   50    19     0   19    60
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 2.00  1.00  1.00 2.00  1.00  1.00 1.00  1.00  1.00 2.00  1.00
Final Sat.:   553 1200   678   591 1288   735   540  584   657   527 1138   641
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.09  0.00  0.13 0.14  0.06  0.10 0.09  0.03  0.00 0.02  0.09
Crit Moves:       ****             ****        ****                        ****
Delay/Veh:    9.0  9.0   7.7   9.5  8.9   7.7   9.7  9.0   8.0   0.0  8.7   8.4
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   9.0  9.0   7.7   9.5  8.9   7.7   9.7  9.0   8.0   0.0  8.7   8.4
LOS by Move:    A    A     A     A    A     A     A    A     A     *    A     A
ApproachDel:       9.0              8.9              9.1              8.5
Delay Adj:        1.00             1.00             1.00             1.00
ApprAdjDel:        9.0              8.9              9.1              8.5
LOS by Appr:         A                A                A                A
AllWayAvgQ:   0.0  0.1   0.0   0.1  0.1   0.1   0.1  0.1   0.0   0.0  0.0   0.1
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

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<u>APPENDIX 6.1</u>

EAP (2016) Conditions
Intersection Operations Analysis Worksheets

Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Existing + Ambient + Project (2016) Conditions
AM Peak Hour

Trip Generation Report

Forecast for AM Trip Gen (P)

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
1	SITE (2016)	1.00	RESIDENTIAL	45.00	130.00	45	130	175	100.0
	Zone 1 Subtotal					45	130	175	100.0
TOTAL						45	130	175	100.0

```
--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                Existing + Ambient + Project (2016) Conditions
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #1 Madison St. / Av. 60
********************************************************************************
Average Delay (sec/veh):      2.7       Worst Case Level Of Service: A[  8.8]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  0  0  0   1  0  0  1  0   0  0  1  0  0   0  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0    59    0     0     0    2     0     0    2   129
Growth Adj:  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06
Initial Bse:    0    0     0    63    0     0     0    2     0     0    2   137
Added Vol:      0    0     0     7    0     0     0    0     0     0    0    19
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0    70    0     0     0    2     0     0    2   156
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.81 0.81  0.81  0.81 0.81  0.81  0.81 0.81  0.81  0.81 0.81  0.81
PHF Volume:     0    0     0    86    0     0     0    3     0     0    3   192
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0    0     0    86    0     0     0    3     0     0    3   192
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4  6.5   6.2 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5  4.0   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx     5    5     3  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx  1022  894  1087  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx  1022  894  1087  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.08 0.00  0.00  xxxx xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   0.3 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx   8.8 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     A    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx     0  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:    xxxxxx              8.8            xxxxxx           xxxxxx
ApproachLOS:         *                A                 *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                Existing + Ambient + Project (2016) Conditions
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #2 Monroe St. / 58th Av.
********************************************************************************
Cycle (sec):          100               Critical Vol./Cap.(X):        0.170
Loss Time (sec):        0               Average Delay (sec/veh):        8.3
Optimal Cycle:          0               Level Of Service:                 A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign         Stop Sign        Stop Sign
Rights:           Include          Include           Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  1! 0  0    0  1  0  0  1    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      13   32     2   10   35    56   17   29     3   12   65    18
Growth Adj:  1.06 1.06  1.06 1.06 1.06  1.06 1.06 1.06  1.06 1.06 1.06  1.06
Initial Bse:   14   34     2   11   37    59   18   31     3   13   69    19
Added Vol:     26   26     0    0    9     0    0    0     9    0    0     0
PasserByVol:    0    0     0    0    0     0    0    0     0    0    0     0
Initial Fut:   40   60     2   11   46    59   18   31    12   13   69    19
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     0.81 0.81  0.81 0.81 0.81  0.81 0.81 0.81  0.81 0.81 0.81  0.81
PHF Volume:    49   74     3   13   57    74   22   38    15   16   85    24
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:   49   74     3   13   57    74   22   38    15   16   85    24
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:   49   74     3   13   57    74   22   38    15   16   85    24
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Lanes:       0.39 0.59  0.02 0.19 0.81  1.00 0.30 0.50  0.20 0.13 0.68  0.19
Final Sat.:   289  436    15  126  549   793  219  374   148   96  519   144
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.17 0.17  0.17 0.10 0.10  0.09 0.10 0.10  0.10 0.16 0.16  0.16
Crit Moves:             ****      ****              ****            ****
Delay/Veh:    8.6  8.6   8.6  8.4  8.4   7.5  8.1  8.1   8.1  8.4  8.4   8.4
Delay Adj:   1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:   8.6  8.6   8.6  8.4  8.4   7.5  8.1  8.1   8.1  8.4  8.4   8.4
LOS by Move:    A    A     A    A    A     A    A    A     A    A    A     A
ApproachDel:       8.6              7.9              8.1              8.4
Delay Adj:        1.00             1.00             1.00             1.00
ApprAdjDel:        8.6              7.9              8.1              8.4
LOS by Appr:         A                A                A                A
AllWayAvgQ:   0.2  0.2   0.2  0.1  0.1   0.1  0.1  0.1   0.1  0.2  0.2   0.2
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Existing + Ambient + Project (2016) Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #3 Monroe St. / Av. 60

Cycle (sec):	100	Critical Vol./Cap.(X):	0.180
Loss Time (sec):	0	Average Delay (sec/veh):	8.4
Optimal Cycle:	0	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 0 1 0			1 0 1 0 1			0 1 0 0 1			0 0 1! 0 0		
Volume Module:												
Base Vol:	15	24	2	8	17	15	13	22	32	1	20	8
Growth Adj:	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Initial Bse:	16	25	2	8	18	16	14	23	34	1	21	8
Added Vol:	13	7	0	18	2	0	0	5	4	0	13	52
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	29	32	2	26	20	16	14	28	38	1	34	60
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
PHF Volume:	40	45	3	37	28	22	19	39	53	1	48	84
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	40	45	3	37	28	22	19	39	53	1	48	84
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	40	45	3	37	28	22	19	39	53	1	48	84
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.94	0.06	1.00	1.00	1.00	0.33	0.67	1.00	0.01	0.36	0.63
Final Sat.:	612	631	41	593	646	738	218	449	794	8	265	469
Capacity Analysis Module:												
Vol/Sat:	0.07	0.07	0.07	0.06	0.04	0.03	0.09	0.09	0.07	0.18	0.18	0.18
Crit Moves:		****		****				****			****	
Delay/Veh:	8.7	8.2	8.2	8.9	8.3	7.5	8.4	8.4	7.4	8.7	8.7	8.7
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	8.7	8.2	8.2	8.9	8.3	7.5	8.4	8.4	7.4	8.7	8.7	8.7
LOS by Move:	A	A	A	A	A	A	A	A	A	A	A	A
ApproachDel:		8.4			8.3			7.9			8.7	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		8.4			8.3			7.9			8.7	
LOS by Appr:		A			A			A			A	
AllWayAvgQ:	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2

Note: Queue reported is the number of cars per lane.

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                Existing + Ambient + Project (2016) Conditions
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #4 Monroe St. / 61st Av.
********************************************************************************
Average Delay (sec/veh):      2.1       Worst Case Level Of Service: A[  8.6]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  0  1  0  0    0  1  0  0  0    0  0  0  0  0    0  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0   31     0     0   50     0     0    0     0     0    0     3
Growth Adj:  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06
Initial Bse:    0   33     0     0   53     0     0    0     0     0    0     3
Added Vol:      0    0     0     7    0     0     0    0     0     0    0    19
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0   33     0     7   53     0     0    0     0     0    0    22
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.68 0.68  0.68  0.68 0.68  0.68  0.68 0.68  0.68  0.68 0.68  0.68
PHF Volume:     0   48     0    10   78     0     0    0     0     0    0    33
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0   48     0    10   78     0     0    0     0     0    0    33
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   4.1 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   6.2
FollowUpTim:xxxxx xxxx xxxxx   2.2 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx    48 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx    48
Potent Cap.: xxxx xxxx xxxxx  1572 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx  1026
Move Cap.:   xxxx xxxx xxxxx  1572 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx  1026
Volume/Cap:  xxxx xxxx  xxxx  0.01 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  0.03
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   0.0 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   0.1
Control Del:xxxxx xxxx xxxxx   7.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   8.6
LOS by Move:    *    *     *     A    *     *     *    *     *     *    *     A
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx   0.0 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx   7.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     A    *     *     *    *     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx           xxxxxx             8.6
ApproachLOS:       *                *                *                A
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Existing + Ambient + Project (2016) Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #5 Jackson St. / Av. 60

Cycle (sec):	100	Critical Vol./Cap.(X):	0.109
Loss Time (sec):	0	Average Delay (sec/veh):	7.5
Optimal Cycle:	0	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:		Stop Sign			Stop Sign			Stop Sign			Stop Sign	
Rights:		Include			Include			Include			Include	
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1!	0 0	0 0	1!	0 0	0 0	1!	0 0	0 0	1!	0 0
Volume Module:												
Base Vol:	7	43	1	12	45	15	5	21	7	4	8	12
Growth Adj:	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Initial Bse:	7	46	1	13	48	16	5	22	7	4	8	13
Added Vol:	0	7	0	0	2	7	20	7	0	0	2	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	7	53	1	13	50	23	25	29	7	4	10	13
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	8	58	1	14	55	25	28	33	8	5	12	14
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	8	58	1	14	55	25	28	33	8	5	12	14
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	8	58	1	14	55	25	28	33	8	5	12	14
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.12	0.86	0.02	0.15	0.58	0.27	0.41	0.47	0.12	0.15	0.38	0.47
Final Sat.:	101	717	14	129	505	233	332	384	97	132	325	395
Capacity Analysis Module:												
Vol/Sat:	0.08	0.08	0.08	0.11	0.11	0.11	0.08	0.08	0.08	0.04	0.04	0.04
Crit Moves:		****			****		****				****	
Delay/Veh:	7.6	7.6	7.6	7.5	7.5	7.5	7.7	7.7	7.7	7.2	7.2	7.2
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	7.6	7.6	7.6	7.5	7.5	7.5	7.7	7.7	7.7	7.2	7.2	7.2
LOS by Move:	A	A	A	A	A	A	A	A	A	A	A	A
ApproachDel:		7.6			7.5			7.7			7.2	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		7.6			7.5			7.7			7.2	
LOS by Appr:		A			A			A			A	
AllWayAvgQ:	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0

Note: Queue reported is the number of cars per lane.

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                Existing + Ambient + Project (2016) Conditions
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #6 Jackson St. / 61st Av.
********************************************************************************
Average Delay (sec/veh):      2.1       Worst Case Level Of Service: A[  9.8]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled       Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  1  0  0  0   0  0  0  1  0   0  0  1! 0  0   0  0  1  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       3   49     0     0   43     1     2    0     0     0    0     0
Growth Adj:  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06
Initial Bse:    3   52     0     0   46     1     2    0     0     0    0     0
Added Vol:      2    0     0     0    0     2     7    7     7     0    2     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    5   52     0     0   46     3     9    7     7     0    2     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.85 0.85  0.85  0.85 0.85  0.85  0.85 0.85  0.85  0.85 0.85  0.85
PHF Volume:     6   62     0     0   54     4    11    8     8     0    2     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    6   62     0     0   54     4    11    8     8     0    2     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx xxxxx xxxx xxxxx   7.1  6.5   6.2 xxxxx  6.5 xxxxx
FollowUpTim:  2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.5  4.0   3.3 xxxxx  4.0 xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:   58 xxxx xxxxx  xxxx xxxx xxxxx   131  130    56  xxxx  131 xxxxx
Potent Cap.: 1560 xxxx xxxxx  xxxx xxxx xxxxx   846  765  1016  xxxx  763 xxxxx
Move Cap.:   1560 xxxx xxxxx  xxxx xxxx xxxxx   842  762  1016  xxxx  760 xxxxx
Volume/Cap:  0.00 xxxx  xxxx  xxxx xxxx  xxxx  0.01 0.01  0.01  xxxx 0.00  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.0 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  0.0 xxxxx
Control Del:  7.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx  9.8 xxxxx
LOS by Move:    A    *     *     *    *     *     *    *     *     *    A     *
Movement:     LT - LTR - RT   LT - LTR - RT   LT - LTR - RT   LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  859 xxxxx  xxxx xxxx xxxxx
SharedQueue:  0.0 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.1 xxxxx xxxxx xxxx xxxxx
Shrd ConDel:  7.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  9.3 xxxxx xxxxx xxxx xxxxx
Shared LOS:     A    *     *     *    *     *     *    A     *     *    *     *
ApproachDel:     xxxxxx           xxxxxx              9.3              9.8
ApproachLOS:        *                *                 A                A
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                Existing + Ambient + Project (2016) Conditions
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #7 Dwy. 1 / 60th Av.
********************************************************************************
Average Delay (sec/veh):      4.8       Worst Case Level Of Service: A[  9.1]
********************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled      Uncontrolled
Rights:           Include          Include          Include           Include
Lanes:        1  0  0  0  1    0  0  0  0  0    0  0  0  1  0    1  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0    0    0     0    0   32     0    0   29     0
Growth Adj:  1.06 1.06  1.06 1.06 1.06  1.06 1.06 1.06  1.06 1.06 1.06  1.06
Initial Bse:    0    0     0    0    0     0    0   34     0    0   31     0
Added Vol:     65    0    26    0    0     0    0    0    23    9    0     0
PasserByVol:    0    0     0    0    0     0    0    0     0    0    0     0
Initial Fut:   65    0    26    0    0     0    0   34    23    9   31     0
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92 0.92 0.92  0.92 0.92 0.92  0.92 0.92 0.92  0.92
PHF Volume:    71    0    28    0    0     0    0   37    25   10   33     0
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
FinalVolume:   71    0    28    0    0     0    0   37    25   10   33     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  6.4 xxxx   6.2 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5 xxxx   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  102 xxxx    49  xxxx xxxx xxxxx  xxxx xxxx xxxxx    62 xxxx xxxxx
Potent Cap.:  901 xxxx  1025  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1554 xxxx xxxxx
Move Cap.:    896 xxxx  1025  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1554 xxxx xxxxx
Volume/Cap:  0.08 xxxx  0.03  xxxx xxxx  xxxx  xxxx xxxx  xxxx  0.01 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.3 xxxx   0.1  xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.0 xxxx xxxxx
Control Del:  9.4 xxxx   8.6 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.3 xxxx xxxxx
LOS by Move:    A    *     A    *    *     *    *    *     *    A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *    *    *     *    *    *     *    *    *     *
ApproachDel:       9.1           xxxxxx            xxxxxx            xxxxxx
ApproachLOS:        A               *                 *                 *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

```
--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                Existing + Ambient + Project (2016) Conditions
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #8 Dwy. 2 / 61st Av.
********************************************************************************
Average Delay (sec/veh):      6.9       Worst Case Level Of Service: A[  8.6]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  0  0  0   0  0  1! 0  0   1  0  1  0  0   0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0     0    0     0     0    0     0     0    3     0
Growth Adj:  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06
Initial Bse:    0    0     0     0    0     0     0    0     0     0    3     0
Added Vol:      0    0     0    20    0    19     7    0     0     0    0     7
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0    20    0    19     7    0     0     0    3     7
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     0    0     0    22    0    21     8    0     0     0    3     8
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0    0     0    22    0    21     8    0     0     0    3     8
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4  6.5   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5  4.0   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx    22   22     7    11 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   999  875  1081  1621 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   996  871  1081  1621 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.02 0.00  0.02  0.00 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.0 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.2 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx 1035 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx  0.1 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx  8.6 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    A     *     *    *     *     *    *     *
ApproachDel:     xxxxxx              8.6            xxxxxx           xxxxxx
ApproachLOS:        *                 A                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

```
--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                Existing + Ambient + Project (2016) Conditions
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #9 Madison St. / 58th Av.
********************************************************************************
Cycle (sec):          100                Critical Vol./Cap.(X):        0.163
Loss Time (sec):        0                Average Delay (sec/veh):        9.1
Optimal Cycle:          0                Level Of Service:                 A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  2  0  1    1  0  2  0  1    1  0  1  0  1    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       4  127     2   65   69    43   42    6     2    0   12    51
Growth Adj:  1.06 1.06  1.06 1.06 1.06  1.06 1.06 1.06  1.06 1.06 1.06  1.06
Initial Bse:    4  135     2   69   73    46   45    6     2    0   13    54
Added Vol:     13    6     0    5    2     0    0    5     5    0   13    13
PasserByVol:    0    0     0    0    0     0    0    0     0    0    0     0
Initial Fut:   17  141     2   74   75    46   45   11     7    0   26    67
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     0.79 0.79  0.79 0.79 0.79  0.79 0.79 0.79  0.79 0.79 0.79  0.79
PHF Volume:    22  178     3   93   95    58   56   14     9    0   32    85
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:   22  178     3   93   95    58   56   14     9    0   32    85
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:   22  178     3   93   95    58   56   14     9    0   32    85
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Lanes:       1.00 2.00  1.00 1.00 2.00  1.00 1.00 1.00  1.00 1.00 2.00  1.00
Final Sat.:   563 1225   693  574 1245   707  522  561   630  526 1137   642
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.04 0.14  0.00 0.16 0.08  0.08 0.11 0.03  0.01 0.00 0.03  0.13
Crit Moves:       ****       ****            ****                         ****
Delay/Veh:    9.1  9.2   7.6  9.9  8.7   8.0  9.9  8.8   8.1  0.0  8.8   8.7
Delay Adj:   1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:   9.1  9.2   7.6  9.9  8.7   8.0  9.9  8.8   8.1  0.0  8.8   8.7
LOS by Move:    A    A     A    A    A     A    A    A     A    *    A     A
ApproachDel:       9.2              9.0              9.5              8.7
Delay Adj:        1.00             1.00             1.00             1.00
ApprAdjDel:        9.2              9.0              9.5              8.7
LOS by Appr:         A                A                A                A
AllWayAvgQ:   0.0  0.2   0.0  0.2  0.1   0.1  0.1  0.0   0.0  0.0  0.0   0.1
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Existing + Ambient + Project (2016) Conditions
PM Peak Hour

Trip Generation Report

Forecast for PM Trip Gen (P)

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
1	SITE (2016)	1.00	RESIDENTIAL	146.00	86.00	146	86	232	100.0
	Zone 1 Subtotal					146	86	232	100.0
TOTAL						146	86	232	100.0

```
--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                Existing + Ambient + Project (2016) Conditions
                                PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #1 Madison St. / Av. 60
********************************************************************************
Average Delay (sec/veh):      5.8       Worst Case Level Of Service: A[  9.6]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:         Include          Include          Include          Include
Lanes:        0  0  0  0  0   1  0  0  1  0   0  0  1  0  0   0  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0   163    0     2    0    4     0    0    3   102
Growth Adj:  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06
Initial Bse:    0    0     0   173    0     2    0    4     0    0    3   108
Added Vol:      0    0     0    22    0     0    0    0     0    0    0    13
PasserByVol:    0    0     0     0    0     0    0    0     0    0    0     0
Initial Fut:    0    0     0   195    0     2    0    4     0    0    3   121
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.83 0.83  0.83  0.83 0.83  0.83  0.83 0.83  0.83  0.83 0.83  0.83
PHF Volume:     0    0     0   234    0     3    0    5     0    0    4   146
Reduct Vol:     0    0     0     0    0     0    0    0     0    0    0     0
FinalVolume:    0    0     0   234    0     3    0    5     0    0    4   146
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4  6.5   6.2 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5  4.0   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx     9    9     4  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx  1017  890  1086  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx  1017  890  1086  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.23 0.00  0.00  xxxx xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   0.9 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx   9.6 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     A    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx  1086  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx   0.0 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx   8.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     A     *    *     *     *    *     *
ApproachDel:     xxxxxx              9.6             xxxxxx           xxxxxx
ApproachLOS:        *                 A                 *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Existing + Ambient + Project (2016) Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #2 Monroe St. / 58th Av.

Cycle (sec):	100	Critical Vol./Cap.(X):	0.356
Loss Time (sec):	0	Average Delay (sec/veh):	9.6
Optimal Cycle:	0	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 1! 0 0			0 1 0 0 1			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	8	73	8	22	42	36	72	81	4	3	18	13
Growth Adj:	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Initial Bse:	8	77	8	23	45	38	76	86	4	3	19	14
Added Vol:	17	17	0	0	29	0	0	0	29	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	25	94	8	23	74	38	76	86	33	3	19	14
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
PHF Volume:	33	124	11	31	96	50	100	113	44	4	25	18
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	33	124	11	31	96	50	100	113	44	4	25	18
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	33	124	11	31	96	50	100	113	44	4	25	18
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.20	0.73	0.07	0.24	0.76	1.00	0.39	0.44	0.17	0.09	0.53	0.38
Final Sat.:	137	507	46	150	472	725	281	316	122	60	361	261
Capacity Analysis Module:												
Vol/Sat:	0.24	0.24	0.24	0.20	0.20	0.07	0.36	0.36	0.36	0.07	0.07	0.07
Crit Moves:	****				****			****			****	
Delay/Veh:	9.5	9.5	9.5	9.6	9.6	7.7	10.2	10.2	10.2	8.2	8.2	8.2
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.5	9.5	9.5	9.6	9.6	7.7	10.2	10.2	10.2	8.2	8.2	8.2
LOS by Move:	A	A	A	A	A	A	B	B	B	A	A	A
ApproachDel:		9.5			9.0			10.2			8.2	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		9.5			9.0			10.2			8.2	
LOS by Appr:		A			A			B			A	
AllWayAvgQ:	0.3	0.3	0.3	0.2	0.2	0.1	0.5	0.5	0.5	0.1	0.1	0.1

Note: Queue reported is the number of cars per lane.

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                Existing + Ambient + Project (2016) Conditions
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #3 Monroe St. / Av. 60
********************************************************************************
Cycle (sec):          100                 Critical Vol./Cap.(X):        0.141
Loss Time (sec):        0                 Average Delay (sec/veh):        8.6
Optimal Cycle:          0                 Level Of Service:                 A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  0  1  0    1  0  1  0  1    0  1  0  0  1    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      24   30     2    9   33     9   14   32    39    4   10    10
Growth Adj:  1.06 1.06  1.06 1.06 1.06  1.06 1.06 1.06  1.06 1.06 1.06  1.06
Initial Bse:   25   32     2   10   35    10   15   34    41    4   11    11
Added Vol:      9    4     0   58    7     0    0   15    15    0    9    34
PasserByVol:    0    0     0    0    0     0    0    0     0    0    0     0
Initial Fut:   34   36     2   68   42    10   15   49    56    4   20    45
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     0.80 0.80  0.80 0.80 0.80  0.80 0.80 0.80  0.80 0.80 0.80  0.80
PHF Volume:    43   45     3   84   52    12   19   61    70    5   24    56
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:   43   45     3   84   52    12   19   61    70    5   24    56
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:   43   45     3   84   52    12   19   61    70    5   24    56
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Lanes:       1.00 0.94  0.06 1.00 1.00  1.00 0.23 0.77  1.00 0.06 0.29  0.65
Final Sat.:   604  627    37  596  649   742  152  500   764   43  201   457
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.07 0.07  0.07 0.14 0.08  0.02 0.12 0.12  0.09 0.12 0.12  0.12
Crit Moves:             **** ****                  ****        ****
Delay/Veh:    8.8  8.3   8.3  9.4  8.5   7.4  8.7  8.7   7.6  8.6  8.6   8.6
Delay Adj:   1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:   8.8  8.3   8.3  9.4  8.5   7.4  8.7  8.7   7.6  8.6  8.6   8.6
LOS by Move:    A    A     A    A    A     A    A    A     A    A    A     A
ApproachDel:       8.5              8.9              8.2              8.6
Delay Adj:        1.00             1.00             1.00             1.00
ApprAdjDel:        8.5              8.9              8.2              8.6
LOS by Appr:        A                A                A                A
AllWayAvgQ:   0.1  0.1   0.1  0.2  0.1   0.0  0.1  0.1   0.1  0.1  0.1   0.1
********************************************************************************
Note: Queue reported is the number of cars per lane.

