Seaton Tech Center

TRAFFIC IMPACT ANALYSIS

COUNTY OF RIVERSIDE

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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
DIF	Development Impact Fee
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 Equivalents
PEMS	Performance Measure System
PHF	Peak Hour Factor
Project	Seaton Tech Center
RTA	Riverside Transit Authority
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
sf	Square Feet
TIA	Traffic Impact Analysis
TSF	Thousand Square Feet
TUMF	Transportation Uniform Mitigation Fee
WP	With Project
WRCOG	Western Riverside Council of Governments
V/C	Volume to Capacity

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1 INTRODUCTION

This report presents the results of the traffic impact analysis (TIA) for the proposed Seaton Tech Center development ("Project"), which is located on the southeast corner of Seaton Avenue and Perry Street, as shown on Exhibit 1-1.

The purpose of this traffic impact analysis is to evaluate the potential impacts related to traffic and circulation system deficiencies that may result from the development of the proposed Project, and to recommend improvements to mitigate impacts considered significant in comparison to established regulatory thresholds and to achieve acceptable circulation system operational conditions. This traffic study has been prepared in accordance with the County of Riverside's Traffic Impact Analysis Preparation Guide (August 2008) and through consultation with County of Riverside staff during the scoping process. (1) The approved Project Traffic Study Scoping agreement is provided in Appendix 1.1 of this TIA.

1.1 SUMMARY OF FINDINGS

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) Trip Generation Manual, 10th Edition, 2017. (2) The Project is estimated to generate a net total of 600 passenger-car-equivalent (PCE) trip-ends per day on a typical weekday with approximately 55 net AM PCE peak hour trips and 55 net PM 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.

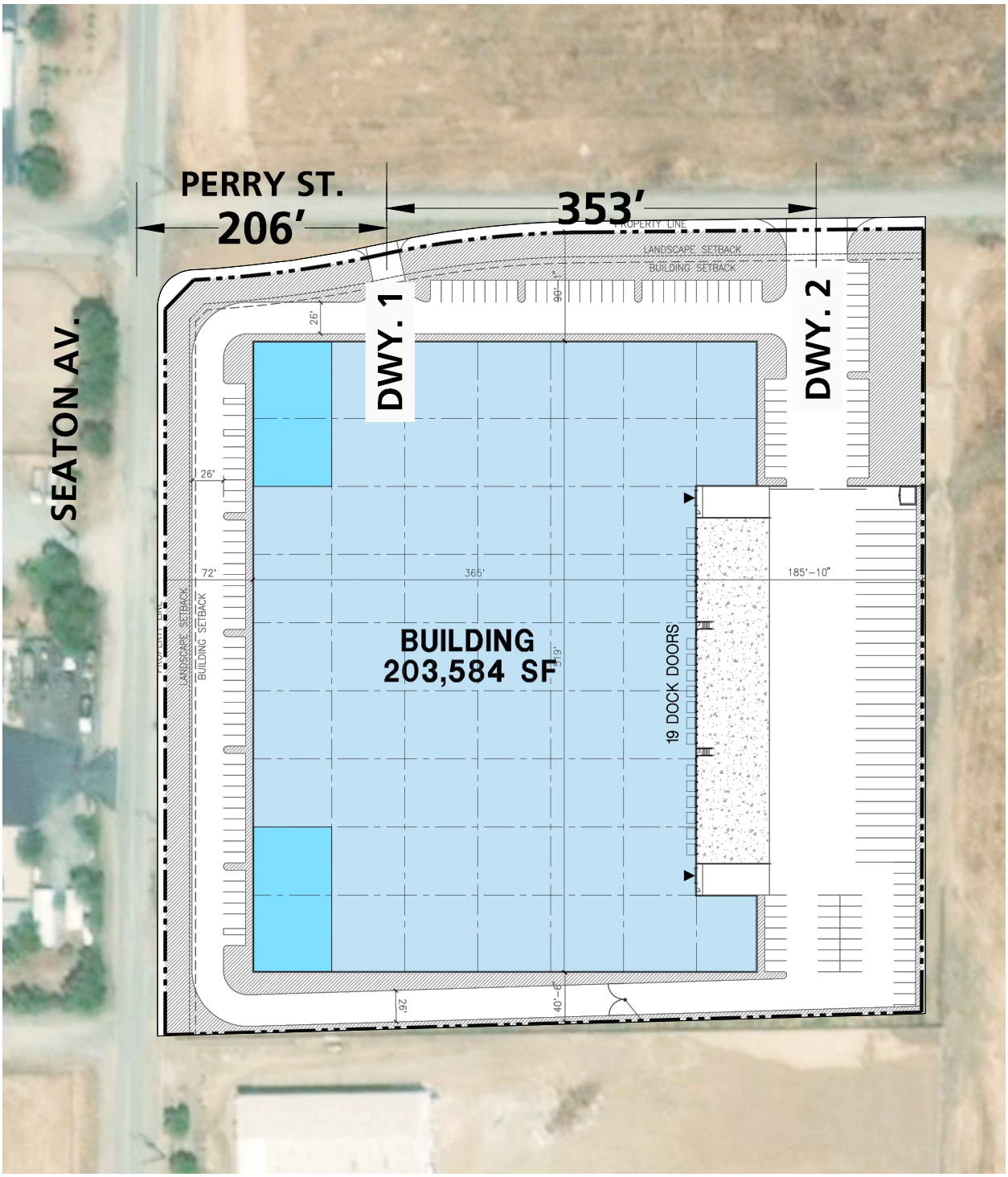
The contribution of Project traffic to either existing or existing plus ambient growth conditions was not found to result in any deficient intersection operations. In other words, there were no direct Project impacts related to traffic. The Project is anticipated to contribute towards a cumulative traffic impact at the intersection of Seaton Avenue and Markham Street for Opening Year Cumulative traffic conditions only (i.e., EAPC). The Project's payment of Development Impact Fees (DIF) would mitigate its cumulative impact to this intersection.

1.2 PROJECT OVERVIEW

The Project is proposed to consist of up to 162,867 square feet (sf) of high-cube transload/short-term storage warehouse (without cold storage) use (80 percent of the total square footage) and 40,717 square feet of general light industrial use (20 percent of the total square footage) for a total of 203,584 square feet within a single building. The Project is anticipated to be constructed in a single phase by the year 2020. Vehicular and truck traffic access will be provided via the following driveways (see Exhibit 1-1):

- Perry Street via Driveway 1 – full access for passenger cars only
- Perry Street via Driveway 2 – full access for both trucks and passenger cars

EXHIBIT 1-1: PRELIMINARY SITE PLAN



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1.3 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 (2018)
- Existing Plus Project (E+P)
- Existing Plus Ambient Growth Plus Project (EAP) (2020)
- Existing Plus Ambient Growth Plus Project Plus Cumulative Projects (EAPC) (2020)

1.3.1 EXISTING (2018) CONDITIONS

Information for Existing (2018) conditions is disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared. Traffic counts were conducted in October 2018 based on vehicle classification and were converted to PCE due to the presence of heavy trucks within the study area.

