JS 63 MX

(f.k.a. Milestone MX Ethanac Road Motorcycle Park)

TRAFFIC IMPACT ANALYSIS

COUNTY OF RIVERSIDE

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AUGUST 16, 2020

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
CA MUTCD	California Manual on Uniform Traffic Control Devices
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CMP	Congestion Management Program
E+P	Existing Plus Project
EAP	Existing Plus Ambient Growth Plus Project
EAPC	Existing Plus Ambient Growth Plus Project Plus Cumulative
HCM	Highway Capacity Manual
ITE	Institute of Transportation Engineers
LOS	Level of Service
N/A	Not Applicable
NP	No Project (or Without Project)
PCE	Passenger Car Equivalent
PHF	Peak Hour Factor
Project	Milestone MX Ethanac Road Motorcycle Park
RCTC	Riverside County Transportation Commission
RTA	Riverside Transit Authority
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SB 743	California Senate Bill 743 (Steinberg, 2013)
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
sf	Square Feet
TIA	Traffic Impact Analysis
WP	With Project
WRCOG	Western Riverside Council of Governments
v/c	Volume-to-Capacity Ratio

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1 INTRODUCTION

This report presents the results of the traffic impact analysis (TIA) for the proposed JS 63 MX, formerly known as Milestone MX Ethanac Road Motorcycle Park ("Project"), which is located at 21220 Ethanac Road in the County of Riverside, as shown on Exhibit 1-1.

The purpose of this TIA is to evaluate the potential circulation system deficiencies that may result from the development of the proposed Project, and to recommend improvements to achieve acceptable circulation system operational conditions. As directed by County of Riverside staff, this traffic study has been prepared in accordance with the County of Riverside Traffic Impact Analysis Preparation Guidelines, and consultation with County staff during the scoping process. (1) The approved Project Traffic Study Scoping agreement is provided in Appendix 1.1 of this TIA.

1.1 PROJECT OVERVIEW

The Project is a Motorcycle Park/Race Track proposed to consist of various tracks, approximately six structures, and five parking lots. The six proposed structures would consist of the following uses: proposed storage units with a bathroom (with 4-6 stalls) and snack bar; proposed bike wash; proposed Pro Shop building; proposed Pro Race Shops building; proposed ticket booth; and a proposed event hall building with a bathroom and shower area. There would be four parking areas for automobiles and a designated R.V. parking area. The tracks would be available for practice 7 days a week and events would be limited to weekends and are estimated at approximately 15 per year. The facility would be open for night practice 3 days per week.

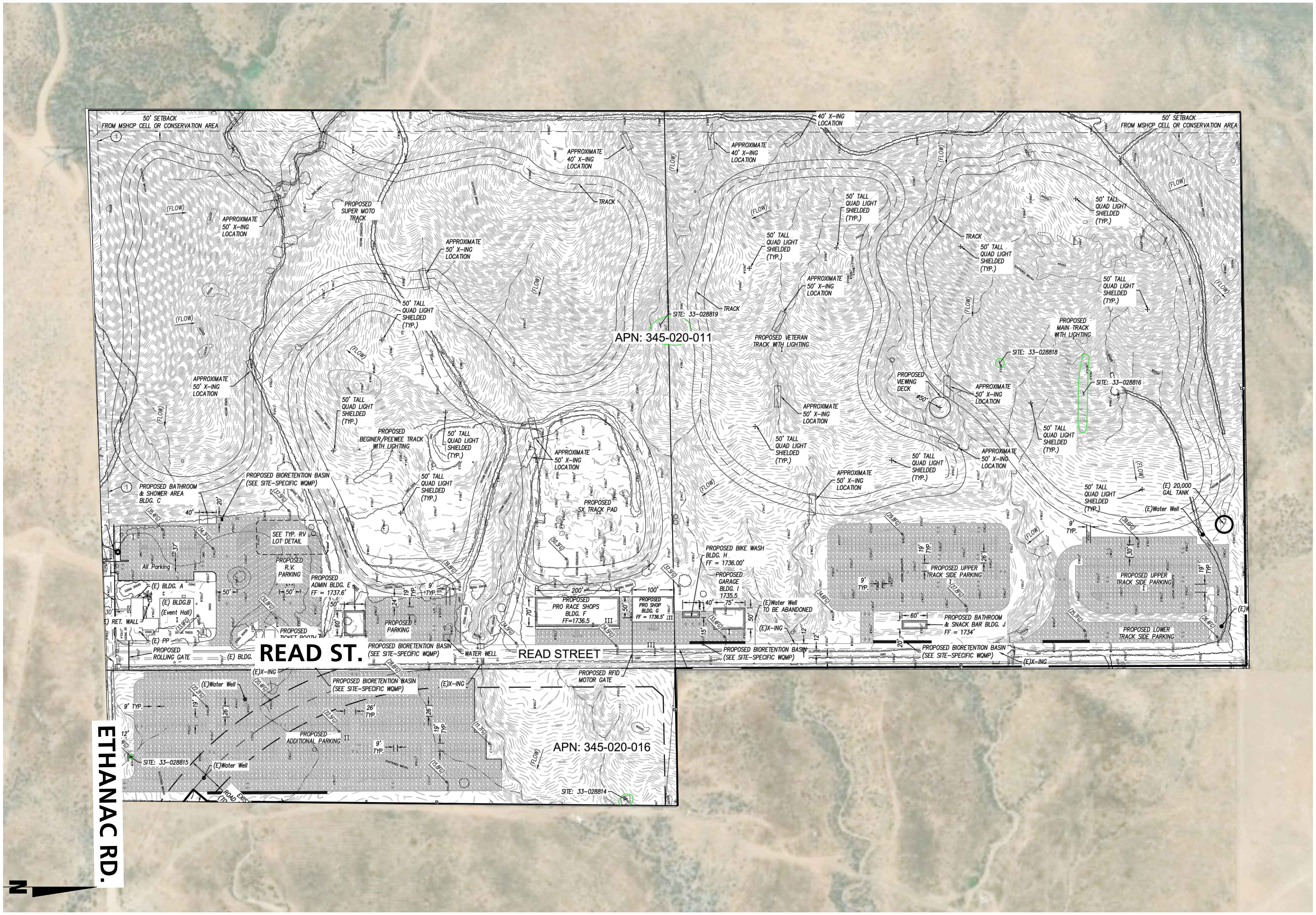
Exhibit 1-1 illustrates the preliminary site plan. Access to the Project site will be provided from the SR-74 Highway via Ethanac Road. The Project is anticipated to generate 410 actual vehicle weekday trip-ends per day, 63 actual vehicle weekday AM peak hour trips, 18 actual vehicle weekday PM peak hour trips, 86 actual vehicle typical weekend mid-day peak hour trips, and 175 actual vehicle special event weekend peak hour trips. Passenger car equivalent (PCE) factors were applied to the trip generation rates for heavy trucks (large 2-axles, 3-axles, 4+-axles). In comparison to actual vehicles, the Project is anticipated to generate 419 PCE weekday trip-ends per day, 64 weekday PCE AM peak hour trips, 18 weekday PCE PM peak hour trips, 88 typical weekend PCE mid-day peak hour trips, and 175 special event weekend PCE peak hour trips. The assumptions and methods used to estimate the Project's trip generation characteristics are discussed in greater detail in Section 4.1 *Project Trip Generation* of this report.

1.2 ANALYSIS SCENARIOS

For the purposes of this traffic study, potential impacts to traffic and circulation have been assessed for each of the following conditions:

- Existing (2019) Conditions
- Existing plus Project (E+P) Conditions
- Existing plus Ambient Growth Plus Project (EAP) (2020) Conditions
- Existing plus Ambient Growth Plus Project Plus Cumulative (EAPC) (2020) Conditions

EXHIBIT 1-1: PRELIMINARY SITE PLAN



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1.2.1 EXISTING (2019) CONDITIONS

Information for Existing (2019) conditions is disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared.

1.2.2 EXISTING PLUS PROJECT CONDITIONS

The Existing Plus Project (E+P) analysis determines circulation system deficiencies that would occur on the existing roadway system in the scenario of the Project being placed upon Existing conditions. The E+P analysis is intended to identify the project-specific traffic impacts associated solely with the development of the proposed Project based on a comparison of the E+P traffic conditions to Existing (2019) conditions.

1.2.3 EAP CONDITIONS

The EAP (2020) traffic conditions analyses determine potential traffic impacts based on a comparison of the EAP traffic conditions to Existing conditions. To account for background traffic growth, an ambient growth factor from Existing conditions of 1.02% (2 percent per year over 1 year) for 2020 conditions is included for EAP traffic conditions. Consistent with Riverside County traffic study guidelines, the EAP analysis is intended to identify "Opening Year" deficiencies associated with the development of the proposed Project based on the expected background growth within the study area.

1.2.4 EAPC CONDITIONS

The EAPC (2020) traffic conditions analyses determine the potential near-term cumulative circulation system deficiencies. To account for background traffic growth, traffic associated with other known cumulative development projects in conjunction with an ambient growth factor from Existing conditions of 1.02% (2020) is included for EAPC traffic conditions. This comprehensive list was compiled from information provided by the County of Riverside.

1.3 STUDY AREA

To ensure that this TIA satisfies the County of Riverside's traffic study requirements, Urban Crossroads, Inc. prepared a project traffic study scoping package for review by County staff prior to the preparation of this report. The Agreement provides an outline of the Project study area, trip generation, trip distribution, and analysis methodology.

1.3.1 INTERSECTIONS

Five study area intersections shown on Exhibit 1-2 and listed in Table 1-1 were selected for this TIA based on consultation with County of Riverside staff. The "50 peak hour trip" criterion utilized by the County of Riverside is consistent with the methodology employed by the County of Riverside, and generally represents a minimum number of trips at which a typical intersection would have the potential to be substantively impacted by a given development proposal. Although each intersection may have unique operating characteristics, this traffic engineering rule of thumb is a widely utilized tool for estimating a potential area of impact (i.e., study area). The Project is anticipated to contribute 50 weekday peak hour trips to Read Street & Ethanac

Road and SR-74 & Ethanac Road. The other study area intersections were chosen based on proximity and consultation with County of Riverside staff.

TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction	CMP?
1	Read St. & Ethanac Rd.	County of Riverside	No
2	SR-74 & Theda St.	County of Riverside	No
3	SR-74 & Ethanac Rd.	County of Riverside	No
4	SR-74 & River Rd.	County of Riverside	No
5	SR-74 & Meadowbrook Av./Greenwald Av.	County of Riverside	No

The intent of a Congestion Management Program (CMP) is to more directly link land use, transportation, and air quality, thereby prompting reasonable growth management programs that will effectively utilize new transportation funds, alleviate traffic congestion and related impacts, and improve air quality. The County of Riverside CMP became effective with the passage of Proposition 111 in 1990 and updated most recently updated in 2011. The Riverside County Transportation Commission (RCTC) adopted the 2011 CMP for the County of Riverside in December 2011. (2) CMP intersections are identified in Table 1-1.

1.4 LEVEL OF SERVICE (LOS) DEFICIENCIES

This section provides a summary of LOS deficiencies. Section 2 *Methodologies* provides information on the methodologies used in the analysis and Section 5 *E+P Traffic Conditions*, Section 6 *EAP (2020) Traffic Conditions*, and Section 7 *EAPC (2020) Traffic Conditions* includes the detailed analysis. A summary of LOS results for all analysis scenarios is presented on Exhibit 1-3.

1.4.1 E+P CONDITIONS

SR-74 & Ethanac Road (#3) – This intersection was found to operate at an unacceptable LOS (LOS E or worse) during the peak hours under Existing traffic conditions and is anticipated to continue to operate at an unacceptable LOS during the one or more peak hours with the addition of Project traffic, resulting in a cumulative deficiency.

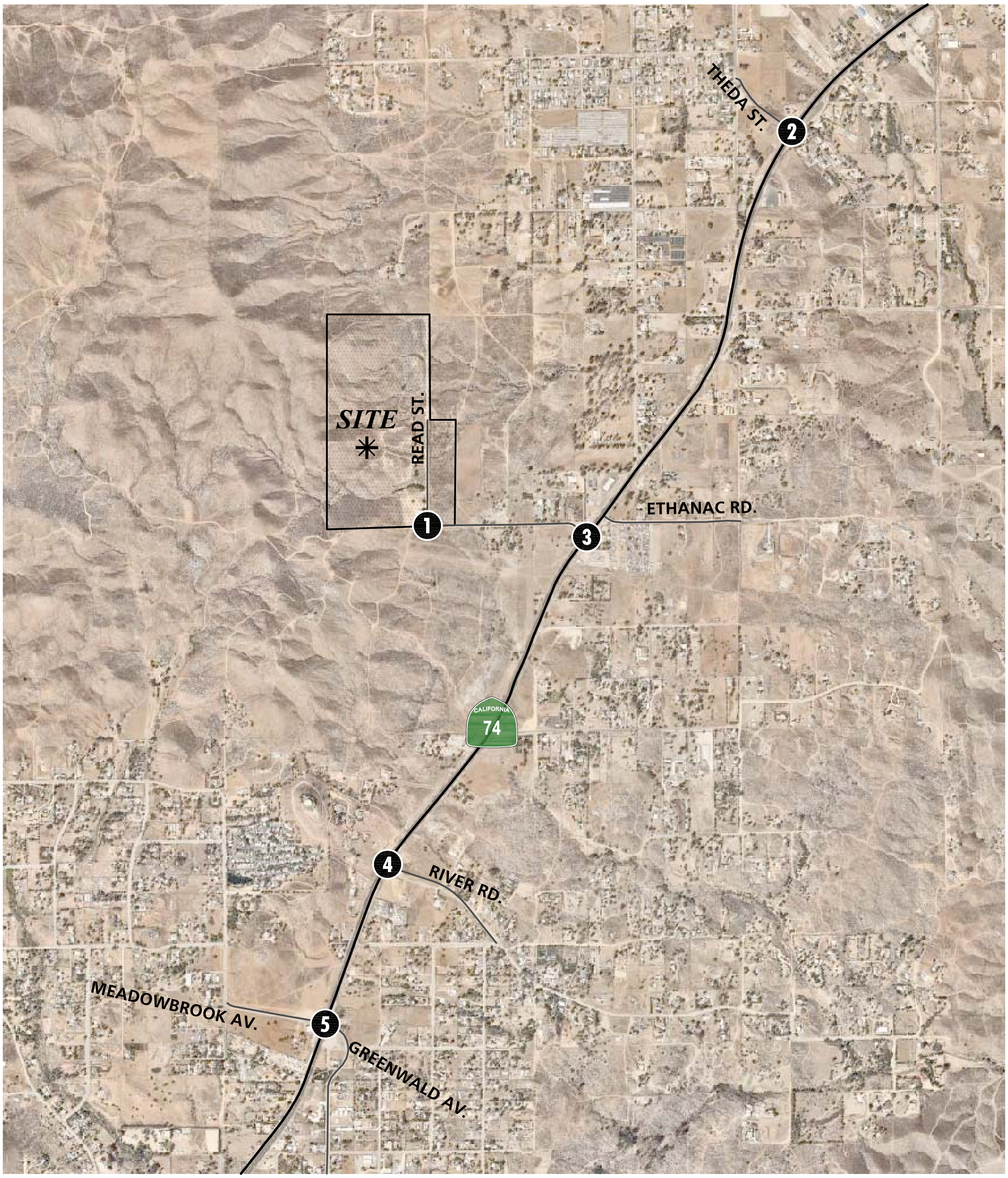
1.4.2 EAP AND EAPC (2020) CONDITIONS

The following study area intersection is anticipated to continue to operate at a deficient LOS during one or more peak hours for EAP and EAPC (2020), resulting in a cumulative deficiency:

- SR-74 & Ethanac Road (#3)

The Project is anticipated to contribute to these deficiencies by adding traffic (as measured by 50 or more peak hours trips), resulting in a cumulative deficiency. Cumulative deficiencies are not directly caused by the Project. The Project would, however, contribute traffic to these deficient intersections along with other cumulative development projects.

EXHIBIT 1-2: LOCATION MAP



LEGEND:

⓿ = EXISTING INTERSECTION ANALYSIS LOCATION

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EXHIBIT 1-3: SUMMARY OF DEFICIENT INTERSECTIONS BY ANALYSIS SCENARIO

#	Intersection	Existing (2019)	E+P Weekday	E+P Saturday	EAP (2020) Weekday	EAP (2020) Saturday	EAPC (2020) Weekday	EAPC (2020) Saturday
1	Read St. & Ethanac Rd.	AM: LOS A-D, PM: LOS A-D, Sat: LOS A-D	AM: LOS A-D, PM: LOS A-D	Typical: LOS A-D, Special Event: LOS A-D	AM: LOS A-D, PM: LOS A-D	Typical: LOS A-D, Special Event: LOS A-D	AM: LOS A-D, PM: LOS A-D	Typical: LOS A-D, Special Event: LOS A-D
2	SR-74 & Theda St.	AM: LOS A-D, PM: LOS A-D, Sat: LOS A-D	AM: LOS A-D, PM: LOS A-D	Typical: LOS A-D, Special Event: LOS A-D	AM: LOS A-D, PM: LOS A-D	Typical: LOS A-D, Special Event: LOS A-D	AM: LOS A-D, PM: LOS A-D	Typical: LOS A-D, Special Event: LOS A-D
3	SR-74 & Ethanac Rd.	AM: LOS E, PM: LOS E, Sat: LOS F	AM: LOS E, PM: LOS F	Typical: LOS F, Special Event: LOS F	AM: LOS E, PM: LOS F	Typical: LOS F, Special Event: LOS F	AM: LOS E, PM: LOS F	Typical: LOS F, Special Event: LOS F
4	SR-74 & River Rd.	AM: LOS A-D, PM: LOS A-D, Sat: LOS A-D	AM: LOS A-D, PM: LOS A-D	Typical: LOS A-D, Special Event: LOS A-D	AM: LOS A-D, PM: LOS A-D	Typical: LOS A-D, Special Event: LOS A-D	AM: LOS A-D, PM: LOS A-D	Typical: LOS A-D, Special Event: LOS A-D
5	SR-74 & Meadowbrook Av./Greenwald Av.	AM: LOS A-D, PM: LOS A-D, Sat: LOS A-D	AM: LOS A-D, PM: LOS A-D	Typical: LOS A-D, Special Event: LOS A-D	AM: LOS A-D, PM: LOS A-D	Typical: LOS A-D, Special Event: LOS A-D	AM: LOS A-D, PM: LOS A-D	Typical: LOS A-D, Special Event: LOS A-D
	SEE LEGEND	L1	L2	L3	L2	L3	L2	L3

LEGEND-L1:

- = AM PEAK HOUR
- = PM PEAK HOUR
- = TYPICAL SATURDAY
- = LOS A-D
- = LOS E
- = LOS F

LEGEND-L2:

- = AM PEAK HOUR
- = PM PEAK HOUR
- = LOS A-D
- = LOS E
- = LOS F

LEGEND-L3:

- = SATURDAY (TYPICAL)
- = SATURDAY (SPECIAL EVENT)
- = LOS A-D
- = LOS E
- = LOS F

1.5 RECOMMENDATIONS

The following recommendations are based on the improvements needed to address the LOS deficiencies. Exhibit 1-4 shows the site adjacent recommendations. A queuing analysis was conducted along the site adjacent roadways of Read Street and Ethanac Road for EAPC (2020) traffic conditions to determine the turn pocket lengths necessary to accommodate long-term 95th percentile queues and recommend storage lengths for the turning movements shown on Exhibit 1-4. The analysis was conducted for the weekday AM and weekday PM peak hours using the SimTraffic modeling software. The EAPC (2020) queuing results are provided in Appendix 1.2 of this report.

SimTraffic is designed to model networks of signalized and unsignalized intersections, with the primary purpose of checking and fine-tuning signal operations. SimTraffic uses the input parameters from Synchro (Version 10) to generate random simulations. The 95th percentile queue is not necessarily ever observed; it is simply based on statistical calculations (or Average Queue plus 1.65 standard deviations). The random simulations generated by SimTraffic have been utilized to determine the 95th percentile queue lengths observed for each turn lane. A SimTraffic simulation has been recorded 5 times, during the weekday AM and weekday PM peak hours, and has been seeded for 60-minute periods with 60-minute recording intervals.

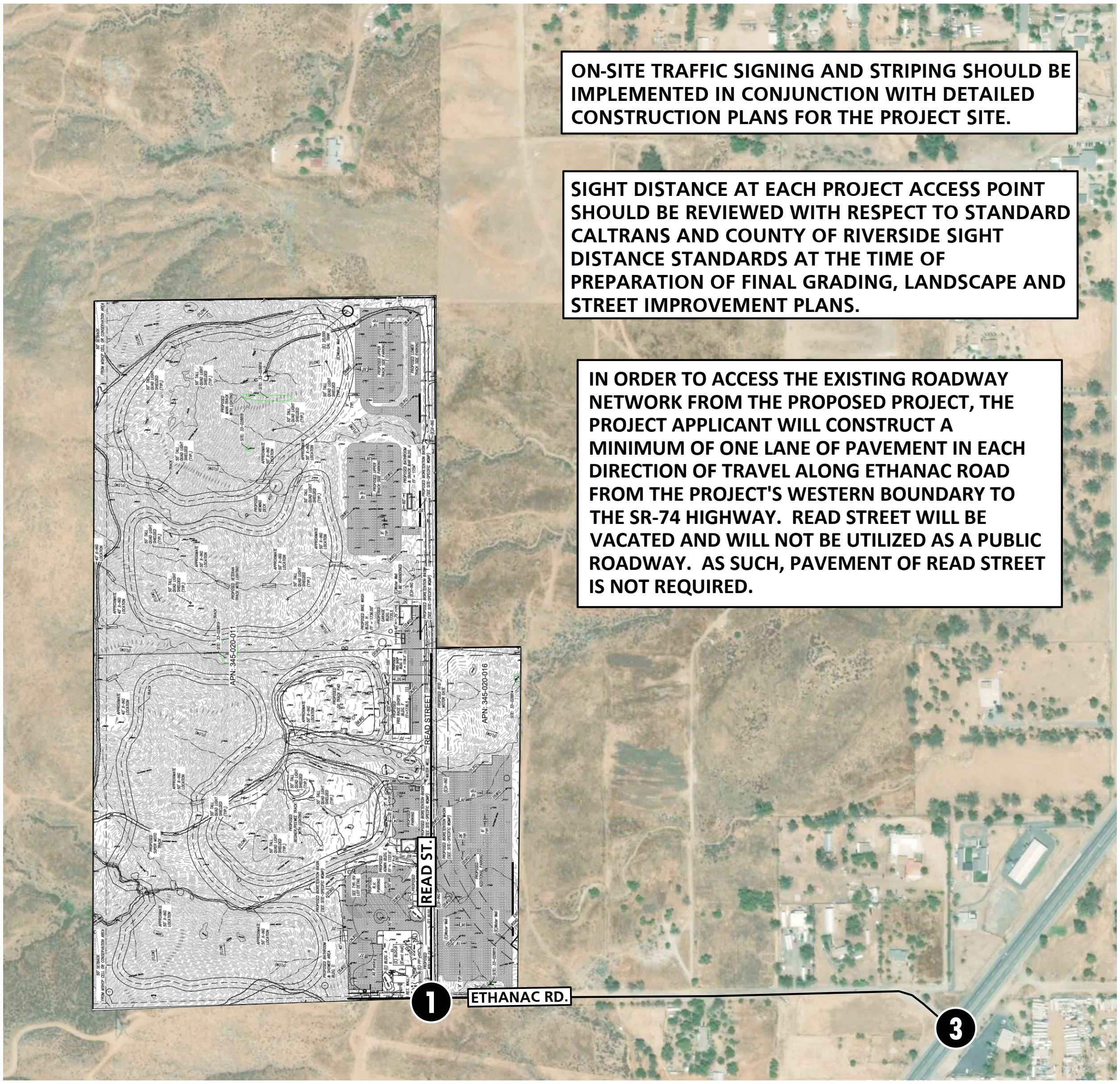
Recommendation 1.1 – ***Read Street & Ethanac Road (#1)*** – The following improvements are necessary to accommodate site access:

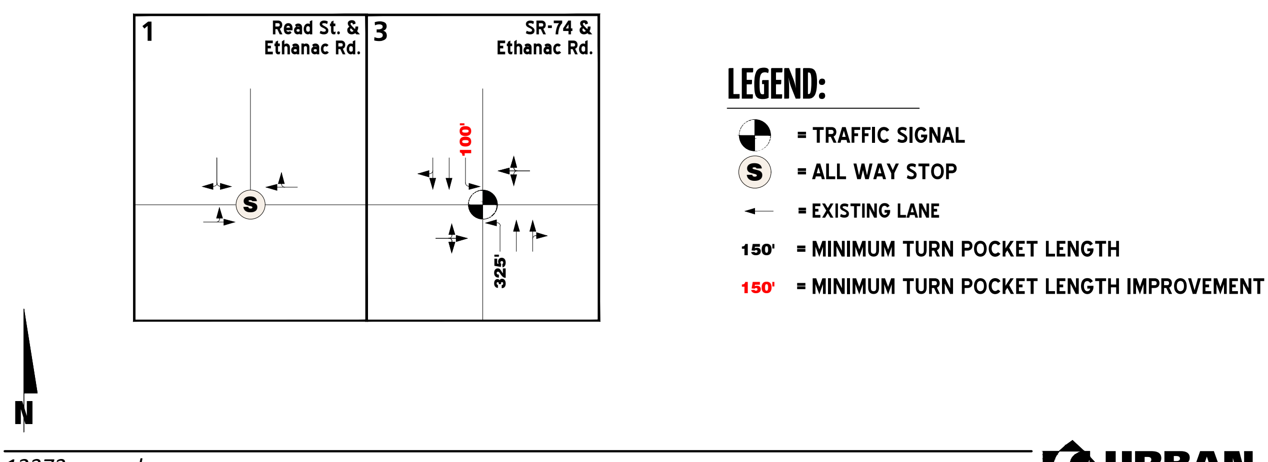
- Project to install a stop control on the southbound approach and a southbound shared left-right turn lane.
- Project to install a stop control on the eastbound approach and an eastbound shared left-through lane.
- Project to install a stop control on the westbound approach and a westbound shared through-right turn lane.