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                Existing + Ambient + Project (2016) Conditions
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #4 Monroe St. / 61st Av.
********************************************************************************
Average Delay (sec/veh):      2.1       Worst Case Level Of Service: A[  8.7]
********************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled       Stop Sign         Stop Sign
Rights:           Include          Include          Include           Include
Lanes:        0  0  0  1  0   0  1  0  0  0   0  0  0  0  0   0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:        0   41     1     3   59     0     0    0     0     1    0     1
Growth Adj:   1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06
Initial Bse:     0   44     1     3   63     0     0    0     0     1    0     1
Added Vol:       0    0     0    22    0     0     0    0     0     0    0    13
PasserByVol:     0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:     0   44     1    25   63     0     0    0     0     1    0    14
User Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:      0.81 0.81  0.81  0.81 0.81  0.81  0.81 0.81  0.81  0.81 0.81  0.81
PHF Volume:      0   54     1    31   77     0     0    0     0     1    0    17
Reduct Vol:      0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:     0   54     1    31   77     0     0    0     0     1    0    17
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   4.1 xxxx xxxxx xxxxx xxxx xxxxx   6.4  6.5   6.2
FollowUpTim:xxxxx xxxx xxxxx   2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.5  4.0   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx    55 xxxx xxxxx  xxxx xxxx xxxxx   194  194    55
Potent Cap.: xxxx xxxx xxxxx  1563 xxxx xxxxx  xxxx xxxx xxxxx   799  705  1018
Move Cap.:   xxxx xxxx xxxxx  1563 xxxx xxxxx  xxxx xxxx xxxxx   787  690  1018
Volume/Cap:  xxxx xxxx  xxxx  0.02 xxxx  xxxx  xxxx xxxx  xxxx  0.00 0.00  0.02
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   0.1 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx   7.4 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     A    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  998 xxxxx
SharedQueue:xxxxx xxxx xxxxx   0.1 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.1 xxxxx
Shrd ConDel:xxxxx xxxx xxxxx   7.4 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  8.7 xxxxx
Shared LOS:     *    *     *     A    *     *     *    *     *     *    A     *
ApproachDel:      xxxxxx           xxxxxx           xxxxxx              8.7
ApproachLOS:         *                *                *                 A
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

```
--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                Existing + Ambient + Project (2016) Conditions
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #5 Jackson St. / Av. 60
********************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):        0.110
Loss Time (sec):        0              Average Delay (sec/veh):        7.5
Optimal Cycle:          0              Level Of Service:                 A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      11   42     3    5   49     4    7   22     8    4   11    14
Growth Adj:  1.06 1.06  1.06 1.06 1.06  1.06 1.06 1.06  1.06 1.06 1.06  1.06
Initial Bse:   12   45     3    5   52     4    7   23     8    4   12    15
Added Vol:      0    4     0    0    7    22   13    4     0    0    7     0
PasserByVol:    0    0     0    0    0     0    0    0     0    0    0     0
Initial Fut:   12   49     3    5   59    26   20   27     8    4   19    15
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     0.94 0.94  0.94 0.94 0.94  0.94 0.94 0.94  0.94 0.94 0.94  0.94
PHF Volume:    12   52     3    6   63    28   22   29     9    5   20    16
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:   12   52     3    6   63    28   22   29     9    5   20    16
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:   12   52     3    6   63    28   22   29     9    5   20    16
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Lanes:       0.18 0.77  0.05 0.06 0.65  0.29 0.36 0.49  0.15 0.11 0.50  0.39
Final Sat.:   153  638    42   51  570   253  296  397   123   95  418   333
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.08 0.08  0.08 0.11 0.11  0.11 0.07 0.07  0.07 0.05 0.05  0.05
Crit Moves:       ****             ****             ****             ****
Delay/Veh:    7.6  7.6   7.6  7.5  7.5   7.5  7.6  7.6   7.6  7.3  7.3   7.3
Delay Adj:   1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:   7.6  7.6   7.6  7.5  7.5   7.5  7.6  7.6   7.6  7.3  7.3   7.3
LOS by Move:    A    A     A    A    A     A    A    A     A    A    A     A
ApproachDel:       7.6              7.5              7.6              7.3
Delay Adj:        1.00             1.00             1.00             1.00
ApprAdjDel:        7.6              7.5              7.6              7.3
LOS by Appr:         A                A                A                A
AllWayAvgQ:   0.1  0.1   0.1  0.1  0.1   0.1  0.1  0.1   0.1  0.0  0.0   0.0
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                Existing + Ambient + Project (2016) Conditions
                                 PM Peak Hour
--------------------------------------------------------------------------------

                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #6 Jackson St. / 61st Av.
********************************************************************************
Average Delay (sec/veh):      2.3      Worst Case Level Of Service: B[ 10.0]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  1  0  0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:        2   47     0     3   56     0     2    1     1     0    2     2
Growth Adj:   1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06
Initial Bse:     2   50     0     3   59     0     2    1     1     0    2     2
Added Vol:       7    0     0     0    0     7     4    4     4     0    7     0
PasserByVol:     0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:     9   50     0     3   59     7     6    5     5     0    9     2
User Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:      0.71 0.71  0.71  0.71 0.71  0.71  0.71 0.71  0.71  0.71 0.71  0.71
PHF Volume:     13   71     0     5   84    10     9    7     7     0   13     3
Reduct Vol:      0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    13   71     0     5   84    10     9    7     7     0   13     3
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:   4.1 xxxx xxxxx   4.1 xxxx xxxxx   7.1  6.5   6.2 xxxxx  6.5   6.2
FollowUpTim:   2.2 xxxx xxxxx   2.2 xxxx xxxxx   3.5  4.0   3.3 xxxxx  4.0   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:    94 xxxx xxxxx    71 xxxx xxxxx   202  194    89  xxxx  199    71
Potent Cap.: 1513 xxxx xxxxx  1543 xxxx xxxxx   760  705   975  xxxx  700   998
Move Cap.:   1513 xxxx xxxxx  1543 xxxx xxxxx   741  696   975  xxxx  692   998
Volume/Cap:  0.01 xxxx  xxxx  0.00 xxxx  xxxx  0.01 0.01  0.01  xxxx 0.02  0.00
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:     0.0 xxxx xxxxx   0.0 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:   7.4 xxxx xxxxx   7.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:     A    *     *     A    *     *     *    *     *     *    *     *
Movement:      LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  784 xxxxx  xxxx xxxx   735
SharedQueue:   0.0 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.1 xxxxx xxxxx xxxx   0.1
Shrd ConDel:   7.4 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  9.7 xxxxx xxxxx xxxx  10.0
Shared LOS:      A    *     *     *    *     *     *    A     *     *    *     B
ApproachDel:     xxxxxx           xxxxxx              9.7              10.0
ApproachLOS:        *                *                 A                 B
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                Existing + Ambient + Project (2016) Conditions
                                PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #7 Dwy. 1 / 60th Av.
********************************************************************************
Average Delay (sec/veh):      3.4      Worst Case Level Of Service: A[  9.5]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:          Include          Include          Include          Include
Lanes:        1  0  0  0  1    0  0  0  0  0    0  0  0  1  0    1  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0     0    0     0     0   43     0     0   24     0
Growth Adj:  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06
Initial Bse:    0    0     0     0    0     0     0   46     0     0   25     0
Added Vol:     43    0    17     0    0     0     0    0    73    29    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   43    0    17     0    0     0     0   46    73    29   25     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    47    0    18     0    0     0     0   50    79    32   28     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   47    0    18     0    0     0     0   50    79    32   28     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  6.4 xxxx   6.2 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5 xxxx   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  180 xxxx    89  xxxx xxxx xxxxx  xxxx xxxx xxxxx   129 xxxx xxxxx
Potent Cap.:  814 xxxx   974  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1469 xxxx xxxxx
Move Cap.:    801 xxxx   974  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1469 xxxx xxxxx
Volume/Cap:  0.06 xxxx  0.02  xxxx xxxx  xxxx  xxxx xxxx  xxxx  0.02 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.2 xxxx   0.1  xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.0 xxxx xxxxx
Control Del:  9.8 xxxx   8.8 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.5 xxxx xxxxx
LOS by Move:    A    *     A     *    *     *     *    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:        9.5            xxxxxx           xxxxxx           xxxxxx
ApproachLOS:         A                *                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

```
--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                Existing + Ambient + Project (2016) Conditions
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #8 Dwy. 2 / 61st Av.
********************************************************************************
Average Delay (sec/veh):      5.1       Worst Case Level Of Service: A[  8.7]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:          Include          Include          Include          Include
Lanes:        0  0  0  0  0    0  0  1! 0  0    1  0  1  0  0    0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0     0    0     0     0    4     0     0    2     0
Growth Adj:  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06
Initial Bse:    0    0     0     0    0     0     0    4     0     0    2     0
Added Vol:      0    0     0    13    0    13    22    0     0     0    0    22
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0    13    0    13    22    4     0     0    2    22
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     0    0     0    14    0    14    24    5     0     0    2    24
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0    0     0    14    0    14    24    5     0     0    2    24
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4  6.5   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5  4.0   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx    67   67    14    26 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   943  828  1071  1601 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   933  815  1071  1601 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.02 0.00  0.01  0.01 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.0 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.3 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx  997 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx  0.1 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx  8.7 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    A     *     *    *     *     *    *     *
ApproachDel:    xxxxxx             8.7             xxxxxx           xxxxxx
ApproachLOS:       *                A                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

```
--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                Existing + Ambient + Project (2016) Conditions
                                 PM Peak Hour
--------------------------------------------------------------------------------

                      Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #9 Madison St. / 58th Av.
********************************************************************************
Cycle (sec):         100                 Critical Vol./Cap.(X):        0.145
Loss Time (sec):       0                 Average Delay (sec/veh):        9.0
Optimal Cycle:         0                 Level Of Service:                 A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  2  0  1    1  0  2  0  1    1  0  1  0  1    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       2  109     1    63  168    41    53   35     4     0   10    51
Growth Adj:  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06
Initial Bse:    2  116     1    67  178    44    56   37     4     0   11    54
Added Vol:      9    4     0    15    7     0     0   15    15     0    9     9
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   11  120     1    82  185    44    56   52    19     0   20    63
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    11  120     1    82  185    44    56   52    19     0   20    63
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   11  120     1    82  185    44    56   52    19     0   20    63
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   11  120     1    82  185    44    56   52    19     0   20    63
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 2.00  1.00  1.00 2.00  1.00  1.00 1.00  1.00  1.00 2.00  1.00
Final Sat.:   545 1183   667   585 1273   727   533  575   646   519 1120   630
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.10  0.00  0.14 0.15  0.06  0.11 0.09  0.03  0.00 0.02  0.10
Crit Moves:       ****             ****        ****                         ****
Delay/Veh:    9.1  9.1   7.8   9.6  9.0   7.7   9.8  9.1   8.0   0.0  8.8   8.6
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   9.1  9.1   7.8   9.6  9.0   7.7   9.8  9.1   8.0   0.0  8.8   8.6
LOS by Move:    A    A     A     A    A     A     A    A     A     *    A     A
ApproachDel:       9.1              9.0              9.3              8.6
Delay Adj:        1.00             1.00             1.00             1.00
ApprAdjDel:        9.1              9.0              9.3              8.6
LOS by Appr:         A                A                A                A
AllWayAvgQ:   0.0  0.1   0.0   0.2  0.2   0.1   0.1  0.1   0.0   0.0  0.0   0.1
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

APPENDIX 6.2

EAPC (2016) Conditions
Intersection Operations Analysis Worksheets

Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Existing + Ambient + Project + Cumulative Projects (2016) Conditions
AM Peak Hour

Trip Generation Report

Forecast for AM Trip Gen (P)

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
3	TAZ 3 & 4	1.00	SFDR	0.00	0.00	0	0	0	0.0
100	SITE (2016)	1.00	RESIDENTIAL	45.00	130.00	45	130	175	18.3
	Zone 100 Subtotal					45	130	175	18.3
TOTAL						45	130	175	18.3

Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Existing + Ambient + Project + Cumulative Projects (2016) Conditions
AM Peak Hour

Trip Generation Report

Forecast for AM Trip Gen (O)

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
1	TAZ 1	1.00	SFDR	11.00	31.00	11	31	42	4.4
	Zone 1 Subtotal					11	31	42	4.4
2	TAZ 2	1.00	SFDR	17.00	50.00	17	50	67	7.0
	Zone 2 Subtotal					17	50	67	7.0
3	TAZ 3 & 4	1.00	SFDR	147.00	434.00	147	434	581	60.8
	Zone 3 Subtotal					147	434	581	60.8
5	TAZ 5	1.00	SFDR	12.00	33.00	12	33	45	4.7
	Zone 5 Subtotal					12	33	45	4.7
6	TAZ 6	1.00	SFDR	4.00	12.00	4	12	16	1.7
	Zone 6 Subtotal					4	12	16	1.7
8	TAZ 8	1.00	SFDR	8.00	22.00	8	22	30	3.1
	Zone 8 Subtotal					8	22	30	3.1
TOTAL						199	582	781	81.7