1.3.2 EXISTING PLUS PROJECT CONDITIONS

The Existing Plus Project (E+P) analysis determines any significant traffic impacts and circulation system deficiencies that would occur on the existing roadway system in the scenario of the Project being placed upon Existing conditions.

1.3.3 EXISTING PLUS AMBIENT GROWTH AND EXISTING PLUS AMBIENT GROWTH PLUS PROJECT (2020) CONDITIONS

The EAP (2020) conditions analysis determines the 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 (2018) conditions of 4.04% (2 percent per year, compounded over 2 years) is included for EAP (2020) 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.

1.3.4 EXISTING PLUS AMBIENT GROWTH PLUS PROJECT PLUS CUMULATIVE (2020) CONDITIONS

The EAPC (2020) traffic conditions analysis determines the potential near-term cumulative circulation system deficiencies. To account for background traffic growth, an ambient growth factor of 4.04% from Existing conditions are included for EAPC traffic conditions (2 percent per year, compounded over 2 years).

Conservatively, the TIA estimates the area traffic growth then adds traffic generated by other known or probable related projects. These related projects are at least in part already accounted for in the assumed 4.04% total ambient growth in traffic noted above; and some of these related projects would likely not be implemented and operational within the 2020 Opening Year time frame assumed for the Project. The resulting traffic growth rate utilized in the TIA (4.04 percent ambient growth + traffic generated by related projects) would therefore tend to overstate rather than understate background cumulative traffic impacts under 2020 conditions.

1.4 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 of Riverside staff prior to the preparation of this report. The scoping agreement provides an outline of the Project study area, trip generation, trip distribution, and analysis methodology and is included in Appendix 1.1.

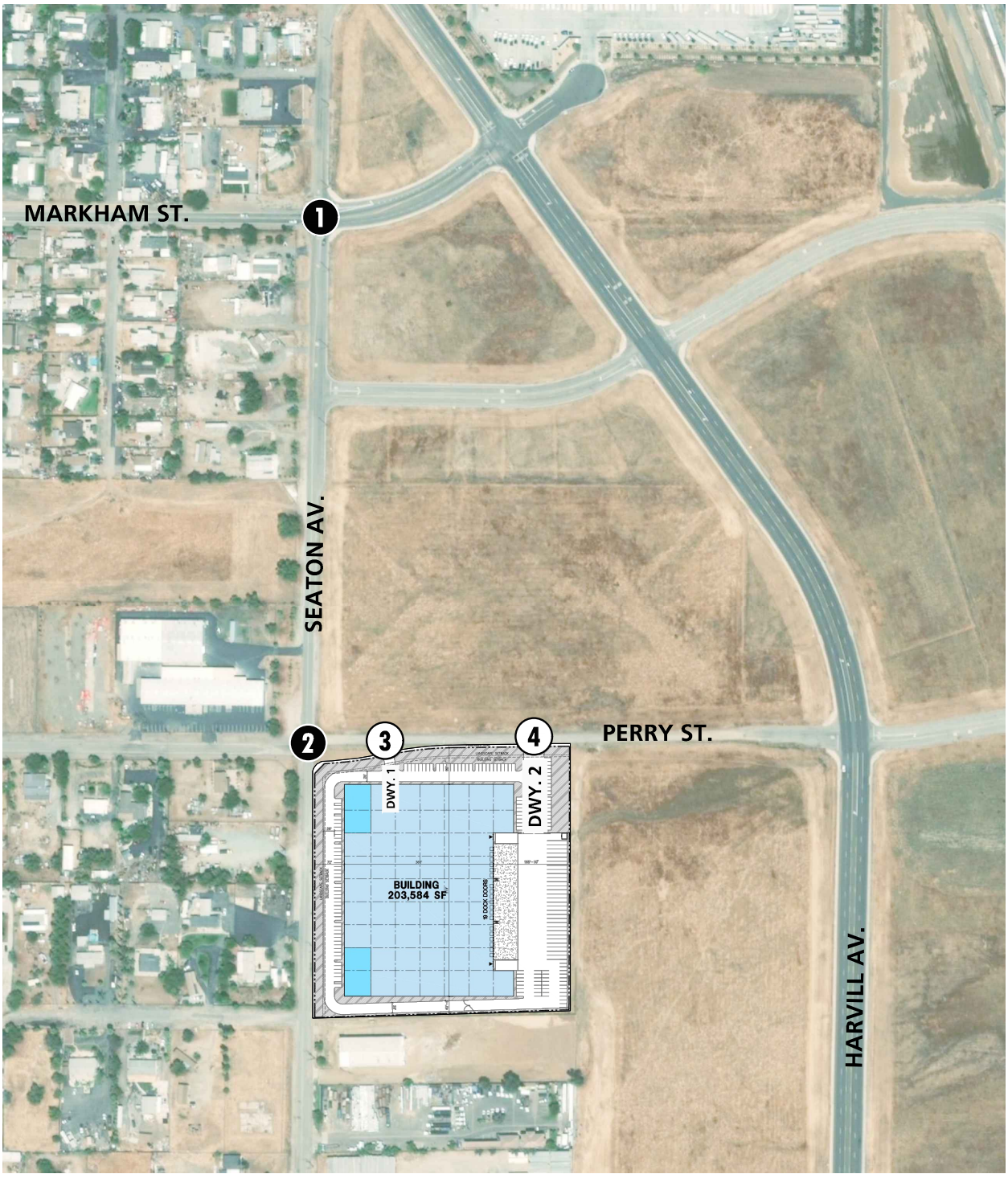
The following 4 study area intersections shown on Exhibit 1-2 and listed in Table 1-1 were selected for this TIA based on consultation with County of Riverside staff. The study area includes intersections where the Project is anticipated to contribute 50 or more peak hour trips, per the County of Riverside's traffic study guidelines, or have been added at the direction of County of Riverside staff. (1) The "50 peak hour trip" criteria 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).

Pursuant to the Traffic Study Guidelines, Caltrans requires analysis of freeway mainline segments when the Project contributes 50 or more peak hour trips. (3) Based on the Project trip distributions, assessment of state facilities is not required as the Project's traffic contribution to the State facilities is fewer than 50 peak hour trips and is considered less than significant. The project trip generation, distribution, and volumes are further explained in Chapter 4 *Project Future Traffic* of this TIA.

TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction	CMP?
1	Seaton Avenue & Markham Street	County of Riverside	No
2	Seaton Avenue & Perry Street	County of Riverside	No
3	Driveway 1 & Perry Street – Future Intersection	County of Riverside	No
4	Driveway 2 & Perry Street – Future Intersection	County of Riverside	No

EXHIBIT 1-2: LOCATION MAP



LEGEND:

① = EXISTING INTERSECTION ANALYSIS LOCATION

① = FUTURE INTERSECTION ANALYSIS LOCATION

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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. Counties within California have developed CMPs with varying methods and strategies to meet the intent of the CMP legislation. None of the study area intersections are identified as CMP facilities in the County of Riverside CMP. (3)

1.5 ANALYSIS FINDINGS

This section provides a summary of the analysis results for Existing (2018), E+P, EAP (2020), and EAPC (2020).

Existing (2018) Conditions

A summary of LOS results for Existing traffic conditions are presented on Exhibit 1-3. For Existing (2018) traffic conditions, all the study area intersections are currently operating at an acceptable level of service (LOS) (i.e., LOS D or better) during one or both of the peak hours.

E+P Conditions

The study area intersections are anticipated to continue to operate at acceptable LOS during the peak hours with the addition of Project traffic for E+P traffic conditions, consistent with Existing conditions.

EAP (2020) Conditions

The study area intersections are anticipated to continue to operate at acceptable LOS during the peak hours with the addition of Project traffic for EAP (2020) traffic conditions, consistent with Existing conditions.

EAPC (2020) Conditions

The following intersection is anticipated to operate at an unacceptable LOS (i.e., LOS E or worse) during one or more peak hours under EAPC (2020) traffic conditions:

- Seaton Avenue & Markham Street (#1) – LOS E AM peak hour only

Recommended Improvements

It should be noted that the Project contributes less than 50 peak hour trips to the intersection of Seaton Avenue and Markham Street. However, the following improvements are necessary in order to improve the peak hour delays and associated LOS grade to an acceptable LOS (LOS D or better) at the deficient study area intersection:

Seaton Avenue & Markham Street (#1):

- Install a traffic signal.
- Add a southbound and eastbound left turn lane.
- Restripe the westbound approach to provide a left and shared through-right turn lane.

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

#	Intersection	Existing (2018)	E+P	EAP (2020)	EAPC (2020)
1	Seaton Av. & Markham St.				
2	Seaton Av. & Perry St.				
3	Dwy. 1 & Perry St.	NA			
4	Dwy. 2 & Perry St.	NA			

LEGEND:

- = AM PEAK HOUR
- = PM PEAK HOUR
- = LOS A-D
- = LOS E
- = LOS F
- NA = NOT AN ANALYSIS LOCATION FOR THIS SCENARIO

The Project Applicant shall participate in the funding of off-site improvements that are needed to serve cumulative traffic conditions through the payment to the County of Riverside Development Impact Fee (DIF) program. These fees shall be collected by the County of Riverside, 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.

1.6 CIRCULATION SYSTEM DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

A summary of the operationally deficient study area intersection and recommended improvements required to achieve acceptable circulation system performance are described in detail within Section 7 *EAPC (2020) Traffic Conditions* of this report.

1.6.1 CUMULATIVE IMPACTS

A summary of off-site improvements needed to address intersection operational deficiencies for each analysis scenario is included in Table 1-2. These recommended improvements are consistent with or less than the geometrics assumed in the County of Riverside General Plan Circulation Element. Improvements found to be included in the Western Riverside Council of Governments (WRCOG) Transportation Uniform Mitigation Fee (TUMF) or the County of Riverside's (lead agency) Development Impact Fee (DIF) fee program have been identified as such. These fees (both to the County of Riverside and TUMF) are collected as part of a funding mechanism aimed at ensuring that regional highways and arterial expansions keep pace with the projected vehicle trip increases. Additional information related to these various fee programs are contained in Section 1.7 *Local and Regional Funding Mechanisms* of this report.

1.6.2 CUMULATIVE MITIGATION MEASURES

Mitigation Measure 1.1 – Prior to the issuance of building permits, the Project Applicant shall participate in the County's TUMF and DIF programs by paying the requisite fees at the time of building permit for the improvements identified in Table 7-2, or as agreed to by the County and Project Applicant.

1.7 LOCAL AND REGIONAL FUNDING MECHANISMS

Transportation improvements throughout the County of Riverside are funded through a combination of project mitigation or development impact fee programs, such as TUMF program or the County's DIF program.

Table 1-2

Summary of Improvements by Analysis Scenario

#	Intersection Location	Jurisdiction	E+P	EAP (2020)	EAPC (2020)	Improvements in County TUMF/DIF?[1]
1	Seaton Av. & Markham St.	County	None	None	Traffic Signal SB left turn lane EB left turn lane Restripe the WB approach to provide a left turn and shared through-right turn lane	Yes (DIF)

[1] Improvements included in TUMF Nexus, or County of Riverside DIF fee programs.

1.7.1 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. (4) 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.

1.7.2 COUNTY OF RIVERSIDE 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 2020. (5)

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.