Recommendation 2.1 – Prior to the issuance of building permits, the Project Applicant shall participate in the Western Riverside Council of Governments (WRCOG) Transportation Uniform Mitigation Fee (TUMF) program and the County's Development Impact Fee (DIF) program by paying the requisite TUMF and DIF fee at the time of building permit; or where applicable, the County may require Project to construct off-site improvements. The construction of facilities by the Project Applicant may be eligible for TUMF or DIF credit and reimbursement.

Recommendation 3.1 – The Developer will contribute a fair-share amount for the intersections that either share a mutual border with or are wholly located within the County of Riverside that have recommended improvements as the improvement is not covered by TUMF/DIF. Developer shall be required to pay the fair share fee to the County of Riverside prior to the issuance of building permits. The County of Riverside shall hold Developer's Fair Share contribution in trust and shall apply Developer's Fair Share Contribution to any fee program adopted or agreed upon by the County of Riverside and other agencies as a result of implementation of Recommendation 3.1.

EXHIBIT 1-4: SITE ADJACENT ROADWAY AND SITE ACCESS RECOMMENDATIONS





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Recommendation 4.1 – In order to access the existing roadway network from the proposed Project, the Project applicant will construct a minimum of one lane of pavement in each direction of travel along Ethanac Road from the Project's western boundary to the SR-74 Highway. Read Street will be vacated and will not be utilized as a public roadway. As such, pavement of Read Street is not required.

Wherever necessary, roadways adjacent to the Project, site access points and site-adjacent intersections will be constructed to be consistent with the identified roadway classifications and respective cross-sections in the County of Riverside General Plan Circulation Element.

On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the Project site.

The recommended improvements needed to address the cumulative deficiencies identified under E+P, EAP (2020), and EAPC (2020) traffic conditions are shown on Table 1-2. For those improvements listed on Table 1-2 and not constructed as part of the Project, the Applicant's responsibility for the Project's contributions towards deficient intersections is fulfilled through payment of fair share, TUMF, and/or DIF fees that would be assigned to construction of the identified recommended improvements. The Project Applicant would be required to pay TUMF, DIF, and fair share fees consistent with the County's requirements (see Section 8 *Local and Regional Funding Mechanisms*).

1.6 TRUCK ACCESS AND CIRCULATION

Due to the typical wide turning radius of large trucks, a truck turning template has been overlaid on the site plan at each applicable Project driveway anticipated to be utilized by heavy trucks in order to determine appropriate curb radii and to verify that trucks will have sufficient space to execute turning maneuvers (see Exhibit 1-5).[1]

A WB-67 (53-foot trailer) has been utilized for the north leg of Read Street at Ethanac Road. As shown on Exhibit 1-5, Read Street and Ethanac Road should be modified to provide 60-foot radius on the northeast curb in order to accommodate a WB-67 truck.

[1] The traffic counts taken at the existing raceways indicated that one 4-axle truck was observed on the respective site. In an effort to be conservative, a WB-67 (53-foot trailer) was utilized for the truck turning template. If a 4-axle truck smaller than the WB-67 is anticipated, the radius required on the northeast curb should be less than 60-feet.

Table 1-2

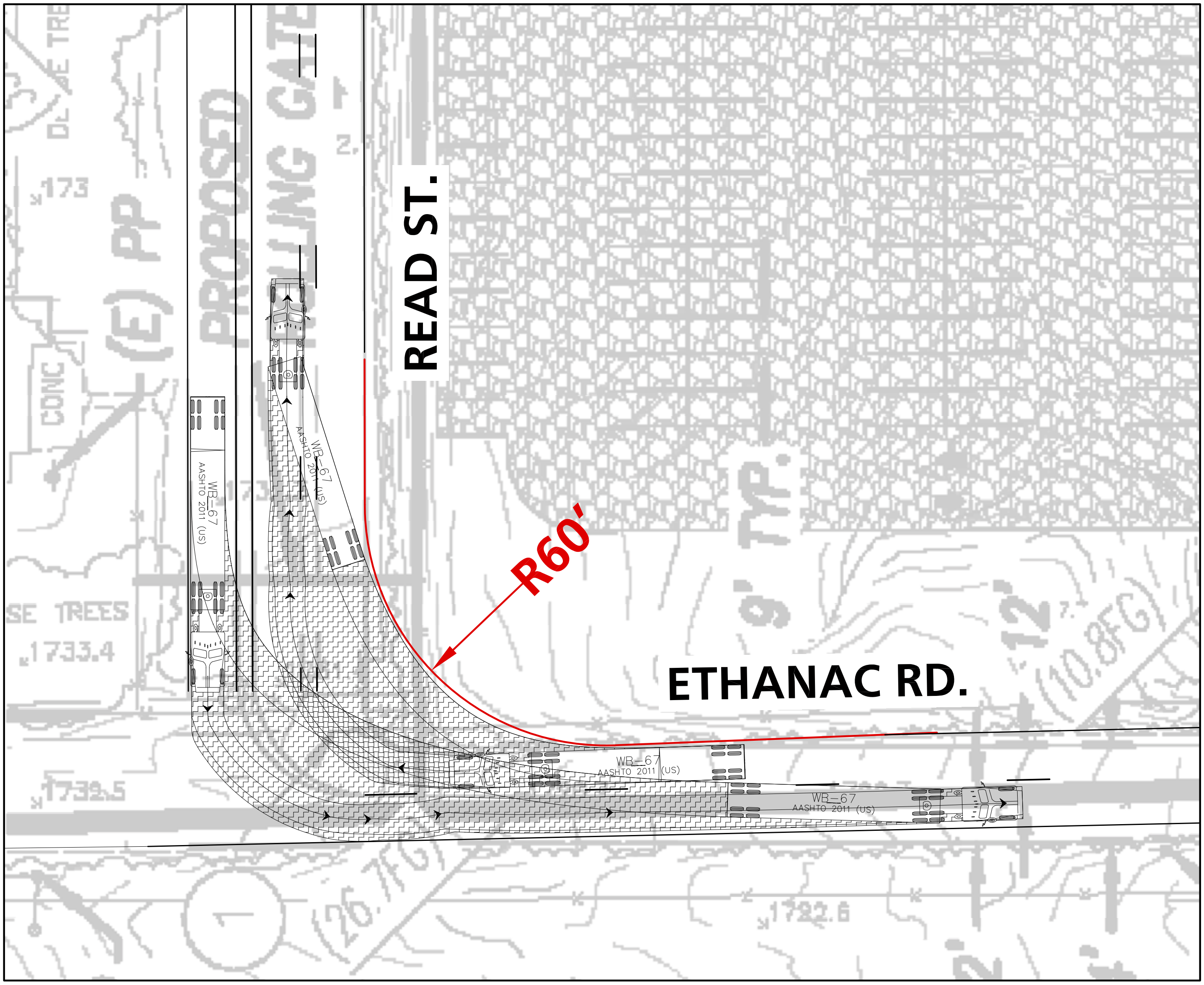
Summary of Improvements

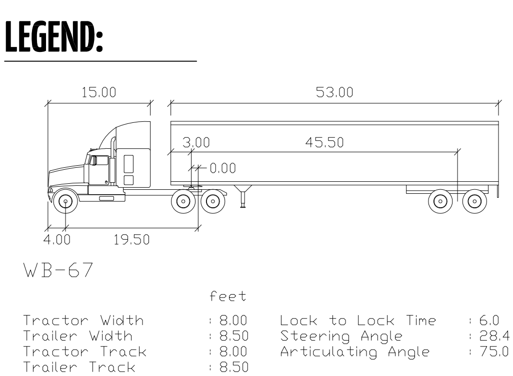
#	Intersection Location	Jurisdiction	E+P	EAP (2020)	EAPC (2020)	Improvements in TUMF/DIF?[1]	Fair Share %[2]
3	SR-74 & Ethanac Rd.	County of Riverside	- Install a traffic signal	Same	Same	No	45.5%

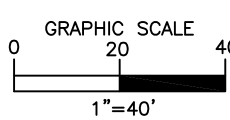
[1] Improvements included in County of Riverside TUMF or DIF programs for local, regional and specific plan components.

[2] Program improvements constructed by Project may be eligible for fee credit, at discretion of County. See Table 8-1 for Fair Share Calculations.

EXHIBIT 1-5: TRUCK ACCESS







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2 METHODOLOGIES

This section of the report presents the methodologies used to perform the traffic analyses summarized in this report. The methodologies described are generally consistent with County of Riverside traffic study guidelines.

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) methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. (3) The HCM uses different procedures depending on the type of intersection control.

2.2.1 SIGNALIZED INTERSECTIONS

The signalized intersection operations analysis is based on the methodology described in the HCM 6th Edition. (3) 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 INTERSECTION LOS THRESHOLDS

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Operations with very low delay occurring with favorable progression and/or short cycle length.	0 to 10.00	A	F
Operations with low delay occurring with good progression and/or short cycle lengths.	10.01 to 20.00	B	F

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.01 to 35.00	C	F
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	D	F
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	E	F
Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths	80.01 and up	F	F

Source: HCM 6th Edition

The traffic modeling and signal timing optimization software package Synchro (Version 10) has been utilized to analyze signalized intersections. Synchro is a macroscopic traffic software program that is based on the signalized intersection capacity analysis as specified in the HCM. Macroscopic level models represent traffic in terms of aggregate measures for each movement at the study intersections. Equations are used to determine measures of effectiveness such as delay and queue length. The level of service and capacity analysis performed by Synchro takes into consideration optimization and coordination of signalized intersections within a network. Signal timing optimization has considered pedestrian safety and signal coordination requirements. Appropriate time for pedestrian crossings has also been considered in the signalized intersection analysis.

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-minute 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 all analysis scenarios, with the exception of General Plan Buildout traffic conditions. Per Chapter 4 of the HCM 6th Edition, 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. (3) In an effort to conduct a conservative analysis, a PHF of 0.92 has been utilized for General Plan Buildout traffic conditions, unless the PHF is higher for Existing conditions.

2.2.2 UNSIGNALIZED INTERSECTIONS

The County of Riverside requires the operations of unsignalized intersections be evaluated using the methodology described in the HCM 6th Edition. (3) The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 2-2).

TABLE 2-2: UNSIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay Per Vehicle (Seconds)	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Little or no delays.	0 to 10.00	A	F
Short traffic delays.	10.01 to 15.00	B	F
Average traffic delays.	15.01 to 25.00	C	F
Long traffic delays.	25.01 to 35.00	D	F
Very long traffic delays.	35.01 to 50.00	E	F
Extreme traffic delays with intersection capacity exceeded.	> 50.00	F	F

Source: HCM 6th Edition

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. None of the study area intersections are unsignalized.

2.3 MINIMUM LEVEL OF SERVICE (LOS)

County of Riverside General Plan Policy C 2.1 states that the following minimum target levels of service have been designated for the review of development proposals in the unincorporated areas of Riverside County:

- LOS C shall apply to all development proposals in any area of the Riverside County not located within the boundaries of an Area Plan, as well those areas located within the following Area Plans: REMAP, Eastern Coachella Valley, Desert Center, Palo Verde Valley, and those non- Community Development areas of the Elsinore, Lake Mathews/Woodcrest, Mead Valley and Temescal Canyon Area Plans.
- LOS D shall apply to all development proposals located within any of the following Area Plans: Eastvale, Jurupa, Highgrove, Reche Canyon/Badlands, Lakeview/Nuevo, Sun City/Menifee Valley, Harvest Valley/Winchester, Southwest Area, The Pass, San Jacinto Valley, Western Coachella Valley and those Community Development Areas of the Elsinore, Lake Mathews/Woodcrest, Mead Valley and Temescal Canyon Area Plans. LOS E may be allowed by the Board of Supervisors within designated areas where transit oriented development and walkable communities are proposed.

Notwithstanding the forgoing minimum LOS targets, the Board of Supervisors may, on occasion by virtue of their discretionary powers, approve a project that fails to meet these LOS targets in order to balance congestion management considerations in relation to benefits, environmental impacts and costs, provided an Environmental Impact Report, or equivalent, has been completed to fully evaluate the impacts of such approval. Any such approval must incorporate all feasible mitigation measures, make specific findings to support the decision, and adopt a statement of overriding considerations.

2.4 DEFICIENCY CRITERIA

To determine whether the addition of project traffic at a study intersection would result in a deficiency, the following will be utilized:

- A deficiency occurs at study area intersections if the pre-Project condition is at or better than LOS D (i.e., acceptable LOS), and the addition of project trips causes the peak hour LOS of the study area intersection to operate at unacceptable LOS (i.e., LOS E or F). Per the County of Riverside traffic study guidelines, for intersections currently operating at unacceptable LOS (LOS E or F), a deficiency would occur if the Project contributes 50 or more peak hour trips to pre-project traffic conditions.

3 AREA CONDITIONS

This section provides a summary of the existing circulation network, the County of Riverside General Plan Circulation Network, and a review of existing peak hour intersection operations and roadway segment capacities.

3.1 EXISTING CIRCULATION NETWORK

The study area includes a total of 5 intersections as shown previously on Exhibit 1-2. Exhibit 3-1 illustrates the study area intersections and identifies the number of through traffic lanes for existing roadways and intersection traffic controls.

3.2 COUNTY OF RIVERSIDE GENERAL PLAN CIRCULATION ELEMENT

Exhibit 3-2 shows the adopted County of Riverside General Plan Roadway Network. Exhibit 3-3 illustrates the adopted County of Riverside General Plan roadway cross-sections.

3.3 TRANSIT SERVICE

The County of Riverside and is currently served by the Riverside Transit Agency (RTA), a public transit agency serving various jurisdictions throughout the County of Riverside. The existing bus routes provided within the County are shown on Exhibit 3-4. Transit service is reviewed and updated by RTA 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.

3.4 EXISTING (2019) TRAFFIC COUNTS

The intersection LOS analysis is based on the traffic volumes observed during the peak hour conditions using traffic count data collected in June 2019. The following peak hours were selected for analysis:

- Weekday AM Peak Hour (peak hour between 7:00 AM and 9:00 AM)
- Weekday PM Peak Hour (peak hour between 4:00 PM and 6:00 PM)
- Saturday Mid-Day Peak Hour (peak hour between 2:00 PM and 4:00 PM)

The weekday AM and PM peak hour and Saturday mid-day peak hour count data are representative of typical 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 that would prevent or limit roadway access and detour routes. The raw manual peak hour turning movement traffic count data sheets are included in Appendix 3.1. These raw turning volumes have been flow conserved between intersections with limited access, no access and where there are currently no uses generating traffic.

EXHIBIT 3-1: EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS

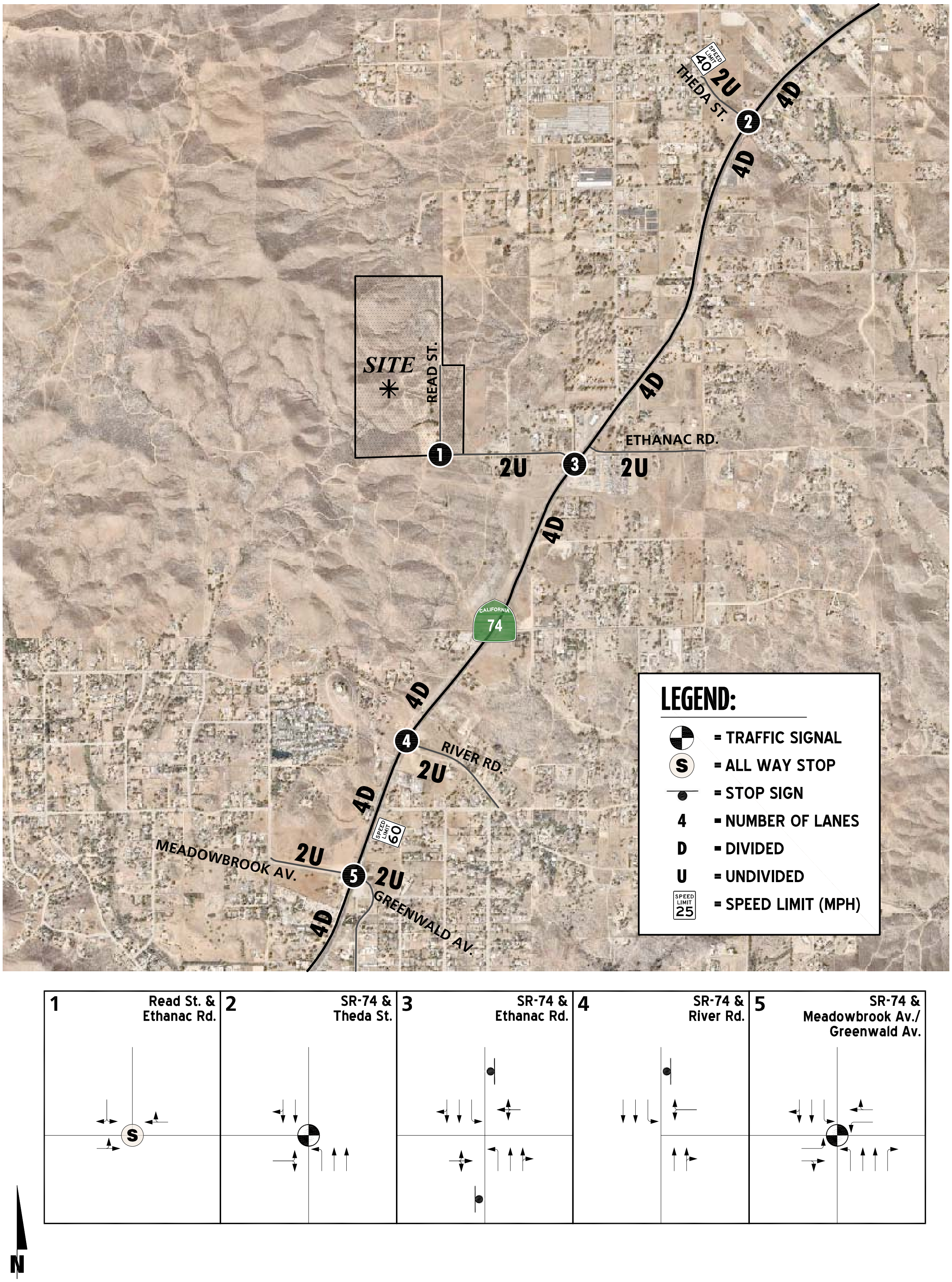


EXHIBIT 3-2: COUNTY OF RIVERSIDE GENERAL PLAN CIRCULATION ELEMENT

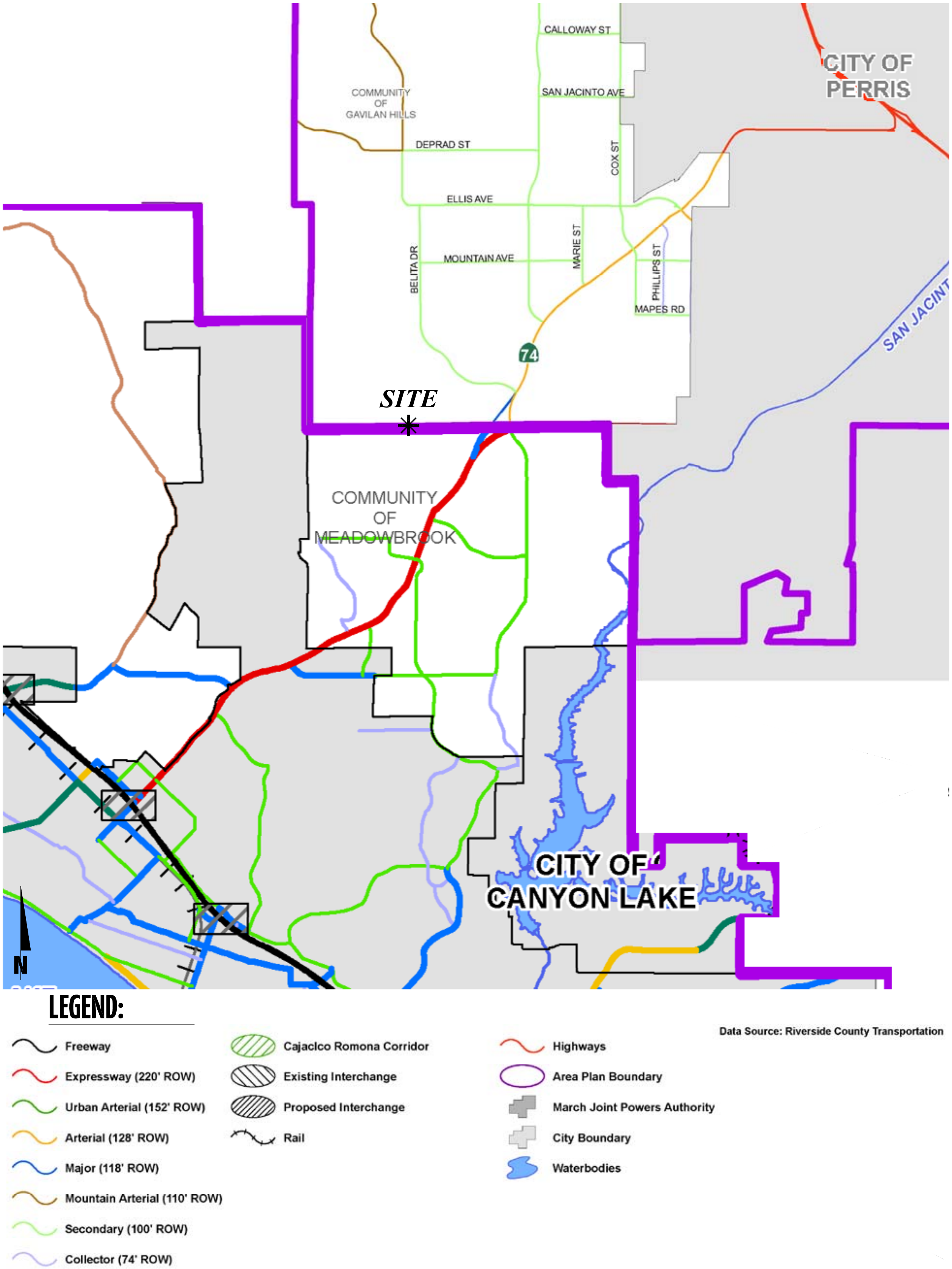
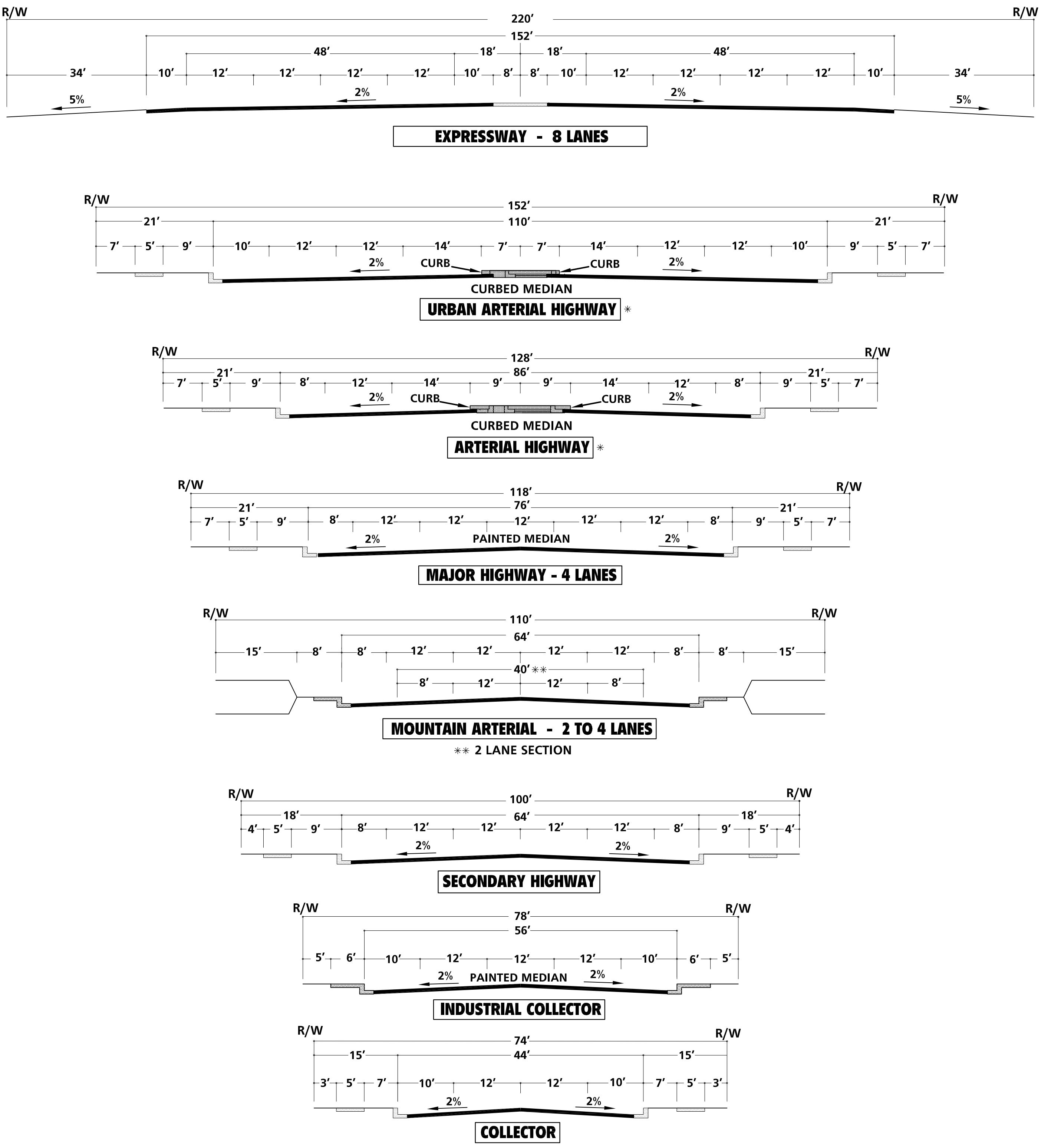