```
--------------------------------------------------------------------------------
        Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
     Existing + Ambient + Project + Cumulative Projects (2016) Conditions
                                 AM Peak Hour
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
          2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #1 Madison St. / 60th Av.
********************************************************************************
Average Delay (sec/veh):      2.7      Worst Case Level Of Service: A[  8.9]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  0  0  0    1  0  0  1  0    0  0  1  0  0    0  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0    59    0     0     0    2     0     0    2   129
Growth Adj:  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06
Initial Bse:    0    0     0    63    0     0     0    2     0     0    2   137
Added Vol:      0    0     0     9    0     0     0    0     0     0    0    26
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0    72    0     0     0    2     0     0    2   163
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.81 0.81  0.81  0.81 0.81  0.81  0.81 0.81  0.81  0.81 0.81  0.81
PHF Volume:     0    0     0    88    0     0     0    3     0     0    3   201
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0    0     0    88    0     0     0    3     0     0    3   201
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4  6.5   6.2 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5  4.0   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx     5    5     3  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx  1022  894  1087  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx  1022  894  1087  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.09 0.00  0.00  xxxx xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   0.3 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx   8.9 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     A    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx     0  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:    xxxxxx               8.9            xxxxxx           xxxxxx
ApproachLOS:         *                 A                 *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

```
--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
     Existing + Ambient + Project + Cumulative Projects (2016) Conditions
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #2 Monroe St. / 58th Av.
********************************************************************************
Cycle (sec):         100              Critical Vol./Cap.(X):        0.326
Loss Time (sec):       0              Average Delay (sec/veh):        9.4
Optimal Cycle:         0              Level Of Service:                 A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  1! 0  0   0  1  0  0  1   0  0  1! 0  0   0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      13   32     2    10   35    56    17   29     3    12   65    18
Growth Adj:  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06
Initial Bse:   14   34     2    11   37    59    18   31     3    13   69    19
Added Vol:     57   70     7     5   24     0     0   11    20     3   26    14
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   71  104     9    16   61    59    18   42    23    16   95    33
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.81 0.81  0.81  0.81 0.81  0.81  0.81 0.81  0.81  0.81 0.81  0.81
PHF Volume:    88  129    11    19   76    74    22   52    29    19  118    41
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   88  129    11    19   76    74    22   52    29    19  118    41
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   88  129    11    19   76    74    22   52    29    19  118    41
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.38 0.57  0.05  0.20 0.80  1.00  0.22 0.50  0.28  0.11 0.66  0.23
Final Sat.:   269  395    35   127  496   723   146  338   188    76  459   160
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.33 0.33  0.33  0.15 0.15  0.10  0.15 0.15  0.15  0.26 0.26  0.26
Crit Moves:       ****        ****                  ****        ****
Delay/Veh:   10.2 10.2  10.2   9.1  9.1   7.9   8.8  8.8   8.8   9.4  9.4   9.4
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  10.2 10.2  10.2   9.1  9.1   7.9   8.8  8.8   8.8   9.4  9.4   9.4
LOS by Move:    B    B     B     A    A     A     A    A     A     A    A     A
ApproachDel:      10.2               8.6              8.8              9.4
Delay Adj:        1.00              1.00             1.00             1.00
ApprAdjDel:       10.2               8.6              8.8              9.4
LOS by Appr:         B                 A                A                A
AllWayAvgQ:   0.4  0.4   0.4   0.2  0.2   0.1   0.2  0.2   0.2   0.3  0.3   0.3
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
     Existing + Ambient + Project + Cumulative Projects (2016) Conditions
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #3 Monroe St. / 60th Av.
********************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):        0.225
Loss Time (sec):        0              Average Delay (sec/veh):        8.9
Optimal Cycle:          0              Level Of Service:                 A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  0  1  0    1  0  1  0  1    0  1  0  0  1    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      15   24     2     8   17    15    13   22    32     1   20     8
Growth Adj:  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06
Initial Bse:   16   25     2     8   18    16    14   23    34     1   21     8
Added Vol:     18   58     1    23   20     0     0    6     6     0   16    65
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   34   83     3    31   38    16    14   29    40     1   37    73
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.72 0.72  0.72  0.72 0.72  0.72  0.72 0.72  0.72  0.72 0.72  0.72
PHF Volume:    47  116     4    44   53    22    19   41    56     1   52   102
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   47  116     4    44   53    22    19   41    56     1   52   102
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   47  116     4    44   53    22    19   41    56     1   52   102
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.96  0.04  1.00 1.00  1.00  0.32 0.68  1.00  0.01 0.33  0.66
Final Sat.:   596  630    24   563  611   694   198  421   725     7  230   454
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.08 0.18  0.18  0.08 0.09  0.03  0.10 0.10  0.08  0.22 0.22  0.22
Crit Moves:       ****             ****        ****                   ****
Delay/Veh:    9.0  9.1   9.1   9.3  8.8   7.8   8.8  8.8   7.8   9.4  9.4   9.4
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   9.0  9.1   9.1   9.3  8.8   7.8   8.8  8.8   7.8   9.4  9.4   9.4
LOS by Move:    A    A     A     A    A     A     A    A     A     A    A     A
ApproachDel:       9.1              8.8              8.3              9.4
Delay Adj:        1.00             1.00             1.00             1.00
ApprAdjDel:        9.1              8.8              8.3              9.4
LOS by Appr:         A                A                A                A
AllWayAvgQ:   0.1  0.2   0.2   0.1  0.1   0.0   0.1  0.1   0.1   0.3  0.3   0.3
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
     Existing + Ambient + Project + Cumulative Projects (2016) Conditions
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #4 Monroe St. / 61st Av.
********************************************************************************
Average Delay (sec/veh):      4.6      Worst Case Level Of Service: B[ 10.5]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled       Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  0  1  0  0   0  0  1! 0  0   0  0  1! 0  0   0  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0   31     0     0   50     0     0    0     0     0    0     3
Growth Adj:  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06
Initial Bse:    0   33     0     0   53     0     0    0     0     0    0     3
Added Vol:      0    0     0    22    0     2     7    1     1     0    0    65
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0   33     0    22   53     2     7    1     1     0    0    68
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.68 0.68  0.68  0.68 0.68  0.68  0.68 0.68  0.68  0.68 0.68  0.68
PHF Volume:     0   48     0    32   78     3    10    1     1     0    0   100
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0   48     0    32   78     3    10    1     1     0    0   100
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   4.1 xxxx xxxxx   7.1  6.5   6.2 xxxxx xxxx   6.2
FollowUpTim:xxxxx xxxx xxxxx   2.2 xxxx xxxxx   3.5  4.0   3.3 xxxxx xxxx   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx    48 xxxx xxxxx   243  193    80  xxxx xxxx    48
Potent Cap.: xxxx xxxx xxxxx  1572 xxxx xxxxx   715  706   986  xxxx xxxx  1026
Move Cap.:   xxxx xxxx xxxxx  1572 xxxx xxxxx   635  691   986  xxxx xxxx  1026
Volume/Cap:  xxxx xxxx  xxxx  0.02 xxxx  xxxx  0.02 0.00  0.00  xxxx xxxx  0.10
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   0.1 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   0.3
Control Del:xxxxx xxxx xxxxx   7.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   8.9
LOS by Move:    *    *     *     A    *     *     *    *     *     *    *     A
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  667 xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.1 xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx 10.5 xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    B     *     *    *     *
ApproachDel:      xxxxxx           xxxxxx             10.5              8.9
ApproachLOS:         *                *                 B                A
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
     Existing + Ambient + Project + Cumulative Projects (2016) Conditions
                                AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #5 Jackson St. / 60th Av.
********************************************************************************
Cycle (sec):         100               Critical Vol./Cap.(X):         0.125
Loss Time (sec):       0               Average Delay (sec/veh):         7.6
Optimal Cycle:         0               Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      7   43     1   12   45    15    5   21     7    4    8    12
Growth Adj:  1.06 1.06  1.06 1.06 1.06  1.06 1.06 1.06  1.06 1.06 1.06  1.06
Initial Bse:   7   46     1   13   48    16    5   22     7    4    8    13
Added Vol:     0    8     0    3    5    13   24    8     0    0    3     1
PasserByVol:   0    0     0    0    0     0    0    0     0    0    0     0
Initial Fut:   7   54     1   16   53    29   29   30     7    4   11    14
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     0.90 0.90  0.90 0.90 0.90  0.90 0.90 0.90  0.90 0.90 0.90  0.90
PHF Volume:    8   60     1   17   59    32   33   34     8    5   13    15
Reduct Vol:    0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:   8   60     1   17   59    32   33   34     8    5   13    15
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:   8   60     1   17   59    32   33   34     8    5   13    15
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Lanes:       0.12 0.86  0.02 0.16 0.54  0.30 0.44 0.45  0.11 0.14 0.39  0.47
Final Sat.:    99  712    14  140  469   257  351  363    89  121  328   392
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.08 0.08  0.08 0.12 0.12  0.12 0.09 0.09  0.09 0.04 0.04  0.04
Crit Moves:       ****                  ****              ****      ****
Delay/Veh:    7.6  7.6   7.6  7.6  7.6   7.6  7.7  7.7   7.7  7.3  7.3   7.3
Delay Adj:   1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:   7.6  7.6   7.6  7.6  7.6   7.6  7.7  7.7   7.7  7.3  7.3   7.3
LOS by Move:   A    A     A    A    A     A    A    A     A    A    A     A
ApproachDel:       7.6               7.6              7.7              7.3
Delay Adj:        1.00              1.00             1.00             1.00
ApprAdjDel:        7.6               7.6              7.7              7.3
LOS by Appr:        A                 A                A                A
AllWayAvgQ:    0.1  0.1   0.1  0.1  0.1   0.1  0.1  0.1   0.1  0.0  0.0   0.0
********************************************************************************
Note: Queue reported is the number of cars per lane.

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
     Existing + Ambient + Project + Cumulative Projects (2016) Conditions
                                AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #6 Jackson St. / 61st Av.
********************************************************************************
Average Delay (sec/veh):      4.6       Worst Case Level Of Service: B[ 10.2]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  1  0  0  0    0  0  0  1  0    0  0  1! 0  0    0  0  1  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       3   49     0     0   43     1     2    0     0     0    0     0
Growth Adj:  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06
Initial Bse:    3   52     0     0   46     1     2    0     0     0    0     0
Added Vol:      3    1     0     0    3     3     8   23     8     0   46     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    6   53     0     0   49     4    10   23     8     0   46     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.85 0.85  0.85  0.85 0.85  0.85  0.85 0.85  0.85  0.85 0.85  0.85
PHF Volume:     7   63     0     0   58     5    12   27     9     0   54     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    7   63     0     0   58     5    12   27     9     0   54     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx xxxxx xxxx xxxxx   7.1  6.5   6.2 xxxxx  6.5 xxxxx
FollowUpTim:  2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.5  4.0   3.3 xxxxx  4.0 xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:   62 xxxx xxxxx  xxxx xxxx xxxxx   165  137    60  xxxx  140 xxxxx
Potent Cap.: 1553 xxxx xxxxx  xxxx xxxx xxxxx   805  757  1011  xxxx  755 xxxxx
Move Cap.:   1553 xxxx xxxxx  xxxx xxxx xxxxx   757  754  1011  xxxx  751 xxxxx
Volume/Cap:  0.00 xxxx  xxxx  xxxx xxxx  xxxx  0.02 0.04  0.01  xxxx 0.07  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.0 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  0.2 xxxxx
Control Del:  7.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx 10.2 xxxxx
LOS by Move:    A    *     *     *    *     *     *    *     *     *    B     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  794 xxxxx  xxxx xxxx xxxxx
SharedQueue:  0.0 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.2 xxxxx xxxxx xxxx xxxxx
Shrd ConDel:  7.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  9.8 xxxxx xxxxx xxxx xxxxx
Shared LOS:     A    *     *     *    *     *     *    A     *     *    *     *
ApproachDel:      xxxxxx           xxxxxx              9.8             10.2
ApproachLOS:         *                *                 A                B
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
     Existing + Ambient + Project + Cumulative Projects (2016) Conditions
                                 AM Peak Hour
--------------------------------------------------------------------------------
                       Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #7 Dwy. 1 / 60th Av.
********************************************************************************
Average Delay (sec/veh):      4.5       Worst Case Level Of Service: A[  9.2]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        1  0  0  0  1   0  0  0  0  0   0  0  0  1  0   1  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0     0    0     0     0   32     0     0   29     0
Growth Adj:  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06
Initial Bse:    0    0     0     0    0     0     0   34     0     0   31     0
Added Vol:     65    0    26     0    0     0     0    7    23     9    7     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   65    0    26     0    0     0     0   41    23     9   38     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    71    0    28     0    0     0     0   45    25    10   41     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   71    0    28     0    0     0     0   45    25    10   41     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  6.4 xxxx   6.2 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5 xxxx   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  118 xxxx    57  xxxx xxxx xxxxx  xxxx xxxx xxxxx    70 xxxx xxxxx
Potent Cap.:  883 xxxx  1015  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1544 xxxx xxxxx
Move Cap.:    879 xxxx  1015  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1544 xxxx xxxxx
Volume/Cap:  0.08 xxxx  0.03  xxxx xxxx  xxxx  xxxx xxxx  xxxx  0.01 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.3 xxxx   0.1  xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.0 xxxx xxxxx
Control Del:  9.5 xxxx   8.6 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.3 xxxx xxxxx
LOS by Move:    A    *     A     *    *     *     *    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:        9.2            xxxxxx            xxxxxx            xxxxxx
ApproachLOS:          A                *                 *                 *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
     Existing + Ambient + Project + Cumulative Projects (2016) Conditions
                                 AM Peak Hour
--------------------------------------------------------------------------------
                       Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #8 Dwy. 2 / 61st Av.
********************************************************************************
Average Delay (sec/veh):      3.3      Worst Case Level Of Service: A[  8.9]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  0  0  0    0  0  1! 0  0    1  0  1  0  0    0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0     0    0     0     0    0     0     0    3     0
Growth Adj:  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06
Initial Bse:    0    0     0     0    0     0     0    0     0     0    3     0
Added Vol:      0    0     0    20    0    19     7   19     0     0   45     7
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0    20    0    19     7   19     0     0   48     7
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     0    0     0    22    0    21     8   21     0     0   52     8
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0    0     0    22    0    21     8   21     0     0   52     8
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4  6.5   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5  4.0   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx    92   92    56    60 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   913  802  1016  1556 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   910  798  1016  1556 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.02 0.00  0.02  0.00 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.0 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.3 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx  958 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx  0.1 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx  8.9 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    A     *     *    *     *     *    *     *
ApproachDel:    xxxxxx              8.9             xxxxxx           xxxxxx
ApproachLOS:       *                 A                 *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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-------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
     Existing + Ambient + Project + Cumulative Projects (2016) Conditions
                                 AM Peak Hour
-------------------------------------------------------------------------------

                      Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #9 Madison St. / 58th Av.
********************************************************************************
Cycle (sec):         100               Critical Vol./Cap.(X):        0.212
Loss Time (sec):       0               Average Delay (sec/veh):        9.6
Optimal Cycle:         0               Level Of Service:                 A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  2  0  1    1  0  2  0  1    1  0  1  0  1    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:        4  127     2    65   69    43    42    6     2     0   12    51
Growth Adj:   1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06
Initial Bse:     4  135     2    69   73    46    45    6     2     0   13    54
Added Vol:      16   21     2    17    8     0     0   11     6     1   33    50
PasserByVol:     0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    20  156     4    86   81    46    45   17     8     1   46   104
User Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:      0.79 0.79  0.79  0.79 0.79  0.79  0.79 0.79  0.79  0.79 0.79  0.79
PHF Volume:     26  196     5   108  102    58    56   22    10     1   58   131
Reduct Vol:      0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    26  196     5   108  102    58    56   22    10     1   58   131
PCE Adj:      1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:      1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    26  196     5   108  102    58    56   22    10     1   58   131
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:        1.00 2.00  1.00  1.00 2.00  1.00  1.00 1.00  1.00  1.00 2.00  1.00
Final Sat.:    531 1150   644   541 1166   658   493  528   587   511 1101   619
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:      0.05 0.17  0.01  0.20 0.09  0.09  0.11 0.04  0.02  0.00 0.05  0.21
Crit Moves:        ****        ****              ****                         ****
Delay/Veh:     9.5  9.8   8.0  10.6  9.1   8.3  10.3  9.3   8.4   9.4  9.2   9.5
Delay Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:    9.5  9.8   8.0  10.6  9.1   8.3  10.3  9.3   8.4   9.4  9.2   9.5
LOS by Move:     A    A     A     B    A     A     B    A     A     A    A     A
ApproachDel:        9.7              9.5              9.9              9.4
Delay Adj:         1.00             1.00             1.00             1.00
ApprAdjDel:         9.7              9.5              9.9              9.4
LOS by Appr:          A                A                A                A
AllWayAvgQ:    0.0  0.2   0.0   0.2  0.1   0.1   0.1  0.0   0.0   0.0  0.0   0.2
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Existing + Ambient + Project + Cumulative Projects (2016) Conditions
PM Peak Hour

Trip Generation Report

Forecast for PM Trip Gen (P)

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
100	SITE (2016)	1.00	RESIDENTIAL	146.00	86.00	146	86	232	18.3
	Zone 100 Subtotal					146	86	232	18.3
TOTAL						146	86	232	18.3

Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Existing + Ambient + Project + Cumulative Projects (2016) Conditions
PM Peak Hour

Trip Generation Report

Forecast for PM Trip Gen (O)

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
1	TAZ 1	1.00	SFDR	35.00	21.00	35	21	56	4.4
	Zone 1 Subtotal					35	21	56	4.4
2	TAZ 2	1.00	SFDR	57.00	33.00	57	33	90	7.1
	Zone 2 Subtotal					57	33	90	7.1
3	TAZ 3 & 4	1.00	SFDR	489.00	286.00	489	286	775	61.3
	Zone 3 Subtotal					489	286	775	61.3
5	TAZ 5	1.00	SFDR	34.00	19.00	34	19	53	4.2
	Zone 5 Subtotal					34	19	53	4.2
6	TAZ 6	1.00	SFDR	14.00	8.00	14	8	22	1.7
	Zone 6 Subtotal					14	8	22	1.7
8	TAZ 8	1.00	SFDR	24.00	13.00	24	13	37	2.9
	Zone 8 Subtotal					24	13	37	2.9
TOTAL						653	380	1033	81.7

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
     Existing + Ambient + Project + Cumulative Projects (2016) Conditions
                                PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #1 Madison St. / 60th Av.
********************************************************************************
Average Delay (sec/veh):      5.8      Worst Case Level Of Service: A[  9.6]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  0  0  0   1  0  0  1  0   0  0  1  0  0   0  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0   163    0     2    0    4     0     0    3   102
Growth Adj:  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06
Initial Bse:    0    0     0   173    0     2    0    4     0     0    3   108
Added Vol:      0    0     0    29    0     0    0    0     0     0    0    17
PasserByVol:    0    0     0     0    0     0    0    0     0     0    0     0
Initial Fut:    0    0     0   202    0     2    0    4     0     0    3   125
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.83 0.83  0.83  0.83 0.83  0.83  0.83 0.83  0.83  0.83 0.83  0.83
PHF Volume:     0    0     0   242    0     3    0    5     0     0    4   150
Reduct Vol:     0    0     0     0    0     0    0    0     0     0    0     0
FinalVolume:    0    0     0   242    0     3    0    5     0     0    4   150
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4  6.5   6.2 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5  4.0   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx     9    9     4  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx  1017  890  1086  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx  1017  890  1086  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.24 0.00  0.00  xxxx xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   0.9 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx   9.6 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     A    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx  1086  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx   0.0 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx   8.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     A     *    *     *     *    *     *
ApproachDel:    xxxxxx             9.6            xxxxxx           xxxxxx
ApproachLOS:       *                A                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Existing + Ambient + Project + Cumulative Projects (2016) Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #2 Monroe St. / 58th Av.

Cycle (sec):	100	Critical Vol./Cap.(X):	0.527
Loss Time (sec):	0	Average Delay (sec/veh):	12.1
Optimal Cycle:	0	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1!	0 0	0 1	0	0 1	0 0	1!	0 0	0 0	1!	0 0
Volume Module:												
Base Vol:	8	73	8	22	42	36	72	81	4	3	18	13
Growth Adj:	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Initial Bse:	8	77	8	23	45	38	76	86	4	3	19	14
Added Vol:	37	45	4	16	78	0	0	30	64	8	19	9
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	45	122	12	39	123	38	76	116	68	11	38	23
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
PHF Volume:	60	161	16	52	161	50	100	152	89	15	50	30
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	60	161	16	52	161	50	100	152	89	15	50	30
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	60	161	16	52	161	50	100	152	89	15	50	30
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.25	0.68	0.07	0.24	0.76	1.00	0.29	0.45	0.26	0.15	0.53	0.32
Final Sat.:	153	412	42	136	424	642	190	289	170	89	303	181
Capacity Analysis Module:												
Vol/Sat:	0.39	0.39	0.39	0.38	0.38	0.08	0.53	0.53	0.53	0.17	0.17	0.17
Crit Moves:		****			****			****			****	
Delay/Veh:	11.8	11.8	11.8	12.2	12.2	8.4	13.5	13.5	13.5	9.6	9.6	9.6
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.8	11.8	11.8	12.2	12.2	8.4	13.5	13.5	13.5	9.6	9.6	9.6
LOS by Move:	B	B	B	B	B	A	B	B	B	A	A	A
ApproachDel:		11.8			11.4			13.5			9.6	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		11.8			11.4			13.5			9.6	
LOS by Appr:		B			B			B			A	
AllWayAvgQ:	0.5	0.5	0.5	0.5	0.5	0.1	0.9	0.9	0.9	0.2	0.2	0.2

Note: Queue reported is the number of cars per lane.

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
     Existing + Ambient + Project + Cumulative Projects (2016) Conditions
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #3 Monroe St. / 60th Av.
********************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):         0.201
Loss Time (sec):        0              Average Delay (sec/veh):         9.2
Optimal Cycle:          0              Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  0  1  0    1  0  1  0  1    0  1  0  0  1    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      24   30     2     9   33     9    14   32    39     4   10    10
Growth Adj:  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06
Initial Bse:   25   32     2    10   35    10    15   34    41     4   11    11
Added Vol:     12   38     0    73   66     0     0   18    20     1   11    42
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   37   70     2    83  101    10    15   52    61     5   22    53
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.80 0.80  0.80  0.80 0.80  0.80  0.80 0.80  0.80  0.80 0.80  0.80
PHF Volume:    47   87     3   103  126    12    19   65    76     7   27    66
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   47   87     3   103  126    12    19   65    76     7   27    66
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   47   87     3   103  126    12    19   65    76     7   27    66
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.97  0.03  1.00 1.00  1.00  0.22 0.78  1.00  0.07 0.27  0.66
Final Sat.:   580  614    19   576  626   711   133  466   694    42  175   425
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.08 0.14  0.14  0.18 0.20  0.02  0.14 0.14  0.11  0.15 0.15  0.15
Crit Moves:       ****             ****        ****              ****
Delay/Veh:    9.1  9.0   9.0  10.0  9.6   7.6   9.3  9.3   8.2   9.2  9.2   9.2
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   9.1  9.0   9.0  10.0  9.6   7.6   9.3  9.3   8.2   9.2  9.2   9.2
LOS by Move:    A    A     A     A    A     A     A    A     A     A    A     A
ApproachDel:       9.0              9.7              8.7              9.2
Delay Adj:        1.00             1.00             1.00             1.00
ApprAdjDel:        9.0              9.7              8.7              9.2
LOS by Appr:         A                A                A                A
AllWayAvgQ:   0.1  0.1   0.1   0.2  0.2   0.0   0.1  0.1   0.1   0.2  0.2   0.2
********************************************************************************
Note: Queue reported is the number of cars per lane.

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
     Existing + Ambient + Project + Cumulative Projects (2016) Conditions
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #4 Monroe St. / 61st Av.
********************************************************************************
Average Delay (sec/veh):      4.3      Worst Case Level Of Service: B[ 11.7]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  0  1! 0  0   0  0  1! 0  0   1  0  0  0  0   0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0   41     1     3   59     0     0    0     0     1    0     1
Growth Adj:  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06
Initial Bse:    0   44     1     3   63     0     0    0     0     1    0     1
Added Vol:      1    0     0    73    0     8     5    0     0     0    1    43
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    1   44     1    76   63     8     5    0     0     1    1    44
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.81 0.81  0.81  0.81 0.81  0.81  0.81 0.81  0.81  0.81 0.81  0.81
PHF Volume:     1   54     1    94   77    10     6    0     0     1    1    55
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    1   54     1    94   77    10     6    0     0     1    1    55
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx   4.1 xxxx xxxxx   7.1 xxxx xxxxx   7.1  6.5   6.2
FollowUpTim:  2.2 xxxx xxxxx   2.2 xxxx xxxxx   3.5 xxxx xxxxx   3.5  4.0   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:   87 xxxx xxxxx    55 xxxx xxxxx   356 xxxx xxxxx   328  333    55
Potent Cap.: 1521 xxxx xxxxx  1563 xxxx xxxxx   603 xxxx xxxxx   629  590  1018
Move Cap.:   1521 xxxx xxxxx  1563 xxxx xxxxx   542 xxxx xxxxx   598  552  1018
Volume/Cap:  0.00 xxxx  xxxx  0.06 xxxx  xxxx  0.01 xxxx  xxxx  0.00 0.00  0.05
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.0 xxxx xxxxx   0.2 xxxx xxxxx   0.0 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:  7.4 xxxx xxxxx   7.5 xxxx xxxxx  11.7 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    A    *     *     A    *     *     B    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  984 xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.2 xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx  8.9 xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    A     *
ApproachDel:     xxxxxx           xxxxxx             11.7              8.9
ApproachLOS:        *                *                 B                A
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
     Existing + Ambient + Project + Cumulative Projects (2016) Conditions
                                 PM Peak Hour
--------------------------------------------------------------------------------
                        Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #5 Jackson St. / 60th Av.
********************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):        0.126
Loss Time (sec):        0              Average Delay (sec/veh):        7.6
Optimal Cycle:          0              Level Of Service:                 A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      11   42     3     5   49     4     7   22     8     4   11    14
Growth Adj:  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06
Initial Bse:   12   45     3     5   52     4     7   23     8     4   12    15
Added Vol:      0    8     0     2   10    29    21    5     0     0    9     3
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   12   53     3     7   62    33    28   28     8     4   21    18
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.94 0.94  0.94  0.94 0.94  0.94  0.94 0.94  0.94  0.94 0.94  0.94
PHF Volume:    12   56     3     8   66    35    30   30     9     5   22    19
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   12   56     3     8   66    35    30   30     9     5   22    19
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   12   56     3     8   66    35    30   30     9     5   22    19
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.17 0.78  0.05  0.07 0.61  0.32  0.44 0.43  0.13  0.10 0.48  0.42
Final Sat.:   142  641    39    62  524   281   349  348   104    83  405   349
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.09 0.09  0.09  0.13 0.13  0.13  0.09 0.09  0.09  0.05 0.05  0.05
Crit Moves:  ****             ****                  ****        ****
Delay/Veh:    7.7  7.7   7.7   7.6  7.6   7.6   7.7  7.7   7.7   7.3  7.3   7.3
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   7.7  7.7   7.7   7.6  7.6   7.6   7.7  7.7   7.7   7.3  7.3   7.3
LOS by Move:    A    A     A     A    A     A     A    A     A     A    A     A
ApproachDel:       7.7              7.6              7.7              7.3
Delay Adj:        1.00             1.00             1.00             1.00
ApprAdjDel:        7.7              7.6              7.7              7.3
LOS by Appr:         A                A                A                A
AllWayAvgQ:   0.1  0.1   0.1   0.1  0.1   0.1   0.1  0.1   0.1   0.1  0.1   0.1
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

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         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
     Existing + Ambient + Project + Cumulative Projects (2016) Conditions
                                PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #6 Jackson St. / 61st Av.
********************************************************************************
Average Delay (sec/veh):      5.3      Worst Case Level Of Service: B[ 11.0]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled       Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  1  0  0  0   0  0  1! 0  0   0  0  1! 0  0   0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       2   47     0     3   56     0     2    1     1     0    2     2
Growth Adj:  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06
Initial Bse:    2   50     0     3   59     0     2    1     1     0    2     2
Added Vol:      9    3     0     0    2     9     5   54     5     0   38     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   11   53     0     3   61     9     7   55     6     0   40     2
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.71 0.71  0.71  0.71 0.71  0.71  0.71 0.71  0.71  0.71 0.71  0.71
PHF Volume:    16   75     0     5   87    13    10   78     9     0   57     3
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   16   75     0     5   87    13    10   78     9     0   57     3
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx   4.1 xxxx xxxxx   7.1  6.5   6.2 xxxxx  6.5   6.2
FollowUpTim:  2.2 xxxx xxxxx   2.2 xxxx xxxxx   3.5  4.0   3.3 xxxxx  4.0   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  100 xxxx xxxxx    75 xxxx xxxxx   238  209    93  xxxx  215    75
Potent Cap.: 1506 xxxx xxxxx  1537 xxxx xxxxx   720  692   969  xxxx  686   992
Move Cap.:   1506 xxxx xxxxx  1537 xxxx xxxxx   665  683   969  xxxx  677   992
Volume/Cap:  0.01 xxxx  xxxx  0.00 xxxx  xxxx  0.02 0.11  0.01  xxxx 0.08  0.00
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.0 xxxx xxxxx   0.0 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:  7.4 xxxx xxxxx   7.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    A    *     *     A    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  699 xxxxx  xxxx xxxx   688
SharedQueue:  0.0 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.5 xxxxx xxxxx xxxx   0.3
Shrd ConDel:  7.4 xxxx xxxxx xxxxx xxxx xxxxx xxxxx 11.0 xxxxx xxxxx xxxx  10.7
Shared LOS:     A    *     *     *    *     *     *    B     *     *    *     B
ApproachDel:     xxxxxx           xxxxxx             11.0             10.7
ApproachLOS:        *                *                B                B
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
     Existing + Ambient + Project + Cumulative Projects (2016) Conditions
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #7 Dwy. 1 / 60th Av.
********************************************************************************
Average Delay (sec/veh):      3.2       Worst Case Level Of Service: A[  9.6]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        1  0  0  0  1   0  0  0  0  0   0  0  0  1  0   1  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0    0    0     0    0   43     0    0   24     0
Growth Adj:  1.06 1.06  1.06 1.06 1.06  1.06 1.06 1.06  1.06 1.06 1.06  1.06
Initial Bse:    0    0     0    0    0     0    0   46     0    0   25     0
Added Vol:     43    0    17    0    0     0    0    9    73   29    9     0
PasserByVol:    0    0     0    0    0     0    0    0     0    0    0     0
Initial Fut:   43    0    17    0    0     0    0   55    73   29   34     0
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92 0.92 0.92  0.92 0.92 0.92  0.92 0.92 0.92  0.92
PHF Volume:    47    0    18    0    0     0    0   59    79   32   37     0
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
FinalVolume:   47    0    18    0    0     0    0   59    79   32   37     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  6.4 xxxx   6.2 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5 xxxx   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  200 xxxx    99  xxxx xxxx xxxxx  xxxx xxxx xxxxx   139 xxxx xxxxx
Potent Cap.:  794 xxxx   962  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1457 xxxx xxxxx
Move Cap.:    781 xxxx   962  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1457 xxxx xxxxx
Volume/Cap:  0.06 xxxx  0.02  xxxx xxxx  xxxx  xxxx xxxx  xxxx  0.02 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.2 xxxx   0.1  xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.0 xxxx xxxxx
Control Del:  9.9 xxxx   8.8 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.5 xxxx xxxxx
LOS by Move:    A    *     A    *    *     *    *    *     *    A    *     *
Movement:     LT - LTR - RT   LT - LTR - RT   LT - LTR - RT   LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *    *    *     *    *    *     *    *    *     *
ApproachDel:        9.6            xxxxxx           xxxxxx           xxxxxx
ApproachLOS:         A                *                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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-------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
     Existing + Ambient + Project + Cumulative Projects (2016) Conditions
                                 PM Peak Hour
-------------------------------------------------------------------------------
                        Level Of Service Computation Report
          2000 HCM Unsignalized Method (Future Volume Alternative)
*******************************************************************************
Intersection #8 Dwy. 2 / 61st Av.
*******************************************************************************
Average Delay (sec/veh):      2.5       Worst Case Level Of Service: A[  9.1]
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  0  0  0   0  0  1! 0  0   1  0  1  0  0   0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0     0    0     0     0    4     0     0    2     0
Growth Adj:  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06
Initial Bse:    0    0     0     0    0     0     0    4     0     0    2     0
Added Vol:      0    0     0    13    0    13    22   51     0     0   33    22
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0    13    0    13    22   55     0     0   35    22
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     0    0     0    14    0    14    24   60     0     0   38    24
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0    0     0    14    0    14    24   60     0     0   38    24
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4  6.5   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5  4.0   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx   158  158    50    62 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   838  738  1024  1554 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   828  726  1024  1554 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.02 0.00  0.01  0.02 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.0 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.4 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx  916 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx  0.1 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx  9.1 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    A     *     *    *     *     *    *     *
ApproachDel:    xxxxxx              9.1            xxxxxx           xxxxxx
ApproachLOS:         *               A                *                *
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
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--------------------------------------------------------------------------------
          Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
     Existing + Ambient + Project + Cumulative Projects (2016) Conditions
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #9 Madison St. / 58th Av.
********************************************************************************
Cycle (sec):         100               Critical Vol./Cap.(X):        0.221
Loss Time (sec):       0               Average Delay (sec/veh):        9.6
Optimal Cycle:         0               Level Of Service:                 A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  2  0  1   1  0  2  0  1   1  0  1  0  1   1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       2  109     1    63  168    41    53   35     4     0   10    51
Growth Adj:  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06  1.06 1.06  1.06
Initial Bse:    2  116     1    67  178    44    56   37     4     0   11    54
Added Vol:     11   13     1    57   23     0     0   37    18     2   22    33
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   13  129     2   124  201    44    56   74    22     2   33    87
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    13  129     2   124  201    44    56   74    22     2   33    87
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   13  129     2   124  201    44    56   74    22     2   33    87
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   13  129     2   124  201    44    56   74    22     2   33    87
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 2.00  1.00  1.00 2.00  1.00  1.00 1.00  1.00  1.00 2.00  1.00
Final Sat.:   513 1107   617   560 1212   686   505  544   606   495 1066   597
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.12  0.00  0.22 0.17  0.06  0.11 0.14  0.04  0.00 0.03  0.15
Crit Moves:       ****        ****                   ****                   ****
Delay/Veh:    9.5  9.6   8.2  10.6  9.5   8.0  10.2  9.8   8.4   9.5  9.2   9.2
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   9.5  9.6   8.2  10.6  9.5   8.0  10.2  9.8   8.4   9.5  9.2   9.2
LOS by Move:    A    A     A     B    A     A     B    A     A     A    A     A
ApproachDel:       9.6              9.7              9.8              9.2
Delay Adj:        1.00             1.00             1.00             1.00
ApprAdjDel:        9.6              9.7              9.8              9.2
LOS by Appr:         A                A                A                A
AllWayAvgQ:   0.0  0.1   0.0   0.3  0.2   0.1   0.1  0.1   0.0   0.0  0.0   0.1
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

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APPENDIX 7.1

Long Range (2035) Without Project Conditions
Intersection Operations Analysis Worksheets

```
--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                 Long Range (2035) Without Project Conditions
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #1 Madison St. / 60th Av.
********************************************************************************
Average Delay (sec/veh): OVERFLOW      Worst Case Level Of Service: F[xxxxx]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:          Include          Include          Include          Include
Lanes:        0  0  1! 0  0   1  0  0  1  0   0  0  1! 0  0   0  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     240  304    53   199  245   789   375  228   184    51  433   239
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  240  304    53   199  245   789   375  228   184    51  433   239
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:   261  330    58   216  266   858   408  248   200    55  471   260
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:  261  330    58   216  266   858   408  248   200    55  471   260
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.1  6.5   6.2   7.1  6.5   6.2   4.1 xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3   3.5  4.0   3.3   2.2 xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 2436 2004   348  1939 1845   471   730 xxxx xxxxx   448 xxxx xxxxx
Potent Cap.:   22   60   700    50   76   597   883 xxxx xxxxx  1123 xxxx xxxxx
Move Cap.:      0   23   700     0   29   597   883 xxxx xxxxx  1123 xxxx xxxxx
Volume/Cap:  xxxx14.34  0.08  xxxx 9.19  1.44  0.46 xxxx  xxxx  0.05 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   2.5 xxxx xxxxx   0.2 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx  12.5 xxxx xxxxx   8.4 xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     B    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx    0 xxxxx  xxxx xxxx   106  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx 130.5 xxxxx xxxx xxxxx   0.2 xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx  4407 xxxxx xxxx xxxxx   8.4 xxxx xxxxx
Shared LOS:     *    *     *     *    *     F     *    *     *     A    *     *
ApproachDel:    xxxxxx             +Inf            xxxxxx           xxxxxx
ApproachLOS:         F                F                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

```
-------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
       Long Range (2035) Without Project Conditions (WITH IMPROVEMENTS)
                                AM Peak Hour
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
*******************************************************************************
Intersection #1 Madison St. / 60th Av.
*******************************************************************************
Cycle (sec):         120              Critical Vol./Cap.(X):        0.955
Loss Time (sec):      16              Average Delay (sec/veh):       55.0
Optimal Cycle: OPTIMIZED              Level Of Service:                 D
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Protected        Protected        Protected        Protected
Rights:          Include           Ovl              Ovl              Ovl
Min. Green:    10   22    22    10   22    22    10   24    24    10   22    22
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  1  1  0    2  0  2  0  1    2  0  2  0  1    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     240  304    53   199  245   789   375  228   184    51  433   239
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  240  304    53   199  245   789   375  228   184    51  433   239
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:   261  330    58   216  266   858   408  248   200    55  471   260
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  261  330    58   216  266   858   408  248   200    55  471   260
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  261  330    58   216  266   858   408  248   200    55  471   260
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1850 1850  1850  1850 1850  1850  1850 1850  1850  1850 1850  1850
Adjustment:  0.95 0.93  0.93  0.92 0.95  0.85  0.92 0.95  0.85  0.95 0.95  0.85
Lanes:       1.00 1.70  0.30  2.00 2.00  1.00  2.00 2.00  1.00  1.00 2.00  1.00
Final Sat.:  1758 2927   510  3410 3515  1573  3410 3515  1573  1758 3515  1573
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.15 0.11  0.11  0.06 0.08  0.55  0.12 0.07  0.13  0.03 0.13  0.17
Crit Moves:  ****                        ****  ****                    ****
Green/Cycle: 0.15 0.39  0.39  0.18 0.42  0.54  0.12 0.21  0.36  0.09 0.18  0.36
Volume/Cap:  1.02 0.29  0.29  0.36 0.18  1.02  1.02 0.33  0.35  0.36 0.73  0.46
Delay/Veh:  111.4 25.4  25.4  43.8 21.9  62.6 101.8 40.3  28.7  52.9 50.5  30.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh: 111.4 25.4  25.4  43.8 21.9  62.6 101.8 40.3  28.7  52.9 50.5  30.0
LOS by Move:    F    C     C     D    C     E     F    D     C     D    D     C
HCM2kAvgQ:     15    5     5     4    3    40    12    4     5     2   10     7
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
```

Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Long Range (2035) Without Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #2 Monroe St. / 58th Av.