1.8 ON-SITE ROADWAY IMPROVEMENTS

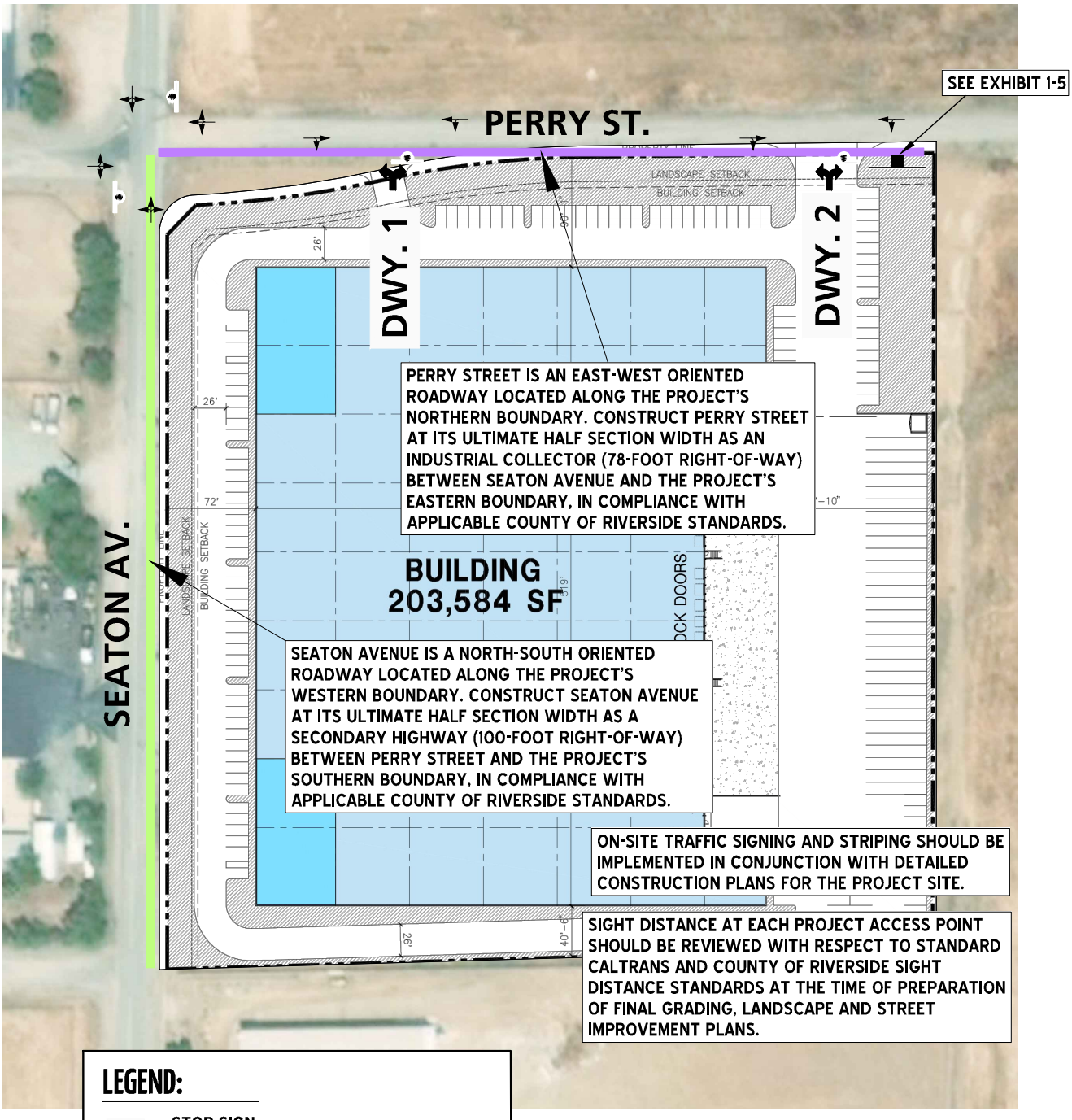
The recommended site-adjacent roadway improvements for the Project are described below. Exhibit 1-4 illustrates the site-adjacent roadway improvement recommendations.

Seaton Avenue – Seaton Avenue is a north-south oriented roadway located along the Project's western boundary. Construct Seaton Avenue at its ultimate half-section width as a Secondary Highway (100-foot right-of-way) between Perry Street and the Project's southern boundary, in compliance with applicable County of Riverside standards.

Perry Street – Perry Street is an east-west oriented roadway located along the Project's northern boundary. Construct Perry Street at its ultimate half-section width as an industrial collector (78-foot right-of-way) between Seaton Avenue and the Project's eastern boundary, in compliance with applicable County of Riverside standards.

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

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



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.

1.9 SITE ACCESS IMPROVEMENTS

The recommended site access driveway improvements for the Project are described below. Exhibit 1-4 also illustrates the site access 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.

Driveway 1 & Perry Street – Install a stop control on the northbound approach and construct the intersection with the following geometrics:

- Northbound Approach: One shared left-right turn lane.
- Southbound Approach: Not Applicable (N/A)
- Eastbound Approach: One shared through-right turn lane.
- Westbound Approach: One shared left-through lane.

Driveway 2 & Perry Street – Install a stop control on the northbound approach and construct the intersection with the following geometrics:

- Northbound Approach: One shared left-right turn lane.
- Southbound Approach: N/A
- Eastbound Approach: One shared through-right turn lane.
- Westbound Approach: One shared left-through lane.

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.

Driveway 2 will serve as the truck driveway for the proposed Project. Signage will be installed at Project Driveway 2 to direct truck traffic per the truck route plan shown on Exhibit 1-5. Exiting trucks will be directed to utilize Perry Street eastbound to Harvill Avenue. Exhibit 1-5 shows the recommended Truck Traffic Management Plan sign that shall be posted at the site access driveway accessible to trucks (Driveway 2). The sign shall be 24 inches by 24 inches and shall be mounted at a height that is readily visible to truck drivers. The proposed sign letter sizes shall conform to the requirements of the 2014 California Manual on Uniform Traffic Control Devices (CA MUTCD).

Implementation of the truck management plan will require coordination between the future tenant and its drivers via signage and/or handouts with information about the truck routes. In conjunction with the signage/handouts showing the truck route plan, it is recommended that the future tenant implement an ongoing driver education program where the dispatchers inform the truck drivers about the approved truck route and reinforce that truck traffic to and from Seaton Avenue is prohibited.

1.10 TRUCK ACCESS

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 and site adjacent intersection 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 1-6). A WB-67 truck (53-foot trailer) has been utilized for the purposes of this analysis. As shown on Exhibit 1-6, the following curb radius change is necessary in order to accommodate the ingress and egress of heavy trucks:

- Driveway 2 on Perry Street should be modified to provide a 55-foot radius on the southeast curb