EXHIBIT 3-3: COUNTY OF RIVERSIDE GENERAL PLAN ROADWAY CROSS-SECTIONS

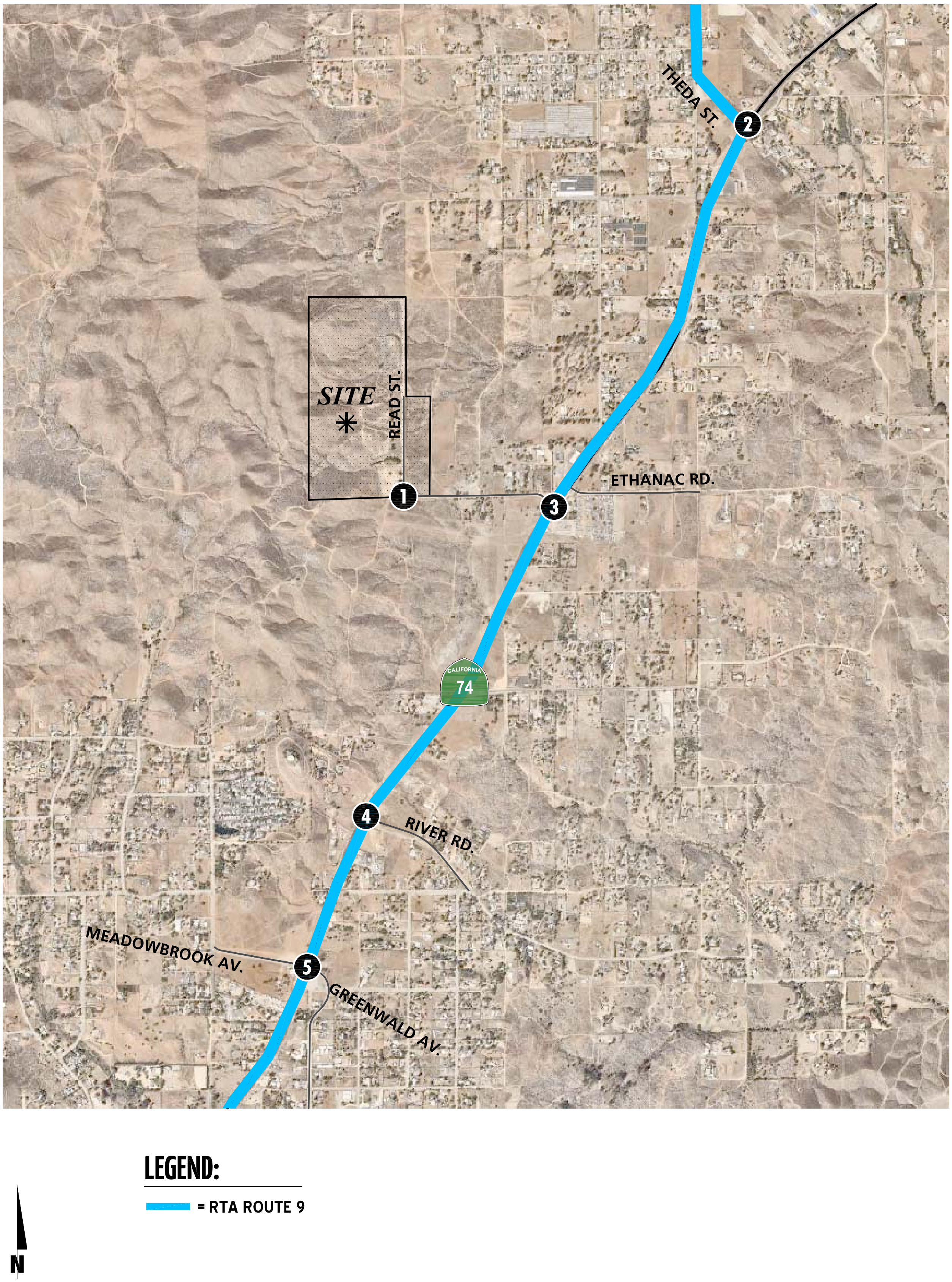


* IMPROVEMENTS MAY BE RECONFIGURED TO ACCOMMODATE EXCLUSIVE TRANSIT LANES OR ALTERNATIVE LANE ARRANGEMENTS ADDITIONAL RIGHT OF WAY MAY BE REQUIRED AT INTERSECTIONS TO ACCOMMODATE ULTIMATE IMPROVEMENTS FOR STATE HIGHWAYS SHALL CONFORM TO CALTRANS DESIGN STANDARDS.

NOT TO SCALE

SOURCE: COUNTY OF RIVERSIDE

EXHIBIT 3-4: EXISTING TRANSIT ROUTES



The raw manual peak hour turning movement traffic count data sheets are included in Appendix 3.1. These raw turning volumes have been flow conserved between intersections with limited access, no access and where there are currently no uses generating traffic (e.g., adjacent rural intersections, etc.).

Existing weekday average daily traffic (ADT) volumes on arterial highways throughout the study area are shown on Exhibit 3-5. Where 24-hour tube count data was not available, Existing ADT volumes were based upon factored intersection peak hour counts collected by Urban Crossroads, Inc. using the following formula for each intersection leg:

Weekday PM Peak Hour (Approach Volume + Exit Volume) x 12.96 = Leg Volume

A comparison of the PM peak hour and daily traffic volumes of various roadway segments within the study area indicated that the peak-to-daily relationship is approximately 7.71 percent. As such, the above equation utilizing a factor of 12.96 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 7.71 percent (i.e., 1/0.0771 = 12.96) and was assumed to sufficiently estimate average daily traffic (ADT) volumes for planning-level analyses.

Existing weekday AM and weekday PM peak hour intersection volumes are shown on Exhibit 3-5 and Existing Saturday peak hour intersection volumes are shown on Exhibit 3-6.

3.5 INTERSECTION OPERATIONS ANALYSIS

Existing 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. The intersection operations analysis results are summarized in Table 3-1 which indicates that all of the study area intersections are currently operating at acceptable LOS during the peak hours, with the exception of the following:

- SR-74 & Ethanac Rd. (#3) – LOS E weekday AM and PM peak hours; LOS F Saturday peak hour

Consistent with Table 3-1, a summary of the peak hour intersection LOS for Existing conditions is shown on Exhibit 3-7. The intersection operations analysis worksheets are included in Appendix 3.2 of this TIA.

3.6 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for Existing traffic conditions are based on existing peak hour intersection turning volumes. For Existing traffic conditions, no traffic signals appear to currently be warranted (see Appendix 3.3).

EXHIBIT 3-5: EXISTING (2019) WEEKDAY TRAFFIC VOLUMES (IN PCE)

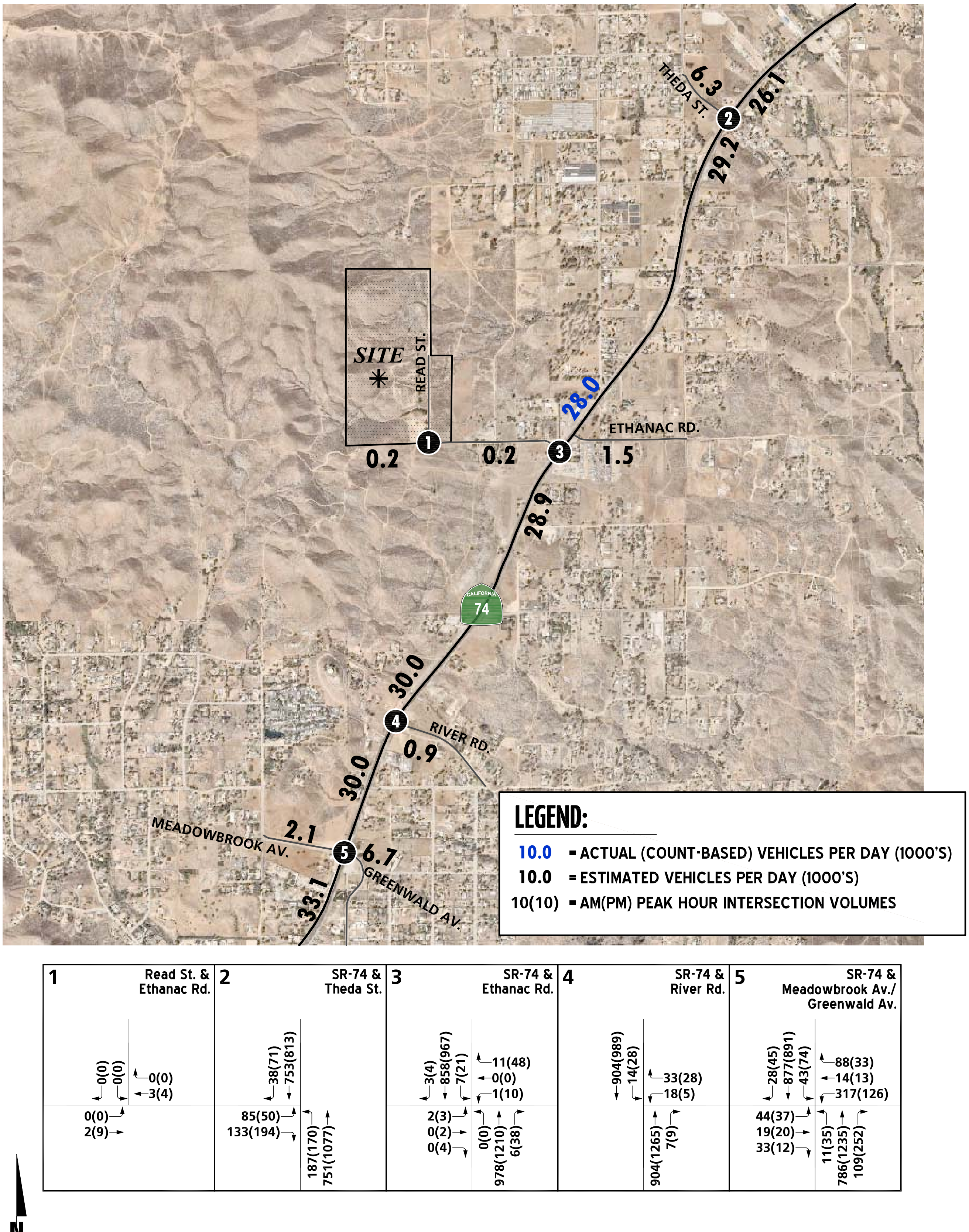
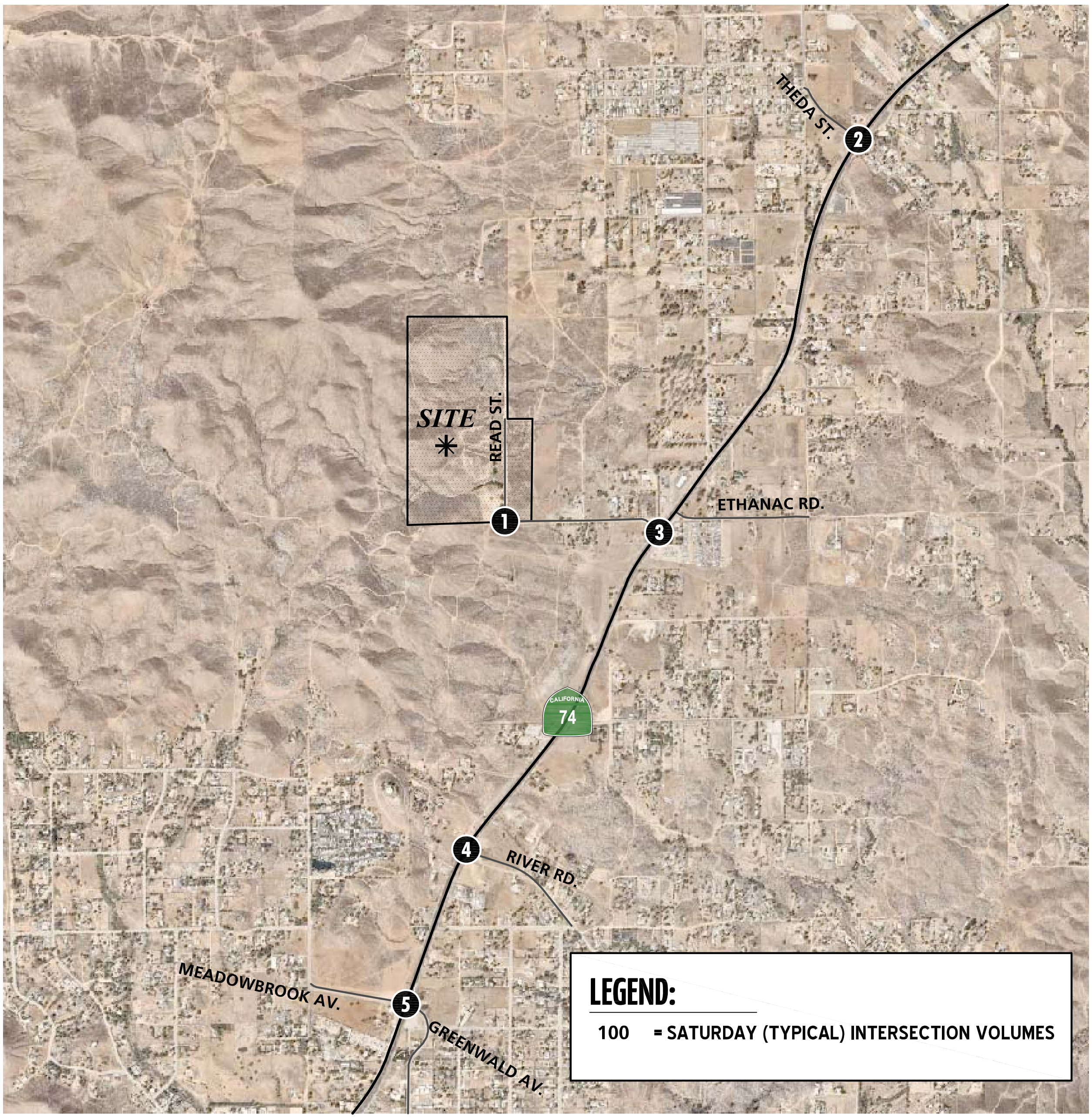


EXHIBIT 3-6: EXISTING (2019) SATURDAY (TYPICAL) TRAFFIC VOLUMES (IN PCE)



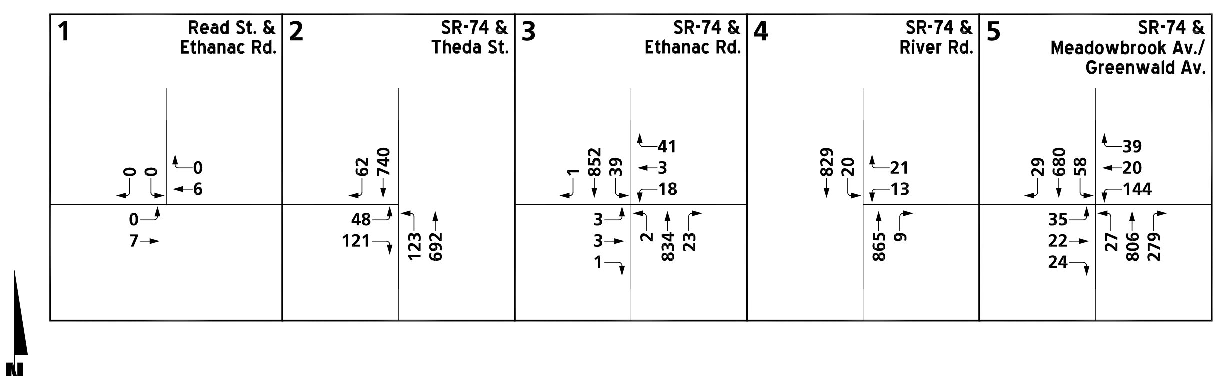


EXHIBIT 3-7: EXISTING (2019) SUMMARY OF LOS

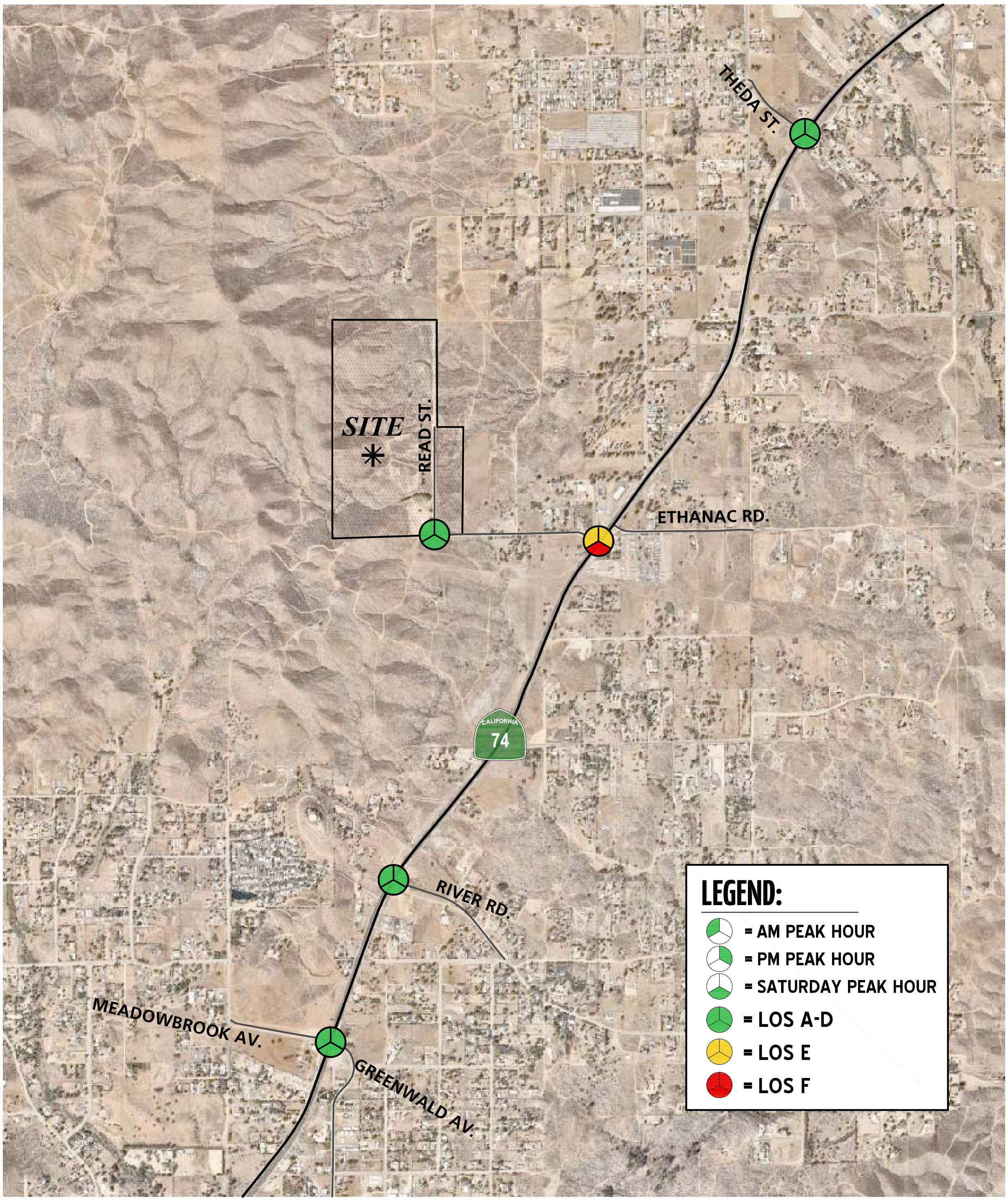


Table 3-1

Intersection Analysis for Existing (2019) Conditions

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)				Level of Service			
			Northbound			Southbound			Eastbound			Westbound										
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	Sat	Sat-SP	AM	PM	Sat	Sat-SP
1	Read St. & Ethanac Rd.	AWS	0	0	0	0	1	0	0	1	0	0	1	0	6.9	6.9	6.9	N/A	A	A	A	N/A
2	SR-74 & Theda St.	TS	1	2	0	0	2	0	0	1	0	0	0	0	14.0	11.6	10.3	N/A	B	B	B	N/A
3	SR-74 & Ethanac Rd.	CSS	1	2	0	1	2	0	0	1	0	0	1	0	**36.3**	**46.9**	**56.2**	N/A	**E**	**E**	**F**	N/A
4	SR-74 & River Rd.	CSS	1	2	0	1	2	0	0	1	0	0	1	0	14.2	15.6	14.0	N/A	B	C	B	N/A
5	SR-74 & Meadowbrook Av./Greenwald Av.	TS	1	2	1	1	2	0	1	1	0	1	1	0	20.1	12.9	14.6	N/A	C	B	B	N/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

[2] Per the Highway Capacity Manual (6th Edition), 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] AWS = All-way Stop; CSS = Cross-street Stop; TS = Traffic Signal

4 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 a Motorcycle Park/Race Track proposed to consist of various tracks, approximately six structures, and five parking lots. The six proposed structures would consist of the following uses: proposed storage units with a bathroom (with 4-6 stalls) and snack bar; proposed bike wash; proposed Pro Shop building; proposed Pro Race Shops building; proposed ticket booth; and a proposed event hall building with a bathroom and shower area. There would be four parking areas for automobiles and a designated R.V. parking area. The tracks would be available for practice 7 days a week and events would be limited to weekends and are estimated at approximately 15 per year. The facility would be open for night practice 3 days per week.

For the purposes of this analysis, the Project is anticipated to be developed in 1 phase by the year 2020. Access to the Project site will be provided from the SR-74 Highway via Ethanac Road.