Cycle (sec):	100	Critical Vol./Cap.(X):	2.881
Loss Time (sec):	0	Average Delay (sec/veh):	568.9
Optimal Cycle:	0	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:		Stop Sign			Stop Sign			Stop Sign			Stop Sign	
Rights:		Include			Include			Include			Include	
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:		0 0 1! 0 0			0 1 0 0 1			0 0 1! 0 0			0 0 1! 0 0	
Volume Module:												
Base Vol:	50	554	265	129	894	61	61	252	85	337	132	102
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	50	554	265	129	894	61	61	252	85	337	132	102
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	54	602	288	140	972	66	66	274	92	366	143	111
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	54	602	288	140	972	66	66	274	92	366	143	111
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	54	602	288	140	972	66	66	274	92	366	143	111
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.06	0.64	0.30	0.13	0.87	1.00	0.15	0.64	0.21	0.59	0.23	0.18
Final Sat.:	23	254	121	49	337	420	61	253	85	233	91	70
Capacity Analysis Module:												
Vol/Sat:	2.37	2.37	2.37	2.88	2.88	0.16	1.08	1.08	1.08	1.57	1.57	1.57
Crit Moves:		****			****			****			****	
Delay/Veh:	646.0	646	646.0	872.5	872	12.9	100.1	100	100.1	293.7	294	293.7
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	646.0	646	646.0	872.5	872	12.9	100.1	100	100.1	293.7	294	293.7
LOS by Move:	F	F	F	F	F	B	F	F	F	F	F	F
ApproachDel:		646.0			824.1			100.1			293.7	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		646.0			824.1			100.1			293.7	
LOS by Appr:		F			F			F			F	
AllWayAvgQ:	70.0	70.0	70.0	92.3	92.3	0.2	9.8	9.8	9.8	30.8	30.8	30.8

Note: Queue reported is the number of cars per lane.

```
--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
       Long Range (2035) Without Project Conditions (WITH IMPROVEMENTS)
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #2 Monroe St. / 58th Av.
********************************************************************************
Cycle (sec):          95                Critical Vol./Cap.(X):        0.520
Loss Time (sec):      16                Average Delay (sec/veh):       34.2
Optimal Cycle:        83                Level Of Service:                 C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:            Ovl            Include          Include          Include
Min. Green:    10   20    20   10   20    20   10   10    10   10   27    27
Y+R:          4.0  4.0   4.0  4.0  4.0   4.0  4.0  4.0   4.0  4.0  4.0   4.0
Lanes:        1  0  2  0  1    1  0  1  1  0    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      50  554   265  129  894    61   61  252    85  337  132   102
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:   50  554   265  129  894    61   61  252    85  337  132   102
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92 0.92 0.92  0.92 0.92 0.92  0.92 0.92 0.92  0.92
PHF Volume:    54  602   288  140  972    66   66  274    92  366  143   111
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:   54  602   288  140  972    66   66  274    92  366  143   111
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:   54  602   288  140  972    66   66  274    92  366  143   111
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900 1900 1900  1900 1900 1900  1900 1900 1900  1900
Adjustment:  0.95 0.95  0.85 0.95 0.94  0.94 0.95 0.91  0.91 0.95 0.89  0.89
Lanes:       1.00 2.00  1.00 1.00 1.87  0.13 1.00 1.50  0.50 1.00 1.13  0.87
Final Sat.:  1805 3610  1615 1805 3346   228 1805 2597   876 1805 1904  1471
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.17  0.18 0.08 0.29  0.29 0.04 0.11  0.11 0.20 0.08  0.08
Crit Moves:  ****                 ****         ****                  ****
Green/Cycle: 0.11 0.29  0.55 0.15 0.34  0.34 0.11 0.13  0.13 0.26 0.28  0.28
Volume/Cap:  0.29 0.57  0.32 0.53 0.86  0.86 0.35 0.79  0.79 0.79 0.27  0.27
Delay/Veh:   40.0 29.1  11.9 39.4 36.0  36.0 40.6 48.9  48.9 42.0 26.5  26.5
User DelAdj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:  40.0 29.1  11.9 39.4 36.0  36.0 40.6 48.9  48.9 42.0 26.5  26.5
LOS by Move:    D    C     B    D    D     D    D    D     D    D    C     C
HCM2kAvgQ:      2    8     5    4   18    18    2    8     8   12    3     3
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

```
---------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                 Long Range (2035) Without Project Conditions
                                 AM Peak Hour
---------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #3 Monroe St. / 60th Av.
********************************************************************************
Cycle (sec):          100                 Critical Vol./Cap.(X):        1.290
Loss Time (sec):        0                 Average Delay (sec/veh):       90.2
Optimal Cycle:          0                 Level Of Service:                 F
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  0  1  0    1  0  1  0  1    0  1  0  0  1    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     177  364    56   129  415   295   141  141   189    50  121   199
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  177  364    56   129  415   295   141  141   189    50  121   199
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:   192  396    61   140  451   321   153  153   205    54  132   216
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  192  396    61   140  451   321   153  153   205    54  132   216
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  192  396    61   140  451   321   153  153   205    54  132   216
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.87  0.13  1.00 1.00  1.00  0.50 0.50  1.00  0.13 0.33  0.54
Final Sat.:   354  328    50   331  350   375   180  180   396    52  127   209
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.54 1.21  1.21  0.42 1.29  0.85  0.85 0.85  0.52  1.04 1.04  1.04
Crit Moves:       ****             ****              ****        ****
Delay/Veh:   24.0  144 143.7  21.0  178  48.2  49.6 49.6  21.0  86.2 86.2  86.2
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  24.0  144 143.7  21.0  178  48.2  49.6 49.6  21.0  86.2 86.2  86.2
LOS by Move:    C    F     F     C    F     E     E    E     C     F    F     F
ApproachDel:      108.2            108.4             38.1             86.2
Delay Adj:         1.00             1.00             1.00             1.00
ApprAdjDel:       108.2            108.4             38.1             86.2
LOS by Appr:          F                F                E                F
AllWayAvgQ:   1.1 13.8  13.8   0.7 16.1   3.7   3.7  3.7   1.0   8.0  8.0   8.0
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Long Range (2035) Without Project Conditions (WITH IMPROVEMENTS)
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #3 Monroe St. / 60th Av.

Cycle (sec): 95 Critical Vol./Cap.(X): 0.603
Loss Time (sec): 16 Average Delay (sec/veh): 33.9
Optimal Cycle: OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Ovl		
Min. Green:	10	20	20	10	20	20	10	27	27	10	27	27
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1 1	0	2 0	1 1	0	1 0	1 1	0	1 0	1 0	1
Volume Module:												
Base Vol:	177	364	56	129	415	295	141	141	189	50	121	199
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	177	364	56	129	415	295	141	141	189	50	121	199
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	192	396	61	140	451	321	153	153	205	54	132	216
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	192	396	61	140	451	321	153	153	205	54	132	216
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	192	396	61	140	451	321	153	153	205	54	132	216
Saturation Flow Module:												
Sat/Lane:	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850
Adjustment:	0.95	0.93	0.93	0.92	0.89	0.89	0.95	0.87	0.87	0.95	1.00	0.85
Lanes:	1.00	1.73	0.27	2.00	1.17	0.83	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1758	2985	459	3410	1927	1370	1758	1606	1606	1758	1850	1573
Capacity Analysis Module:												
Vol/Sat:	0.11	0.13	0.13	0.04	0.23	0.23	0.09	0.10	0.13	0.03	0.07	0.14
Crit Moves:	****				****		****				****	
Green/Cycle:	0.14	0.29	0.29	0.15	0.30	0.30	0.11	0.29	0.29	0.11	0.28	0.43
Volume/Cap:	0.79	0.46	0.46	0.28	0.79	0.79	0.79	0.33	0.44	0.29	0.25	0.32
Delay/Veh:	55.0	27.9	27.9	36.5	34.9	34.9	60.0	26.8	28.0	40.0	26.5	18.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	55.0	27.9	27.9	36.5	34.9	34.9	60.0	26.8	28.0	40.0	26.5	18.2
LOS by Move:	E	C	C	D	C	C	E	C	C	D	C	B
HCM2kAvgQ:	8	6	6	2	13	13	6	4	5	2	3	4

Note: Queue reported is the number of cars per lane.

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                 Long Range (2035) Without Project Conditions
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #4 Monroe St. / 61st Av.
********************************************************************************
Average Delay (sec/veh):      7.2       Worst Case Level Of Service: E[ 43.1]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled       Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  0  1! 0  0   0  0  1! 0  0   0  0  1! 0  0   0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       1  378    62    71  366    13    34    3     3    53    6   168
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    1  378    62    71  366    13    34    3     3    53    6   168
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     1  411    67    77  398    14    37    3     3    58    7   183
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    1  411    67    77  398    14    37    3     3    58    7   183
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx   4.1 xxxx xxxxx   7.1  6.5   6.2   7.1  6.5   6.2
FollowUpTim:  2.2 xxxx xxxxx   2.2 xxxx xxxxx   3.5  4.0   3.3   3.5  4.0   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  412 xxxx xxxxx   478 xxxx xxxxx  1101 1040   405  1009 1013   445
Potent Cap.: 1158 xxxx xxxxx  1095 xxxx xxxxx   191  232   650   221  241   618
Move Cap.:   1158 xxxx xxxxx  1095 xxxx xxxxx   124  215   650   205  223   618
Volume/Cap:  0.00 xxxx  xxxx  0.07 xxxx  xxxx  0.30 0.02  0.01  0.28 0.03  0.30
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.0 xxxx xxxxx   0.2 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:  8.1 xxxx xxxxx   8.5 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    A    *     *     A    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  137 xxxxx  xxxx  407 xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx  1.3 xxxxx xxxxx  3.9 xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx 43.1 xxxxx xxxxx 26.6 xxxxx
Shared LOS:     *    *     *     *    *     *     *    E     *     *    D     *
ApproachDel:     xxxxxx           xxxxxx            43.1             26.6
ApproachLOS:        *                *                E                D
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
       Long Range (2035) Without Project Conditions (WITH IMPROVEMENTS)
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #4 Monroe St. / 61st Av.
********************************************************************************
Cycle (sec):          60               Critical Vol./Cap.(X):        0.416
Loss Time (sec):      12               Average Delay (sec/veh):       17.1
Optimal Cycle:        61               Level Of Service:                 B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected         Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:    10   19    19    10   19    19    20   20    20    20   20    20
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  1  1  0    1  0  1  1  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       1  378    62    71  366    13    34    3     3    53    6   168
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    1  378    62    71  366    13    34    3     3    53    6   168
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     1  411    67    77  398    14    37    3     3    58    7   183
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    1  411    67    77  398    14    37    3     3    58    7   183
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    1  411    67    77  398    14    37    3     3    58    7   183
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.93  0.93  0.95 0.95  0.95  0.72 0.72  0.72  0.83 0.83  0.83
Lanes:       1.00 1.72  0.28  1.00 1.93  0.07  0.85 0.07  0.08  0.23 0.03  0.74
Final Sat.:  1805 3036   498  1805 3469   123  1166  103   103   369   42  1171
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.14  0.14  0.04 0.11  0.11  0.03 0.03  0.03  0.16 0.16  0.16
Crit Moves:       ****        ****                                   ****
Green/Cycle: 0.16 0.31  0.31  0.16 0.31  0.31  0.33 0.33  0.33  0.33 0.33  0.33
Volume/Cap:  0.00 0.43  0.43  0.26 0.37  0.37  0.10 0.10  0.10  0.48 0.48  0.48
Delay/Veh:   21.3 17.0  17.0  22.7 16.5  16.5  14.3 14.3  14.3  17.0 17.0  17.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  21.3 17.0  17.0  22.7 16.5  16.5  14.3 14.3  14.3  17.0 17.0  17.0
LOS by Move:    C    B     B     C    B     B     B    B     B     B    B     B
HCM2kAvgQ:      0    4     4     1    3     3     1    1     1     4    4     4
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                 Long Range (2035) Without Project Conditions
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
              2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #5 Jackson St. / 60th Av.
********************************************************************************
Cycle (sec):          100                 Critical Vol./Cap.(X):        2.142
Loss Time (sec):        0                 Average Delay (sec/veh):      359.2
Optimal Cycle:          0                 Level Of Service:                 F
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      85  829    10   157  167   244    39   83     8    25  222   532
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   85  829    10   157  167   244    39   83     8    25  222   532
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    92  901    11   171  182   265    42   90     9    27  241   578
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   92  901    11   171  182   265    42   90     9    27  241   578
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   92  901    11   171  182   265    42   90     9    27  241   578
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.09 0.90  0.01  0.28 0.29  0.43  0.30 0.64  0.06  0.03 0.28  0.69
Final Sat.:    43  421     5   133  142   207   118  251    24    16  141   339
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     2.14 2.14  2.14  1.28 1.28  1.28  0.36 0.36  0.36  1.71 1.71  1.71
Crit Moves:       ****                   ****  ****                          ****
Delay/Veh:  538.5  539 538.5 164.3  164 164.3  17.2 17.2  17.2 345.5  346 345.5
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh: 538.5  539 538.5 164.3  164 164.3  17.2 17.2  17.2 345.5  346 345.5
LOS by Move:    F    F     F     F    F     F     C    C     C     F    F     F
ApproachDel:     538.5            164.3             17.2            345.5
Delay Adj:        1.00             1.00             1.00             1.00
ApprAdjDel:      538.5            164.3             17.2            345.5
LOS by Appr:         F                F                C                F
AllWayAvgQ:  68.8 68.8  68.8  20.6 20.6  20.6   0.6  0.6   0.6  46.2 46.2  46.2
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
       Long Range (2035) Without Project Conditions (WITH IMPROVEMENTS)
                                AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #5 Jackson St. / 60th Av.
********************************************************************************
Cycle (sec):          115               Critical Vol./Cap.(X):         0.847
Loss Time (sec):       16               Average Delay (sec/veh):        47.0
Optimal Cycle:        105               Level Of Service:                  D
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:    10   30    30    10   30    30    10   30    30    10   30    30
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  1  1  0    1  0  1  1  0    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      85  829    10   157  167   244    39   83     8    25  222   532
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   85  829    10   157  167   244    39   83     8    25  222   532
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    92  901    11   171  182   265    42   90     9    27  241   578
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   92  901    11   171  182   265    42   90     9    27  241   578
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   92  901    11   171  182   265    42   90     9    27  241   578
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  0.95  0.95 0.87  0.87  0.95 0.94  0.94  0.95 0.85  0.85
Lanes:       1.00 1.98  0.02  1.00 1.00  1.00  1.00 1.82  0.18  1.00 1.00  1.00
Final Sat.:  1805 3560    43  1805 1644  1644  1805 3250   313  1805 1614  1614
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.05 0.25  0.25  0.09 0.11  0.16  0.02 0.03  0.03  0.02 0.15  0.36
Crit Moves:       ****        ****             ****                         ****
Green/Cycle: 0.10 0.28  0.28  0.10 0.29  0.29  0.09 0.36  0.36  0.12 0.39  0.39
Volume/Cap:  0.54 0.91  0.91  0.91 0.39  0.56  0.27 0.08  0.08  0.13 0.38  0.91
Delay/Veh:   52.9 52.5  52.5  92.8 33.2  35.9  50.0 24.3  24.3  45.5 25.0  46.4
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  52.9 52.5  52.5  92.8 33.2  35.9  50.0 24.3  24.3  45.5 25.0  46.4
LOS by Move:    D    D     D     F    C     D     D    C     C     D    C     D
HCM2kAvgQ:      3   18    18     9    6     9     2    1     1     1    6    24
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                 Long Range (2035) Without Project Conditions
                                AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #6 Jackson St. / 61st Av.
********************************************************************************
Average Delay (sec/veh):     10.8       Worst Case Level Of Service: F[ 98.3]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      54  832     3     2  151     9    78   16    17     4   44     8
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   54  832     3     2  151     9    78   16    17     4   44     8
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    59  904     3     2  164    10    85   17    18     4   48     9
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   59  904     3     2  164    10    85   17    18     4   48     9
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx   4.1 xxxx xxxxx   7.1  6.5   6.2   7.1  6.5   6.2
FollowUpTim:  2.2 xxxx xxxxx   2.2 xxxx xxxxx   3.5  4.0   3.3   3.5  4.0   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  174 xxxx xxxxx   908 xxxx xxxxx  1225 1198   169  1215 1202   906
Potent Cap.: 1415 xxxx xxxxx   758 xxxx xxxxx   157  187   880   160  186   337
Move Cap.:   1415 xxxx xxxxx   758 xxxx xxxxx   117  179   880   140  178   337
Volume/Cap:  0.04 xxxx  xxxx  0.00 xxxx  xxxx  0.72 0.10  0.02  0.03 0.27  0.03
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.1 xxxx xxxxx   0.0 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:  7.7 xxxx xxxxx   9.8 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    A    *     *     A    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  143 xxxxx  xxxx  187 xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx  5.5 xxxxx xxxxx  1.3 xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx 98.3 xxxxx xxxxx 33.3 xxxxx
Shared LOS:     *    *     *     *    *     *     *    F     *     *    D     *
ApproachDel:     xxxxxx           xxxxxx              98.3             33.3
ApproachLOS:        *                *                  F                D
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Long Range (2035) Without Project Conditions (WITH IMPROVEMENTS)
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #6 Jackson St. / 61st Av.

Cycle (sec):	120	Critical Vol./Cap.(X):	0.350
Loss Time (sec):	12	Average Delay (sec/veh):	19.8
Optimal Cycle:	71	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	10	19	19	10	19	19	30	30	30	30	30	30
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0 1 1 0			1 0 1 1 0			1 0 0 1 0			1 0 0 1 0		
Volume Module:												
Base Vol:	54	832	3	2	151	9	78	16	17	4	44	8
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	54	832	3	2	151	9	78	16	17	4	44	8
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	59	904	3	2	164	10	85	17	18	4	48	9
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	59	904	3	2	164	10	85	17	18	4	48	9
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	59	904	3	2	164	10	85	17	18	4	48	9
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.95	0.95	0.94	0.94	0.72	0.92	0.92	0.74	0.98	0.98
Lanes:	1.00	1.99	0.01	1.00	1.89	0.11	1.00	0.48	0.52	1.00	0.85	0.15
Final Sat.:	1805	3593	13	1805	3380	201	1372	850	903	1404	1571	286
Capacity Analysis Module:												
Vol/Sat:	0.03	0.25	0.25	0.00	0.05	0.05	0.06	0.02	0.02	0.00	0.03	0.03
Crit Moves:		****		****			****					
Green/Cycle:	0.22	0.57	0.57	0.08	0.43	0.43	0.25	0.25	0.25	0.25	0.25	0.25
Volume/Cap:	0.15	0.44	0.44	0.01	0.11	0.11	0.25	0.08	0.08	0.01	0.12	0.12
Delay/Veh:	37.5	15.2	15.2	50.5	20.8	20.8	36.4	34.5	34.5	33.9	34.9	34.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	37.5	15.2	15.2	50.5	20.8	20.8	36.4	34.5	34.5	33.9	34.9	34.9
LOS by Move:	D	B	B	D	C	C	D	C	C	C	C	C
HCM2kAvgQ:	2	10	10	0	2	2	3	1	1	0	2	2

Note: Queue reported is the number of cars per lane.

Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Long Range (2035) Without Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #9 Madison St. / 58th Av.

Cycle (sec):	100	Critical Vol./Cap.(X):	1.568
Loss Time (sec):	0	Average Delay (sec/veh):	188.4
Optimal Cycle:	0	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	2 0	1	1 0	2 0	1	1 0	1 0	1	1 0	2 0	1
Volume Module:												
Base Vol:	14	899	43	284	1168	132	153	34	6	23	25	86
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	14	899	43	284	1168	132	153	34	6	23	25	86
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	15	977	47	309	1270	143	166	37	7	25	27	93
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	15	977	47	309	1270	143	166	37	7	25	27	93
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	15	977	47	309	1270	143	166	37	7	25	27	93
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00
Final Sat.:	339	725	383	382	810	437	285	295	313	280	581	308
Capacity Analysis Module:												
Vol/Sat:	0.04	1.35	0.12	0.81	1.57	0.33	0.58	0.13	0.02	0.09	0.05	0.30
Crit Moves:		****			****		****					****
Delay/Veh:	13.6	201	13.2	41.1	289	14.8	31.2	16.4	14.3	16.6	15.5	19.1
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	13.6	201	13.2	41.1	289	14.8	31.2	16.4	14.3	16.6	15.5	19.1
LOS by Move:	B	F	B	E	F	B	D	C	B	C	C	C
ApproachDel:	189.6			221.7			28.0			18.0		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	189.6			221.7			28.0			18.0		
LOS by Appr:	F			F			D			C		
AllWayAvgQ:	0.0	19.0	0.1	3.1	31.2	0.5	1.3	0.1	0.0	0.1	0.0	0.4

Note: Queue reported is the number of cars per lane.

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         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
       Long Range (2035) Without Project Conditions (WITH IMPROVEMENTS)
                                AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #9 Madison St. / 58th Av.
********************************************************************************
Cycle (sec):          70                Critical Vol./Cap.(X):         0.465
Loss Time (sec):      12                Average Delay (sec/veh):        18.4
Optimal Cycle: OPTIMIZED                Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected         Permitted        Permitted
Rights:           Include          Include           Include           Ovl
Min. Green:    10   10    10    10   22    22    10   29    29    10   10    10
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  2  0  1    1  0  2  0  1    1  0  1  1  0    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      14  899    43   284 1168   132   153   34     6    23   25    86
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   14  899    43   284 1168   132   153   34     6    23   25    86
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    15  977    47   309 1270   143   166   37     7    25   27    93
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   15  977    47   309 1270   143   166   37     7    25   27    93
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   15  977    47   309 1270   143   166   37     7    25   27    93
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1850 1850  1850  1850 1850  1850  1850 1850  1850  1850 1850  1850
Adjustment:  0.95 0.95  0.85  0.95 0.95  0.85  0.75 0.93  0.93  0.73 0.95  0.85
Lanes:       1.00 2.00  1.00  1.00 2.00  1.00  1.00 1.70  0.30  1.00 2.00  1.00
Final Sat.:  1758 3515  1573  1758 3515  1573  1378 2922   516  1352 3515  1573
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.28  0.03  0.18 0.36  0.09  0.12 0.01  0.01  0.02 0.01  0.06
Crit Moves:  ****                    ****                          ****
Green/Cycle: 0.14 0.43  0.43  0.27 0.56  0.56  0.14 0.14  0.14  0.14 0.14  0.41
Volume/Cap:  0.06 0.65  0.07  0.65 0.64  0.16  0.88 0.09  0.09  0.13 0.06  0.15
Delay/Veh:   27.5 17.5  12.3  26.7 11.7   7.8  65.6 27.6  27.6  28.0 27.4  13.7
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  27.5 17.5  12.3  26.7 11.7   7.8  65.6 27.6  27.6  28.0 27.4  13.7
LOS by Move:    C    B     B     C    B     A     E    C     C     C    C     B
HCM2kAvgQ:      0   10     1     7   11     2     7    1     1     1    0     1
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                 Long Range (2035) Without Project Conditions
                                PM Peak Hour
--------------------------------------------------------------------------------
                       Level Of Service Computation Report
              2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #1 Madison St. / 60th Av.
********************************************************************************
Average Delay (sec/veh): OVERFLOW      Worst Case Level Of Service: F[xxxxx]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  1! 0  0   1  0  0  1  0   0  0  1! 0  0   0  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     333  299    12   514  318   401   967  303   489    55  365   174
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  333  299    12   514  318   401   967  303   489    55  365   174
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:   362  325    13   559  346   436  1051  329   532    60  397   189
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:  362  325    13   559  346   436  1051  329   532    60  397   189
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.1  6.5   6.2   7.1  6.5   6.2   4.1 xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3   3.5  4.0   3.3   2.2 xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 3699 3403   595  3383 3479   397   586 xxxx xxxxx   861 xxxx xxxxx
Potent Cap.:    3    7   508     4    7   657   999 xxxx xxxxx   789 xxxx xxxxx
Move Cap.:      0    0   508     0    0   657   999 xxxx xxxxx   789 xxxx xxxxx
Volume/Cap:  xxxx xxxx  0.03  xxxx xxxx  0.66  1.05 xxxx  xxxx  0.08 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx  23.4 xxxx xxxxx   0.2 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx  63.3 xxxx xxxxx   9.9 xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     F    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx    0 xxxxx  xxxx xxxx     0  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   0.2 xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   9.9 xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     A    *     *
ApproachDel:     xxxxxx             +Inf            xxxxxx            xxxxxx
ApproachLOS:          F                F                 *                 *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Long Range (2035) Without Project Conditions (WITH IMPROVEMENTS)
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1 Madison St. / 60th Av.