EXHIBIT 1-5: TRUCK ROUTE SIGN

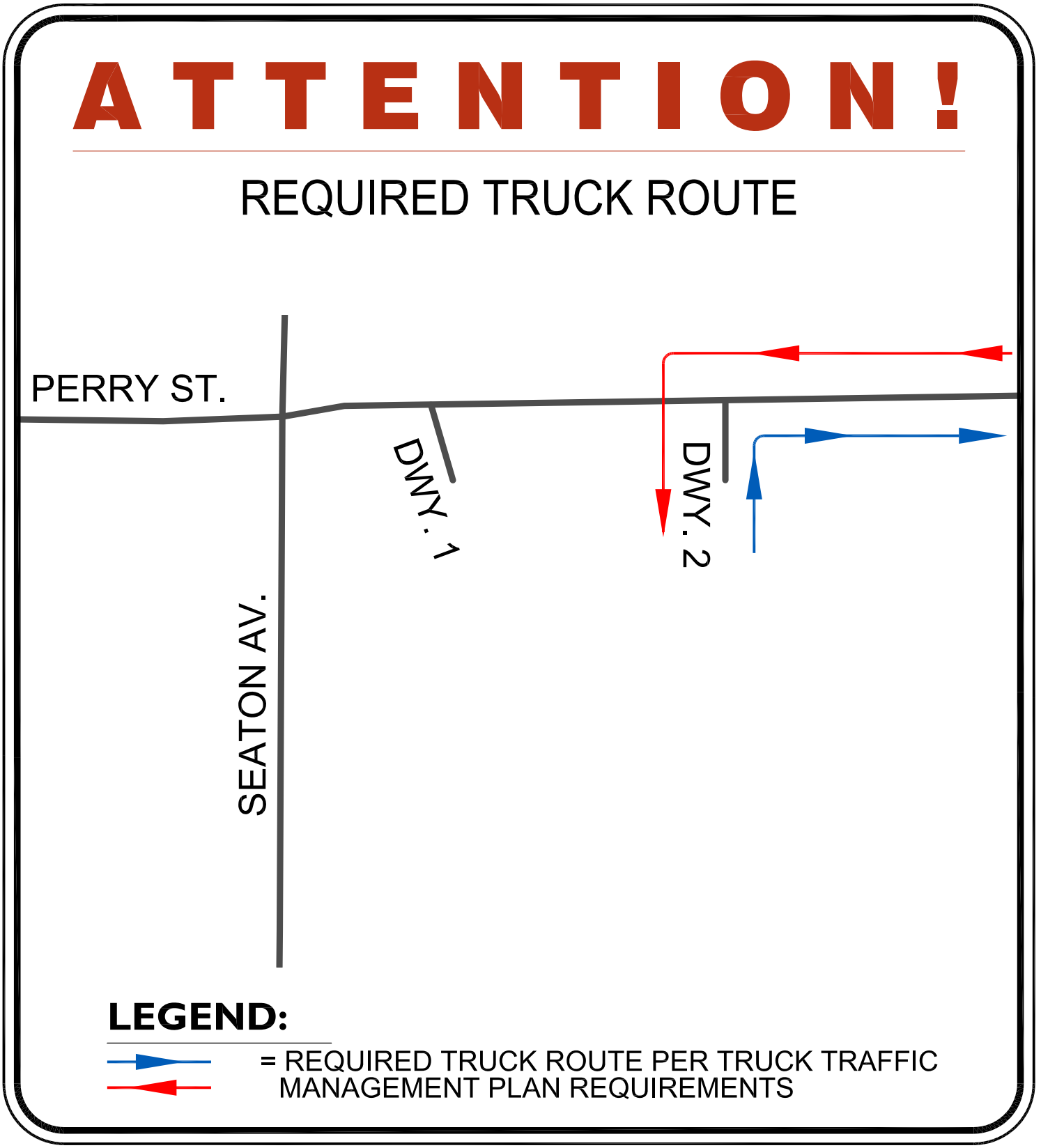
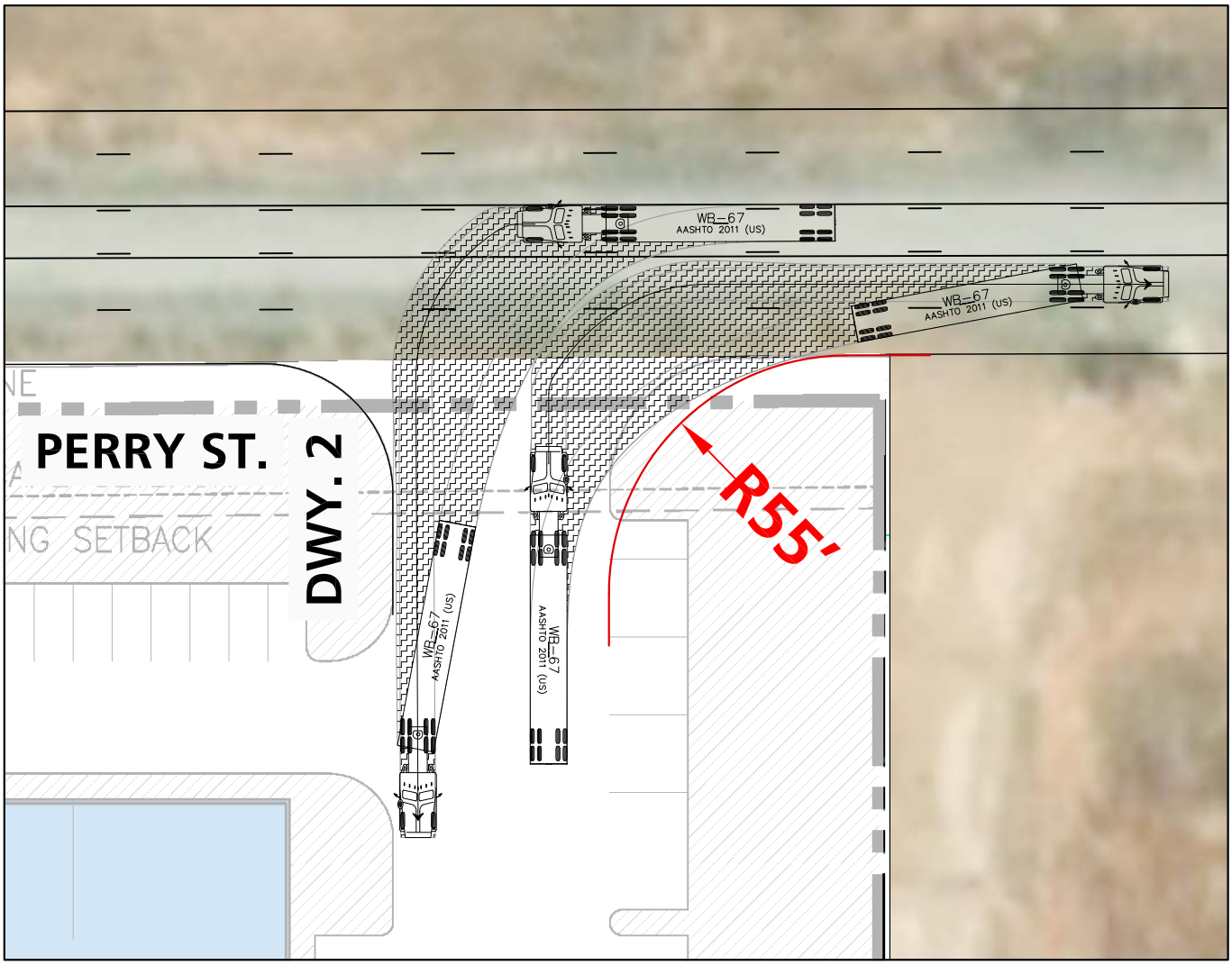


EXHIBIT 1-6: TRUCK ACCESS



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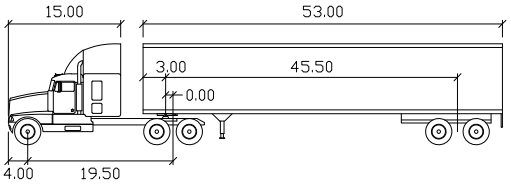

WB-67	feet		
Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 28.4
Tractor Track	: 8.00	Articulating Angle	: 75.0
Trailer Track	: 8.50		

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1"=40'

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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 and California Department of Transportation (Caltrans) traffic study guidelines. (6)

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. (7) The HCM uses different procedures depending on the type of intersection control.