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.

Due to the unique nature of the proposed land use, trip generation rates in the Institute of Transportation Engineers (ITE) Trip Generation Manual were not readily available for the Project. As such, existing facilities with similar anticipated operations were selected for observation at the direction of County staff. The two sites assessed are the Milestone MX raceway and the Glen Helen Raceway, both described below. The count data for the two sites are provided in Appendix 1.1.

4.1.1 MILESTONE MX

Milestone MX is an existing raceway located in Riverside and sits on approximately 71.43 acres. The peak weekday operations on this site are anticipated to occur on Thursdays and Fridays. As such, traffic counts on Thursday (December 7, 2017) and Friday (December 8, 2017) were obtained for this location. The typical peak weekend operations on this site are anticipated to occur on Saturday. As such, traffic counts on Saturday (April 7, 2018) was obtained for this location. There is a single driveway for the Milestone MX site on Holly Street. The count data for the two typical weekdays and one typical Saturday are provided in Table 4-1.

4.1.2 GLEN HELEN RACEWAY

Glen Helen Raceway is an existing raceway located in San Bernardino and sits on approximately 256.0 acres. Milestone MX did not have any large events scheduled for the remainder of the 2019 calendar year.

Table 4-1

Existing Count Data

Land Use	MilestoneMX (Weekday - 12/7/2017)							MilestoneMX (Weekday - 12/8/2017)							MilestoneMX (SAT - 4/7/2018)				Glen Helen (SAT - 11/25/2017)			
	AM Peak Hour			PM Peak Hour				AM Peak Hour			PM Peak Hour				Saturday Peak Hour				Saturday Peak Hour			
	In	Out	Total	In	Out	Total	Daily	In	Out	Total	In	Out	Total	Daily	In	Out	Total	Daily	In	Out	Total	Daily
Actual Vehicles																						
Existing Raceway																						
Passenger Cars:	60	4	64	1	6	7	355	49	7	56	7	20	27	438	76	8	84	555	158	17	175	1,927
Truck Trips:																						
2-axle:	2	1	3	0	0	0	11	0	0	0	0	0	0	12	1	1	2	24	0	0	0	53
3-axle:	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0
4+-axle:	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	1
- Net Truck Trips (Actual)	*2*	*1*	*3*	*0*	*0*	*0*	*13*	*0*	*0*	*0*	*0*	*1*	*1*	*14*	*1*	*1*	*2*	*28*	*0*	*0*	*0*	*54*
Subtotal:	*62*	*5*	*67*	*1*	*6*	*7*	*368*	*49*	*7*	*56*	*7*	*21*	*28*	*452*	*77*	*9*	*86*	*583*	*158*	*17*	*175*	*1,981*
Passenger Car Equivalent (PCE)																						
Existing Raceway																						
Passenger Cars:	60	4	64	1	6	7	355	49	7	56	7	20	27	438	76	8	84	555	158	17	175	1,927
Truck Trips:																						
2-axle:	3	2	5	0	0	0	17	0	0	0	0	0	0	18	2	2	4	36	0	0	0	80
3-axle:	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0
4+-axle:	0	0	0	0	0	0	0	0	0	0	0	3	3	6	0	0	0	0	0	0	0	3
- Net Truck Trips (PCE)	*3*	*2*	*5*	*0*	*0*	*0*	*21*	*0*	*0*	*0*	*0*	*3*	*3*	*24*	*2*	*2*	*4*	*44*	*0*	*0*	*0*	*83*
Subtotal:	*63*	*6*	*69*	*1*	*6*	*7*	*376*	*49*	*7*	*56*	*7*	*23*	*30*	*462*	*78*	*10*	*88*	*599*	*158*	*17*	*175*	*2,010*

The Glen Helen Raceway, determined to be another similar raceway to that proposed by the Project had a scheduled special event on Thanksgiving weekend of 2017. The peak Saturday Special Event operations were counted on Saturday (November 25, 2017). This event was determined to be representative of the typical special events that would be held on the proposed Project site. The site has a primary entrance to the south on Verdemont Ranch Road and a secondary entrance to the north via Glen Helen Road. However, it was verified during this event that the northern (secondary) access was not utilized for site access. The existing count data for the special event at Glen Helen Raceway is also shown in Table 4-1.

The existing trip generation for the two sites are reflected in Table 4-2. The weekday peak hour and weekday daily trips shown in Table 4-2 for the Milestone MX site are an average of the two weekdays that traffic counts were conducted. Saturday trip generation shown is for typical operations and special events.

4.1.3 PROJECT TRIP GENERATION SUMMARY

As mentioned previously, the two existing raceways may accurately represent the anticipated trips of the proposed Project. The surveyed weekday and weekend trips of the Milestone MX raceway represent the typical operations of the proposed Project. Since the proposed Project is of similar use and nearby proximity, the proposed Project will share a portion of the existing Milestone MX trips. As such, the proposed Project trip generation shown in Table 4-3 is assumed to overstate the Project trips. The same reasoning would apply to the Glen Helen Raceway and the proposed special event trip generation estimates.

Table 4-3 shows the proposed Project trip generation based on the trip generation of the two existing raceways. The Project is anticipated to generate 410 actual vehicle weekday trip-ends per day, 63 actual vehicle weekday AM peak hour trips, 18 actual vehicle weekday PM peak hour trips, 86 actual vehicle typical weekend mid-day peak hour trips, and 175 actual vehicle special event weekend peak hour trips.

PCE factors were applied to the trip generation rates for heavy trucks (large 2-axles, 3-axles, 4+-axles). PCEs allow the typical "real-world" mix of vehicle types to be represented as a single, standardized unit, such as the passenger car, to be used for the purposes of capacity and level of service analyses. The PCE factors are consistent with the recommended PCE factors in Appendix B of the San Bernardino County Congestion Management Program (CMP), 2016 Update.

In comparison to actual vehicles, the Project is anticipated to generate 419 PCE weekday trip-ends per day, 64 weekday PCE AM peak hour trips, 18 weekday PCE PM peak hour trips, 88 typical weekend PCE mid-day peak hour trips, and 175 special event weekend PCE peak hour trips.

4.2 PROJECT TRIP DISTRIBUTION

Trip distribution is the process of identifying the probable destinations, directions, or traffic routes that will be utilized by Project traffic. The potential interaction between the planned land uses and surrounding regional access routes are considered to identify the route where the Project traffic would distribute.

Table 4-2

Existing Development Trip Generation

Land Use	Weekday AM Peak Hour			Weekday PM Peak Hour			Typical Saturday Peak Hour			Special Event Saturday Peak Hour			Weekday
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	Daily
Actual Vehicles													
Existing Sites													
Passenger Cars:	55	6	61	4	13	17	76	8	84	158	17	175	397
Truck Trips:													
2-axle:	1	1	2	0	0	0	1	1	2	0	0	0	12
3-axle:	0	0	0	0	0	0	0	0	0	0	0	0	1
4+-axle:	0	0	0	0	1	1	0	0	0	0	0	0	1
- Net Truck Trips (Actual Vehicles)	*1*	*1*	*2*	*0*	*1*	*1*	*1*	*1*	*2*	*0*	*0*	*0*	*14*
Total (Actual Vehicles):	*56*	*7*	*63*	*4*	*14*	*18*	*77*	*9*	*86*	*158*	*17*	*175*	*410*
Passenger Car Equivalent (PCE)													
Existing Sites													
Passenger Cars:	55	6	61	4	13	17	76	8	84	158	17	175	397
Truck Trips:													
2-axle (PCE = 1.5):	2	1	3	0	0	0	2	2	4	0	0	0	18
3-axle (PCE = 2.0):	0	0	0	0	0	0	0	0	0	0	0	0	2
4+-axle (PCE = 3.0):	0	0	0	0	1	1	0	0	0	0	0	0	2
- Net Truck Trips (PCE)	*2*	*1*	*3*	*0*	*1*	*1*	*2*	*2*	*4*	*0*	*0*	*0*	*22*
Total (PCE):	*57*	*7*	*64*	*4*	*14*	*18*	*78*	*10*	*88*	*158*	*17*	*175*	*419*

Table 4-3

Project Trip Generation

Land Use	Weekday AM Peak Hour			Weekday PM Peak Hour			Typical Saturday Peak Hour			Special Event Saturday Peak Hour			Weekday
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	Daily
Actual Vehicles													
Ethanac Road Motorcycle Park													
Passenger Cars:	55	6	61	4	13	17	76	8	84	158	17	175	397
Truck Trips:													
2-axle:	1	1	2	0	0	0	1	1	2	0	0	0	12
3-axle:	0	0	0	0	0	0	0	0	0	0	0	0	1
4+-axle:	0	0	0	0	1	1	0	0	0	0	0	0	1
- Net Truck Trips (Actual Vehicles)	*1*	*1*	*2*	*0*	*1*	*1*	*1*	*1*	*2*	*0*	*0*	*0*	*14*
Project Buildout Total (Actual Vehicles):	*56*	*7*	*63*	*4*	*14*	*18*	*77*	*9*	*86*	*158*	*17*	*175*	*410*
Passenger Car Equivalent (PCE)													
Ethanac Road Motorcycle Park													
Passenger Cars:	55	6	61	4	13	17	76	8	84	158	17	175	397
Truck Trips:													
2-axle (PCE = 1.5):	2	1	3	0	0	0	2	2	4	0	0	0	18
3-axle (PCE = 2.0):	0	0	0	0	0	0	0	0	0	0	0	0	2
4+-axle (PCE = 3.0):	0	0	0	0	1	1	0	0	0	0	0	0	2
- Net Truck Trips (PCE)	*2*	*1*	*3*	*0*	*1*	*1*	*2*	*2*	*4*	*0*	*0*	*0*	*22*
Project Buildout Total (PCE):	*57*	*7*	*64*	*4*	*14*	*18*	*78*	*10*	*88*	*158*	*17*	*175*	*419*

The Project trip distribution patterns were developed based on an understanding of existing travel patterns in the area, the geographical location of the site, and the site's proximity to the regional arterial and state highway system.

The Project trip distribution pattern is graphically depicted on Exhibit 4-1. The trip distribution patterns were reviewed by the County of Riverside as part of the traffic study scoping process (see Appendix 1.1).

4.3 MODAL SPLIT

Although the use of public transit, walking, and/or bicycling have the potential to reduce Project-related traffic, such reductions have not been taken into consideration in this traffic study to provide a conservative analysis of the Project's potential to contribute to circulation system deficiencies.

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 weekday ADT and peak hour intersection turning movement volumes are shown on Exhibit 4-2. Project typical and special event Saturday ADT and peak hour intersection turning movement volumes are shown on Exhibits 4-3 and 4-4, respectively.

4.5 BACKGROUND TRAFFIC

Future year traffic forecasts have been based upon a background (ambient) growth factor of 2% per year. The ambient growth factor is intended to approximate traffic growth. The total ambient growth is 1.02% for 2020 traffic conditions (two percent per year over 1 year).

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.

The adopted Southern California Association of Governments (SCAG) 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (April 2016) growth forecasts for Riverside County identifies projects the population of 359,000 in 2012 to increase to 499,200 in 2040, or a 28.1% increase over the 28-year period. The change in population equates to roughly a 1.18 percent growth rate compounded annually. Similarly, growth over the same 28-year period in households is projected to increase by 31.1 percent, or 1.34 percent annual growth rate. Finally, growth in employment over the same 27-year period is projected to increase by 54.98 percent, or a 2.89 percent annual growth rate. (4) Therefore, the annual growth rate of 2% in conjunction with cumulative project traffic would appear to be conservative and tend to overstate as opposed to understate future traffic growth.

EXHIBIT 4-1: PROJECT TRIP DISTRIBUTION

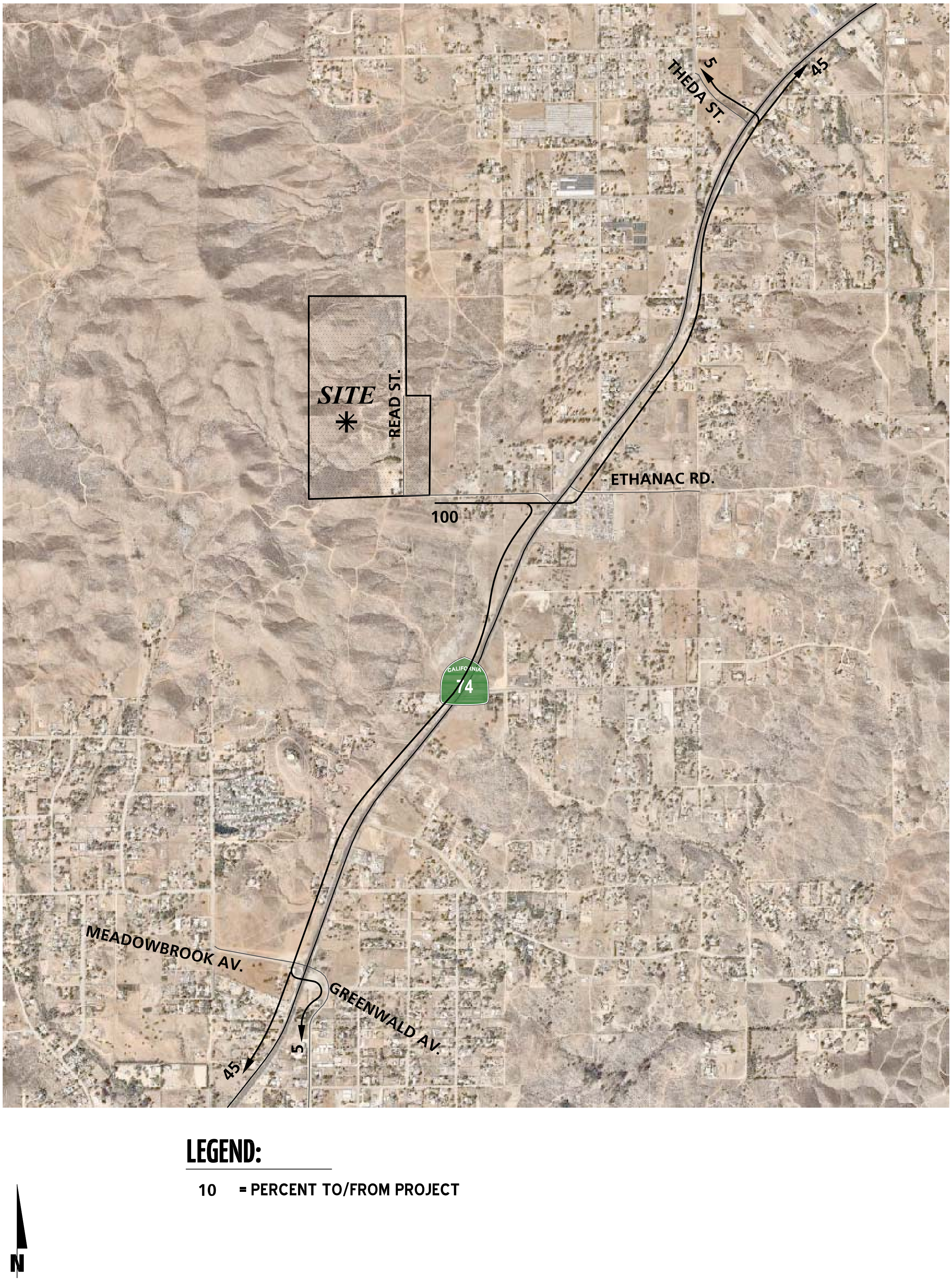


EXHIBIT 4-2: PROJECT ONLY WEEKDAY TRAFFIC VOLUMES (IN PCE)

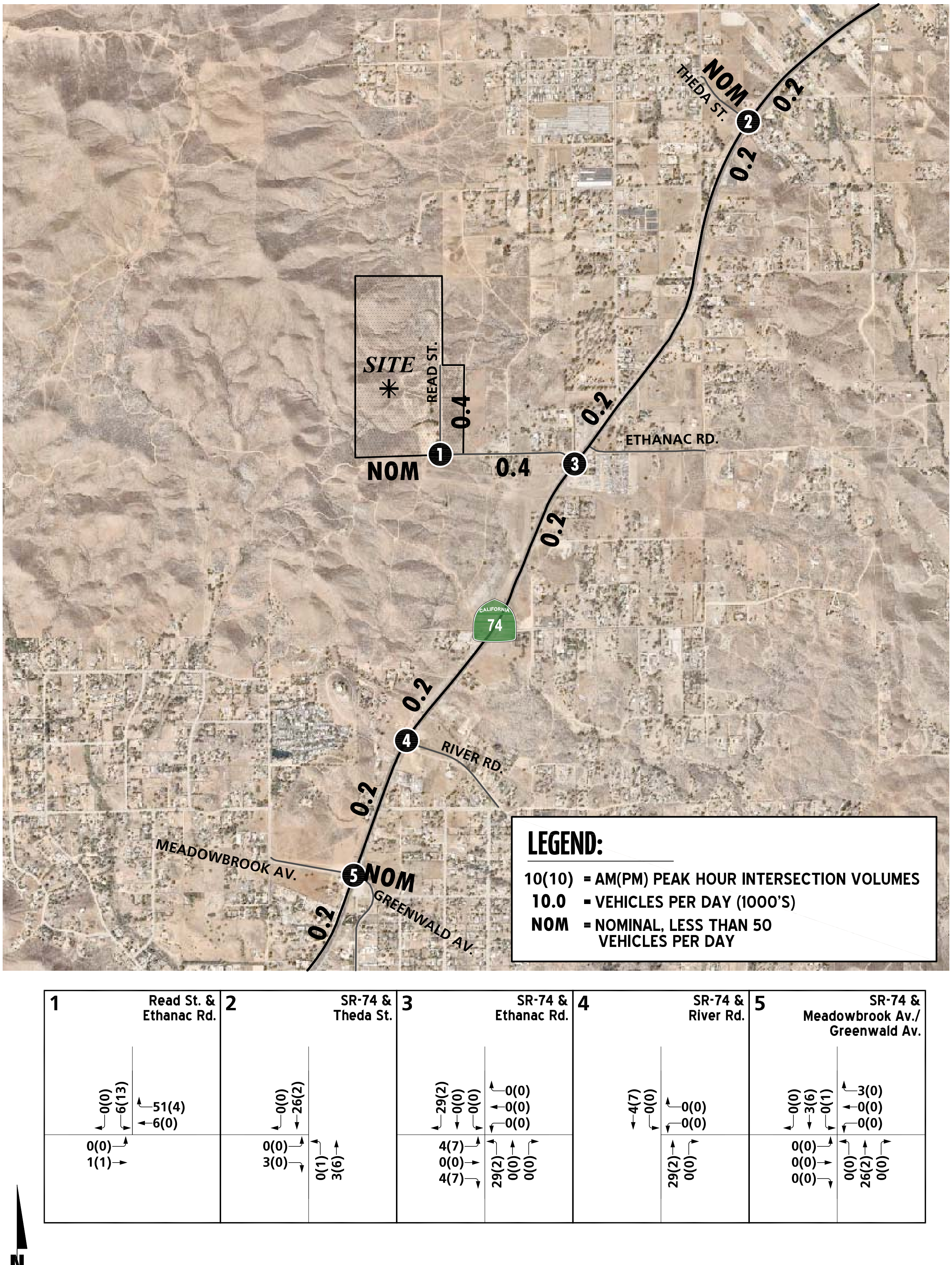
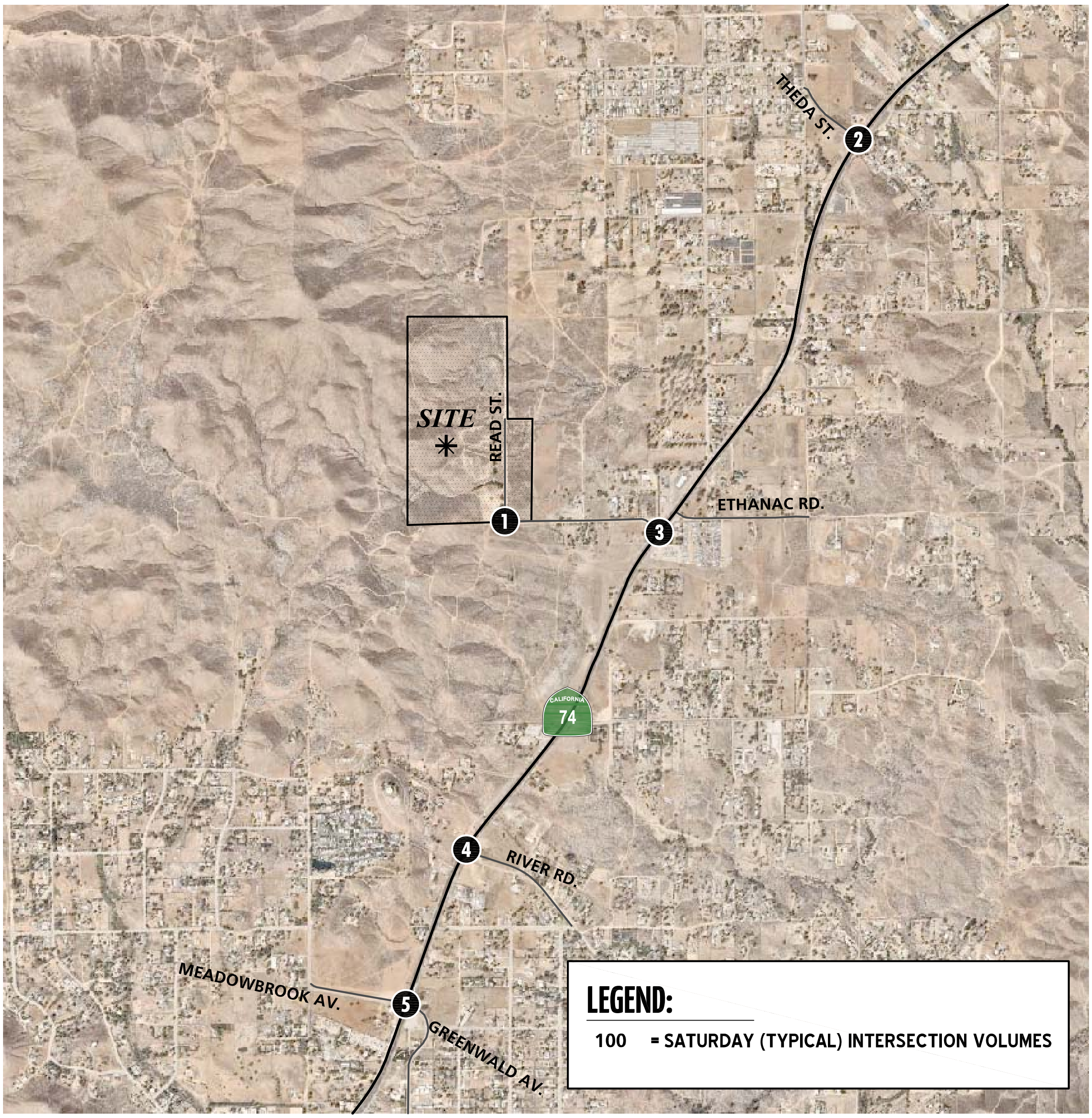
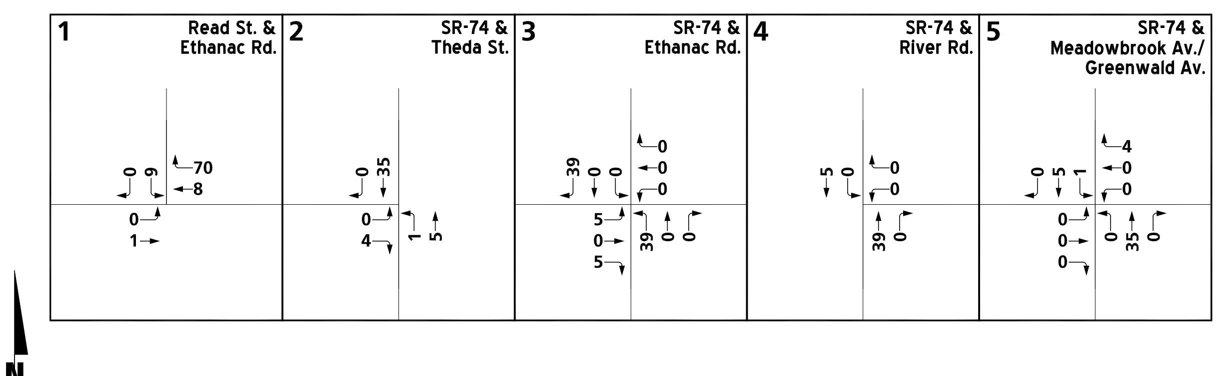