Cycle (sec):	120	Critical Vol./Cap.(X):	0.837
Loss Time (sec):	16	Average Delay (sec/veh):	52.8
Optimal Cycle:	OPTIMIZED	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Ovl			Ovl		
Min. Green:	10	22	22	10	22	22	10	24	24	10	22	22
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1	1 0	2 0	2	0 1	2 0	2	0 1	1 0	2	0 1
Volume Module:												
Base Vol:	333	299	12	514	318	401	967	303	489	55	365	174
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	333	299	12	514	318	401	967	303	489	55	365	174
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	362	325	13	559	346	436	1051	329	532	60	397	189
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	362	325	13	559	346	436	1051	329	532	60	397	189
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	362	325	13	559	346	436	1051	329	532	60	397	189
Saturation Flow Module:												
Sat/Lane:	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850
Adjustment:	0.95	0.94	0.94	0.92	0.95	0.85	0.92	0.95	0.85	0.95	0.95	0.85
Lanes:	1.00	1.92	0.08	2.00	2.00	1.00	2.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1758	3359	135	3410	3515	1573	3410	3515	1573	1758	3515	1573
Capacity Analysis Module:												
Vol/Sat:	0.21	0.10	0.10	0.16	0.10	0.28	0.31	0.09	0.34	0.03	0.11	0.12
Crit Moves:	****				****		****				****	
Green/Cycle:	0.20	0.20	0.20	0.18	0.18	0.48	0.30	0.34	0.54	0.14	0.18	0.36
Volume/Cap:	1.03	0.48	0.48	0.91	0.54	0.57	1.03	0.27	0.62	0.24	0.62	0.33
Delay/Veh:	103.5	42.8	42.8	65.0	45.3	23.3	77.7	28.9	20.5	46.2	46.9	27.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	103.5	42.8	42.8	65.0	45.3	23.3	77.7	28.9	20.5	46.2	46.9	27.9
LOS by Move:	F	D	D	E	D	C	E	C	C	D	D	C
HCM2kAvgQ:	19	6	6	14	7	12	27	5	14	2	8	5

Note: Queue reported is the number of cars per lane.

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                 Long Range (2035) Without Project Conditions
                                PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #2 Monroe St. / 58th Av.
********************************************************************************
Cycle (sec):         100              Critical Vol./Cap.(X):        3.734
Loss Time (sec):       0              Average Delay (sec/veh):      907.7
Optimal Cycle:         0              Level Of Service:                 F
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  1! 0  0    0  1  0  0  1    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      70 1018   269   200  861   131   137  374    43   404  472   186
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   70 1018   269   200  861   131   137  374    43   404  472   186
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    76 1107   292   217  936   142   149  407    47   439  513   202
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   76 1107   292   217  936   142   149  407    47   439  513   202
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   76 1107   292   217  936   142   149  407    47   439  513   202
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.05 0.75  0.20  0.19 0.81  1.00  0.25 0.67  0.08  0.38 0.44  0.18
Final Sat.:    20  296    78    73  312   420    98  266    31   151  176    69
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     3.73 3.73  3.73  3.00 3.00  0.34  1.53 1.53  1.53  2.92 2.92  2.92
Crit Moves:  ****                  ****              ****              ****
Delay/Veh:   1255 1255  1255 925.0  925  15.6 273.1  273 273.1 887.9  888 887.9
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  1255 1255  1255 925.0  925  15.6 273.1  273 273.1 887.9  888 887.9
LOS by Move:    F    F     F     F    F     C     F    F     F     F    F     F
ApproachDel:    1254.9           825.0            273.1            887.9
Delay Adj:        1.00            1.00             1.00             1.00
ApprAdjDel:     1254.9           825.0            273.1            887.9
LOS by Appr:         F               F                F                F
AllWayAvgQ:   136  136 136.4  97.5 97.5   0.5  28.6 28.6  28.6  96.3 96.3  96.3
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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--------------------------------------------------------------------------------
        Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
      Long Range (2035) Without Project Conditions (WITH IMPROVEMENTS)
                                PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #2 Monroe St. / 58th Av.
********************************************************************************
Cycle (sec):          105                Critical Vol./Cap.(X):         0.941
Loss Time (sec):       16                Average Delay (sec/veh):        48.6
Optimal Cycle: OPTIMIZED                 Level Of Service:                  D
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:            Ovl            Include          Include          Include
Min. Green:    10   20    20    10   20    20    10   10    10    10   27    27
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  2  0  1    1  0  1  1  0    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      70 1018   269   200  861   131   137  374    43   404  472   186
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   70 1018   269   200  861   131   137  374    43   404  472   186
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    76 1107   292   217  936   142   149  407    47   439  513   202
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   76 1107   292   217  936   142   149  407    47   439  513   202
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   76 1107   292   217  936   142   149  407    47   439  513   202
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  0.85  0.95 0.93  0.93  0.95 0.94  0.94  0.95 0.91  0.91
Lanes:       1.00 2.00  1.00  1.00 1.74  0.26  1.00 1.79  0.21  1.00 1.43  0.57
Final Sat.:  1805 3610  1615  1805 3071   467  1805 3189   367  1805 2481   978
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.04 0.31  0.18  0.12 0.30  0.30  0.08 0.13  0.13  0.24 0.21  0.21
Crit Moves:       ****        ****                  ****        ****
Green/Cycle: 0.11 0.33  0.58  0.13 0.35  0.35  0.11 0.14  0.14  0.26 0.29  0.29
Volume/Cap:  0.39 0.94  0.31  0.94 0.88  0.88  0.77 0.94  0.94  0.94 0.72  0.72
Delay/Veh:   44.9 48.8  11.3  88.4 40.1  40.1  63.4 71.8  71.8  65.6 36.2  36.2
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  44.9 48.8  11.3  88.4 40.1  40.1  63.4 71.8  71.8  65.6 36.2  36.2
LOS by Move:    D    D     B     F    D     D     E    E     E     E    D     D
HCM2kAvgQ:      3   23     5    11   20    20     7   12    12    18   12    12
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

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-------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                 Long Range (2035) Without Project Conditions
                                 PM Peak Hour
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM 4-Way Stop Method (Base Volume Alternative)
*******************************************************************************
Intersection #3 Monroe St. / 60th Av.
*******************************************************************************
Cycle (sec):          100                 Critical Vol./Cap.(X):         2.869
Loss Time (sec):        0                 Average Delay (sec/veh):       426.8
Optimal Cycle:          0                 Level Of Service:                  F
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0     0     0    0     0     0    0     0     0    0     0     0
Lanes:        1  0  0  1  0   1  0  1  0  1   0  1  0  0  1   0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     203  921    32   308  568   225   267  335   159    22  165   385
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  203  921    32   308  568   225   267  335   159    22  165   385
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:   221 1001    35   335  617   245   290  364   173    24  179   418
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  221 1001    35   335  617   245   290  364   173    24  179   418
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  221 1001    35   335  617   245   290  364   173    24  179   418
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.97  0.03  1.00 1.00  1.00  0.44 0.56  1.00  0.04 0.29  0.67
Final Sat.:   343  349    12   327  343   367   154  193   378    15  111   260
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.64 2.87  2.87  1.02 1.80  0.67  1.89 1.89  0.46  1.61 1.61  1.61
Crit Moves:             ****       ****             ****             ****
Delay/Veh:   30.2  866 866.3  90.1  395  30.0 433.6  434  19.8 309.9  310 309.9
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  30.2  866 866.3  90.1  395  30.0 433.6  434  19.8 309.9  310 309.9
LOS by Move:    D    F     F     F    F     D     F    F     C     F    F     F
ApproachDel:      719.5            235.3            347.2            309.9
Delay Adj:         1.00             1.00             1.00             1.00
ApprAdjDel:       719.5            235.3            347.2            309.9
LOS by Appr:          F                F                F                F
AllWayAvgQ:   1.6 85.6  85.6   6.9 36.4   1.8  40.5 40.5   0.8  31.9 31.9  31.9
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
       Long Range (2035) Without Project Conditions (WITH IMPROVEMENTS)
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
              2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #3 Monroe St. / 60th Av.
********************************************************************************
Cycle (sec):          120                 Critical Vol./Cap.(X):         0.757
Loss Time (sec):       16                 Average Delay (sec/veh):        48.8
Optimal Cycle: OPTIMIZED                  Level Of Service:                  D
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected         Protected        Protected
Rights:           Include          Include           Include           Ovl
Min. Green:    10   20    20    10   20    20    10   27    27    10   27    27
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  1  1  0    2  0  1  1  0    1  0  1  1  0    1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     203  921    32   308  568   225   267  335   159    22  165   385
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  203  921    32   308  568   225   267  335   159    22  165   385
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:   221 1001    35   335  617   245   290  364   173    24  179   418
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  221 1001    35   335  617   245   290  364   173    24  179   418
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  221 1001    35   335  617   245   290  364   173    24  179   418
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1850 1850  1850  1850 1850  1850  1850 1850  1850  1850 1850  1850
Adjustment:  0.95 0.95  0.95  0.92 0.91  0.91  0.95 0.90  0.90  0.95 1.00  0.85
Lanes:       1.00 1.93  0.07  2.00 1.43  0.57  1.00 1.36  0.64  1.00 1.00  1.00
Final Sat.:  1758 3380   117  3410 2409   954  1758 2269  1077  1758 1850  1573
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.13 0.30  0.30  0.10 0.26  0.26  0.17 0.16  0.16  0.01 0.10  0.27
Crit Moves:       ****        ****             ****                   ****
Green/Cycle: 0.15 0.34  0.34  0.11 0.30  0.30  0.19 0.30  0.30  0.11 0.23  0.34
Volume/Cap:  0.84 0.87  0.87  0.87 0.84  0.84  0.87 0.53  0.53  0.12 0.43  0.79
Delay/Veh:   71.2 44.5  44.5  71.5 45.7  45.7  68.6 35.3  35.3  48.2 40.6  43.6
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  71.2 44.5  44.5  71.5 45.7  45.7  68.6 35.3  35.3  48.2 40.6  43.6
LOS by Move:    E    D     D     E    D     D     E    D     D     D    D     D
HCM2kAvgQ:     10   22    22     9   18    18    13    9     9     1    6    16
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Long Range (2035) Without Project Conditions (WITH IMPROVEMENTS)
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #4 Monroe St. / 61st Av.

Cycle (sec):	60	Critical Vol./Cap.(X):	0.376
Loss Time (sec):	12	Average Delay (sec/veh):	18.9
Optimal Cycle:	OPTIMIZED	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	10	19	19	10	19	19	20	20	20	20	20	20
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1	1 0	1 0	1	1 0	0 0	1!	0 0	0 0	1!	0 0
Volume Module:												
Base Vol:	3	456	49	169	539	39	22	2	2	16	8	45
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	3	456	49	169	539	39	22	2	2	16	8	45
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	3	496	53	184	586	42	24	2	2	17	9	49
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	3	496	53	184	586	42	24	2	2	17	9	49
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	3	496	53	184	586	42	24	2	2	17	9	49
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.94	0.94	0.95	0.94	0.94	0.81	0.81	0.81	0.87	0.87	0.87
Lanes:	1.00	1.81	0.19	1.00	1.87	0.13	0.84	0.08	0.08	0.23	0.12	0.65
Final Sat.:	1805	3211	345	1805	3333	241	1310	119	119	382	191	1075
Capacity Analysis Module:												
Vol/Sat:	0.00	0.15	0.15	0.10	0.18	0.18	0.02	0.02	0.02	0.05	0.05	0.05
Crit Moves:		****		****							****	
Green/Cycle:	0.16	0.31	0.31	0.16	0.31	0.31	0.33	0.33	0.33	0.33	0.33	0.33
Volume/Cap:	0.01	0.50	0.50	0.62	0.56	0.56	0.06	0.06	0.06	0.14	0.14	0.14
Delay/Veh:	21.4	17.4	17.4	27.8	18.2	18.2	14.1	14.1	14.1	14.6	14.6	14.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	21.4	17.4	17.4	27.8	18.2	18.2	14.1	14.1	14.1	14.6	14.6	14.6
LOS by Move:	C	B	B	C	B	B	B	B	B	B	B	B
HCM2kAvgQ:	0	5	5	4	6	6	0	0	0	1	1	1

Note: Queue reported is the number of cars per lane.

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                 Long Range (2035) Without Project Conditions
                                PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #4 Monroe St. / 61st Av.
********************************************************************************
Average Delay (sec/veh):      4.5       Worst Case Level Of Service: F[ 78.2]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  0  1! 0  0   0  0  1! 0  0   0  0  1! 0  0   0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:        3  456    49   169  539    39    22    2     2    16    8    45
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:     3  456    49   169  539    39    22    2     2    16    8    45
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:      3  496    53   184  586    42    24    2     2    17    9    49
Reduct Vol:      0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:     3  496    53   184  586    42    24    2     2    17    9    49
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx   4.1 xxxx xxxxx   7.1  6.5   6.2   7.1  6.5   6.2
FollowUpTim:  2.2 xxxx xxxxx   2.2 xxxx xxxxx   3.5  4.0   3.3   3.5  4.0   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  628 xxxx xxxxx   549 xxxx xxxxx  1532 1530   607  1505 1524   522
Potent Cap.:  963 xxxx xxxxx  1031 xxxx xxxxx    96  118   500   101  119   558
Move Cap.:    963 xxxx xxxxx  1031 xxxx xxxxx    69   94   500    83   95   558
Volume/Cap:  0.00 xxxx  xxxx  0.18 xxxx  xxxx  0.35 0.02  0.00  0.21 0.09  0.09
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.0 xxxx xxxxx   0.6 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:  8.7 xxxx xxxxx   9.2 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    A    *     *     A    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx   76 xxxxx  xxxx  193 xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx  1.4 xxxxx xxxxx  1.7 xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx 78.2 xxxxx xxxxx 35.0 xxxxx
Shared LOS:     *    *     *     *    *     *     *    F     *     *    D     *
ApproachDel:      xxxxxx           xxxxxx             78.2             35.0
ApproachLOS:         *                *                 F                D
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                 Long Range (2035) Without Project Conditions
                                 PM Peak Hour
--------------------------------------------------------------------------------

                     Level Of Service Computation Report
             2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #5 Jackson St. / 60th Av.
********************************************************************************
Cycle (sec):          100               Critical Vol./Cap.(X):         1.391
Loss Time (sec):        0               Average Delay (sec/veh):       120.0
Optimal Cycle:          0               Level Of Service:                  F
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      17  117    14     99  501    25     40  416    40     29  248   113
Growth Adj:  1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
Initial Bse:   17  117    14     99  501    25     40  416    40     29  248   113
User Adj:    1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
PHF Adj:     0.94 0.94  0.94   0.94 0.94  0.94   0.94 0.94  0.94   0.94 0.94  0.94
PHF Volume:    18  124    15    105  533    27     43  443    43     31  264   120
Reduct Vol:     0    0     0      0    0     0      0    0     0      0    0     0
Reduced Vol:   18  124    15    105  533    27     43  443    43     31  264   120
PCE Adj:     1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
FinalVolume:   18  124    15    105  533    27     43  443    43     31  264   120
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
Lanes:       0.11 0.80  0.09   0.16 0.80  0.04   0.08 0.84  0.08   0.07 0.64  0.29
Final Sat.:    46  313    38     76  383    19     39  403    39     35  301   137
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.40 0.40  0.40   1.39 1.39  1.39   1.10 1.10  1.10   0.88 0.88  0.88
Crit Moves:       ****                    ****        ****         ****
Delay/Veh:   17.2 17.2  17.2 210.2  210 210.2   97.3 97.3  97.3   43.4 43.4  43.4
Delay Adj:   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
AdjDel/Veh:  17.2 17.2  17.2 210.2  210 210.2   97.3 97.3  97.3   43.4 43.4  43.4
LOS by Move:    C    C     C      F    F     F      F    F     F      E    E     E
ApproachDel:      17.2            210.2             97.3             43.4
Delay Adj:        1.00             1.00             1.00             1.00
ApprAdjDel:       17.2            210.2             97.3             43.4
LOS by Appr:        C                F                F                E
AllWayAvgQ:    0.6  0.6   0.6  26.5 26.5  26.5  11.6 11.6  11.6    4.3  4.3   4.3
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
       Long Range (2035) Without Project Conditions (WITH IMPROVEMENTS)
                                PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #5 Jackson St. / 60th Av.
********************************************************************************
Cycle (sec):          95               Critical Vol./Cap.(X):        0.383
Loss Time (sec):      16               Average Delay (sec/veh):       28.1
Optimal Cycle: OPTIMIZED               Level Of Service:                 C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:    10   30    30   10   30    30   10   30    30   10   30    30
Y+R:          4.0  4.0   4.0  4.0  4.0   4.0  4.0  4.0   4.0  4.0  4.0   4.0
Lanes:        1  0  1  1  0   1  0  1  1  0   1  0  1  1  0   1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      17  117    14   99  501    25   40  416    40   29  248   113
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:   17  117    14   99  501    25   40  416    40   29  248   113
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     0.94 0.94  0.94 0.94 0.94  0.94 0.94 0.94  0.94 0.94 0.94  0.94
PHF Volume:    18  124    15  105  533    27   43  443    43   31  264   120
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:   18  124    15  105  533    27   43  443    43   31  264   120
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:   18  124    15  105  533    27   43  443    43   31  264   120
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900 1900 1900  1900 1900 1900  1900 1900 1900  1900
Adjustment:  0.95 0.93  0.93 0.95 0.94  0.94 0.95 0.94  0.94 0.95 0.91  0.91
Lanes:       1.00 1.79  0.21 1.00 1.90  0.10 1.00 1.82  0.18 1.00 1.37  0.63
Final Sat.:  1805 3173   380 1805 3414   170 1805 3251   313 1805 2363  1077
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.04  0.04 0.06 0.16  0.16 0.02 0.14  0.14 0.02 0.11  0.11
Crit Moves:  ****                 ****              ****        ****
Green/Cycle: 0.10 0.31  0.31 0.10 0.31  0.31 0.10 0.31  0.31 0.10 0.31  0.31
Volume/Cap:  0.10 0.13  0.13 0.56 0.50  0.50 0.23 0.44  0.44 0.16 0.36  0.36
Delay/Veh:   39.1 23.7  23.7 44.7 27.2  27.2 40.1 26.5  26.5 39.6 25.7  25.7
User DelAdj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:  39.1 23.7  23.7 44.7 27.2  27.2 40.1 26.5  26.5 39.6 25.7  25.7
LOS by Move:    D    C     C    D    C     C    D    C     C    D    C     C
HCM2kAvgQ:      0    1     1    4    7     7    1    6     6    1    5     5
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

```
--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                 Long Range (2035) Without Project Conditions
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #6 Jackson St. / 61st Av.
********************************************************************************
Average Delay (sec/veh):      5.2       Worst Case Level Of Service: C[ 24.9]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  0  1! 0  0   0  0  1! 0  0   0  0  1! 0  0   0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      44   85     2    16  500    61    42   51    37     3   35     3
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   44   85     2    16  500    61    42   51    37     3   35     3
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    48   92     2    17  543    66    46   55    40     3   38     3
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   48   92     2    17  543    66    46   55    40     3   38     3
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx   4.1 xxxx xxxxx   7.1  6.5   6.2   7.1  6.5   6.2
FollowUpTim:  2.2 xxxx xxxxx   2.2 xxxx xxxxx   3.5  4.0   3.3   3.5  4.0   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  610 xxxx xxxxx    95 xxxx xxxxx   821  802   577   848  834    93
Potent Cap.:  979 xxxx xxxxx  1512 xxxx xxxxx   296  320   520   283  306   969
Move Cap.:    979 xxxx xxxxx  1512 xxxx xxxxx   253  300   520   214  288   969
Volume/Cap:  0.05 xxxx  xxxx  0.01 xxxx  xxxx  0.18 0.18  0.08  0.02 0.13  0.00
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.2 xxxx xxxxx   0.0 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:  8.9 xxxx xxxxx   7.4 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    A    *     *     A    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  319 xxxxx  xxxx  295 xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx  2.2 xxxxx xxxxx  0.5 xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx 24.9 xxxxx xxxxx 19.3 xxxxx
Shared LOS:     *    *     *     *    *     *     *    C     *     *    C     *
ApproachDel:    xxxxxx           xxxxxx             24.9             19.3
ApproachLOS:       *                *                 C                C
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
       Long Range (2035) Without Project Conditions (WITH IMPROVEMENTS)
                                  PM Peak Hour
--------------------------------------------------------------------------------
                       Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #6 Jackson St. / 61st Av.
********************************************************************************
Cycle (sec):          95                Critical Vol./Cap.(X):         0.288
Loss Time (sec):      12                Average Delay (sec/veh):        20.1
Optimal Cycle: OPTIMIZED                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected         Permitted        Permitted
Rights:           Include          Include           Include          Include
Min. Green:    10   19    19    10   19    19    30   30    30    30   30    30
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  1  1  0    1  0  1  1  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      44   85     2    16  500    61    42   51    37     3   35     3
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   44   85     2    16  500    61    42   51    37     3   35     3
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    48   92     2    17  543    66    46   55    40     3   38     3
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   48   92     2    17  543    66    46   55    40     3   38     3
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   48   92     2    17  543    66    46   55    40     3   38     3
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  0.95  0.95 0.93  0.93  0.73 0.94  0.94  0.69 0.99  0.99
Lanes:       1.00 1.95  0.05  1.00 1.78  0.22  1.00 0.58  0.42  1.00 0.92  0.08
Final Sat.:  1805 3516    83  1805 3166   386  1395 1032   749  1317 1729   148
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.03  0.03  0.01 0.17  0.17  0.03 0.05  0.05  0.00 0.02  0.02
Crit Moves:  ****                   ****              ****
Green/Cycle: 0.11 0.37  0.37  0.19 0.45  0.45  0.32 0.32  0.32  0.32 0.32  0.32
Volume/Cap:  0.25 0.07  0.07  0.05 0.38  0.38  0.10 0.17  0.17  0.01 0.07  0.07
Delay/Veh:   39.8 19.7  19.7  31.3 17.3  17.3  23.1 23.6  23.6  22.3 22.8  22.8
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  39.8 19.7  19.7  31.3 17.3  17.3  23.1 23.6  23.6  22.3 22.8  22.8
LOS by Move:    D    B     B     C    B     B     C    C     C     C    C     C
HCM2kAvgQ:      1    1     1     0    6     6     1    2     2     0    1     1
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                 Long Range (2035) Without Project Conditions
                                PM Peak Hour
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
             2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #9 Madison St. / 58th Av.
********************************************************************************
Cycle (sec):          100               Critical Vol./Cap.(X):        2.508
Loss Time (sec):        0               Average Delay (sec/veh):      447.7
Optimal Cycle:          0               Level Of Service:                 F
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  2  0  1    1  0  2  0  1    1  0  1  0  1    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      14 1347    67   280 1207   163   223  127    25    28   71   490
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   14 1347    67   280 1207   163   223  127    25    28   71   490
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    15 1464    73   304 1312   177   242  138    27    30   77   533
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   15 1464    73   304 1312   177   242  138    27    30   77   533
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   15 1464    73   304 1312   177   242  138    27    30   77   533
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 2.00  1.00  1.00 2.00  1.00  1.00 1.00  1.00  1.00 2.00  1.00
Final Sat.:   280  584   309   306  638   341   274  284   301   274  570   301
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.05 2.51  0.24  0.99 2.05  0.52  0.89 0.49  0.09  0.11 0.14  1.77
Crit Moves:       ****             ****        ****                         ****
Delay/Veh:   16.2  711  17.8  85.6  508  24.1  67.1 26.7  15.8  17.5 17.3 385.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  16.2  711  17.8  85.6  508  24.1  67.1 26.7  15.8  17.5 17.3 385.0
LOS by Move:    C    F     C     F    F     C     F    D     C     C    C     F
ApproachDel:     671.9            388.4             50.0            323.2
Delay Adj:        1.00             1.00             1.00             1.00
ApprAdjDel:      671.9            388.4             50.0            323.2
LOS by Appr:         F                F                F                F
AllWayAvgQ:   0.1 56.5   0.3   6.1 43.8   1.0   3.9  0.9   0.1   0.1  0.2  31.0
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Long Range (2035) Without Project Conditions (WITH IMPROVEMENTS)
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #9 Madison St. / 58th Av.

Cycle (sec):	80	Critical Vol./Cap.(X):	0.889
Loss Time (sec):	12	Average Delay (sec/veh):	29.8
Optimal Cycle:	OPTIMIZED	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Ovl		
Min. Green:	10	10	10	10	22	22	10	29	29	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 0	1	1 0	2 0	1	1 0	1 1	0	1 0	2 0	1
Volume Module:												
Base Vol:	14	1347	67	280	1207	163	223	127	25	28	71	490
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	14	1347	67	280	1207	163	223	127	25	28	71	490
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	15	1464	73	304	1312	177	242	138	27	30	77	533
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	15	1464	73	304	1312	177	242	138	27	30	77	533
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	15	1464	73	304	1312	177	242	138	27	30	77	533
Saturation Flow Module:												
Sat/Lane:	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850
Adjustment:	0.95	0.95	0.85	0.95	0.95	0.85	0.70	0.93	0.93	0.64	0.95	0.85
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.67	0.33	1.00	2.00	1.00
Final Sat.:	1758	3515	1573	1758	3515	1573	1301	2863	564	1186	3515	1573
Capacity Analysis Module:												
Vol/Sat:	0.01	0.42	0.05	0.17	0.37	0.11	0.19	0.05	0.05	0.03	0.02	0.34
Crit Moves:		****		****								****
Green/Cycle:	0.17	0.47	0.47	0.19	0.50	0.50	0.19	0.19	0.19	0.19	0.19	0.38
Volume/Cap:	0.05	0.89	0.10	0.89	0.75	0.23	1.00	0.26	0.26	0.14	0.12	0.89
Delay/Veh:	28.1	25.7	11.9	54.8	18.0	11.5	90.5	28.0	28.0	27.5	27.2	38.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	28.1	25.7	11.9	54.8	18.0	11.5	90.5	28.0	28.0	27.5	27.2	38.3
LOS by Move:	C	C	B	D	B	B	F	C	C	C	C	D
HCM2kAvgQ:	0	21	1	11	15	3	11	2	2	1	1	16

Note: Queue reported is the number of cars per lane.

APPENDIX 7.2

Long Range (2035) With Project Conditions
Intersection Operations Analysis Worksheets

Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Long Range (2035) With Project Conditions
AM Peak Hour

Trip Generation Report

Forecast for AM Trip Gen (P)

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
3	TAZ 3 & 4	1.00	SFDR	0.00	0.00	0	0	0	0.0
100	SITE (2016)	1.00	RESIDENTIAL	45.00	130.00	45	130	175	100.0
	Zone 100 Subtotal					45	130	175	100.0
TOTAL						45	130	175	100.0