2.2.1 SIGNALIZED INTERSECTIONS

The County of Riverside and Caltrans require signalized intersection operations analysis based on the methodology described in the HCM (6th Edition). 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. Study area intersections have been evaluated using the Synchro (Version 10) analysis software package.

The traffic modeling and signal timing optimization software package Synchro (Version 10) is utilized to analyze signalized intersections within the County of Riverside. 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.

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
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 peak hour traffic volumes are 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. Per the HCM, 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. (8)

2.2.2 UNSIGNALIZED INTERSECTIONS

The County of Riverside requires the operations of unsignalized intersections be evaluated using the methodology described the HCM. (6) 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.

2.3 TRAFFIC SIGNAL WARRANT ANALYSIS METHODOLOGY

The term "signal warrants" refers to the list of established criteria used by the 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 Caltrans California Manual on Uniform Traffic Control Devices *(CA MUTCD)* for all study area intersections. (9)

The signal warrant criteria for Existing conditions are based upon several factors, including volume of vehicular and pedestrian traffic, frequency of accidents, and location of school areas. The Caltrans CA MUTCD indicates that the installation of a traffic signal should be considered if one or more of the signal warrants are met. (9) Specifically, this TIA utilizes the Peak Hour Volume-based Warrant 3 as the appropriate representative traffic signal warrant analysis for existing study area intersections for all analysis scenarios. Warrant 3 is appropriate to use for this TIA because it provides specialized warrant criteria for intersections with rural characteristics (e.g. located in communities with populations of less than 10,000 persons or with adjacent major streets operating above 40 miles per hour). 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.

Future intersections that do not currently exist 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 study area intersection shown in Table 2-3:

TABLE 2-3: TRAFFIC SIGNAL WARRANT ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction
1	Seaton Avenue & Markham Street	County of Riverside
2	Seaton Avenue & Perry Street	County of Riverside
3	Driveway 1 & Perry Street – Future Intersection	County of Riverside
4	Driveway 2 & Perry Street – Future Intersection	County of Riverside

The Existing conditions traffic signal warrant analysis is presented in the subsequent section, Section 3 *Area Conditions* of this report. The traffic signal warrant analyses for future conditions are presented in Section 5 *E+P Traffic Conditions,* Section 6 *EAP (2020) Traffic Conditions, and* Section 7 *EAPC (2020) Traffic Conditions* of this report.

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 LOS. An intersection may satisfy a signal warrant condition and operate at or above acceptable LOS or operate below acceptable LOS and not meet a signal warrant.

2.4 MINIMUM LEVEL OF SERVICE (LOS)

The definition of an intersection deficiency has been obtained from the County of Riverside General Plan. Riverside County General Plan Policy C 2.1 states that the County will maintain the following County-wide target LOS:

The following minimum target levels of service have been designated for the review of development proposals in the unincorporated areas of Riverside County with respect to transportation impacts on roadways designated in the Riverside County Circulation Plan which are currently County maintained, or are intended to be accepted into the County maintained roadway system:

- *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 as 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.*

The applicable minimum LOS utilized for the purposes of this analysis is LOS D per the County-wide target LOS for projects located within a Community Development Area. The proposed Seaton Commerce Center site is designated Community Development – Light Industrial (LI) by the Riverside County General Plan and the Mead Valley Area Plan, thus, LOS D is the applicable minimum LOS (see 2nd Bullet above).

2.5 DEFICIENCY CRITERIA

This section outlines the methodology used in this analysis related to identifying circulation system deficiencies. The following deficiency criteria has been utilized for the County of Riverside and Caltrans.

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.

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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 traffic signal warrant analyses.

3.1 EXISTING CIRCULATION NETWORK

Pursuant to the scoping agreement with County of Riverside staff (Appendix 1.1), the study area includes a total of 4 existing and future intersections as shown previously on Exhibit 1-2 where the Project is anticipated to contribute 50 or more peak hour trips, or has been added at the direction of County staff. 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 ELEMENTS

As noted previously, the Project site is located within the County of Riverside. The roadway classifications and planned (ultimate) roadway cross-sections of the major roadways within the study area, as identified on the County of Riverside General Plan Circulation Element, are described subsequently. Exhibit 3-2 shows the County of Riverside General Plan Circulation Element, and Exhibit 3-3 illustrates the County of Riverside General Plan roadway cross-sections.

Secondary Highways can accommodate four travel lanes. These facilities typically provide access between the regional highway system and collector streets. An example of a Secondary Highway within the study area includes:

- Markham Street
- Seaton Avenue

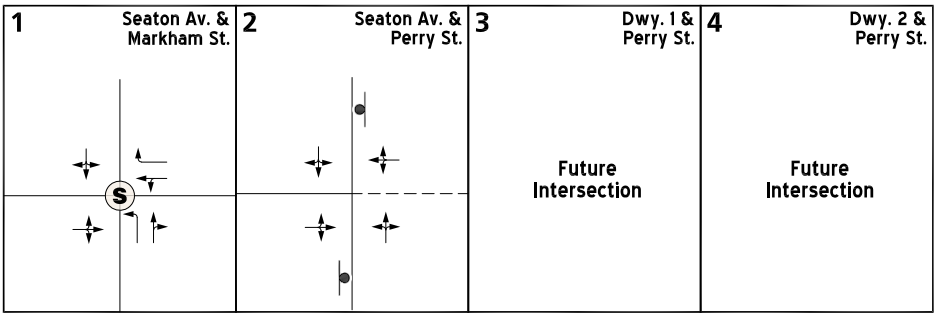
Collectors can accommodate two travel laves. These facilities are intended to serve intensive residential land use, multiple-family dwellings, or to convey traffic through an area to roads of equal or similar classification or higher. It may also serve as a cul-de-sac in industrial or commercial use areas, but the cul-de-sac shall not exceed 660-feet in length. The following roadway within the County of Riverside is classified as a collector:

- Perry Street

3.3 BICYCLE & PEDESTRIAN FACILITIES

In an effort to promote alternative modes of transportation, the County of Riverside also includes a trails and bikeway system. The trails and bikeway system, shown on Exhibit 3-4, shows the proposed trails connected with major features within the County. There is a proposed Community Trail along Markham Street and along Harvill Avenue within the study area. The County of Riverside requires a Community Trail along the Project site's frontage with Seaton Avenue per County Standard #405 with modification.