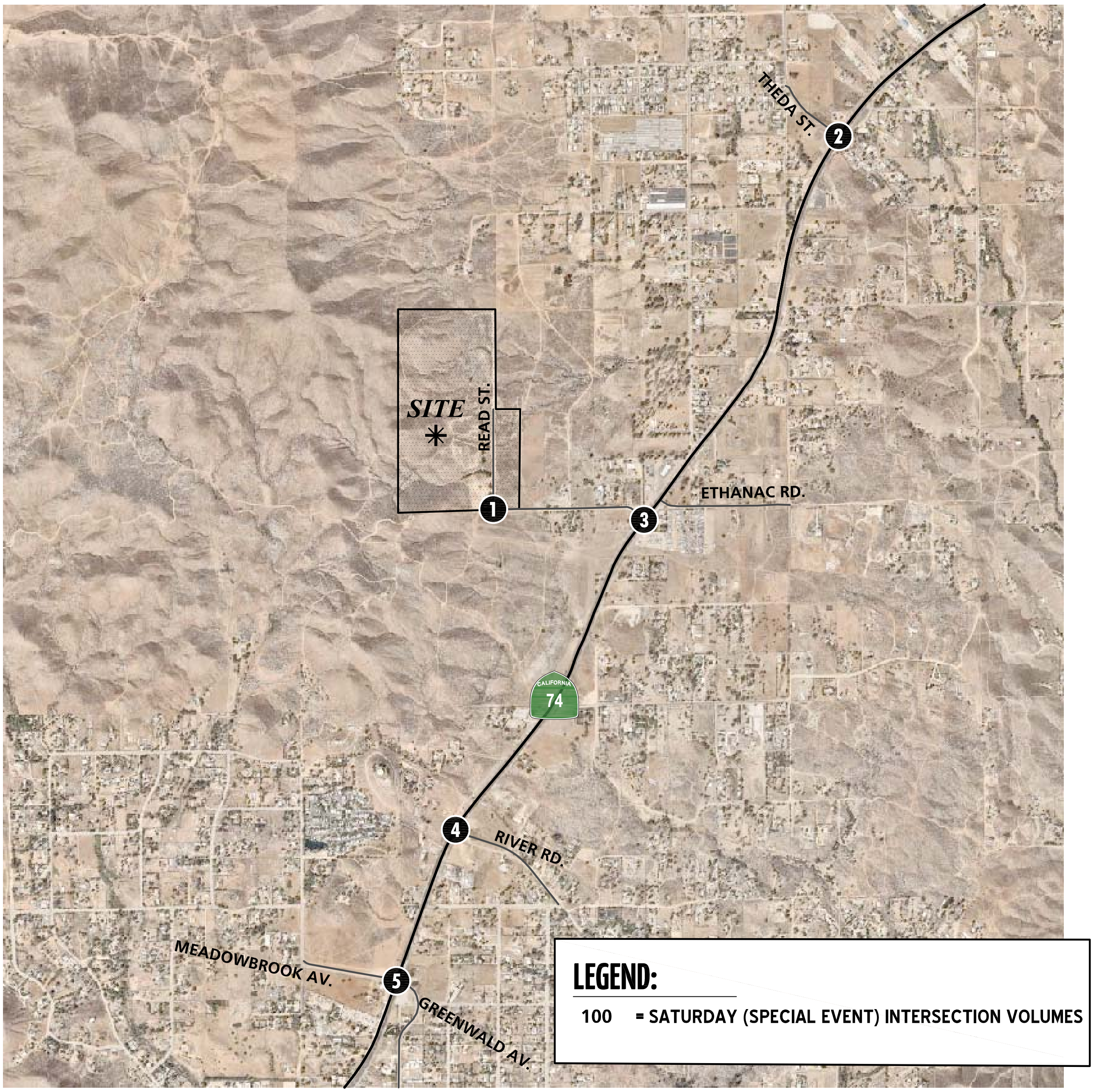
EXHIBIT 4-3: PROJECT ONLY SATURDAY (TYPICAL) TRAFFIC VOLUMES (IN PCE)

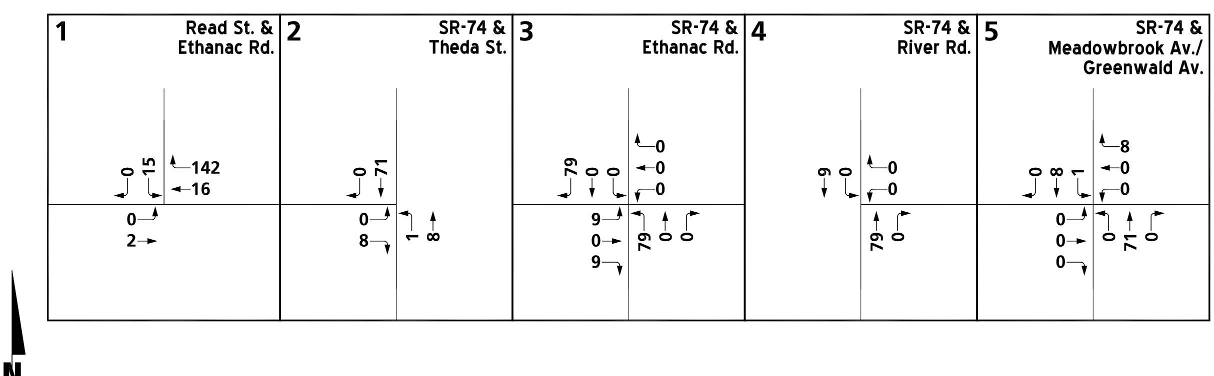




URBAN CROSSROADS

EXHIBIT 4-4: PROJECT ONLY SATURDAY (SPECIAL EVENT) TRAFFIC VOLUMES (IN PCE)





4.6 CUMULATIVE DEVELOPMENT TRAFFIC

California Environmental Quality Act (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.

Exhibit 4-5 illustrates the cumulative development location map. A summary of cumulative development projects and their proposed land uses are shown in Table 4-4. Where applicable, the traffic generated by individual cumulative projects has been manually added to the EAPC (2020) forecasts to ensure that traffic generated by the listed cumulative development projects in Table 4-4 are reflected as part of the background traffic. For projects that are likely to contribute nominal traffic to the study area intersections, their traffic is assumed to be accounted for through the application of the ambient growth factor.

4.7 TRAFFIC FORECASTS

To provide a comprehensive assessment of the deficiencies a “buildup” analysis was performed in support of this work effort. The “buildup” method was used to approximate E+P, EAP, and EAPC traffic conditions, and is intended to identify the near-term deficiencies on both the existing and planned near-term circulation system. The EAPC traffic condition includes background traffic, traffic generated by other cumulative development projects within the study area, and traffic generated by the proposed Project.

4.8 NEAR-TERM CONDITIONS

The “buildup” approach combines existing traffic counts with a background ambient growth factor to forecast the EAP (2020) and EAPC (2020) traffic conditions. An ambient growth factor of 1.02% accounts for background (area-wide) traffic increases that occur over time up to the year 2020 from the year 2019 (compounded 2 percent per year growth over a 1-year period). Project traffic is added to assess EAP (2020) traffic conditions. Traffic volumes generated by cumulative development projects are then added to assess the EAPC (2020) traffic conditions. The 2020 roadway network are similar to the existing conditions roadway network with the exception of roadways proposed to be developed by the Project.

The near-term traffic analysis includes the following traffic conditions, with the various traffic components:

- EAP (2020)
    - Existing 2019 counts
    - Ambient growth traffic (1.02%)
    - Project Buildout traffic

EXHIBIT 4-5: CUMULATIVE DEVELOPMENT LOCATION MAP

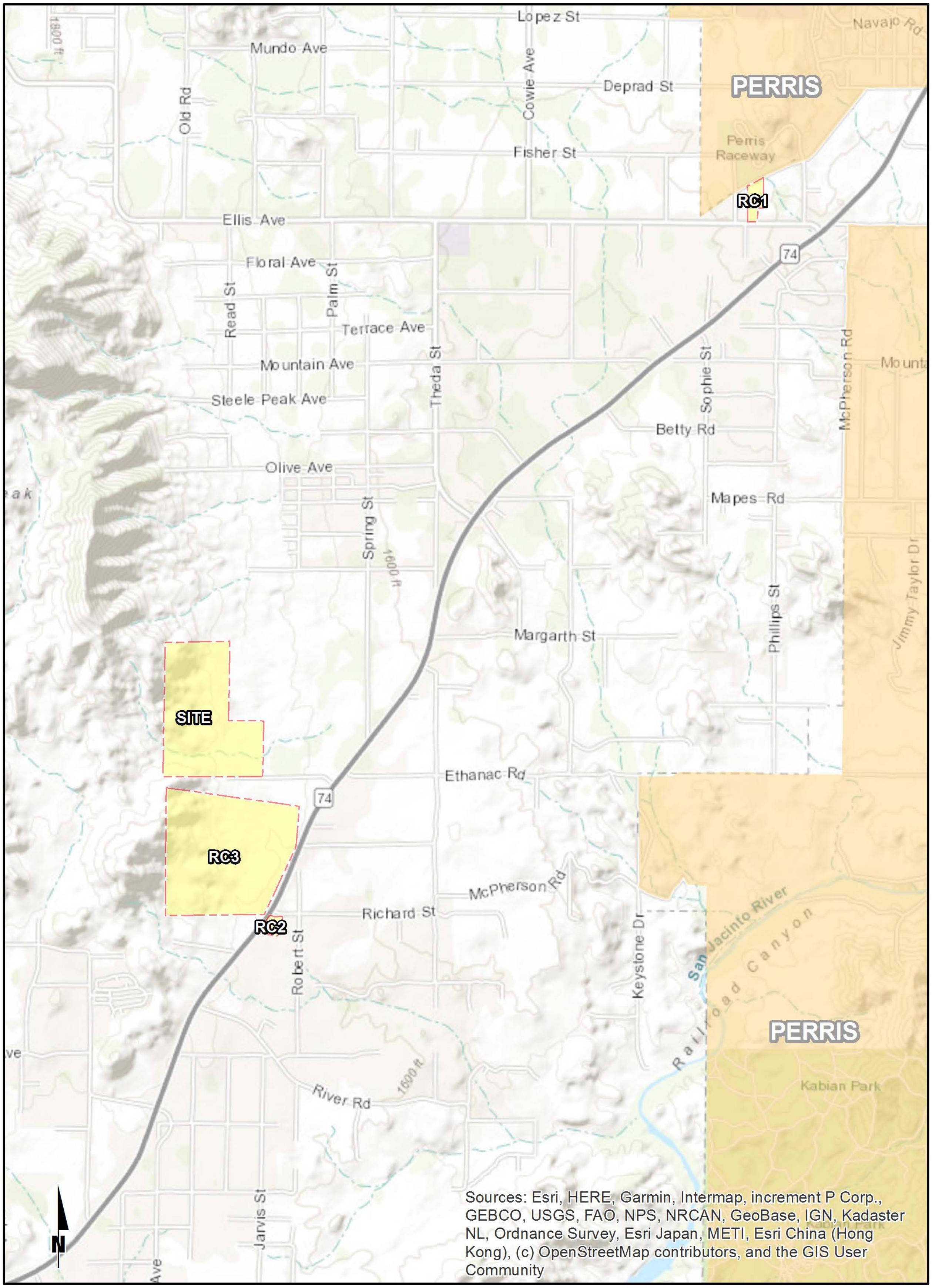


Table 4-4

Cumulative Development Land Use Summary

#	Project	Land Use[1]	Quantity	Units[2]
County of Riverside				
RC1	PP24776	Church	6.400	TSF
RC2	PP26246	Retail	9.100	TSF
RC3	TR36450	Residential	243	DU

- EAPC (2020)
  - Existing 2019 counts
  - Ambient growth traffic (1.02%)
  - Cumulative Development Project traffic
  - Project Buildout traffic

5 E+P TRAFFIC CONDITIONS

This section discusses the traffic forecasts for Existing Plus Project (E+P) conditions and the resulting intersection operations and traffic signal warrant analyses.

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:

- 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 and roadway improvements at the Project's frontage and driveways).

5.2 E+P TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus Project traffic. Exhibit 5-1 shows the ADT volumes and peak hour intersection turning movement volumes, which can be expected for E+P weekday traffic conditions. Exhibit 5-2 shows the E+P Saturday (Typical) ADT volumes and peak hour intersection turning movement volumes and Exhibit 5-3 shows the E+P Saturday (Special Event) ADT volumes and peak hour intersection turning movement volumes.

5.3 INTERSECTION OPERATIONS ANALYSIS

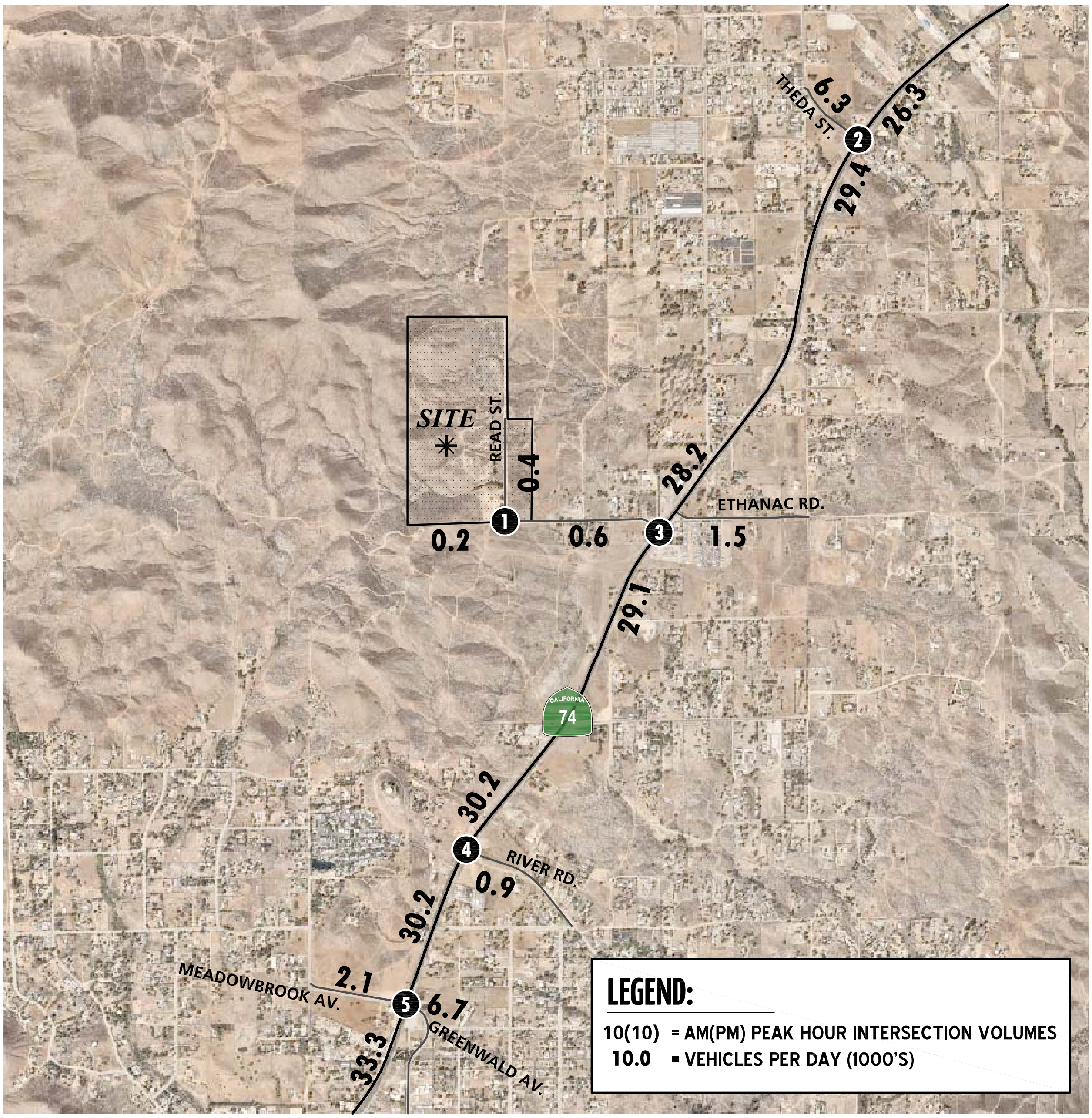
E+P peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 *Methodologies* of this TIA. The intersection analysis results are summarized in Table 5-1, which indicate that no additional study area intersections are anticipated to operate at an unacceptable LOS under E+P traffic conditions, in addition to the intersection previously identified under Existing (2019) traffic conditions.

Exhibit 5-4 summarizes the weekday AM and PM peak hour study area intersection LOS and Exhibit 5-5 summarizes the Saturday (Typical and Special Event) peak hour study area intersection LOS under E+P traffic conditions, consistent with the summary provided in Table 5-1. The intersection operations analysis worksheets are included in Appendix 5.1 of this TIA.

5.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

No study area intersections are anticipated to meet planning level (ADT) or peak hour volume-based traffic signal warrants under E+P traffic conditions (see Appendix 5.2).

EXHIBIT 5-1: E+P WEEKDAY TRAFFIC VOLUMES (IN PCE)



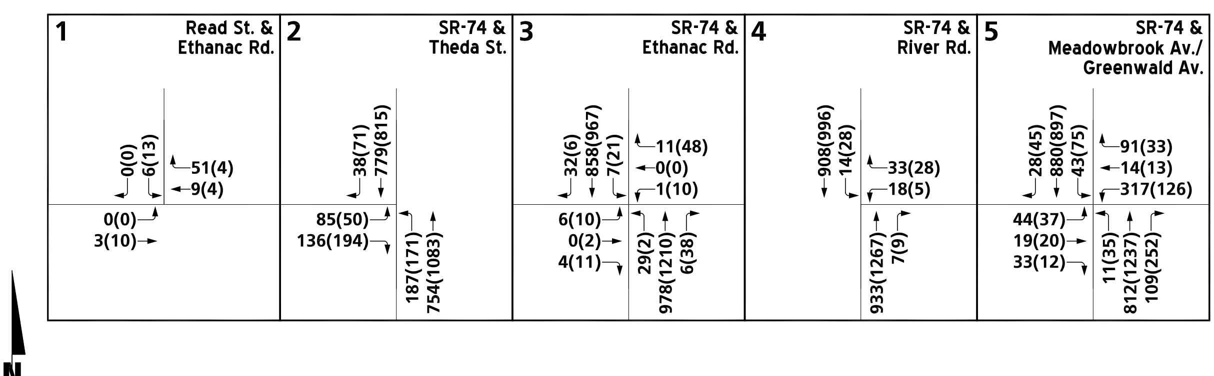


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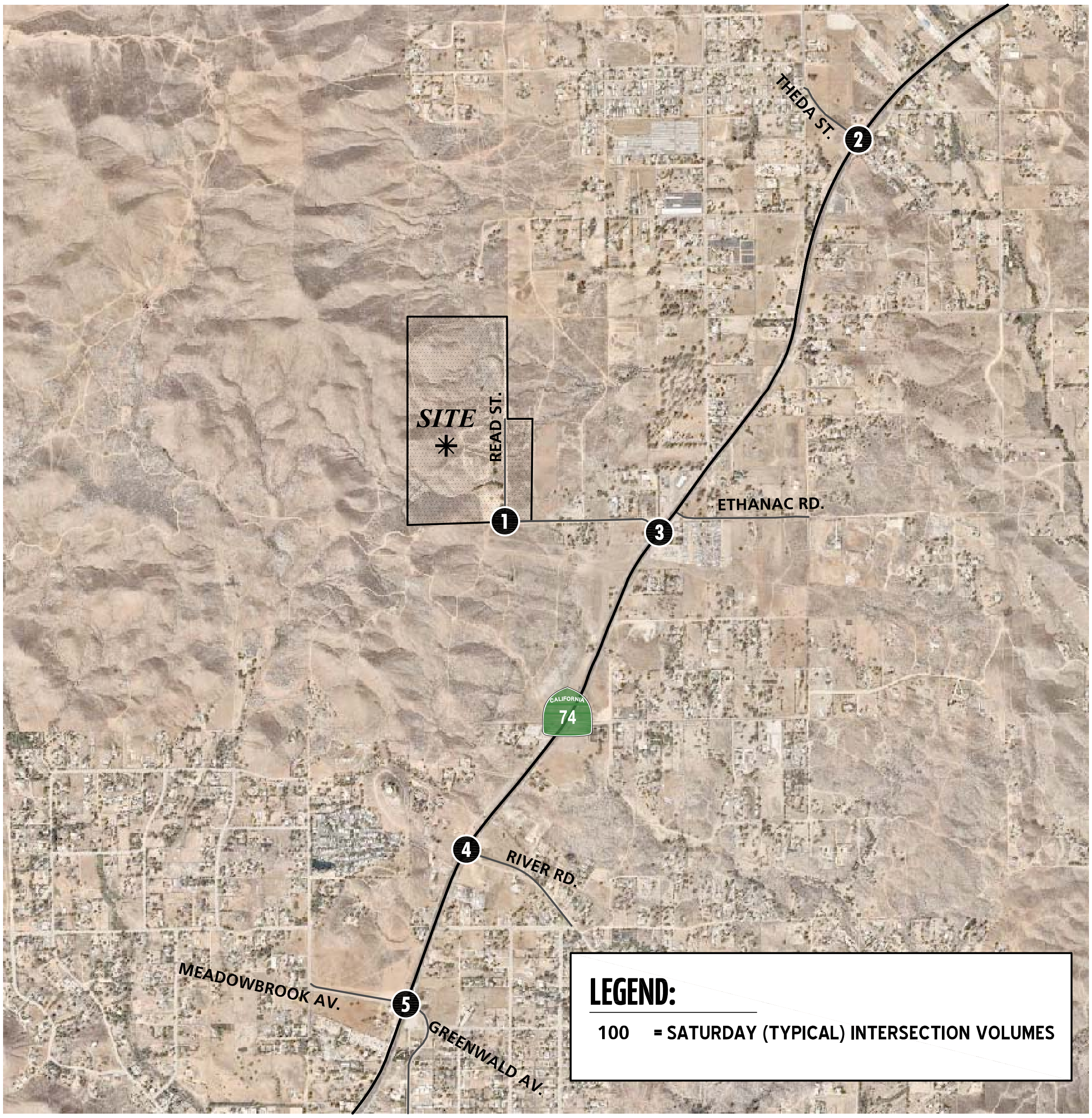
EXHIBIT 5-2: E+P SATURDAY (TYPICAL) TRAFFIC VOLUMES (IN PCE)