```
--------------------------------------------------------------------------------
          Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                    Long Range (2035) With Project Conditions
                                  AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #1 Madison St. / 60th Av.
********************************************************************************
Average Delay (sec/veh): OVERFLOW       Worst Case Level Of Service: F[xxxxx]
********************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled      Uncontrolled
Rights:           Include          Include          Include           Include
Lanes:        0  0  1! 0  0   1  0  0  1  0   0  0  1! 0  0   0  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     240  304    53   199  245   789   375  228   184    51  433   239
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  240  304    53   199  245   789   375  228   184    51  433   239
Added Vol:      0    0     0     7    0     0     0    0     0     0    0    19
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:  240  304    53   206  245   789   375  228   184    51  433   258
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:   261  330    58   224  266   858   408  248   200    55  471   280
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:  261  330    58   224  266   858   408  248   200    55  471   280
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.1  6.5   6.2   7.1  6.5   6.2   4.1 xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3   3.5  4.0   3.3   2.2 xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 2447 2025   348  1939 1845   471   751 xxxx xxxxx   448 xxxx xxxxx
Potent Cap.:   22   58   700    50   76   597   867 xxxx xxxxx  1123 xxxx xxxxx
Move Cap.:      0   22   700     0   28   597   867 xxxx xxxxx  1123 xxxx xxxxx
Volume/Cap:  xxxx15.17  0.08  xxxx 9.44  1.44  0.47 xxxx  xxxx  0.05 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   2.5 xxxx xxxxx   0.2 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx  12.8 xxxx xxxxx   8.4 xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     B    *     *     A    *     *
Movement:     LT - LTR - RT   LT - LTR - RT   LT - LTR - RT   LT - LTR - RT
Shared Cap.: xxxx    0 xxxxx  xxxx xxxx   103  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx 130.8 xxxxx xxxx xxxxx   0.2 xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx  4521 xxxxx xxxx xxxxx   8.4 xxxx xxxxx
Shared LOS:     *    *     *     *    *     F     *    *     *     A    *     *
ApproachDel:     xxxxxx             +Inf            xxxxxx            xxxxxx
ApproachLOS:          F                F                *                 *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Long Range (2035) With Project Conditions (WITH IMPROVEMENTS)
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Madison St. / 60th Av.

Cycle (sec):	120	Critical Vol./Cap.(X):	0.955
Loss Time (sec):	16	Average Delay (sec/veh):	54.9
Optimal Cycle:	OPTIMIZED	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Ovl			Ovl		
Min. Green:	10	22	22	10	22	22	10	24	24	10	22	22
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1 1	0	2 0	2 0	1	2 0	2 0	1	1 0	2 0	1
Volume Module:												
Base Vol:	240	304	53	199	245	789	375	228	184	51	433	239
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	240	304	53	199	245	789	375	228	184	51	433	239
Added Vol:	0	0	0	7	0	0	0	0	0	0	0	19
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	240	304	53	206	245	789	375	228	184	51	433	258
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	261	330	58	224	266	858	408	248	200	55	471	280
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	261	330	58	224	266	858	408	248	200	55	471	280
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	261	330	58	224	266	858	408	248	200	55	471	280
Saturation Flow Module:												
Sat/Lane:	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850
Adjustment:	0.95	0.93	0.93	0.92	0.95	0.85	0.92	0.95	0.85	0.95	0.95	0.85
Lanes:	1.00	1.70	0.30	2.00	2.00	1.00	2.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1758	2927	510	3410	3515	1573	3410	3515	1573	1758	3515	1573
Capacity Analysis Module:												
Vol/Sat:	0.15	0.11	0.11	0.07	0.08	0.55	0.12	0.07	0.13	0.03	0.13	0.18
Crit Moves:	****					****	****				****	
Green/Cycle:	0.15	0.39	0.39	0.18	0.42	0.54	0.12	0.21	0.36	0.09	0.18	0.36
Volume/Cap:	1.02	0.29	0.29	0.37	0.18	1.02	1.02	0.33	0.35	0.36	0.73	0.50
Delay/Veh:	111.4	25.4	25.4	43.9	21.9	62.6	101.8	40.3	28.7	52.9	50.5	30.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	111.4	25.4	25.4	43.9	21.9	62.6	101.8	40.3	28.7	52.9	50.5	30.6
LOS by Move:	F	C	C	D	C	E	F	D	C	D	D	C
HCM2kAvgQ:	15	5	5	4	3	40	12	4	5	2	10	8

Note: Queue reported is the number of cars per lane.

Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Long Range (2035) With Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #2 Monroe St. / 58th Av.

Cycle (sec):	100	Critical Vol./Cap.(X):	2.906
Loss Time (sec):	0	Average Delay (sec/veh):	594.7
Optimal Cycle:	0	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 1! 0 0			0 1 0 0 1			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	50	554	265	129	894	61	61	252	85	337	132	102
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	50	554	265	129	894	61	61	252	85	337	132	102
Added Vol:	26	26	0	0	9	0	0	0	9	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	76	580	265	129	903	61	61	252	94	337	132	102
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	83	630	288	140	982	66	66	274	102	366	143	111
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	83	630	288	140	982	66	66	274	102	366	143	111
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	83	630	288	140	982	66	66	274	102	366	143	111
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.08	0.63	0.29	0.12	0.88	1.00	0.15	0.62	0.23	0.59	0.23	0.18
Final Sat.:	33	250	114	48	338	420	60	247	92	233	91	70
Capacity Analysis Module:												
Vol/Sat:	2.52	2.52	2.52	2.91	2.91	0.16	1.11	1.11	1.11	1.57	1.57	1.57
Crit Moves:	****				****			****			****	
Delay/Veh:	711.4	711	711.4	883.8	884	12.9	107.5	108	107.5	293.7	294	293.7
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	711.4	711	711.4	883.8	884	12.9	107.5	108	107.5	293.7	294	293.7
LOS by Move:	F	F	F	F	F	B	F	F	F	F	F	F
ApproachDel:		711.4			835.2			107.5			293.7	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		711.4			835.2			107.5			293.7	
LOS by Appr:		F			F			F			F	
AllWayAvgQ:	77.1	77.1	77.1	93.5	93.5	0.2	10.6	10.6	10.6	30.8	30.8	30.8

Note: Queue reported is the number of cars per lane.

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         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
         Long Range (2035) With Project Conditions (WITH IMPROVEMENTS)
                                AM Peak Hour
---------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
*********************************************************************************
Intersection #2 Monroe St. / 58th Av.
*********************************************************************************
Cycle (sec):          95                Critical Vol./Cap.(X):        0.542
Loss Time (sec):      16                Average Delay (sec/veh):       34.7
Optimal Cycle: OPTIMIZED                Level Of Service:                 C
*********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Protected        Protected        Protected        Protected
Rights:           Ovl              Include          Include          Include
Min. Green:    10   20    20   10   20    20   10   10    10   10   27    27
Y+R:          4.0  4.0   4.0  4.0  4.0   4.0  4.0  4.0   4.0  4.0  4.0   4.0
Lanes:        1  0  2  0  1   1  0  1  1  0   1  0  1  1  0   1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      50  554   265  129  894    61   61  252    85  337  132   102
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:   50  554   265  129  894    61   61  252    85  337  132   102
Added Vol:     26   26     0    0    9     0    0    0     9    0    0     0
PasserByVol:    0    0     0    0    0     0    0    0     0    0    0     0
Initial Fut:   76  580   265  129  903    61   61  252    94  337  132   102
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92 0.92 0.92  0.92 0.92 0.92  0.92 0.92 0.92  0.92
PHF Volume:    83  630   288  140  982    66   66  274   102  366  143   111
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:   83  630   288  140  982    66   66  274   102  366  143   111
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:   83  630   288  140  982    66   66  274   102  366  143   111
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900 1900 1900  1900 1900 1900  1900 1900 1900  1900
Adjustment:  0.95 0.95  0.85 0.95 0.94  0.94 0.95 0.91  0.91 0.95 0.89  0.89
Lanes:       1.00 2.00  1.00 1.00 1.87  0.13 1.00 1.46  0.54 1.00 1.13  0.87
Final Sat.:  1805 3610  1615 1805 3351   226 1805 2521   941 1805 1904  1471
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.05 0.17  0.18 0.08 0.29  0.29 0.04 0.11  0.11 0.20 0.08  0.08
Crit Moves:  ****                 ****         ****                  ****
Green/Cycle: 0.11 0.29  0.55 0.15 0.34  0.34 0.11 0.14  0.14 0.25 0.28  0.28
Volume/Cap:  0.43 0.59  0.33 0.53 0.87  0.87 0.35 0.80  0.80 0.80 0.27  0.27
Delay/Veh:   41.4 29.5  12.0 39.4 36.6  36.6 40.6 49.2  49.2 42.8 26.5  26.5
User DelAdj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:  41.4 29.5  12.0 39.4 36.6  36.6 40.6 49.2  49.2 42.8 26.5  26.5
LOS by Move:    D    C     B    D    D     D    D    D     D    D    C     C
HCM2kAvgQ:      3    9     5    4   18    18    2    8     8   12    3     3
*********************************************************************************
Note: Queue reported is the number of cars per lane.
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         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                    Long Range (2035) With Project Conditions
                                  AM Peak Hour
--------------------------------------------------------------------------------
                        Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #3 Monroe St. / 60th Av.
********************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):        1.303
Loss Time (sec):        0              Average Delay (sec/veh):      104.7
Optimal Cycle:          0              Level Of Service:                 F
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  0  1  0   1  0  1  0  1   0  1  0  0  1   0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     177  364    56   129  415   295   141  141   189    50  121   199
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  177  364    56   129  415   295   141  141   189    50  121   199
Added Vol:     13    7     0    18    2     0     0    5     4     0   13    52
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:  190  371    56   147  417   295   141  146   193    50  134   251
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:   207  403    61   160  453   321   153  159   210    54  146   273
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  207  403    61   160  453   321   153  159   210    54  146   273
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  207  403    61   160  453   321   153  159   210    54  146   273
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.87  0.13  1.00 1.00  1.00  0.49 0.51  1.00  0.11 0.31  0.58
Final Sat.:   351  326    49   329  348   372   175  181   392    45  120   224
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.59 1.24  1.24  0.49 1.30  0.86  0.88 0.88  0.54  1.22 1.22  1.22
Crit Moves:       ****             ****             ****             ****
Delay/Veh:   26.2  156 156.0  23.2  185  49.5  53.4 53.4  21.8 147.4  147 147.4
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  26.2  156 156.0  23.2  185  49.5  53.4 53.4  21.8 147.4  147 147.4
LOS by Move:    D    F     F     C    F     E     F    F     C     F    F     F
ApproachDel:      116.0            110.6             40.7            147.4
Delay Adj:         1.00             1.00             1.00             1.00
ApprAdjDel:       116.0            110.6             40.7            147.4
LOS by Appr:          F                F                E                F
AllWayAvgQ:    1.3 15.0  15.0   0.9 16.6   3.8   4.0  4.0   1.1  14.6 14.6  14.6
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Long Range (2035) With Project Conditions (WITH IMPROVEMENTS)
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Monroe St. / 60th Av.

Cycle (sec):	95	Critical Vol./Cap.(X):	0.623
Loss Time (sec):	16	Average Delay (sec/veh):	34.3
Optimal Cycle:	OPTIMIZED	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Ovl		
Min. Green:	10	20	20	10	20	20	10	27	27	10	27	27
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0 1 1 0			2 0 1 1 0			1 0 1 1 0			1 0 1 0 1		
Volume Module:												
Base Vol:	177	364	56	129	415	295	141	141	189	50	121	199
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	177	364	56	129	415	295	141	141	189	50	121	199
Added Vol:	13	7	0	18	2	0	0	5	4	0	13	52
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	190	371	56	147	417	295	141	146	193	50	134	251
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	207	403	61	160	453	321	153	159	210	54	146	273
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	207	403	61	160	453	321	153	159	210	54	146	273
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	207	403	61	160	453	321	153	159	210	54	146	273
Saturation Flow Module:												
Sat/Lane:	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850
Adjustment:	0.95	0.93	0.93	0.92	0.89	0.89	0.95	0.87	0.87	0.95	1.00	0.85
Lanes:	1.00	1.74	0.26	2.00	1.17	0.83	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1758	2993	452	3410	1931	1366	1758	1608	1608	1758	1850	1573
Capacity Analysis Module:												
Vol/Sat:	0.12	0.13	0.13	0.05	0.23	0.23	0.09	0.10	0.13	0.03	0.08	0.17
Crit Moves:	****				****		****				****	
Green/Cycle:	0.15	0.29	0.29	0.15	0.29	0.29	0.11	0.29	0.29	0.11	0.28	0.43
Volume/Cap:	0.80	0.46	0.46	0.32	0.80	0.80	0.80	0.34	0.46	0.29	0.28	0.40
Delay/Veh:	55.7	27.8	27.8	36.7	36.0	36.0	62.6	27.0	28.2	40.0	26.7	19.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	55.7	27.8	27.8	36.7	36.0	36.0	62.6	27.0	28.2	40.0	26.7	19.0
LOS by Move:	E	C	C	D	D	D	E	C	C	D	C	B
HCM2kAvgQ:	8	6	6	2	13	13	7	4	6	2	3	6

Note: Queue reported is the number of cars per lane.