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
- SPEED LIMIT 25 = SPEED LIMIT (MPH)

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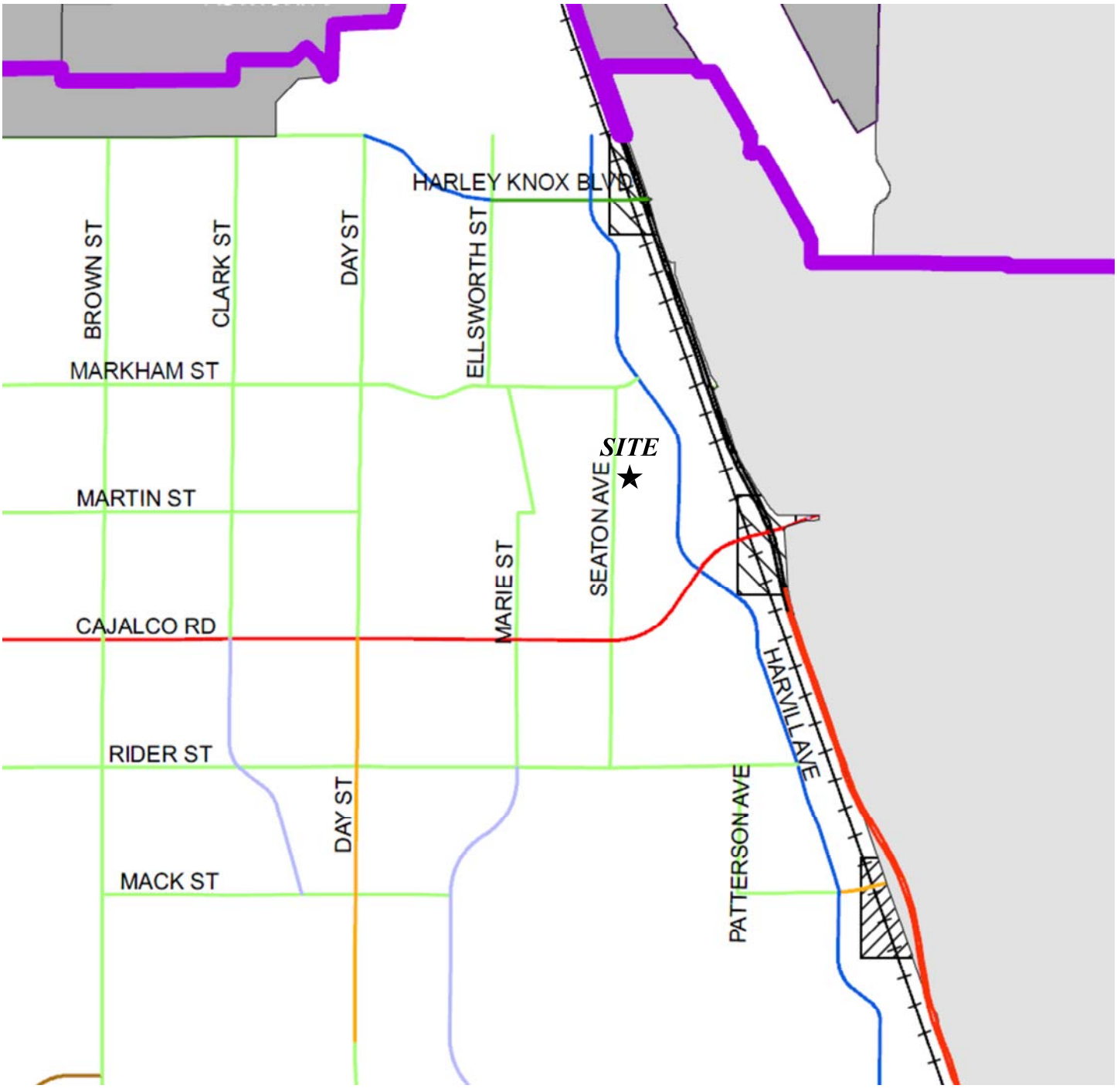
EXHIBIT 3-2: COUNTY OF RIVERSIDE GENERAL PLAN CIRCULATION ELEMENT



SOURCE: RIVERSIDE COUNTY INTEGRATED PROJECT (RCIP) DECEMBER 8, 2015

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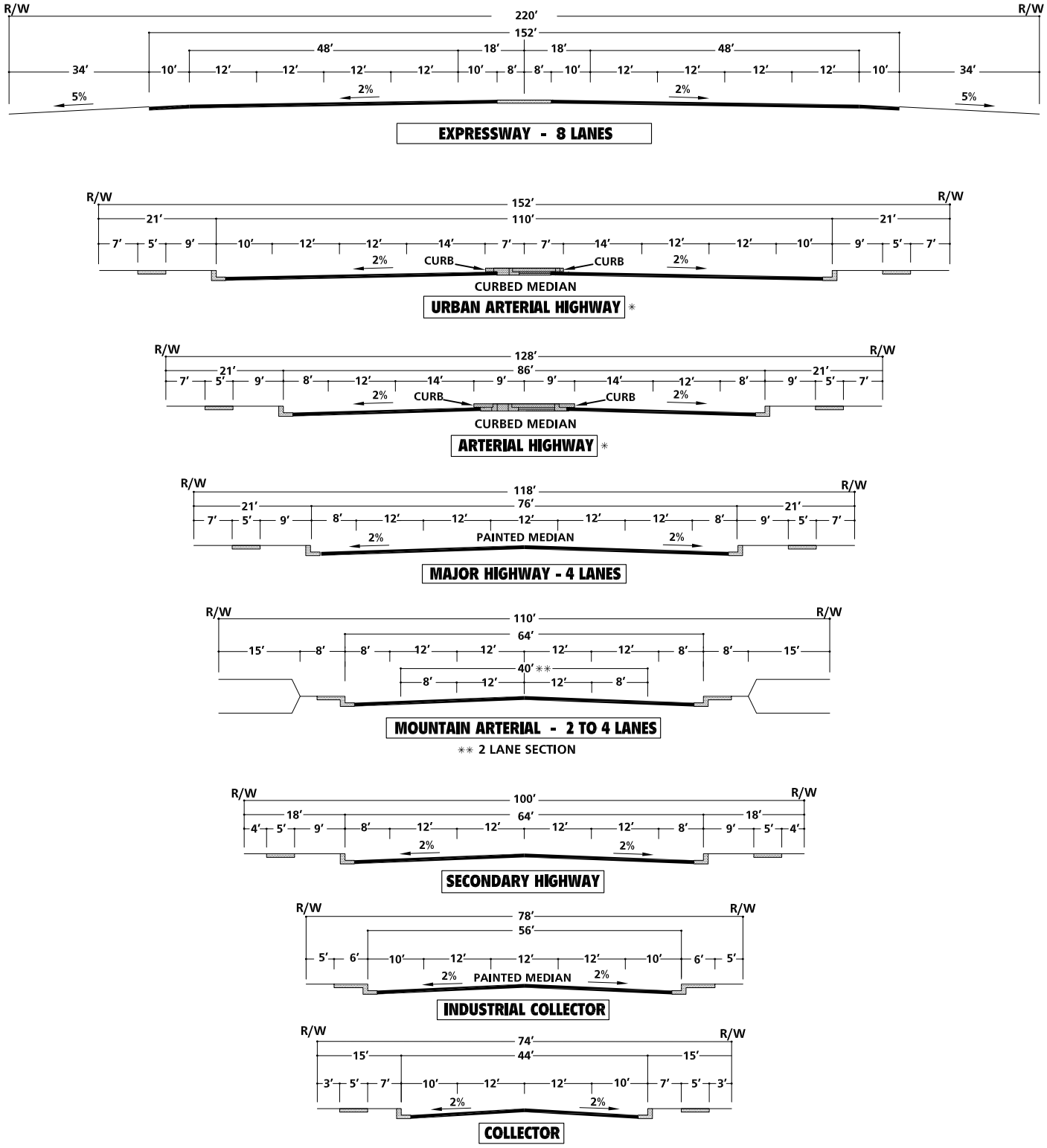
EXHIBIT 3-3: COUNTY OF RIVERSIDE GENERAL PLAN ROADWAY CROSS-SECTIONS