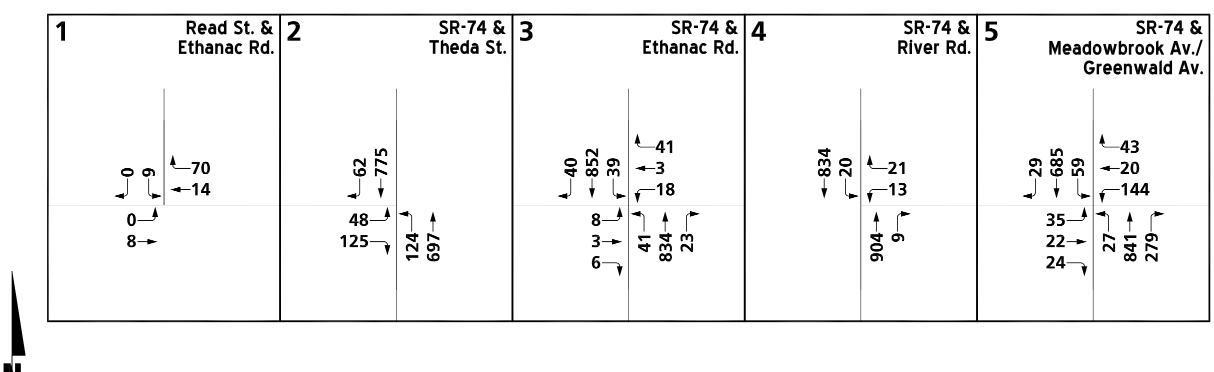
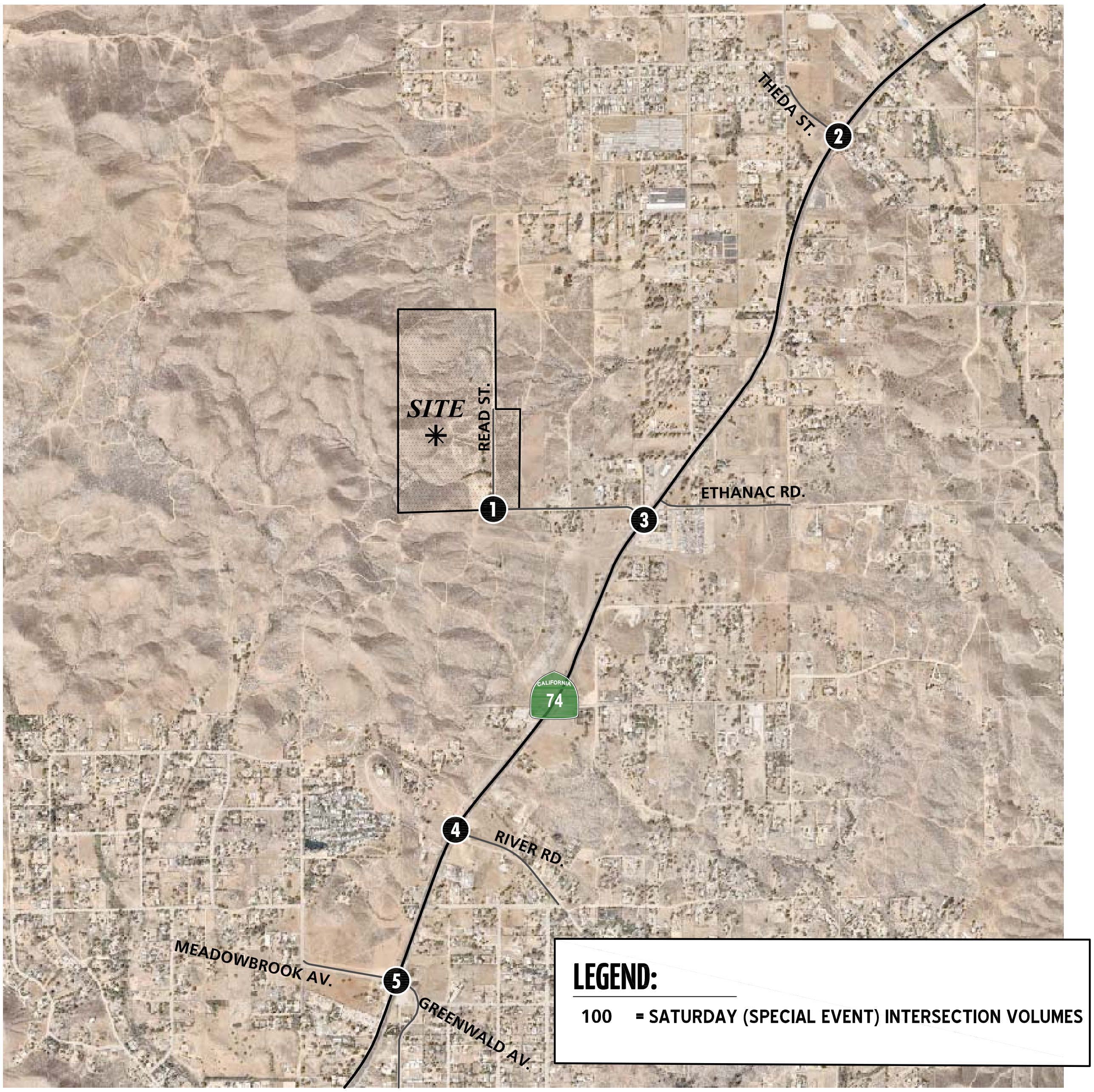


EXHIBIT 5-3: E+P SATURDAY (SPECIAL EVENT) TRAFFIC VOLUMES (IN PCE)



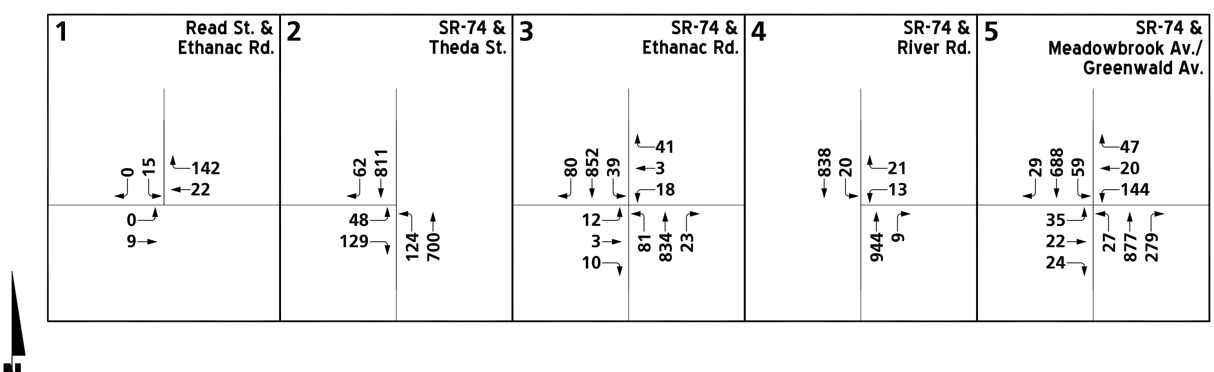


EXHIBIT 5-4: E+P WEEKDAY SUMMARY OF LOS

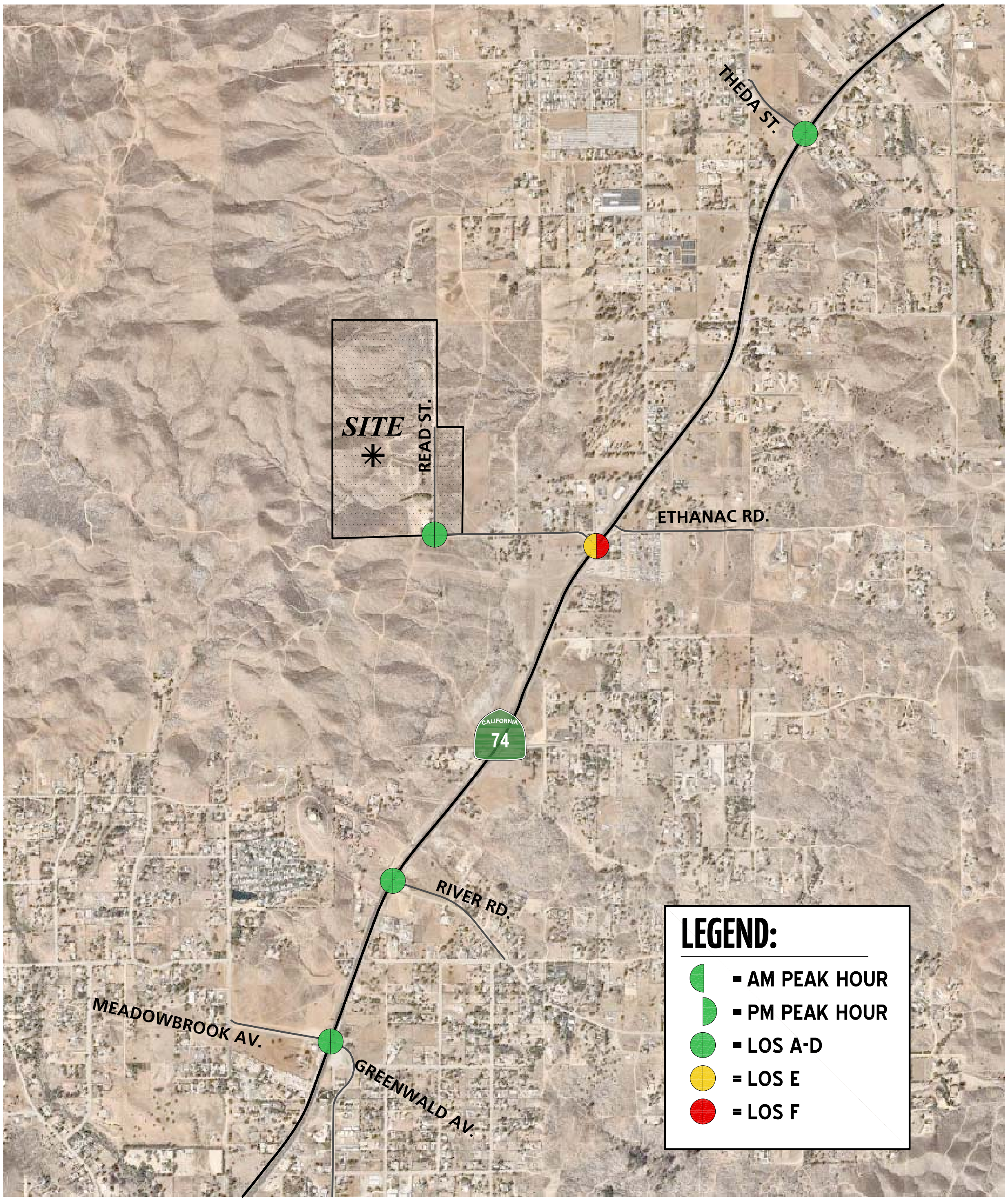


EXHIBIT 5-5: E+P SATURDAY SUMMARY OF LOS

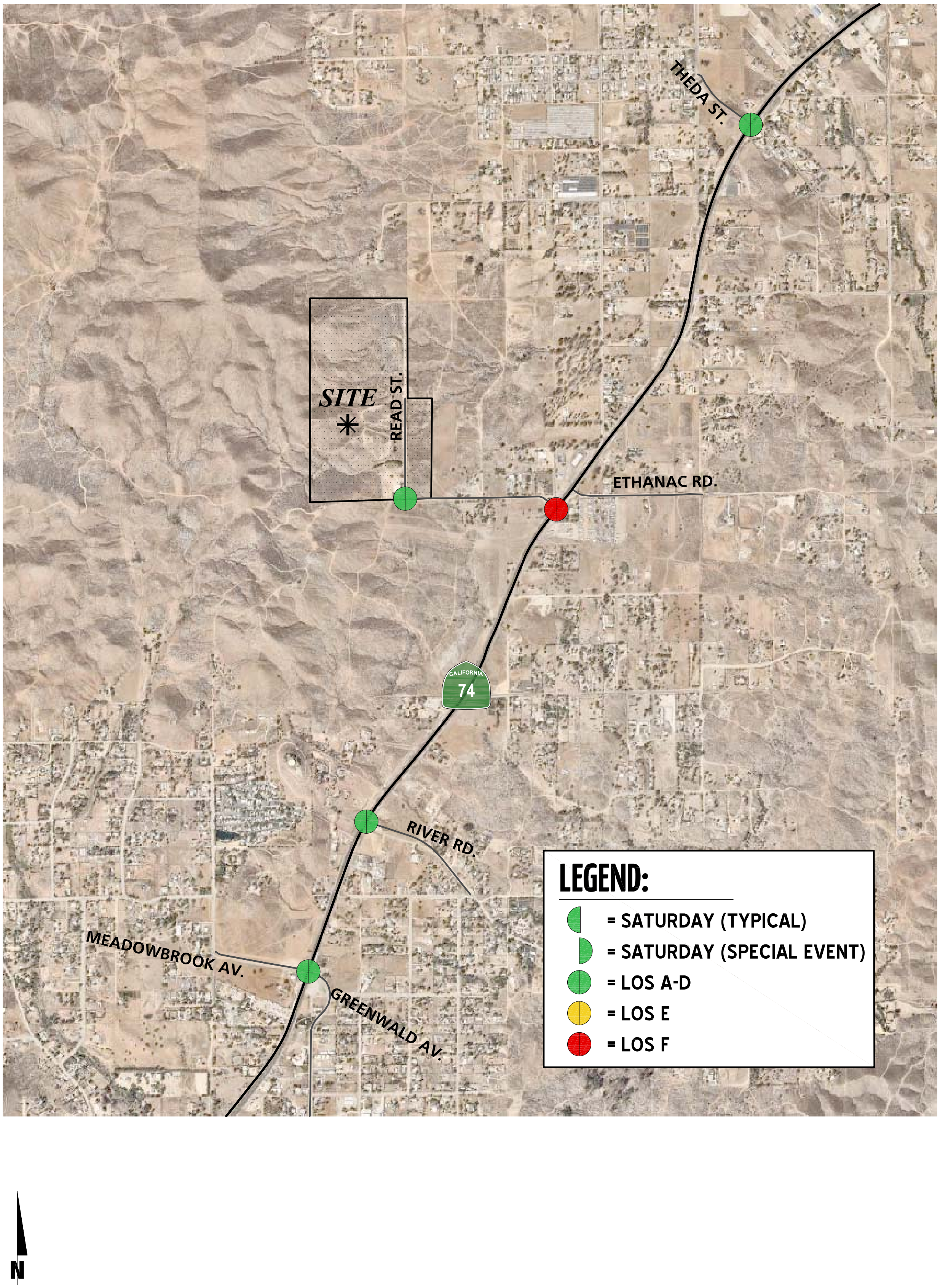


Table 5-1

Intersection Analysis for E+P Conditions

#	Intersection	Traffic Control[2]	Existing (2019) Delay[1] (secs.) AM	PM	Sat	Sat-SP	Existing (2019) Level of Service AM	PM	Sat	Sat-SP	E+P Delay[1] (secs.) AM	PM	Sat	Sat-SP	E+P Level of Service AM	PM	Sat	Sat-SP
1	Read St. & Ethanac Rd.	AWS	6.9	6.9	6.9	N/A	A	A	A	N/A	6.7	7.0	6.9	7.1	A	A	A	A
2	SR-74 & Theda St.	TS	14.2	11.8	10.9	N/A	B	B	B	N/A	14.3	11.8	11.1	11.3	B	B	B	B
3	SR-74 & Ethanac Rd.	CSS	**44.6**	**55.8**	**61.0**	N/A	**E**	**E**	**F**	N/A	**37.9**	**57.0**	**65.3**	**94.5**	**E**	**F**	**F**	**F**
4	SR-74 & River Rd.	CSS	14.8	16.1	14.3	N/A	B	C	B	N/A	15.1	16.1	14.7	15.1	C	C	B	C
5	SR-74 & Meadowbrook Av./Greenwald Av.	TS	20.6	13.2	14.6	N/A	C	B	B	N/A	20.7	13.2	14.6	14.7	C	B	B	B

[1] Per the Highway Capacity Manual (6th Edition), 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.

[2] AWS = All-way Stop; CSS = Cross-street Stop; TS = Traffic Signal

5.5 RECOMMENDED IMPROVEMENTS

Improvement strategies have been recommended at intersections that have been identified as deficient under E+P traffic conditions in an effort to achieve an acceptable LOS (i.e., LOS D or better).

5.5.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

Improvement strategies have been identified at intersections that are anticipated to operate at a deficient LOS to improve the peak hour delays and associated LOS grade to an acceptable LOS (LOS D or better). The effectiveness of the improvements are presented in Table 5-2 for E+P traffic conditions. Worksheets for E+P conditions, with improvements, HCM calculations are provided in Appendix 5.3.

Table 5-2

Intersection Analysis for E+P Conditions With Improvements

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[1] (secs.)				Level of Service			
			Northbound			Southbound			Eastbound			Westbound										
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	Sat	Sat-SP	AM	PM	Sat	Sat-SP
3	SR-74 & Ethanac Rd.																					
	- Without Improvements	CSS	1	2	0	1	2	0	0	1	0	0	1	0	**37.9**	**57.0**	**65.3**	**94.5**	**E**	**F**	**F**	**F**
	- With Improvements	**<u>TS</u>**	1	2	0	1	2	0	0	1	0	0	1	0	7.8	9.4	11.0	11.7	A	A	B	B

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[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

[2] Per the Highway Capacity Manual (6th Edition), 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; TS = Traffic Signal; **<u>TS</u>** = Improvements

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6 EAP (2020) TRAFFIC CONDITIONS

This section discusses the traffic forecasts for EAP (2020) conditions and the resulting intersection operations and traffic signal warrant analyses.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for EAP (2020) 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 to provide site access are also assumed to be in place for EAP (2020) conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).

6.2 EAP (2020) TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus an ambient growth factor of 2.0% traffic and the addition of Project traffic. Exhibit 6-1 shows the ADT volumes and peak hour intersection turning movement volumes, which can be expected for EAP (2020) weekday traffic conditions. Exhibit 6-2 shows the EAP (2020) Saturday (Typical) ADT volumes and peak hour intersection turning movement volumes and Exhibit 6-3 shows the EAP (2020) Saturday (Special Event) ADT volumes and peak hour intersection turning movement volumes.

6.3 INTERSECTION OPERATIONS ANALYSIS

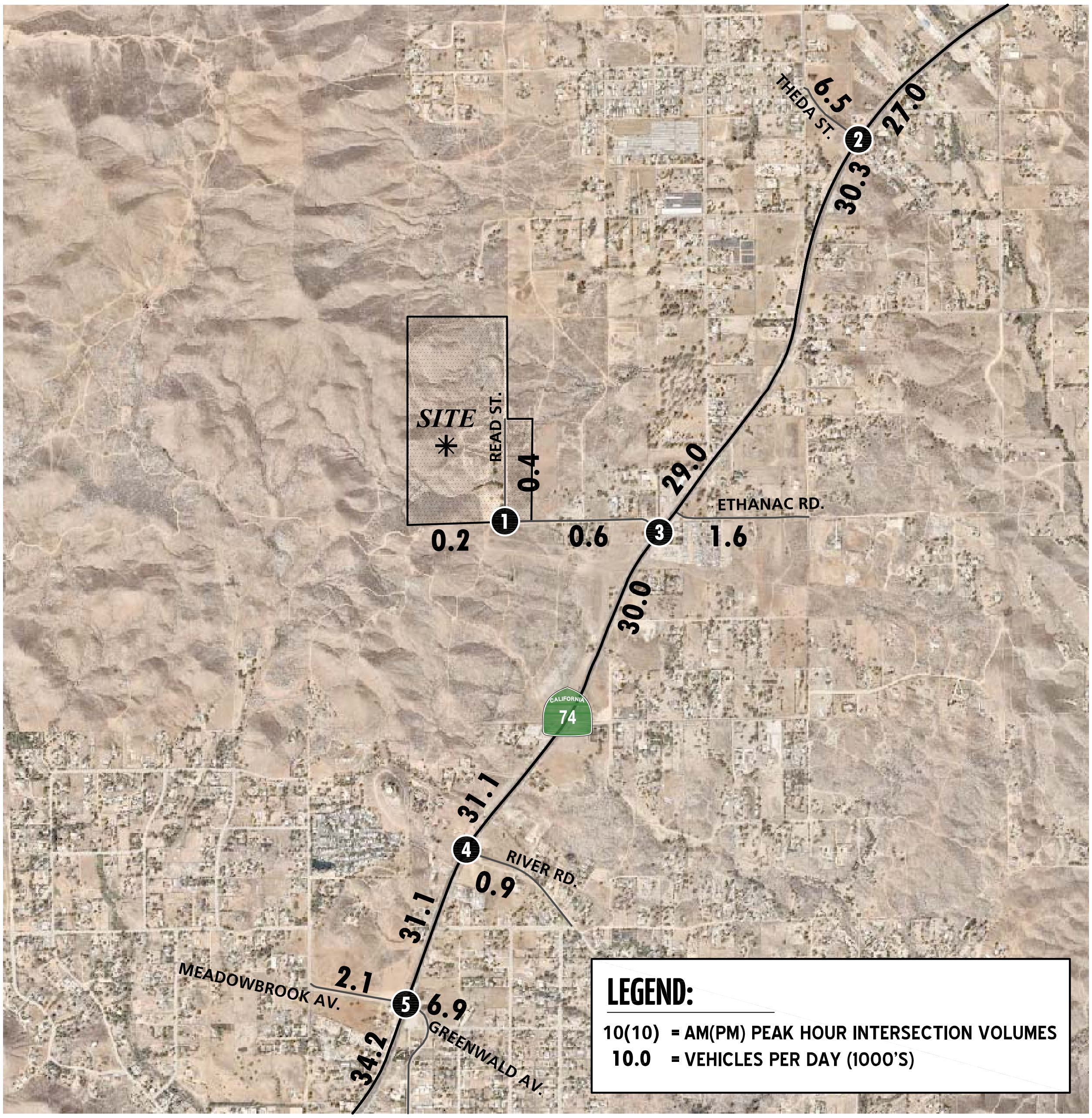
EAP (2020) peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 *Methodologies* of this TIA. The intersection analysis results are summarized in Table 6-1, which indicate that no additional study area intersections are anticipated to operate at an unacceptable LOS under EAP (2020) traffic conditions, in addition to the intersection previously identified under Existing (2019) traffic conditions.

Exhibit 6-4 summarizes the weekday AM and PM peak hour study area intersection LOS and Exhibit 6-5 summarizes the Saturday (Typical and Special Event) peak hour study area intersection LOS under EAP (2020) traffic conditions, consistent with the summary provided in Table 6-1. The intersection operations analysis worksheets are included in Appendix 6.1 of this TIA.

6.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

No study area intersections are anticipated to meet planning level (ADT) or peak hour volume-based traffic signal warrants under EAP (2020) traffic conditions (see Appendix 6.2).