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-------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                   Long Range (2035) With Project Conditions
                                 AM Peak Hour
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
*******************************************************************************
Intersection #4 Monroe St. / 61st Av.
*******************************************************************************
Average Delay (sec/veh):      8.1       Worst Case Level Of Service: E[ 48.5]
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled       Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  0  1! 0  0   0  0  1! 0  0   0  0  1! 0  0   0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       1  378    62    71  366    13    34    3     3    53    6   168
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    1  378    62    71  366    13    34    3     3    53    6   168
Added Vol:      0    0     0     7    0     0     0    0     0     0    0    19
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    1  378    62    78  366    13    34    3     3    53    6   187
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     1  411    67    85  398    14    37    3     3    58    7   203
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    1  411    67    85  398    14    37    3     3    58    7   203
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx   4.1 xxxx xxxxx   7.1  6.5   6.2   7.1  6.5   6.2
FollowUpTim:  2.2 xxxx xxxxx   2.2 xxxx xxxxx   3.5  4.0   3.3   3.5  4.0   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  412 xxxx xxxxx   478 xxxx xxxxx  1126 1055   405  1024 1028   445
Potent Cap.: 1158 xxxx xxxxx  1095 xxxx xxxxx   184  228   650   215  236   618
Move Cap.:   1158 xxxx xxxxx  1095 xxxx xxxxx   113  209   650   198  216   618
Volume/Cap:  0.00 xxxx  xxxx  0.08 xxxx  xxxx  0.33 0.02  0.01  0.29 0.03  0.33
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.0 xxxx xxxxx   0.3 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:  8.1 xxxx xxxxx   8.6 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    A    *     *     A    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  125 xxxxx  xxxx  412 xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx  1.4 xxxxx xxxxx  4.5 xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx 48.5 xxxxx xxxxx 28.6 xxxxx
Shared LOS:     *    *     *     *    *     *     *    E     *     *    D     *
ApproachDel:     xxxxxx           xxxxxx             48.5             28.6
ApproachLOS:        *                *                E                D
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
```

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
         Long Range (2035) With Project Conditions (WITH IMPROVEMENTS)
                                AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #4 Monroe St. / 61st Av.
********************************************************************************
Cycle (sec):          60                Critical Vol./Cap.(X):        0.437
Loss Time (sec):      12                Average Delay (sec/veh):       17.3
Optimal Cycle: OPTIMIZED                Level Of Service:                 B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Protected        Protected         Permitted        Permitted
Rights:          Include          Include          Include          Include
Min. Green:    10   19    19    10   19    19    20   20    20    20   20    20
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  1  1  0    1  0  1  1  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       1  378    62    71  366    13    34    3     3    53    6   168
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    1  378    62    71  366    13    34    3     3    53    6   168
Added Vol:      0    0     0     7    0     0     0    0     0     0    0    19
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    1  378    62    78  366    13    34    3     3    53    6   187
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     1  411    67    85  398    14    37    3     3    58    7   203
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    1  411    67    85  398    14    37    3     3    58    7   203
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    1  411    67    85  398    14    37    3     3    58    7   203
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.93  0.93  0.95 0.95  0.95  0.71 0.71  0.71  0.83 0.83  0.83
Lanes:       1.00 1.72  0.28  1.00 1.93  0.07  0.85 0.07  0.08  0.22 0.02  0.76
Final Sat.:  1805 3036   498  1805 3469   123  1153  102   102   341   39  1205
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.14  0.14  0.05 0.11  0.11  0.03 0.03  0.03  0.17 0.17  0.17
Crit Moves:       ****        ****                                   ****
Green/Cycle: 0.16 0.31  0.31  0.16 0.31  0.31  0.33 0.33  0.33  0.33 0.33  0.33
Volume/Cap:  0.00 0.43  0.43  0.29 0.37  0.37  0.10 0.10  0.10  0.51 0.51  0.51
Delay/Veh:   21.3 17.0  17.0  22.9 16.5  16.5  14.3 14.3  14.3  17.5 17.5  17.5
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  21.3 17.0  17.0  22.9 16.5  16.5  14.3 14.3  14.3  17.5 17.5  17.5
LOS by Move:    C    B     B     C    B     B     B    B     B     B    B     B
HCM2kAvgQ:      0    4     4     2    3     3     1    1     1     5    5     5
********************************************************************************
Note: Queue reported is the number of cars per lane.
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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                   Long Range (2035) With Project Conditions
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #5 Jackson St. / 60th Av.
********************************************************************************
Cycle (sec):          100               Critical Vol./Cap.(X):         2.206
Loss Time (sec):        0               Average Delay (sec/veh):       377.8
Optimal Cycle:          0               Level Of Service:                  F
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      85  829    10   157  167   244    39   83     8    25  222   532
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   85  829    10   157  167   244    39   83     8    25  222   532
Added Vol:      0    7     0     0    2     7    20    7     0     0    2     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   85  836    10   157  169   251    59   90     8    25  224   532
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    92  909    11   171  184   273    64   98     9    27  243   578
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   92  909    11   171  184   273    64   98     9    27  243   578
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   92  909    11   171  184   273    64   98     9    27  243   578
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.09 0.90  0.01  0.27 0.29  0.44  0.38 0.57  0.05  0.03 0.29  0.68
Final Sat.:    42  412     5   128  138   205   148  225    20    15  139   330
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     2.21 2.21  2.21  1.33 1.33  1.33  0.43 0.43  0.43  1.75 1.75  1.75
Crit Moves:             ****       ****                   ****       ****
Delay/Veh:  567.7  568 567.7 185.0  185 185.0  19.0 19.0  19.0 365.9  366 365.9
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh: 567.7  568 567.7 185.0  185 185.0  19.0 19.0  19.0 365.9  366 365.9
LOS by Move:    F    F     F     F    F     F     C    C     C     F    F     F
ApproachDel:      567.7            185.0             19.0            365.9
Delay Adj:         1.00             1.00             1.00             1.00
ApprAdjDel:       567.7            185.0             19.0            365.9
LOS by Appr:          F                F                C                F
AllWayAvgQ:  70.9 70.9  70.9  22.9 22.9  22.9   0.7  0.7   0.7  47.8 47.8  47.8
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Long Range (2035) With Project Conditions (WITH IMPROVEMENTS)
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 Jackson St. / 60th Av.

Cycle (sec):	105	Critical Vol./Cap.(X):	0.877
Loss Time (sec):	16	Average Delay (sec/veh):	46.9
Optimal Cycle:	OPTIMIZED	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	30	30	10	30	30	10	30	30	10	30	30
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0 1 1 0			1 0 1 1 0			1 0 1 1 0			1 0 1 1 0		
Volume Module:												
Base Vol:	85	829	10	157	167	244	39	83	8	25	222	532
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	85	829	10	157	167	244	39	83	8	25	222	532
Added Vol:	0	7	0	0	2	7	20	7	0	0	2	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	85	836	10	157	169	251	59	90	8	25	224	532
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	92	909	11	171	184	273	64	98	9	27	243	578
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	92	909	11	171	184	273	64	98	9	27	243	578
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	92	909	11	171	184	273	64	98	9	27	243	578
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.95	0.95	0.86	0.86	0.95	0.94	0.94	0.95	0.85	0.85
Lanes:	1.00	1.98	0.02	1.00	1.00	1.00	1.00	1.84	0.16	1.00	1.00	1.00
Final Sat.:	1805	3560	43	1805	1643	1643	1805	3276	291	1805	1614	1614
Capacity Analysis Module:												
Vol/Sat:	0.05	0.26	0.26	0.09	0.11	0.17	0.04	0.03	0.03	0.02	0.15	0.36
Crit Moves:		****		****			****					****
Green/Cycle:	0.10	0.29	0.29	0.10	0.29	0.29	0.10	0.35	0.35	0.12	0.37	0.37
Volume/Cap:	0.53	0.89	0.89	0.97	0.39	0.58	0.37	0.09	0.09	0.13	0.41	0.97
Delay/Veh:	48.5	46.0	46.0	106.2	30.2	33.0	45.9	23.0	23.0	41.9	24.7	56.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	48.5	46.0	46.0	106.2	30.2	33.0	45.9	23.0	23.0	41.9	24.7	56.4
LOS by Move:	D	D	D	F	C	C	D	C	C	D	C	E
HCM2kAvgQ:	3	16	16	9	5	8	2	1	1	1	6	25

Note: Queue reported is the number of cars per lane.

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---------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                   Long Range (2035) With Project Conditions
                                 AM Peak Hour
---------------------------------------------------------------------------------

                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #6 Jackson St. / 61st Av.
********************************************************************************
Average Delay (sec/veh):     15.7       Worst Case Level Of Service: F[129.5]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  0  1! 0  0   0  0  1! 0  0   0  0  1! 0  0   0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      54  832     3     2  151     9    78   16    17     4   44     8
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   54  832     3     2  151     9    78   16    17     4   44     8
Added Vol:      2    0     0     0    0     2     7    7     7     0    2     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   56  832     3     2  151    11    85   23    24     4   46     8
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    61  904     3     2  164    12    92   25    26     4   50     9
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   61  904     3     2  164    12    92   25    26     4   50     9
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx   4.1 xxxx xxxxx   7.1  6.5   6.2   7.1  6.5   6.2
FollowUpTim:  2.2 xxxx xxxxx   2.2 xxxx xxxxx   3.5  4.0   3.3   3.5  4.0   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  176 xxxx xxxxx   908 xxxx xxxxx  1232 1204   170  1228 1208   906
Potent Cap.: 1412 xxxx xxxxx   758 xxxx xxxxx   156  186   879   156  185   337
Move Cap.:   1412 xxxx xxxxx   758 xxxx xxxxx   114  177   879   131  176   337
Volume/Cap:  0.04 xxxx  xxxx  0.00 xxxx  xxxx  0.81 0.14  0.03  0.03 0.28  0.03
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.1 xxxx xxxxx   0.0 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:  7.7 xxxx xxxxx   9.8 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    A    *     *     A    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  146 xxxxx  xxxx  184 xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx  7.2 xxxxx xxxxx  1.4 xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx  129 xxxxx xxxxx 34.5 xxxxx
Shared LOS:     *    *     *     *    *     *     *    F     *     *    D     *
ApproachDel:      xxxxxx           xxxxxx            129.5             34.5
ApproachLOS:        *                *                 F                 D
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
         Long Range (2035) With Project Conditions (WITH IMPROVEMENTS)
                                AM Peak Hour
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #6 Jackson St. / 61st Av.
********************************************************************************
Cycle (sec):          115             Critical Vol./Cap.(X):         0.358
Loss Time (sec):       12             Average Delay (sec/veh):        20.1
Optimal Cycle: OPTIMIZED              Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:    10   19    19   10   19    19   30   30    30   30   30    30
Y+R:          4.0  4.0   4.0  4.0  4.0   4.0  4.0  4.0   4.0  4.0  4.0   4.0
Lanes:        1  0  1  1  0   1  0  1  1  0   1  0  0  1  0   1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      54  832     3    2  151     9   78   16    17    4   44     8
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:   54  832     3    2  151     9   78   16    17    4   44     8
Added Vol:      2    0     0    0    0     2    7    7     7    0    2     0
PasserByVol:    0    0     0    0    0     0    0    0     0    0    0     0
Initial Fut:   56  832     3    2  151    11   85   23    24    4   46     8
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92 0.92 0.92  0.92 0.92 0.92  0.92 0.92 0.92  0.92
PHF Volume:    61  904     3    2  164    12   92   25    26    4   50     9
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:   61  904     3    2  164    12   92   25    26    4   50     9
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:   61  904     3    2  164    12   92   25    26    4   50     9
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900 1900 1900  1900 1900 1900  1900 1900 1900  1900
Adjustment:  0.95 0.95  0.95 0.95 0.94  0.94 0.72 0.92  0.92 0.73 0.98  0.98
Lanes:       1.00 1.99  0.01 1.00 1.86  0.14 1.00 0.49  0.51 1.00 0.85  0.15
Final Sat.:  1805 3593    13 1805 3331   243 1368  858   896 1379 1583   275
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.25  0.25 0.00 0.05  0.05 0.07 0.03  0.03 0.00 0.03  0.03
Crit Moves:       ****       ****            ****
Green/Cycle: 0.22 0.55  0.55 0.09 0.42  0.42 0.26 0.26  0.26 0.26 0.26  0.26
Volume/Cap:  0.15 0.46  0.46 0.01 0.12  0.12 0.26 0.11  0.11 0.01 0.12  0.12
Delay/Veh:   36.5 15.9  15.9 48.0 20.7  20.7 34.1 32.5  32.5 31.5 32.6  32.6
User DelAdj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:  36.5 15.9  15.9 48.0 20.7  20.7 34.1 32.5  32.5 31.5 32.6  32.6
LOS by Move:    D    B     B    D    C     C    C    C     C    C    C     C
HCM2kAvgQ:      2   10    10    0    2     2    3    1     1    0    2     2
********************************************************************************
Note: Queue reported is the number of cars per lane.
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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                    Long Range (2035) With Project Conditions
                                  AM Peak Hour
--------------------------------------------------------------------------------

                       Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #7 Dwy. 1 / 60th Av.
********************************************************************************
Average Delay (sec/veh):      1.8       Worst Case Level Of Service: B[ 14.0]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        1  0  0  0  1    0  0  0  0  0    0  0  0  1  0    1  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0     0    0     0     0  243     0     0  370     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0     0    0     0     0  243     0     0  370     0
Added Vol:     65    0    26     0    0     0     0    0    23     9    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   65    0    26     0    0     0     0  243    23     9  370     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    71    0    28     0    0     0     0  264    25    10  402     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   71    0    28     0    0     0     0  264    25    10  402     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  6.4 xxxx   6.2 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5 xxxx   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  698 xxxx   277  xxxx xxxx xxxxx  xxxx xxxx xxxxx   289 xxxx xxxxx
Potent Cap.:  409 xxxx   767  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1284 xxxx xxxxx
Move Cap.:    407 xxxx   767  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1284 xxxx xxxxx
Volume/Cap:  0.17 xxxx  0.04  xxxx xxxx  xxxx  xxxx xxxx  xxxx  0.01 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.6 xxxx   0.1  xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.0 xxxx xxxxx
Control Del: 15.7 xxxx   9.9 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.8 xxxx xxxxx
LOS by Move:    C    *     A     *    *     *     *    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:       14.0            xxxxxx           xxxxxx           xxxxxx
ApproachLOS:         B                *                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
         Long Range (2035) With Project Conditions (WITH IMPROVEMENTS)
                                AM Peak Hour
--------------------------------------------------------------------------------
                       Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #7 Dwy. 1 / 60th Av.
********************************************************************************
Average Delay (sec/veh):      1.6       Worst Case Level Of Service: B[ 12.1]
********************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled      Uncontrolled
Rights:           Include          Include          Include           Include
Lanes:        1  0  0  0  1    0  0  0  0  0    0  0  1  1  0    1  0  2  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0     0    0     0     0  243     0     0  370     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0     0    0     0     0  243     0     0  370     0
Added Vol:     65    0    26     0    0     0     0    0    23     9    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   65    0    26     0    0     0     0  243    23     9  370     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    71    0    28     0    0     0     0  264    25    10  402     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   71    0    28     0    0     0     0  264    25    10  402     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  6.8 xxxx   6.9 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5 xxxx   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  497 xxxx   145  xxxx xxxx xxxxx  xxxx xxxx xxxxx   289 xxxx xxxxx
Potent Cap.:  507 xxxx   883  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1284 xxxx xxxxx
Move Cap.:    504 xxxx   883  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1284 xxxx xxxxx
Volume/Cap:  0.14 xxxx  0.03  xxxx xxxx  xxxx  xxxx xxxx  xxxx  0.01 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.5 xxxx   0.1  xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.0 xxxx xxxxx
Control Del: 13.3 xxxx   9.2 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.8 xxxx xxxxx
LOS by Move:    B    *     A     *    *     *     *    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:       12.1            xxxxxx            xxxxxx            xxxxxx
ApproachLOS:         B                *                 *                 *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                   Long Range (2035) With Project Conditions
                                AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #8 Dwy. 2 / 61st Av.
********************************************************************************
Average Delay (sec/veh):      1.1       Worst Case Level Of Service: B[ 10.7]
********************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled      Uncontrolled
Rights:           Include          Include          Include           Include
Lanes:        0  0  0  0  0    0  0  1! 0  0    1  0  1  0  0    0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0     0    0     0     0  136     0     0  227     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0     0    0     0     0  136     0     0  227     0
Added Vol:      0    0     0    20    0    19     7    0     0     0    0     7
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0    20    0    19     7  136     0     0  227     7
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     0    0     0    22    0    21     8  148     0     0  247     8
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0    0     0    22    0    21     8  148     0     0  247     8
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4  6.5   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5  4.0   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx   414  414   251   254 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   599  532   793  1322 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   596  529   793  1322 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.04 0.00  0.03  0.01 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.0 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.7 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx  678 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx  0.2 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx 10.7 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    B     *     *    *     *     *    *     *
ApproachDel:     xxxxxx             10.7             xxxxxx            xxxxxx
ApproachLOS:        *                 B                 *                 *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
         Long Range (2035) With Project Conditions (WITH IMPROVEMENTS)
                                AM Peak Hour
--------------------------------------------------------------------------------

                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #8 Dwy. 2 / 61st Av.
********************************************************************************
Average Delay (sec/veh):      1.1       Worst Case Level Of Service: B[ 10.7]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  0  0  0   0  0  1! 0  0   1  0  1  0  0   0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0     0    0     0     0  136     0     0  227     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0     0    0     0     0  136     0     0  227     0
Added Vol:      0    0     0    20    0    19     7    0     0     0    0     7
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0    20    0    19     7  136     0     0  227     7
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     0    0     0    22    0    21     8  148     0     0  247     8
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0    0     0    22    0    21     8  148     0     0  247     8
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4  6.5   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5  4.0   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx   414  414   251   254 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   599  532   793  1322 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   596  529   793  1322 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.04 0.00  0.03  0.01 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.0 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.7 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx  678 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx  0.2 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx 10.7 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    B     *     *    *     *     *    *     *
ApproachDel:     xxxxxx            10.7            xxxxxx           xxxxxx
ApproachLOS:        *                B                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                   Long Range (2035) With Project Conditions
                                 AM Peak Hour
--------------------------------------------------------------------------------

                       Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #9 Madison St. / 58th Av.
********************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):         1.615
Loss Time (sec):        0              Average Delay (sec/veh):       200.7
Optimal Cycle:          0              Level Of Service:                  F
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  2  0  1    1  0  2  0  1    1  0  1  0  1    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      14  899    43   284 1168   132   153   34     6    23   25    86
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   14  899    43   284 1168   132   153   34     6    23   25    86
Added Vol:     13    6     0     5    2     0     0    5     5     0   13    13
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   27  905    43   289 1170   132   153   39    11    23   38    99
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    29  984    47   314 1272   143   166   42    12    25   41   108
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   29  984    47   314 1272   143   166   42    12    25   41   108
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   29  984    47   314 1272   143   166   42    12    25   41   108
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 2.00  1.00  1.00 2.00  1.00  1.00 1.00  1.00  1.00 2.00  1.00
Final Sat.:   330  706   372   372  787   424   283  293   310   279  579   308
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.09 1.39  0.13  0.84 1.61  0.34  0.59 0.14  0.04  0.09 0.07  0.35
Crit Moves:       ****             ****        ****                         ****
Delay/Veh:   14.4  221  13.5  46.7  310  15.3  31.7 16.9  14.6  16.7 15.9  20.3
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  14.4  221  13.5  46.7  310  15.3  31.7 16.9  14.6  16.7 15.9  20.3
LOS by Move:    B    F     B     E    F     C     D    C     B     C    C     C
ApproachDel:      206.0            237.8             27.9             18.7
Delay Adj:         1.00             1.00             1.00             1.00
ApprAdjDel:       206.0            237.8             27.9             18.7
LOS by Appr:         F                F                D                C
AllWayAvgQ:   0.1 20.4   0.1   3.6 32.6   0.5   1.3  0.2   0.0   0.1  0.1   0.5
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Long Range (2035) With Project Conditions (WITH IMPROVEMENTS)
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #9 Madison St. / 58th Av.

Cycle (sec): 70 Critical Vol./Cap.(X): 0.475
Loss Time (sec): 12 Average Delay (sec/veh): 18.7
Optimal Cycle: OPTIMIZED Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Ovl		
Min. Green:	10	10	10	10	22	22	10	29	29	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 0	1	1 0	2 0	1	1 0	1 1	0	1 0	2 0	1
Volume Module:												
Base Vol:	14	899	43	284	1168	132	153	34	6	23	25	86
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	14	899	43	284	1168	132	153	34	6	23	25	86
Added Vol:	13	6	0	5	2	0	0	5	5	0	13	13
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	27	905	43	289	1170	132	153	39	11	23	38	99
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	29	984	47	314	1272	143	166	42	12	25	41	108
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	29	984	47	314	1272	143	166	42	12	25	41	108
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	29	984	47	314	1272	143	166	42	12	25	41	108
Saturation Flow Module:												
Sat/Lane:	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850
Adjustment:	0.95	0.95	0.85	0.95	0.95	0.85	0.73	0.92	0.92	0.72	0.95	0.85
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.56	0.44	1.00	2.00	1.00
Final Sat.:	1758	3515	1573	1758	3515	1573	1356	2651	748	1336	3515	1573
Capacity Analysis Module:												
Vol/Sat:	0.02	0.28	0.03	0.18	0.36	0.09	0.12	0.02	0.02	0.02	0.01	0.07
Crit Moves:	****				****					****		
Green/Cycle:	0.14	0.43	0.43	0.27	0.56	0.56	0.14	0.14	0.14	0.14	0.14	0.41
Volume/Cap:	0.12	0.66	0.07	0.66	0.64	0.16	0.90	0.12	0.12	0.14	0.09	0.17
Delay/Veh:	27.9	17.8	12.4	26.8	11.7	7.8	69.1	27.7	27.7	28.0	27.6	13.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	27.9	17.8	12.4	26.8	11.7	7.8	69.1	27.7	27.7	28.0	27.6	13.8
LOS by Move:	C	B	B	C	B	A	E	C	C	C	C	B
HCM2kAvgQ:	1	10	1	7	11	2	7	1	1	1	0	2

Note: Queue reported is the number of cars per lane.

Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Long Range (2035) With Project Conditions
PM Peak Hour

Scenario Report

Scenario:	2035WP PM
Command:	2035WP PM
Volume:	2035NP PM
Geometry:	Existing Geometry
Impact Fee:	Default Impact Fee
Trip Generation:	PM Trip Gen (P)
Trip Distribution:	Trip Dist
Paths:	Default Path
Routes:	Default Route
Configuration:	Peak Hour

Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Long Range (2035) With Project Conditions
PM Peak Hour

Trip Generation Report

Forecast for PM Trip Gen (P)

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
100	SITE (2016)	1.00	RESIDENTIAL	146.00	86.00	146	86	232	100.0
	Zone 100 Subtotal					146	86	232	100.0
TOTAL						146	86	232	100.0

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                   Long Range (2035) With Project Conditions
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #1 Madison St. / 60th Av.
********************************************************************************
Average Delay (sec/veh): OVERFLOW       Worst Case Level Of Service: F[xxxxx]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  1! 0  0    1  0  0  1  0    0  0  1! 0  0    0  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     333  299    12   514  318   401   967  303   489    55  365   174
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  333  299    12   514  318   401   967  303   489    55  365   174
Added Vol:      0    0     0    22    0     0     0    0     0     0    0    13
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:  333  299    12   536  318   401   967  303   489    55  365   187
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:   362  325    13   583  346   436  1051  329   532    60  397   203
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:  362  325    13   583  346   436  1051  329   532    60  397   203
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.1  6.5   6.2   7.1  6.5   6.2   4.1 xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3   3.5  4.0   3.3   2.2 xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 3706 3417   595  3383 3479   397   600 xxxx xxxxx   861 xxxx xxxxx
Potent Cap.:    3    7   508     4    7   657   987 xxxx xxxxx   789 xxxx xxxxx
Move Cap.:      0    0   508     0    0   657   987 xxxx xxxxx   789 xxxx xxxxx
Volume/Cap:  xxxx xxxx  0.03  xxxx xxxx  0.66  1.06 xxxx  xxxx  0.08 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx  24.3 xxxx xxxxx   0.2 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx  67.6 xxxx xxxxx   9.9 xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     F    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx    0 xxxxx  xxxx xxxx     0  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   0.2 xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   9.9 xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     A    *     *
ApproachDel:     xxxxxx             +Inf            xxxxxx           xxxxxx
ApproachLOS:        F                F                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
         Long Range (2035) With Project Conditions (WITH IMPROVEMENTS)
                                 PM Peak Hour
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #1 Madison St. / 60th Av.
********************************************************************************
Cycle (sec):         120                Critical Vol./Cap.(X):        0.837
Loss Time (sec):      16                Average Delay (sec/veh):       53.1
Optimal Cycle: OPTIMIZED                Level Of Service:                 D
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include           Ovl              Ovl              Ovl
Min. Green:    10   22    22   10   22    22   10   24    24   10   22    22
Y+R:          4.0  4.0   4.0  4.0  4.0   4.0  4.0  4.0   4.0  4.0  4.0   4.0
Lanes:        1  0  1  1  0    2  0  2  0  1    2  0  2  0  1    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     333  299    12  514  318   401  967  303   489   55  365   174
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:  333  299    12  514  318   401  967  303   489   55  365   174
Added Vol:      0    0     0   22    0     0    0    0     0    0    0    13
PasserByVol:    0    0     0    0    0     0    0    0     0    0    0     0
Initial Fut:  333  299    12  536  318   401  967  303   489   55  365   187
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92 0.92 0.92  0.92 0.92 0.92  0.92 0.92 0.92  0.92
PHF Volume:   362  325    13  583  346   436 1051  329   532   60  397   203
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:  362  325    13  583  346   436 1051  329   532   60  397   203
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:  362  325    13  583  346   436 1051  329   532   60  397   203
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1850 1850  1850 1850 1850  1850 1850 1850  1850 1850 1850  1850
Adjustment:  0.95 0.94  0.94 0.92 0.95  0.85 0.92 0.95  0.85 0.95 0.95  0.85
Lanes:       1.00 1.92  0.08 2.00 2.00  1.00 2.00 2.00  1.00 1.00 2.00  1.00
Final Sat.:  1758 3359   135 3410 3515  1573 3410 3515  1573 1758 3515  1573
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.21 0.10  0.10 0.17 0.10  0.28 0.31 0.09  0.34 0.03 0.11  0.13
Crit Moves:  ****                   ****         ****                  ****
Green/Cycle: 0.20 0.20  0.20 0.19 0.18  0.48 0.30 0.34  0.54 0.14 0.18  0.37
Volume/Cap:  1.03 0.49  0.49 0.92 0.54  0.57 1.03 0.27  0.62 0.24 0.62  0.35
Delay/Veh:  103.5 43.2  43.2 67.4 45.3  23.3 77.7 28.9  20.5 46.2 46.9  27.9
User DelAdj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh: 103.5 43.2  43.2 67.4 45.3  23.3 77.7 28.9  20.5 46.2 46.9  27.9
LOS by Move:    F    D     D    E    D     C    E    C     C    D    D     C
HCM2kAvgQ:     19    6     6   15    7    12   27    5    14    2    8     5
********************************************************************************
Note: Queue reported is the number of cars per lane.
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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                    Long Range (2035) With Project Conditions
                                  PM Peak Hour
--------------------------------------------------------------------------------
                        Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #2 Monroe St. / 58th Av.
********************************************************************************
Cycle (sec):          100               Critical Vol./Cap.(X):         3.830
Loss Time (sec):        0               Average Delay (sec/veh):       934.0
Optimal Cycle:          0               Level Of Service:                  F
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  1! 0  0   0  1  0  0  1   0  0  1! 0  0   0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      70 1018   269   200  861   131   137  374    43   404  472   186
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   70 1018   269   200  861   131   137  374    43   404  472   186
Added Vol:     17   17     0     0   29     0     0    0    29     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   87 1035   269   200  890   131   137  374    72   404  472   186
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    95 1125   292   217  967   142   149  407    78   439  513   202
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   95 1125   292   217  967   142   149  407    78   439  513   202
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   95 1125   292   217  967   142   149  407    78   439  513   202
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.06 0.75  0.19  0.18 0.82  1.00  0.23 0.65  0.12  0.38 0.44  0.18
Final Sat.:    25  294    76    71  314   420    93  254    49   151  176    69
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     3.83 3.83  3.83  3.08 3.08  0.34  1.60 1.60  1.60  2.92 2.92  2.92
Crit Moves:             ****  ****                   ****                  ****
Delay/Veh:   1298 1298  1298 961.3  961  15.6 305.0  305 305.0 887.9  888 887.9
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  1298 1298  1298 961.3  961  15.6 305.0  305 305.0 887.9  888 887.9
LOS by Move:    F    F     F     F    F     C     F    F     F     F    F     F
ApproachDel:    1297.9           859.8            305.0            887.9
Delay Adj:        1.00            1.00             1.00             1.00
ApprAdjDel:     1297.9           859.8            305.0            887.9
LOS by Appr:         F               F                F                F
AllWayAvgQ:   141  141 141.0   101  101   0.5  32.2 32.2  32.2  96.3 96.3  96.3
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Long Range (2035) With Project Conditions (WITH IMPROVEMENTS)
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #2 Monroe St. / 58th Av.

Cycle (sec):	105	Critical Vol./Cap.(X):	0.959
Loss Time (sec):	16	Average Delay (sec/veh):	51.0
Optimal Cycle:	OPTIMIZED	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	10	20	20	10	20	20	10	10	10	10	27	27
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 0	1	1 0	1 1	0	1 0	1 1	0	1 0	1 1	0
Volume Module:												
Base Vol:	70	1018	269	200	861	131	137	374	43	404	472	186
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	70	1018	269	200	861	131	137	374	43	404	472	186
Added Vol:	17	17	0	0	29	0	0	0	29	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	87	1035	269	200	890	131	137	374	72	404	472	186
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	95	1125	292	217	967	142	149	407	78	439	513	202
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	95	1125	292	217	967	142	149	407	78	439	513	202
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	95	1125	292	217	967	142	149	407	78	439	513	202
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.85	0.95	0.93	0.93	0.95	0.93	0.93	0.95	0.91	0.91
Lanes:	1.00	2.00	1.00	1.00	1.74	0.26	1.00	1.68	0.32	1.00	1.43	0.57
Final Sat.:	1805	3610	1615	1805	3087	454	1805	2955	569	1805	2481	978
Capacity Analysis Module:												
Vol/Sat:	0.05	0.31	0.18	0.12	0.31	0.31	0.08	0.14	0.14	0.24	0.21	0.21
Crit Moves:		****		****				****		****		
Green/Cycle:	0.11	0.32	0.58	0.13	0.35	0.35	0.11	0.14	0.14	0.25	0.29	0.29
Volume/Cap:	0.50	0.96	0.31	0.96	0.91	0.91	0.77	0.96	0.96	0.96	0.71	0.71
Delay/Veh:	46.4	52.1	11.6	93.8	42.6	42.6	62.5	74.5	74.5	70.3	35.8	35.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	46.4	52.1	11.6	93.8	42.6	42.6	62.5	74.5	74.5	70.3	35.8	35.8
LOS by Move:	D	D	B	F	D	D	E	E	E	E	D	D
HCM2kAvgQ:	4	24	5	11	22	22	7	12	12	19	12	12

Note: Queue reported is the number of cars per lane.

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                   Long Range (2035) With Project Conditions
                                 PM Peak Hour
--------------------------------------------------------------------------------
                       Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #3 Monroe St. / 60th Av.
********************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):        2.896
Loss Time (sec):        0              Average Delay (sec/veh):      442.4
Optimal Cycle:          0              Level Of Service:                 F
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  0  1  0    1  0  1  0  1    0  1  0  0  1    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     203  921    32   308  568   225   267  335   159    22  165   385
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  203  921    32   308  568   225   267  335   159    22  165   385
Added Vol:      9    4     0    58    7     0     0   15    15     0    9    34
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:  212  925    32   366  575   225   267  350   174    22  174   419
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:   230 1005    35   398  625   245   290  380   189    24  189   455
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  230 1005    35   398  625   245   290  380   189    24  189   455
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  230 1005    35   398  625   245   290  380   189    24  189   455
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.97  0.03  1.00 1.00  1.00  0.43 0.57  1.00  0.04 0.28  0.68
Final Sat.:   341  347    12   326  341   365   150  196   377    14  109   263
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.68 2.90  2.90  1.22 1.83  0.67  1.94 1.94  0.50  1.73 1.73  1.73
Crit Moves:       ****             ****        ****              ****
Delay/Veh:   32.5  879 878.6 155.7  409  30.3 457.1  457  21.3 362.0  362 362.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  32.5  879 878.6 155.7  409  30.3 457.1  457  21.3 362.0  362 362.0
LOS by Move:    D    F     F     F    F     D     F    F     C     F    F     F
ApproachDel:      725.1            256.4            361.3            362.0
Delay Adj:         1.00             1.00             1.00             1.00
ApprAdjDel:       725.1            256.4            361.3            362.0
LOS by Appr:         F                F                F                F
AllWayAvgQ:   1.8 86.4  86.4  12.9 37.5   1.8  42.6 42.6   1.0  37.5 37.5  37.5
********************************************************************************
Note: Queue reported is the number of cars per lane.
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-------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
         Long Range (2035) With Project Conditions (WITH IMPROVEMENTS)
                                PM Peak Hour
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
*******************************************************************************
Intersection #3 Monroe St. / 60th Av.
*******************************************************************************
Cycle (sec):          120              Critical Vol./Cap.(X):        0.786
Loss Time (sec):       16              Average Delay (sec/veh):       51.0
Optimal Cycle: OPTIMIZED               Level Of Service:                 D
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Protected        Protected        Protected        Protected
Rights:          Include          Include          Include           Ovl
Min. Green:    10   20    20   10   20    20   10   27    27   10   27    27
Y+R:          4.0  4.0   4.0  4.0  4.0   4.0  4.0  4.0   4.0  4.0  4.0   4.0
Lanes:        1  0  1  1  0   2  0  1  1  0   1  0  1  1  0   1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     203  921    32  308  568   225  267  335   159   22  165   385
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:  203  921    32  308  568   225  267  335   159   22  165   385
Added Vol:      9    4     0   58    7     0    0   15    15    0    9    34
PasserByVol:    0    0     0    0    0     0    0    0     0    0    0     0
Initial Fut:  212  925    32  366  575   225  267  350   174   22  174   419
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92 0.92 0.92  0.92 0.92 0.92  0.92 0.92 0.92  0.92
PHF Volume:   230 1005    35  398  625   245  290  380   189   24  189   455
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:  230 1005    35  398  625   245  290  380   189   24  189   455
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:  230 1005    35  398  625   245  290  380   189   24  189   455
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1850 1850  1850 1850 1850  1850 1850 1850  1850 1850 1850  1850
Adjustment:  0.95 0.95  0.95 0.92 0.91  0.91 0.95 0.90  0.90 0.95 1.00  0.85
Lanes:       1.00 1.93  0.07 2.00 1.44  0.56 1.00 1.34  0.66 1.00 1.00  1.00
Final Sat.:  1758 3380   117 3410 2420   947 1758 2230  1109 1758 1850  1573
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.13 0.30  0.30 0.12 0.26  0.26 0.17 0.17  0.17 0.01 0.10  0.29
Crit Moves:       ****       ****            ****                  ****
Green/Cycle: 0.15 0.33  0.33 0.13 0.30  0.30 0.18 0.30  0.30 0.11 0.23  0.35
Volume/Cap:  0.85 0.90  0.90 0.90 0.85  0.85 0.90 0.57  0.57 0.12 0.45  0.82
Delay/Veh:   70.8 48.4  48.4 73.0 45.9  45.9 75.1 36.5  36.5 48.4 40.9  44.4
User DelAdj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:  70.8 48.4  48.4 73.0 45.9  45.9 75.1 36.5  36.5 48.4 40.9  44.4
LOS by Move:    E    D     D    E    D     D    E    D     D    D    D     D
HCM2kAvgQ:     11   23    23   11   18    18   14   10    10    1    6    17
*******************************************************************************
Note: Queue reported is the number of cars per lane.
```

Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Long Range (2035) With Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 Monroe St. / 61st Av.