EXHIBIT 6-1: EAP (2020) WEEKDAY TRAFFIC VOLUMES (IN PCE)



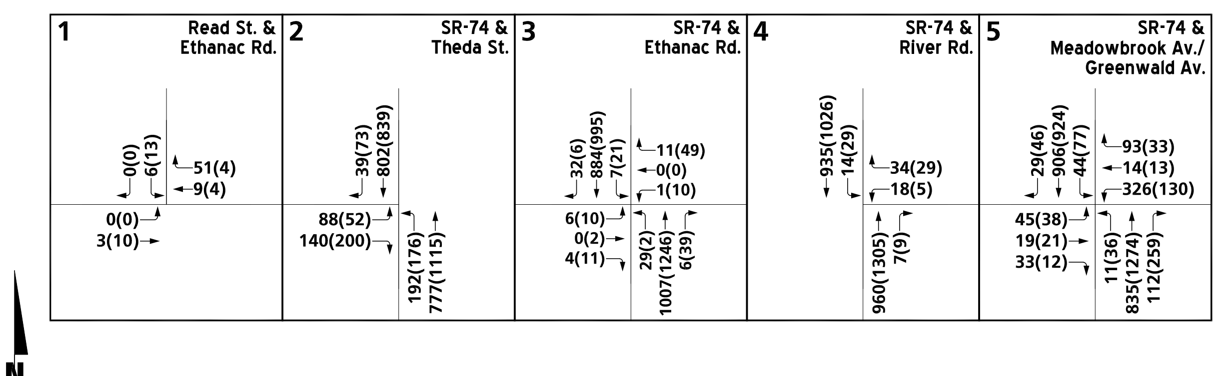
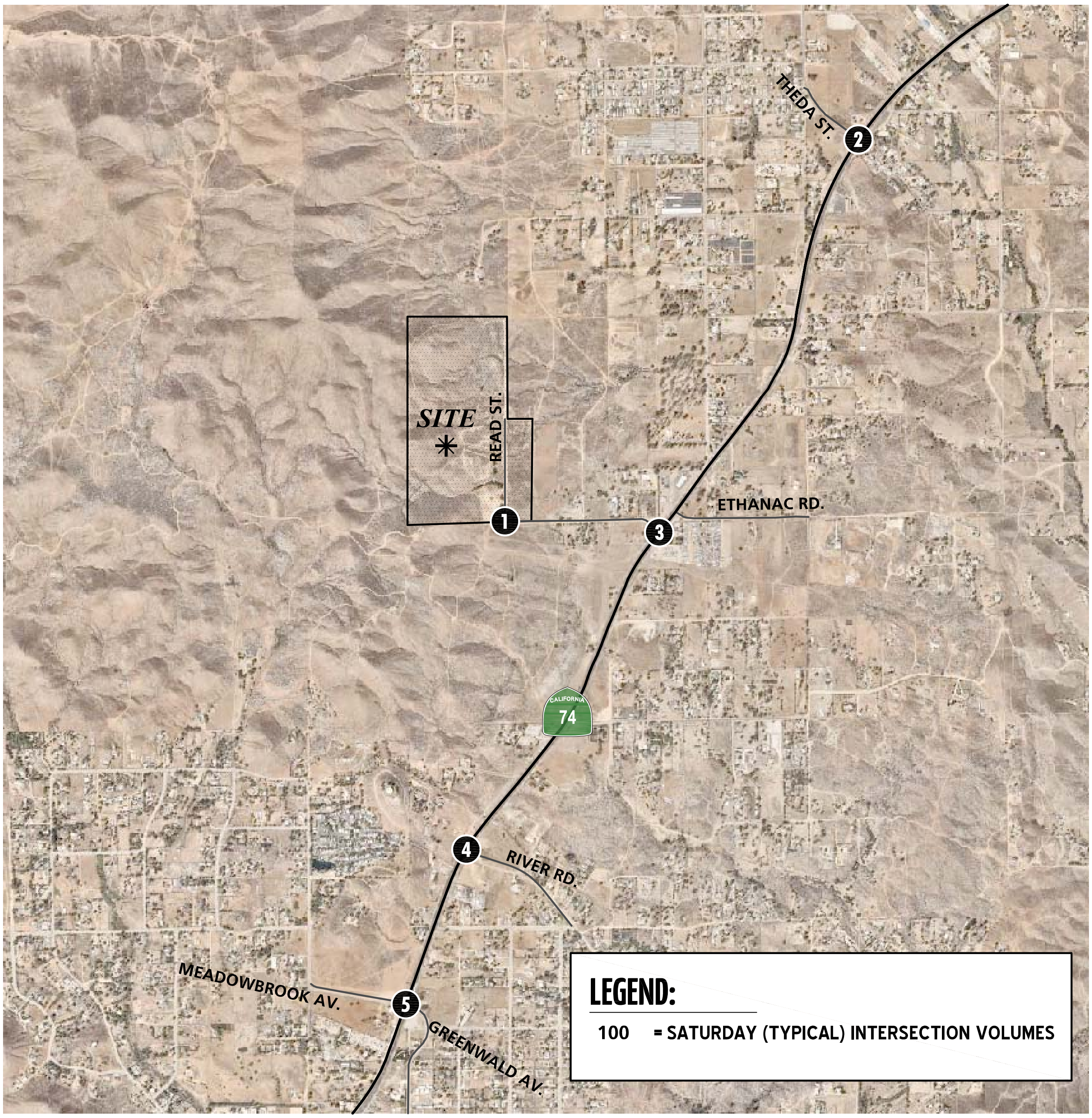


EXHIBIT 6-2: EAP (2020) SATURDAY (TYPICAL) TRAFFIC VOLUMES (IN PCE)



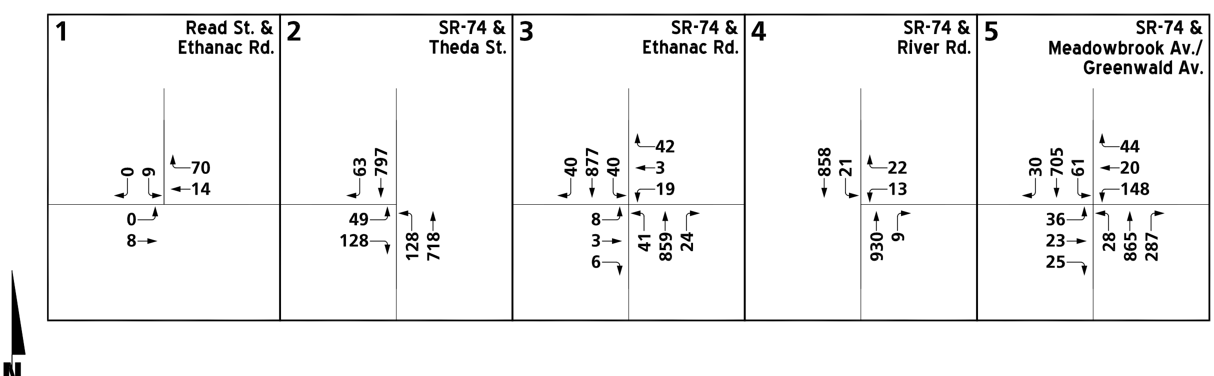
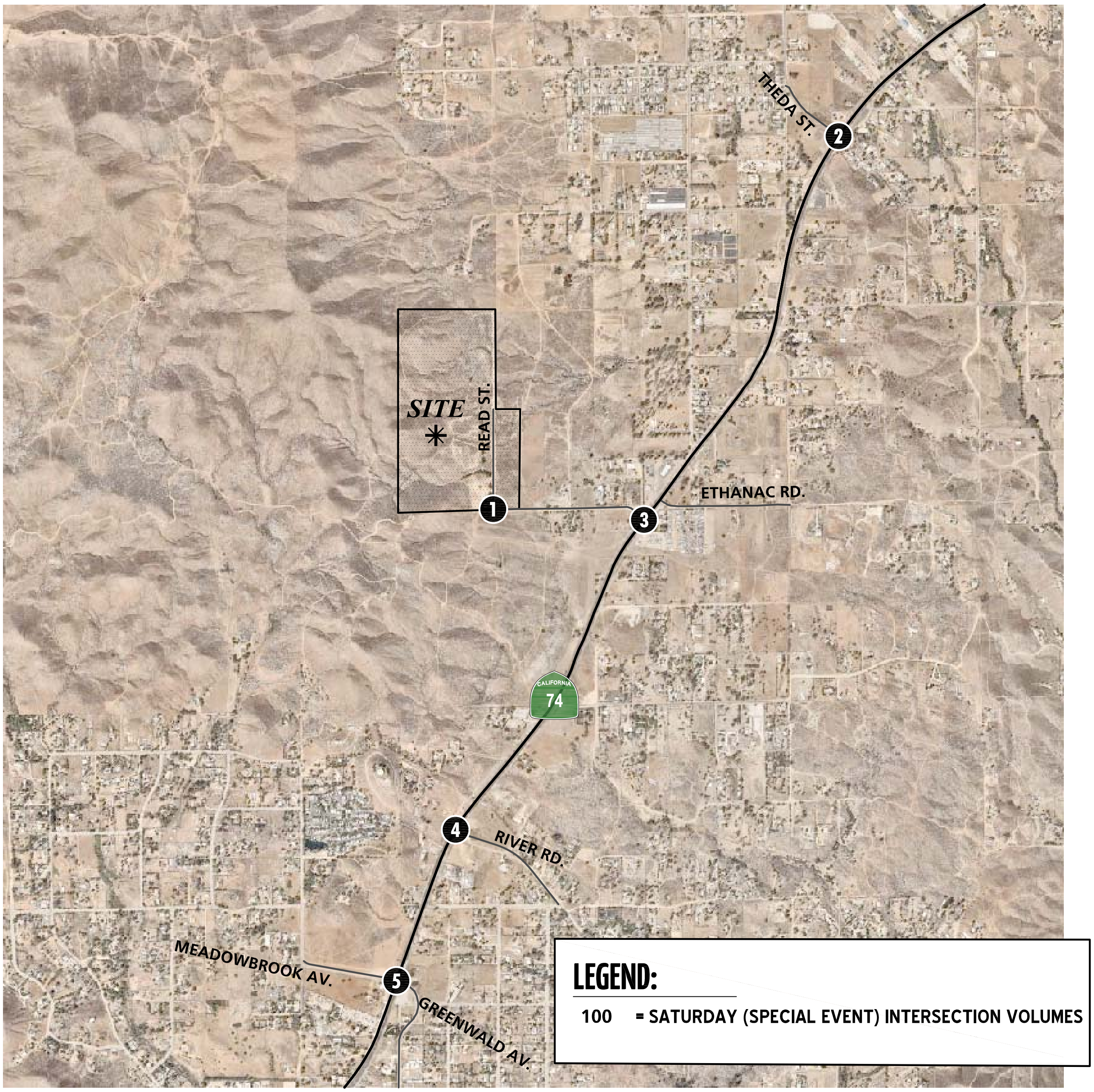


EXHIBIT 6-3: EAP (2020) SATURDAY (SPECIAL EVENT) TRAFFIC VOLUMES (IN PCE)



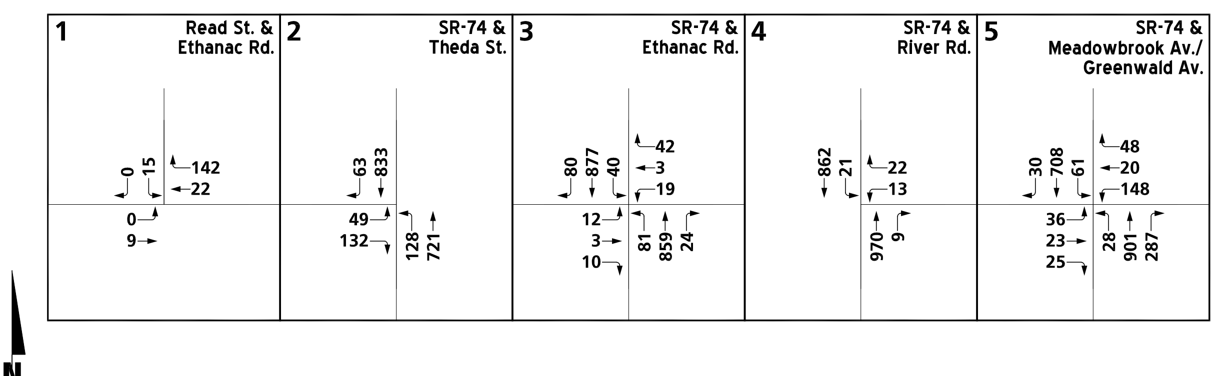


EXHIBIT 6-4: EAP (2020) WEEKDAY SUMMARY OF LOS

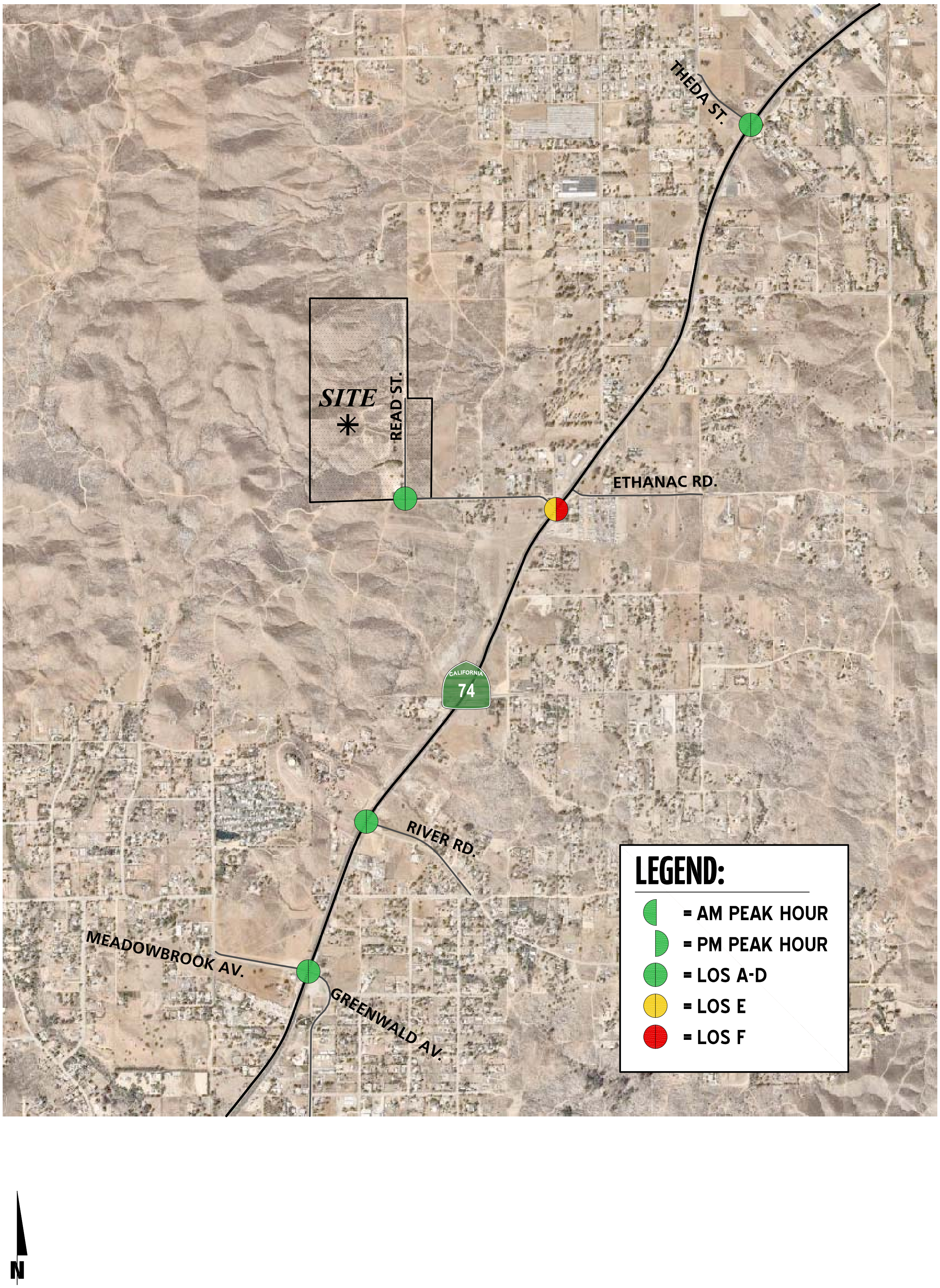


EXHIBIT 6-5: EAP (2020) SATURDAY SUMMARY OF LOS

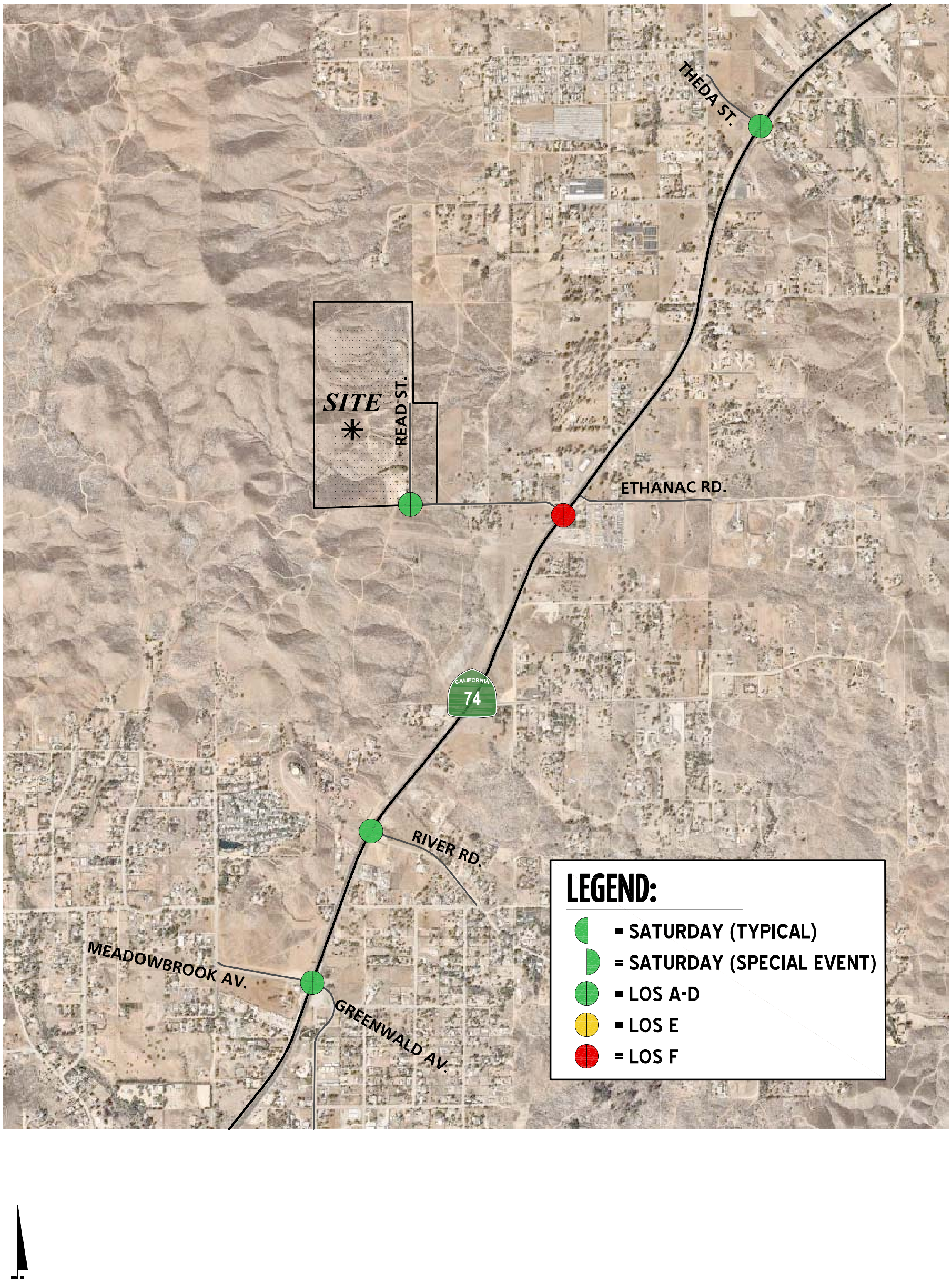


Table 6-1

Intersection Analysis for EAP (2020) Conditions

#	Intersection	Traffic Control[2]	Existing (2019)								EAP (2020)							
			Delay[1] (secs.)				Level of Service				Delay[1] (secs.)				Level of Service			
			AM	PM	Sat	Sat-SP	AM	PM	Sat	Sat-SP	AM	PM	Sat	Sat-SP	AM	PM	Sat	Sat-SP
1	Read St. & Ethanac Rd.	AWS	6.9	6.9	6.9	N/A	A	A	A	N/A	6.7	7.0	6.9	7.1	A	A	A	A
2	SR-74 & Theda St.	TS	14.2	11.8	10.9	N/A	B	B	B	N/A	14.6	12.3	11.3	11.6	B	B	B	B
3	SR-74 & Ethanac Rd.	CSS	**44.6**	**55.8**	**61.0**	N/A	**E**	**E**	**F**	N/A	**40.5**	**63.7**	**73.2**	**108.8**	**E**	**F**	**F**	**F**
4	SR-74 & River Rd.	CSS	14.8	16.1	14.3	N/A	B	C	B	N/A	15.5	16.6	14.9	15.3	C	C	B	C
5	SR-74 & Meadowbrook Av./Greenwald Av.	TS	20.6	13.2	14.6	N/A	C	B	B	N/A	21.2	13.5	15.0	15.0	C	B	B	B

[1] Per the Highway Capacity Manual (6th Edition), 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.

[2] AWS = All-way Stop; CSS = Cross-street Stop; TS = Traffic Signal

6.5 Recommended Improvements

Improvement strategies have been recommended at intersections that have been identified as deficient under EAP (2020) traffic conditions in an effort to achieve an acceptable LOS (i.e., LOS D or better).

6.5.1 Recommended Improvements to Address Deficiencies at Intersections

Improvement strategies have been identified at intersections that are anticipated to operate at a deficient LOS to improve the peak hour delays and associated LOS grade to an acceptable LOS (LOS D or better). The effectiveness of the improvements are presented in Table 6-2 for EAP (2020) traffic conditions. Worksheets for EAP (2020) conditions, with improvements, HCM calculations are provided in Appendix 6.3.

Table 6-2

Intersection Analysis for EAP (2020) Conditions With Improvements

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[1] (secs.)				Level of Service			
			Northbound			Southbound			Eastbound			Westbound										
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	Sat	Sat-SP	AM	PM	Sat	Sat-SP
3	SR-74 & Ethanac Rd.																					
	- Without Improvements	CSS	1	2	0	1	2	0	0	1	0	0	1	0	**40.5**	**63.7**	**73.2**	**108.8**	**E**	**F**	**F**	**F**
	- With Improvements	**<u>TS</u>**	1	2	0	1	2	0	0	1	0	0	1	0	7.8	9.4	11.1	11.8	A	A	B	B

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[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

[2] Per the Highway Capacity Manual (6th Edition), 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; TS = Traffic Signal; **TS** = Improvements

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7 EAPC (2020) TRAFFIC CONDITIONS

This section discusses the traffic forecasts for EAPC (2020) conditions and the resulting intersection operations and traffic signal warrant analyses.

7.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for EAPC (2020) 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 to provide site access are also assumed to be in place for EAPC (2020) conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).
- Driveways and those facilities assumed to be constructed by cumulative developments to provide site access are also assumed to be in place for EAPC (2020) conditions only (e.g., intersection and roadway improvements along the cumulative development's frontages).

7.2 EAPC (2020) TRAFFIC VOLUME FORECASTS

To account for background traffic, other known cumulative development projects in the study area were included in addition to 2.0% of ambient growth for EAPC (2020) traffic conditions in conjunction with traffic associated with the proposed Project. Exhibit 7-1 shows the ADT volumes and peak hour intersection turning movement volumes, which can be expected for EAPC (2020) weekday traffic conditions. Exhibit 7-2 shows the EAPC (2020) Saturday (Typical) ADT volumes and peak hour intersection turning movement volumes and Exhibit 7-3 shows the EAPC (2020) Saturday (Special Event) ADT volumes and peak hour intersection turning movement volumes.

7.3 INTERSECTION OPERATIONS ANALYSIS

EAPC (2020) peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 *Methodologies* of this TIA. The intersection analysis results are summarized in Table 7-1, which indicate that no additional study area intersections are anticipated to operate at an unacceptable LOS under EAPC (2020) traffic conditions, in addition to the intersection previously identified under Existing (2019) traffic conditions.

Exhibit 7-4 summarizes the weekday AM and PM peak hour study area intersection LOS and Exhibit 7-5 summarizes the Saturday (Typical and Special Event) peak hour study area intersection LOS under EAPC (2020) traffic conditions, consistent with the summary provided in Table 7-1. The intersection operations analysis worksheets are included in Appendix 7.1 of this TIA.

7.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

No study area intersections are anticipated to meet planning level (ADT) or peak hour volume-based traffic signal warrants under EAPC (2020) traffic conditions (see Appendix 7.2).

EXHIBIT 7-1: EAPC (2020) WEEKDAY TRAFFIC VOLUMES (IN PCE)

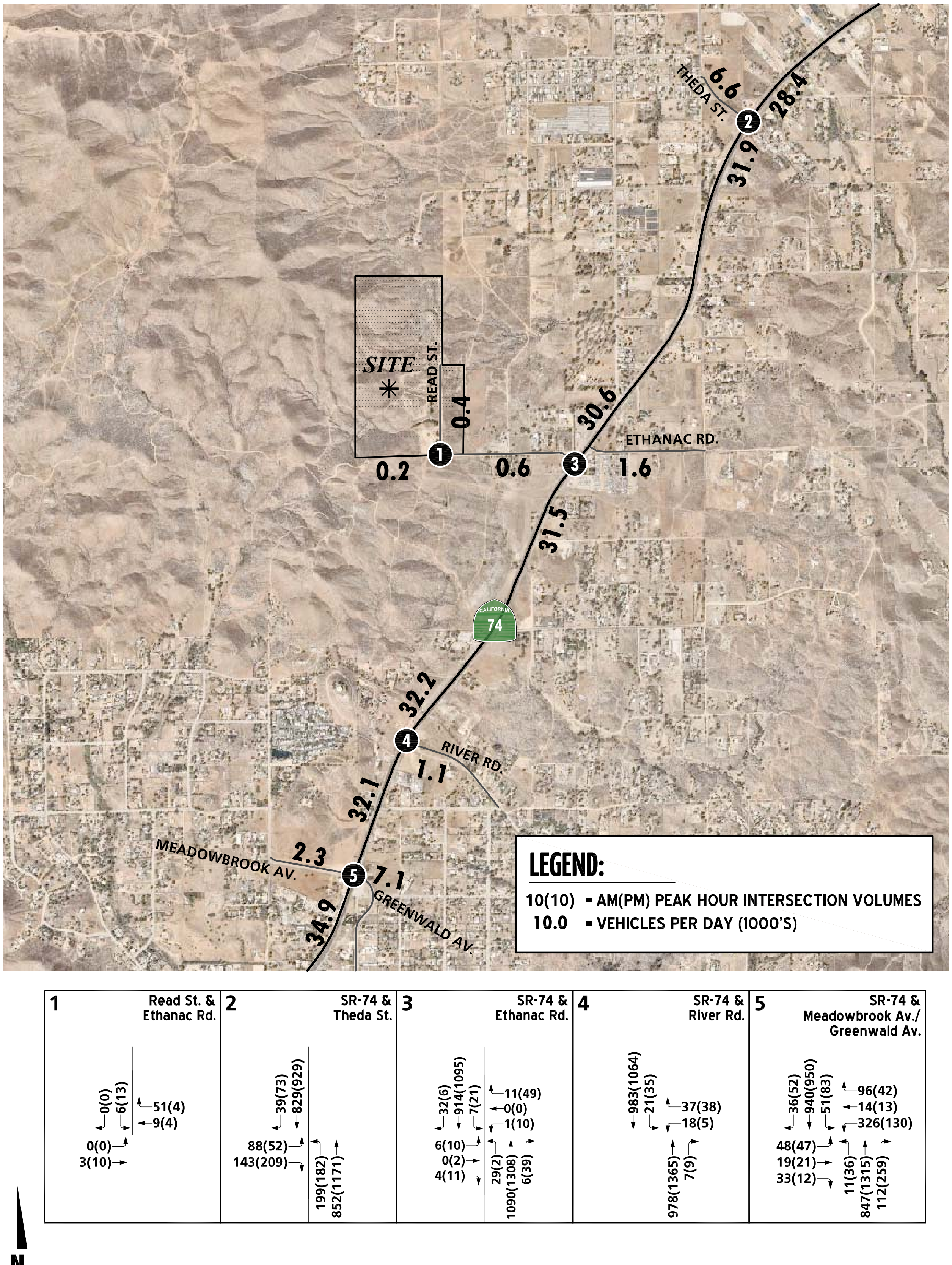
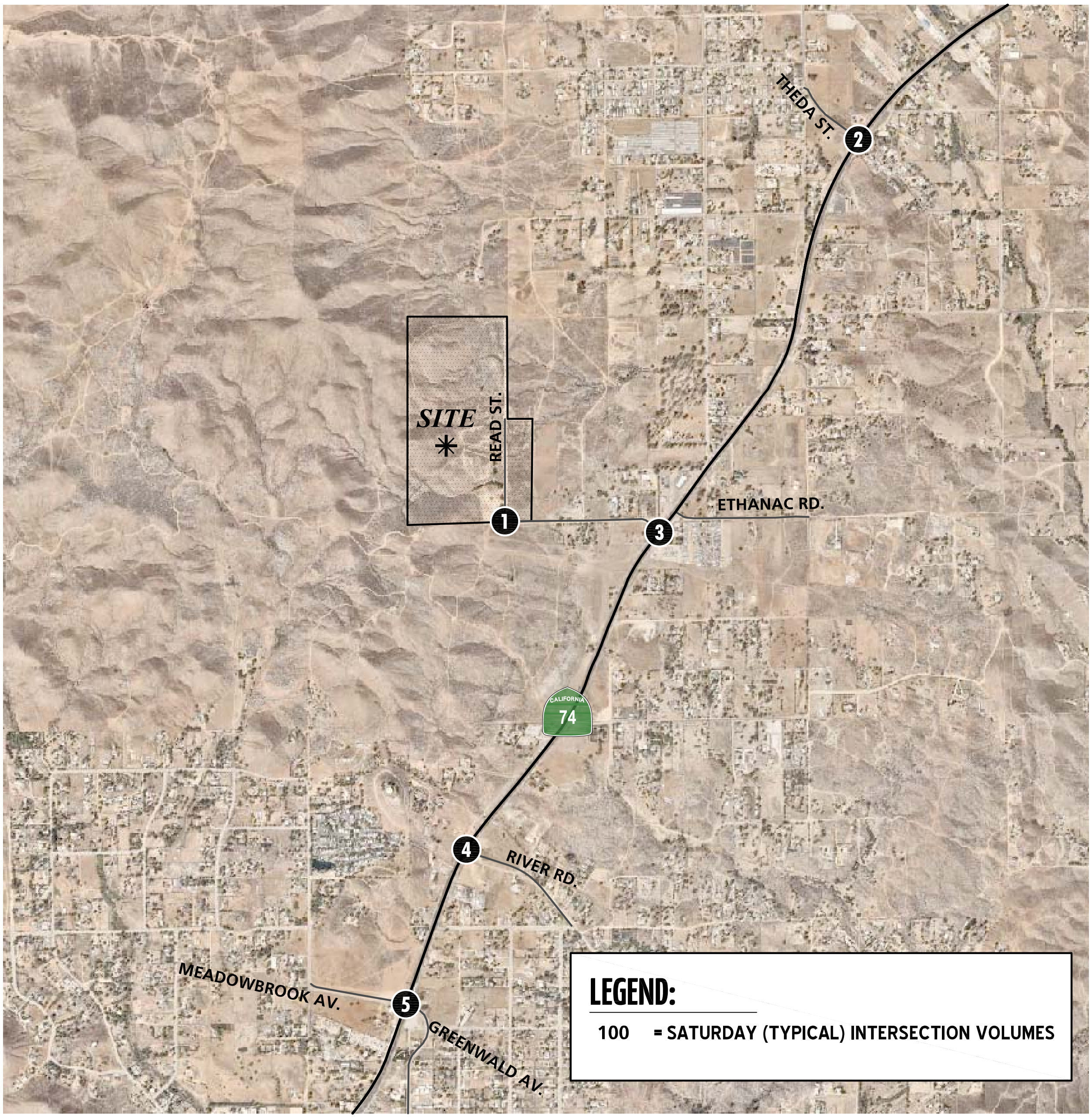


EXHIBIT 7-2: EAPC (2020) SATURDAY (TYPICAL) TRAFFIC VOLUMES (IN PCE)



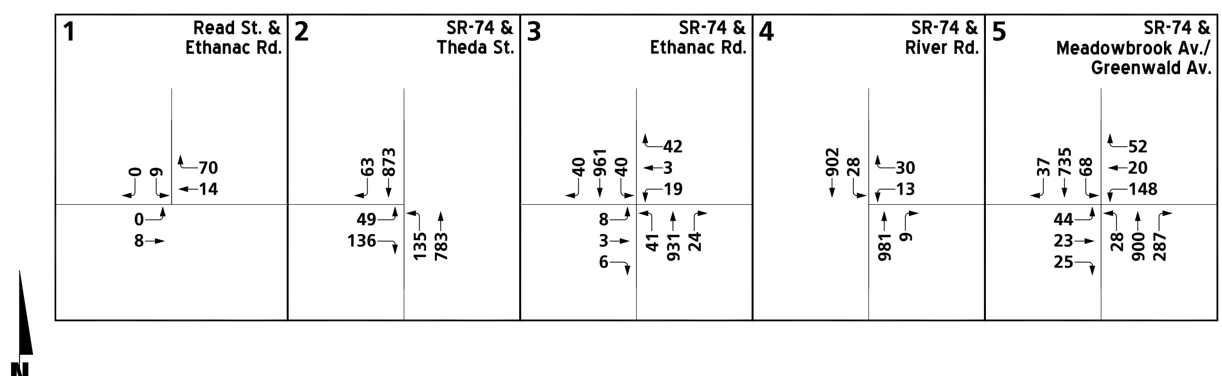


EXHIBIT 7-3: EAPC (2020) SATURDAY (SPECIAL EVENT) TRAFFIC VOLUMES (IN PCE)

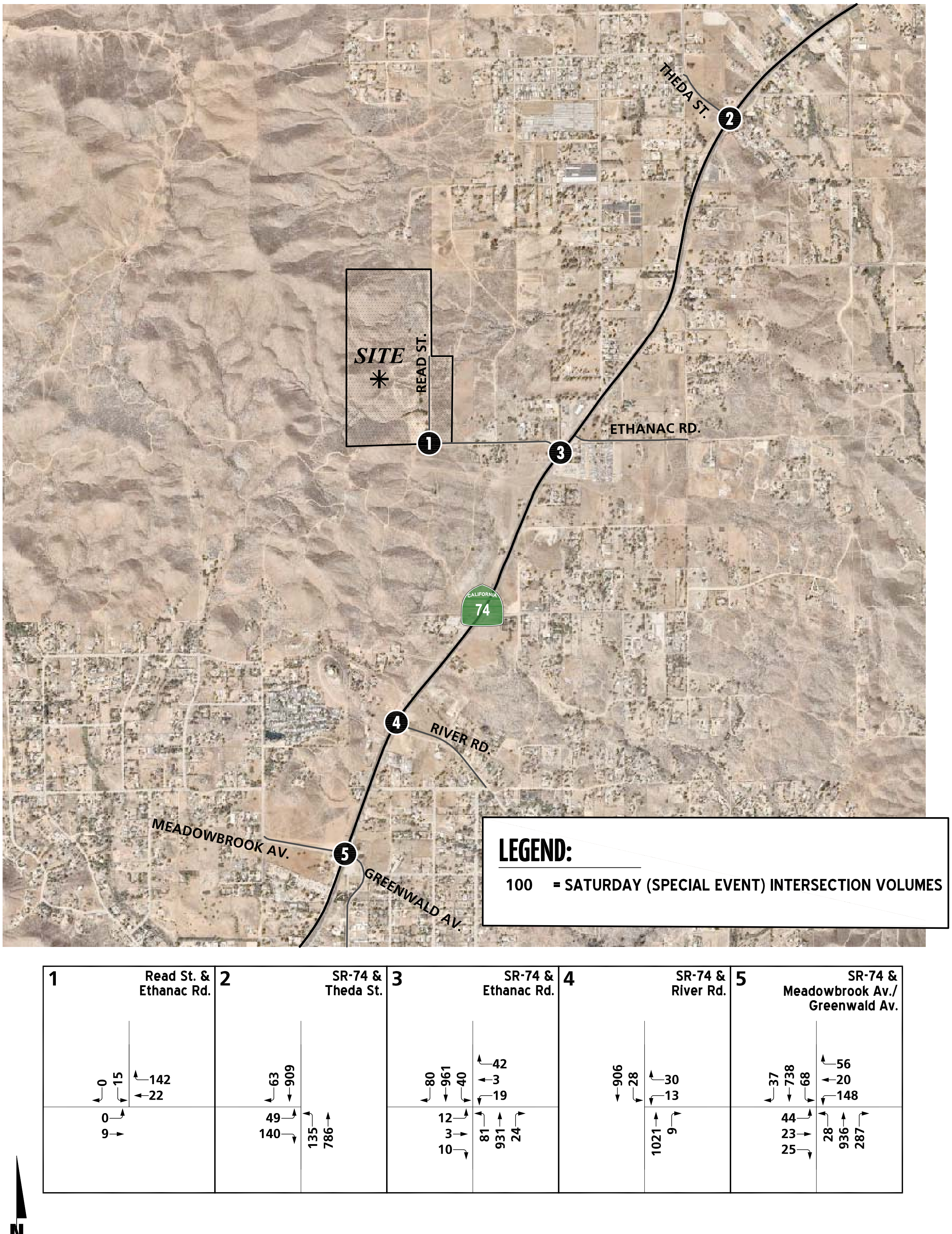


EXHIBIT 7-4: EAPC (2020) WEEKDAY SUMMARY OF LOS

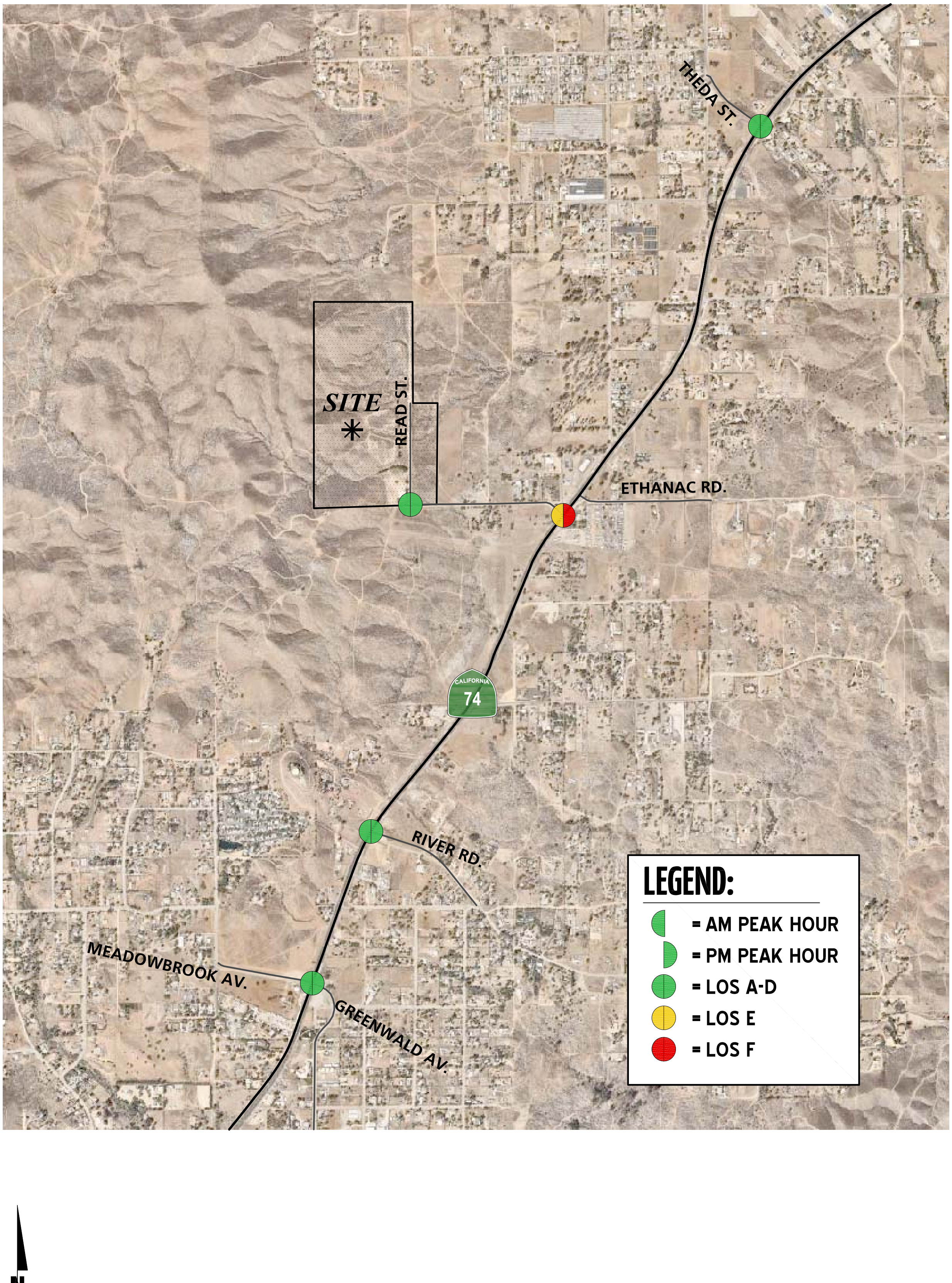


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EXHIBIT 7-5: EAPC (2020) SATURDAY SUMMARY OF LOS

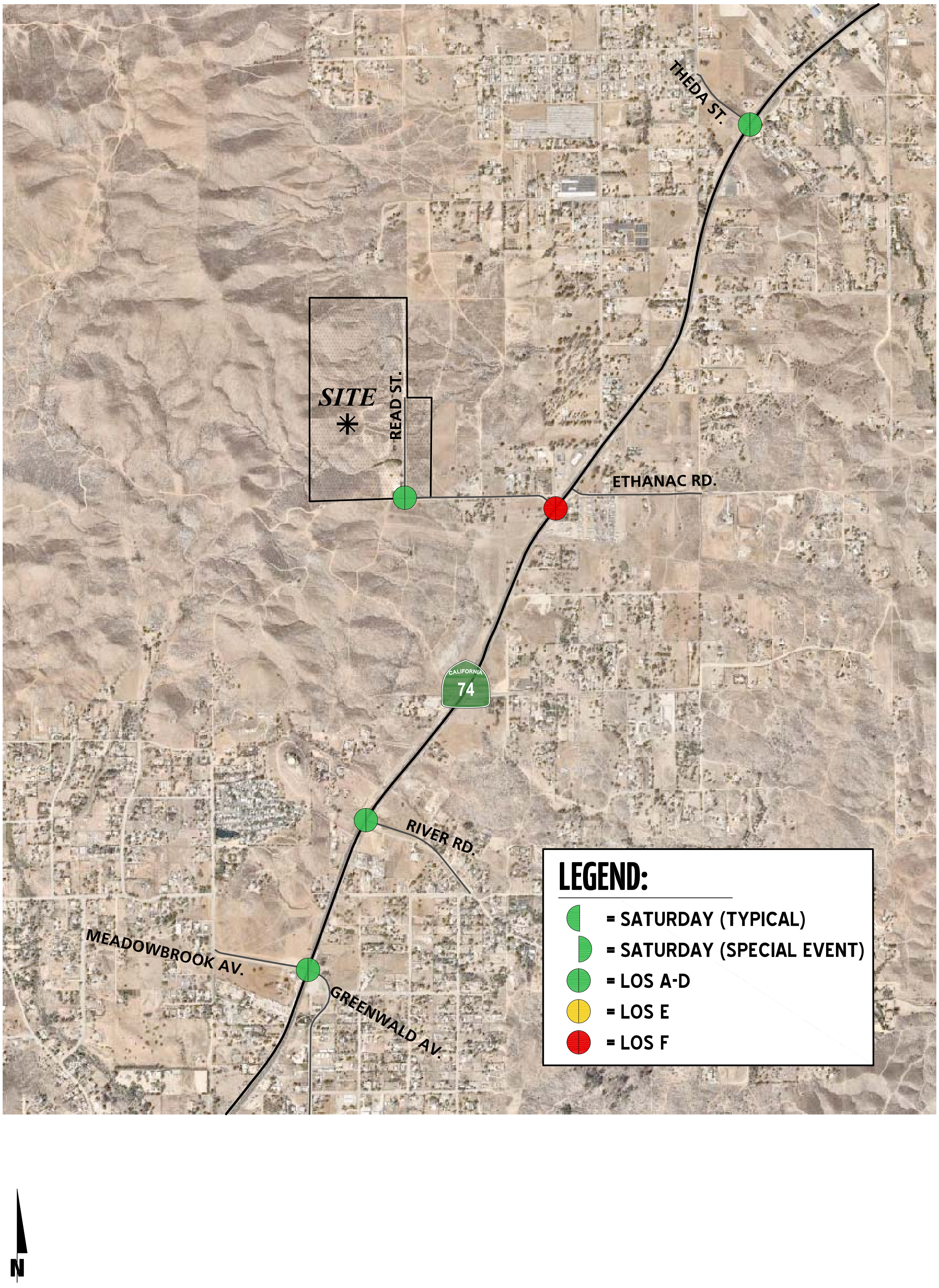

Table 7-1

Intersection Analysis for EAPC (2020) Conditions

#	Intersection	Traffic Control[2]	Existing (2019) Delay[1] (secs.) AM	PM	Sat	Sat-SP	Existing (2019) Level of Service AM	PM	Sat	Sat-SP	EAPC (2020) Delay[1] (secs.) AM	PM	Sat	Sat-SP	EAPC (2020) Level of Service AM	PM	Sat	Sat-SP
1	Read St. & Ethanac Rd.	AWS	6.9	6.9	6.9	N/A	A	A	A	N/A	6.7	7.0	6.9	7.1	A	A	A	A
2	SR-74 & Theda St.	TS	14.2	11.8	10.9	N/A	B	B	B	N/A	14.6	12.8	11.8	12.0	B	B	B	B
3	SR-74 & Ethanac Rd.	CSS	**44.6**	**55.8**	**61.0**	N/A	**E**	**E**	**F**	N/A	**45.6**	**87.0**	**101.4**	**171.0**	**E**	**F**	**F**	**F**
4	SR-74 & River Rd.	CSS	14.8	16.1	14.3	N/A	B	C	B	N/A	15.7	17.2	15.3	15.7	C	C	B	C
5	SR-74 & Meadowbrook Av./Greenwald Av.	TS	20.6	13.2	14.6	N/A	C	B	B	N/A	21.5	14.0	15.3	15.3	C	B	B	B

[1] Per the Highway Capacity Manual (6th Edition), 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.

[2] AWS = All-way Stop; CSS = Cross-street Stop; TS = Traffic Signal

7.5 RECOMMENDED IMPROVEMENTS

Improvement strategies have been recommended at intersections that have been identified as deficient under EAPC (2020) traffic conditions in an effort to achieve an acceptable LOS (i.e., LOS D or better).

7.5.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

Improvement strategies have been identified at intersections that are anticipated to operate at a deficient LOS to improve the peak hour delays and associated LOS grade to an acceptable LOS (LOS D or better). The effectiveness of the improvements are presented in Table 7-2 for EAPC (2020) traffic conditions. Worksheets for EAPC (2020) conditions, with improvements, HCM calculations are provided in Appendix 7.3.

Table 7-2

Intersection Analysis for EAPC (2020) Conditions With Improvements

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[1] (secs.)				Level of Service			
			Northbound			Southbound			Eastbound			Westbound										
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	Sat	Sat-SP	AM	PM	Sat	Sat-SP
3	SR-74 & Ethanac Rd.																					
	- Without Improvements	CSS	1	2	0	1	2	0	0	1	0	0	1	0	**45.6**	**87.0**	**101.4**	**171.0**	**E**	**F**	**F**	**F**
	- With Improvements	**TS**	1	2	0	1	2	0	0	1	0	0	1	0	8.1	9.4	11.2	11.8	A	A	B	B

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[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

[2] Per the Highway Capacity Manual (6th Edition), 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; TS = Traffic Signal; **TS** = Improvements

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8 LOCAL AND REGIONAL FUNDING MECHANISMS

Transportation improvements within the County of Riverside are funded through a combination of improvements constructed by the Project, development impact fee programs or fair share contributions, such as the County of Riverside Development Impact Fee (DIF) program. Identification and timing of needed improvements is generally determined through local jurisdictions based upon a variety of factors.

8.1 TRANSPORTATION UNIFORM MITIGATION FEE (TUMF) PROGRAM

The TUMF program is administered by the WRCOG based upon a regional Nexus Study most recently updated in 2016 to address major changes in right of way acquisition and improvement cost factors. (5) 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 Western Riverside County.

TUMF guidelines empower a local zone committee to prioritize and arbitrate certain projects. The Project is located in the Central Zone. The zone has developed a 5-year capital improvement program to prioritize public construction of certain roads. TUMF is focused on improvements necessitated by regional growth.

8.2 DEVELOPMENT IMPACT FEE (DIF) PROGRAM

The Project is located within the County's Mead Valley Area Plan and therefore will be subject to County of Riverside DIF in an effort by the County to address development throughout its unincorporated area. The DIF program consists of two separate transportation components: the Roads, Bridges and Major Improvements component and the Traffic Signals component. Eligible facilities for funding by the County DIF program are identified on the County's Public Needs List, which currently extends through the year 2010. (6) A comprehensive review of the DIF program is now planned in order to update the nexus study. This will result in development of a revised "needs list" extending the program time horizon from 2010 to 2030.

The cost of signalizing DIF network intersections is identified under the Traffic Signals component of the DIF program. County staff generally defines DIF eligible intersections as those consisting of two intersecting general plan roadways. If the intersection meets this requirement, it is potentially eligible for up to $235,000 of credit, which is subject to negotiations with the County.

8.3 FAIR SHARE CONTRIBUTION

Project improvement may include a combination of fee payments to established programs, construction of specific improvements, payment of a fair share contribution toward future improvements or a combination of these approaches. Improvements constructed by development may be eligible for a fee credit or reimbursement through the program where appropriate (to be determined at the City's discretion).

When off-site improvements are identified with a minor share of responsibility assigned to proposed development, the approving jurisdiction may elect to collect a fair share contribution or require the development to construct improvements. Detailed fair share calculations, for each peak hour, has been provided on Table 8-1 for the applicable deficient study area intersections.

These fees are collected with the proceeds solely used as part of a funding mechanism aimed at ensuring that regional highways and arterial expansions keep pace with the projected population increases.

Table 8-1

Project Fair Share Calculations

#	Intersection	Existing	Project	2020 With Project Volume	Total New Traffic	Project % of New Traffic
3	SR-74 & Ethanac Rd.					
	AM:	1,866	66	2,101	235	28.1%
	PM:	2,305	18	2,554	249	7.2%
	Typical Saturday:	1,819	88	2,118	299	29.4%
	Special Event Saturday:	1,819	176	2,206	387	**45.5%**

BOLD = Denotes highest fair share percentage

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9 REFERENCES

1. **Riverside County Transportation Department.** *Traffic Impact Analysis Preparation Guide.* County of Riverside : s.n., April 2008.
2. **Riverside County Transportation Commission.** *2011 Riverside County Congestion Management Program.* County of Riverside : RCTC, December 14, 2011.
3. **Transportation Research Board.** *Highway Capacity Manual (HCM).* 6th Edition. s.l. : National Academy of Sciences, 2017.
4. **Southern California Association of Governments.** *2016 Regional Transportation Plan/Sustainable Communities Strategy.* April 2016.
5. **Western Riverside Council of Governments.** *TUMF Nexus Study, 2016 Program Update.* July 2017.
6. **David Taussig & Associates, Inc.** *County of Riverside DIF Update - Updated Public Facilities Needs List through the year 2010.* County of Riverside : s.n., 2006.

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