Average Delay (sec/veh): 5.3 Worst Case Level Of Service: F[96.4]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	3	456	49	169	539	39	22	2	2	16	8	45
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	3	456	49	169	539	39	22	2	2	16	8	45
Added Vol:	0	0	0	22	0	0	0	0	0	0	0	13
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	3	456	49	191	539	39	22	2	2	16	8	58
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	3	496	53	208	586	42	24	2	2	17	9	63
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	3	496	53	208	586	42	24	2	2	17	9	63
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	7.1	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	628	xxxx	xxxxx	549	xxxx	xxxxx	1587	1578	607	1553	1572	522
Potent Cap.:	963	xxxx	xxxxx	1031	xxxx	xxxxx	88	111	500	93	111	558
Move Cap.:	963	xxxx	xxxxx	1031	xxxx	xxxxx	60	85	500	75	86	558
Volume/Cap:	0.00	xxxx	xxxx	0.20	xxxx	xxxx	0.40	0.03	0.00	0.23	0.10	0.11
Level Of Service Module:												
2Way95thQ:	0.0	xxxx	xxxxx	0.8	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	8.7	xxxx	xxxxx	9.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	66	xxxxx	xxxx	200	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	1.7	xxxxx	xxxxx	2.1	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	96.4	xxxxx	xxxxx	36.8	xxxxx
Shared LOS:	*	*	*	*	*	*	*	F	*	*	E	*
ApproachDel:		xxxxxx			xxxxxx			96.4			36.8	
ApproachLOS:		*			*			F			E	

Note: Queue reported is the number of cars per lane.

```
--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
         Long Range (2035) With Project Conditions (WITH IMPROVEMENTS)
                                PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #4 Monroe St. / 61st Av.
********************************************************************************
Cycle (sec):           65               Critical Vol./Cap.(X):         0.397
Loss Time (sec):       12               Average Delay (sec/veh):        19.4
Optimal Cycle: OPTIMIZED                Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected         Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:    10   19    19   10   19    19   20   20    20   20   20    20
Y+R:          4.0  4.0   4.0  4.0  4.0   4.0  4.0  4.0   4.0  4.0  4.0   4.0
Lanes:        1  0  1  1  0   1  0  1  1  0   0  0  1! 0  0   0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       3  456    49  169  539    39   22    2     2   16    8    45
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:    3  456    49  169  539    39   22    2     2   16    8    45
Added Vol:      0    0     0   22    0     0    0    0     0    0    0    13
PasserByVol:    0    0     0    0    0     0    0    0     0    0    0     0
Initial Fut:    3  456    49  191  539    39   22    2     2   16    8    58
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92 0.92 0.92  0.92 0.92 0.92  0.92 0.92 0.92  0.92
PHF Volume:     3  496    53  208  586    42   24    2     2   17    9    63
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:    3  496    53  208  586    42   24    2     2   17    9    63
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:    3  496    53  208  586    42   24    2     2   17    9    63
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900 1900 1900  1900 1900 1900  1900 1900 1900  1900
Adjustment:  0.95 0.94  0.94 0.95 0.94  0.94 0.81 0.81  0.81 0.87 0.87  0.87
Lanes:       1.00 1.81  0.19 1.00 1.87  0.13 0.84 0.08  0.08 0.19 0.10  0.71
Final Sat.:  1805 3211   345 1805 3333   241 1296  118   118  321  161  1164
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.15  0.15 0.12 0.18  0.18 0.02 0.02  0.02 0.05 0.05  0.05
Crit Moves:       ****       ****                                    ****
Green/Cycle: 0.18 0.29  0.29 0.22 0.33  0.33 0.31 0.31  0.31 0.31 0.31  0.31
Volume/Cap:  0.01 0.53  0.53 0.53 0.53  0.53 0.06 0.06  0.06 0.18 0.18  0.18
Delay/Veh:   22.2 19.8  19.8 24.1 18.0  18.0 15.9 15.9  15.9 16.6 16.6  16.6
User DelAdj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:  22.2 19.8  19.8 24.1 18.0  18.0 15.9 15.9  15.9 16.6 16.6  16.6
LOS by Move:    C    B     B    C    B     B    B    B     B    B    B     B
HCM2kAvgQ:      0    5     5    4    6     6    0    0     0    1    1     1
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                   Long Range (2035) With Project Conditions
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #5 Jackson St. / 60th Av.
********************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):         1.463
Loss Time (sec):        0              Average Delay (sec/veh):       137.9
Optimal Cycle:          0              Level Of Service:                  F
********************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      17  117    14    99  501    25    40  416    40    29  248   113
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   17  117    14    99  501    25    40  416    40    29  248   113
Added Vol:      0    4     0     0    7    22    13    4     0     0    7     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   17  121    14    99  508    47    53  420    40    29  255   113
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.94 0.94  0.94  0.94 0.94  0.94  0.94 0.94  0.94  0.94 0.94  0.94
PHF Volume:    18  129    15   105  540    50    56  447    43    31  271   120
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   18  129    15   105  540    50    56  447    43    31  271   120
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   18  129    15   105  540    50    56  447    43    31  271   120
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.11 0.80  0.09  0.15 0.78  0.07  0.10 0.82  0.08  0.07 0.65  0.28
Final Sat.:    44  315    36    72  369    34    49  390    37    35  303   134
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.41 0.41  0.41  1.46 1.46  1.46  1.15 1.15  1.15  0.89 0.89  0.89
Crit Moves:  ****             ****                   ****        ****
Delay/Veh:   17.5 17.5  17.5 240.4  240 240.4 113.7  114 113.7  46.5 46.5  46.5
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  17.5 17.5  17.5 240.4  240 240.4 113.7  114 113.7  46.5 46.5  46.5
LOS by Move:    C    C     C     F    F     F     F    F     F     E    E     E
ApproachDel:      17.5             240.4            113.7             46.5
Delay Adj:        1.00              1.00             1.00             1.00
ApprAdjDel:       17.5             240.4            113.7             46.5
LOS by Appr:         C                 F                F                E
AllWayAvgQ:   0.6  0.6   0.6  30.4 30.4  30.4  13.7 13.7  13.7   4.7  4.7   4.7
********************************************************************************
Note: Queue reported is the number of cars per lane.

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```

Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Long Range (2035) With Project Conditions (WITH IMPROVEMENTS)
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 Jackson St. / 60th Av.

Cycle (sec): 95		Critical Vol./Cap.(X):	0.396
Loss Time (sec): 16		Average Delay (sec/veh):	28.4
Optimal Cycle: OPTIMIZED		Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	30	30	10	30	30	10	30	30	10	30	30
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1 1	0	1 0	1 1	0	1 0	1 1	0	1 0	1 1	0
Volume Module:												
Base Vol:	17	117	14	99	501	25	40	416	40	29	248	113
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	17	117	14	99	501	25	40	416	40	29	248	113
Added Vol:	0	4	0	0	7	22	13	4	0	0	7	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	17	121	14	99	508	47	53	420	40	29	255	113
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	18	129	15	105	540	50	56	447	43	31	271	120
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	18	129	15	105	540	50	56	447	43	31	271	120
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	18	129	15	105	540	50	56	447	43	31	271	120
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.93	0.93	0.95	0.94	0.94	0.95	0.94	0.94	0.95	0.91	0.91
Lanes:	1.00	1.79	0.21	1.00	1.83	0.17	1.00	1.83	0.17	1.00	1.39	0.61
Final Sat.:	1805	3184	368	1805	3261	302	1805	3253	310	1805	2386	1058
Capacity Analysis Module:												
Vol/Sat:	0.01	0.04	0.04	0.06	0.17	0.17	0.03	0.14	0.14	0.02	0.11	0.11
Crit Moves:	****				****			****		****		
Green/Cycle:	0.10	0.31	0.31	0.10	0.31	0.31	0.10	0.31	0.31	0.10	0.31	0.31
Volume/Cap:	0.10	0.13	0.13	0.56	0.53	0.53	0.30	0.44	0.44	0.16	0.36	0.36
Delay/Veh:	39.1	23.7	23.7	44.7	27.7	27.7	40.7	26.6	26.6	39.6	25.8	25.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	39.1	23.7	23.7	44.7	27.7	27.7	40.7	26.6	26.6	39.6	25.8	25.8
LOS by Move:	D	C	C	D	C	C	D	C	C	D	C	C
HCM2kAvgQ:	0	2	2	4	8	8	2	6	6	1	5	5

Note: Queue reported is the number of cars per lane.

```
--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                    Long Range (2035) With Project Conditions
                                  PM Peak Hour
--------------------------------------------------------------------------------
                       Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #6 Jackson St. / 61st Av.
********************************************************************************
Average Delay (sec/veh):      6.1       Worst Case Level Of Service: D[ 28.2]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  0  1! 0  0   0  0  1! 0  0   0  0  1! 0  0   0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      44   85     2   16  500    61   42   51    37    3   35     3
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:   44   85     2   16  500    61   42   51    37    3   35     3
Added Vol:      7    0     0    0    0     7    4    4     4    0    7     0
PasserByVol:    0    0     0    0    0     0    0    0     0    0    0     0
Initial Fut:   51   85     2   16  500    68   46   55    41    3   42     3
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92 0.92 0.92  0.92 0.92 0.92  0.92 0.92 0.92  0.92
PHF Volume:    55   92     2   17  543    74   50   60    45    3   46     3
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
FinalVolume:   55   92     2   17  543    74   50   60    45    3   46     3
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx  4.1 xxxx xxxxx  7.1  6.5   6.2  7.1  6.5   6.2
FollowUpTim:  2.2 xxxx xxxxx  2.2 xxxx xxxxx  3.5  4.0   3.3  3.5  4.0   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  617 xxxx xxxxx   95 xxxx xxxxx  844  821   580  872  857    93
Potent Cap.:  972 xxxx xxxxx 1512 xxxx xxxxx  285  312   518  273  297   969
Move Cap.:    972 xxxx xxxxx 1512 xxxx xxxxx  235  290   518  199  276   969
Volume/Cap:  0.06 xxxx  xxxx 0.01 xxxx  xxxx 0.21 0.21  0.09 0.02 0.17  0.00
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.2 xxxx xxxxx  0.0 xxxx xxxxx xxxx xxxx xxxxx xxxx xxxx xxxxx
Control Del:  8.9 xxxx xxxxx  7.4 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    A    *     *    A    *     *    *    *     *    *    *     *
Movement:     LT - LTR - RT   LT - LTR - RT   LT - LTR - RT   LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx xxxx xxxx xxxxx xxxx  306 xxxxx xxxx  282 xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx  2.7 xxxxx xxxxx  0.7 xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx 28.2 xxxxx xxxxx 20.6 xxxxx
Shared LOS:     *    *     *    *    *     *    *    D     *    *    C     *
ApproachDel:     xxxxxx           xxxxxx             28.2             20.6
ApproachLOS:        *                *                 D                C
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
         Long Range (2035) With Project Conditions (WITH IMPROVEMENTS)
                                PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #6 Jackson St. / 61st Av.
********************************************************************************
Cycle (sec):          90              Critical Vol./Cap.(X):        0.304
Loss Time (sec):      12              Average Delay (sec/veh):       20.3
Optimal Cycle: OPTIMIZED              Level Of Service:                 C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected         Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:    10   19    19    10   19    19    30   30    30    30   30    30
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  1  1  0    1  0  1  1  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      44   85     2    16  500    61    42   51    37     3   35     3
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   44   85     2    16  500    61    42   51    37     3   35     3
Added Vol:      7    0     0     0    0     7     4    4     4     0    7     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   51   85     2    16  500    68    46   55    41     3   42     3
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    55   92     2    17  543    74    50   60    45     3   46     3
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   55   92     2    17  543    74    50   60    45     3   46     3
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   55   92     2    17  543    74    50   60    45     3   46     3
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  0.95  0.95 0.93  0.93  0.73 0.94  0.94  0.69 0.99  0.99
Lanes:       1.00 1.95  0.05  1.00 1.76  0.24  1.00 0.57  0.43  1.00 0.93  0.07
Final Sat.:  1805 3516    83  1805 3121   424  1383 1019   760  1305 1756   125
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.03  0.03  0.01 0.17  0.17  0.04 0.06  0.06  0.00 0.03  0.03
Crit Moves:  ****                  ****              ****
Green/Cycle: 0.11 0.35  0.35  0.18 0.42  0.42  0.33 0.33  0.33  0.33 0.33  0.33
Volume/Cap:  0.28 0.08  0.08  0.05 0.41  0.41  0.11 0.18  0.18  0.01 0.08  0.08
Delay/Veh:   37.4 19.6  19.6  30.3 18.4  18.4  20.9 21.4  21.4  20.1 20.6  20.6
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  37.4 19.6  19.6  30.3 18.4  18.4  20.9 21.4  21.4  20.1 20.6  20.6
LOS by Move:    D    B     B     C    B     B     C    C     C     C    C     C
HCM2kAvgQ:      2    1     1     0    6     6     1    2     2     0    1     1
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                    Long Range (2035) With Project Conditions
                                  PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #7 Dwy. 1 / 60th Av.
********************************************************************************
Average Delay (sec/veh):      1.7       Worst Case Level Of Service: E[ 35.0]
********************************************************************************
Approach:      North Bound       South Bound        East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Stop Sign         Stop Sign        Uncontrolled      Uncontrolled
Rights:          Include           Include           Include           Include
Lanes:        1  0  0  0  1    0  0  0  0  0    0  0  0  1  0    1  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0     0    0     0     0  675     0     0  572     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0     0    0     0     0  675     0     0  572     0
Added Vol:     43    0    17     0    0     0     0    0    73    29    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   43    0    17     0    0     0     0  675    73    29  572     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    47    0    18     0    0     0     0  734    79    32  622     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   47    0    18     0    0     0     0  734    79    32  622     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  6.4 xxxx   6.2 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5 xxxx   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1458 xxxx   773  xxxx xxxx xxxxx  xxxx xxxx xxxxx   813 xxxx xxxxx
Potent Cap.:  144 xxxx   402  xxxx xxxx xxxxx  xxxx xxxx xxxxx   823 xxxx xxxxx
Move Cap.:    140 xxxx   402  xxxx xxxx xxxxx  xxxx xxxx xxxxx   823 xxxx xxxxx
Volume/Cap:  0.33 xxxx  0.05  xxxx xxxx  xxxx  xxxx xxxx  xxxx  0.04 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    1.3 xxxx   0.1  xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.1 xxxx xxxxx
Control Del: 43.2 xxxx  14.4 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   9.5 xxxx xxxxx
LOS by Move:    E    *     B     *    *     *     *    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:       35.0           xxxxxx            xxxxxx            xxxxxx
ApproachLOS:         E               *                 *                 *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
         Long Range (2035) With Project Conditions (WITH IMPROVEMENTS)
                                PM Peak Hour
--------------------------------------------------------------------------------
                       Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #7 Dwy. 1 / 60th Av.
********************************************************************************
Average Delay (sec/veh):       1.2       Worst Case Level Of Service: C[ 24.7]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        1  0  0  0  1    0  0  0  0  0    0  0  1  1  0    1  0  2  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0     0    0     0     0  675     0     0  572     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0     0    0     0     0  675     0     0  572     0
Added Vol:     43    0    17     0    0     0     0    0    73    29    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   43    0    17     0    0     0     0  675    73    29  572     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    47    0    18     0    0     0     0  734    79    32  622     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   47    0    18     0    0     0     0  734    79    32  622     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  6.8 xxxx   6.9 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5 xxxx   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1147 xxxx   407  xxxx xxxx xxxxx  xxxx xxxx xxxxx   813 xxxx xxxxx
Potent Cap.:  195 xxxx   600  xxxx xxxx xxxxx  xxxx xxxx xxxxx   823 xxxx xxxxx
Move Cap.:    190 xxxx   600  xxxx xxxx xxxxx  xxxx xxxx xxxxx   823 xxxx xxxxx
Volume/Cap:  0.25 xxxx  0.03  xxxx xxxx  xxxx  xxxx xxxx  xxxx  0.04 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2WayQ95thQ:   0.9 xxxx   0.1  xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.1 xxxx xxxxx
Control Del: 30.1 xxxx  11.2 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   9.6 xxxx xxxxx
LOS by Move:    D    *     B     *    *     *     *    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:       24.7           xxxxxx           xxxxxx           xxxxxx
ApproachLOS:         C               *                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                    Long Range (2035) With Project Conditions
                                 PM Peak Hour
--------------------------------------------------------------------------------
                       Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #8 Dwy. 2 / 61st Av.
********************************************************************************
Average Delay (sec/veh):      1.2       Worst Case Level Of Service: A[  9.9]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  0  0  0    0  0  1! 0  0    1  0  1  0  0    0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0     0    0     0     0  220     0     0   69     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0     0    0     0     0  220     0     0   69     0
Added Vol:      0    0     0    13    0    13    22    0     0     0    0    22
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0    13    0    13    22  220     0     0   69    22
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     0    0     0    14    0    14    24  239     0     0   75    24
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0    0     0    14    0    14    24  239     0     0   75    24
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4  6.5   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5  4.0   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx   374  374    87    99 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   631  560   977  1507 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   623  551   977  1507 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.02 0.00  0.01  0.02 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.0 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.4 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx  761 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx  0.1 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx  9.9 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    A     *     *    *     *     *    *     *
ApproachDel:    xxxxxx              9.9            xxxxxx           xxxxxx
ApproachLOS:         *               A                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
         Long Range (2035) With Project Conditions (WITH IMPROVEMENTS)
                                PM Peak Hour
--------------------------------------------------------------------------------
                        Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #8 Dwy. 2 / 61st Av.
********************************************************************************
Average Delay (sec/veh):      1.2       Worst Case Level Of Service: A[  9.9]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  0  0  0    0  0  1! 0  0    1  0  1  0  0    0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:        0    0     0     0    0     0     0  220     0     0   69     0
Growth Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:     0    0     0     0    0     0     0  220     0     0   69     0
Added Vol:       0    0     0    13    0    13    22    0     0     0    0    22
PasserByVol:     0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:     0    0     0    13    0    13    22  220     0     0   69    22
User Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:      0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:      0    0     0    14    0    14    24  239     0     0   75    24
Reduct Vol:      0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:     0    0     0    14    0    14    24  239     0     0   75    24
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4  6.5   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5  4.0   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx   374  374    87    99 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   631  560   977  1507 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   623  551   977  1507 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.02 0.00  0.01  0.02 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.0 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.4 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx  761 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx  0.1 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx  9.9 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    A     *     *    *     *     *    *     *
ApproachDel:     xxxxxx              9.9              xxxxxx           xxxxxx
ApproachLOS:        *                 A                 *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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--------------------------------------------------------------------------------
         Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
                   Long Range (2035) With Project Conditions
                                PM Peak Hour
--------------------------------------------------------------------------------

                       Level Of Service Computation Report
             2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #9 Madison St. / 58th Av.
********************************************************************************
Cycle (sec):          100                 Critical Vol./Cap.(X):         2.525
Loss Time (sec):        0                 Average Delay (sec/veh):       454.0
Optimal Cycle:          0                 Level Of Service:                  F
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  2  0  1    1  0  2  0  1    1  0  1  0  1    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      14 1347    67   280 1207   163   223  127    25    28   71   490
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   14 1347    67   280 1207   163   223  127    25    28   71   490
Added Vol:      9    4     0    15    7     0     0   15    15     0    9     9
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   23 1351    67   295 1214   163   223  142    40    28   80   499
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    25 1468    73   321 1320   177   242  154    43    30   87   542
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   25 1468    73   321 1320   177   242  154    43    30   87   542
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   25 1468    73   321 1320   177   242  154    43    30   87   542
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 2.00  1.00  1.00 2.00  1.00  1.00 1.00  1.00  1.00 2.00  1.00
Final Sat.:   279  581   308   302  630   336   274  284   301   274  570   301
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.09 2.53  0.24  1.06 2.09  0.53  0.88 0.54  0.14  0.11 0.15  1.80
Crit Moves:       ****              ****        ****                        ****
Delay/Veh:   16.8  721  18.0 105.4  527  24.8  67.1 29.4  16.7  17.5 17.6 399.7
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  16.8  721  18.0 105.4  527  24.8  67.1 29.4  16.7  17.5 17.6 399.7
LOS by Move:    C    F     C     F    F     C     F    D     C     C    C     F
ApproachDel:     677.5            403.9             48.9            331.7
Delay Adj:        1.00             1.00             1.00             1.00
ApprAdjDel:      677.5            403.9             48.9            331.7
LOS by Appr:         F                F                E                F
AllWayAvgQ:   0.1 57.0   0.3   7.6 44.9   1.1   3.9  1.1   0.2   0.1  0.2  32.2
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

Vista Soleada (TTM 36590) Traffic Impact Analysis (JN:08773)
Long Range (2035) With Project Conditions (WITH IMPROVEMENTS)
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #9 Madison St. / 58th Av.

Cycle (sec):	80	Critical Vol./Cap.(X):	0.897
Loss Time (sec):	12	Average Delay (sec/veh):	31.0
Optimal Cycle:	OPTIMIZED	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Ovl		
Min. Green:	10	10	10	10	22	22	10	29	29	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 0	1	1 0	2 0	1	1 0	1 1	0	1 0	2 0	1
Volume Module:												
Base Vol:	14	1347	67	280	1207	163	223	127	25	28	71	490
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	14	1347	67	280	1207	163	223	127	25	28	71	490
Added Vol:	9	4	0	15	7	0	0	15	15	0	9	9
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	23	1351	67	295	1214	163	223	142	40	28	80	499
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	25	1468	73	321	1320	177	242	154	43	30	87	542
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	25	1468	73	321	1320	177	242	154	43	30	87	542
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	25	1468	73	321	1320	177	242	154	43	30	87	542
Saturation Flow Module:												
Sat/Lane:	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850
Adjustment:	0.95	0.95	0.85	0.95	0.95	0.85	0.69	0.92	0.92	0.62	0.95	0.85
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.56	0.44	1.00	2.00	1.00
Final Sat.:	1758	3515	1573	1758	3515	1573	1286	2652	747	1147	3515	1573
Capacity Analysis Module:												
Vol/Sat:	0.01	0.42	0.05	0.18	0.38	0.11	0.19	0.06	0.06	0.03	0.02	0.34
Crit Moves:		****		****								****
Green/Cycle:	0.17	0.47	0.47	0.20	0.50	0.50	0.18	0.18	0.18	0.18	0.18	0.38
Volume/Cap:	0.09	0.90	0.10	0.90	0.75	0.22	1.04	0.32	0.32	0.15	0.14	0.90
Delay/Veh:	28.3	26.6	12.0	55.2	17.7	11.3	102.9	28.8	28.8	27.9	27.6	39.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	28.3	26.6	12.0	55.2	17.7	11.3	102.9	28.8	28.8	27.9	27.6	39.3
LOS by Move:	C	C	B	E	B	B	F	C	C	C	C	D
HCM2kAvgQ:	1	22	1	11	15	2	12	2	2	1	1	17

Note: Queue reported is the number of cars per lane.