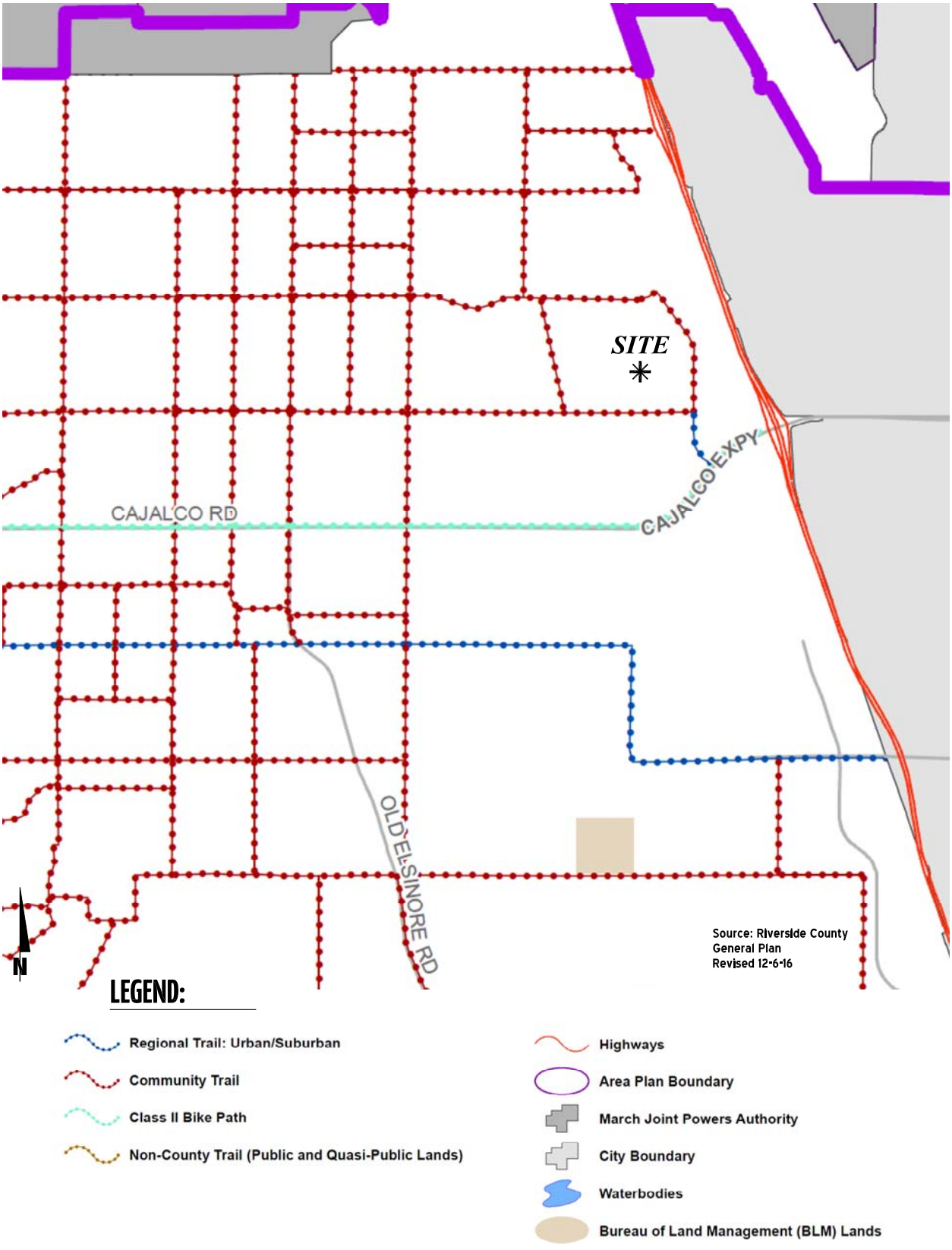


✳ *IMPROVEMENTS MAY BE RECONFIGURED TO ACCOMMODATE EXCLUSIVE TRANSIT LANES OR ALTERNATIVE LANE ARRANGEMENTS ADDITIONAL RIGHT OF WAY MAY BE REQUIRED AT INTERSECTIONS TO ACCOMMODATE ULTIMATE IMPROVEMENTS FOR STATE HIGHWAYS SHALL CONFORM TO CALTRANS DESIGN STANDARDS.*

NOT TO SCALE

SOURCE: COUNTY OF RIVERSIDE

EXHIBIT 3-4: COUNTY OF RIVERSIDE TRAILS AND BIKEWAY SYSTEM



Field observations conducted in November 2018 indicates nominal pedestrian and bicycle activity within the study area. Exhibit 3-5 illustrates the existing pedestrian facilities, including sidewalks and crosswalks.

3.4 TRANSIT SERVICE

The County of Riverside is currently served by the Riverside Transit Authority (RTA), a public transit agency serving the unincorporated Riverside County region. There are currently no existing bus routes that serve the roadways within the study area in close proximity to the proposed Project. As shown on Exhibit 3-6, the only existing transit routes within the study area are RTA Routes 41, 27, and 208/212, which run along the I-215 Freeway and Cajalco Expressway. 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. As such, it is recommended that the applicant work in conjunction with RTA to potentially accommodate bus service to the site.

3.5 EXISTING TRAFFIC COUNTS

The intersection LOS analysis is based on the traffic volumes observed during the peak hour conditions using traffic count data collected in October 2018, while schools were in session. 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)

The weekday AM and weekday 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 and near-by schools were in session and operating on normal schedules.

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. The traffic counts collected in October 2018 include the vehicle classifications as shown below:

- Passenger Cars
- 2-Axle Trucks
- 3-Axle Trucks
- 4 or More Axle Trucks

EXHIBIT 3-5: EXISTING PEDESTRIAN FACILITIES

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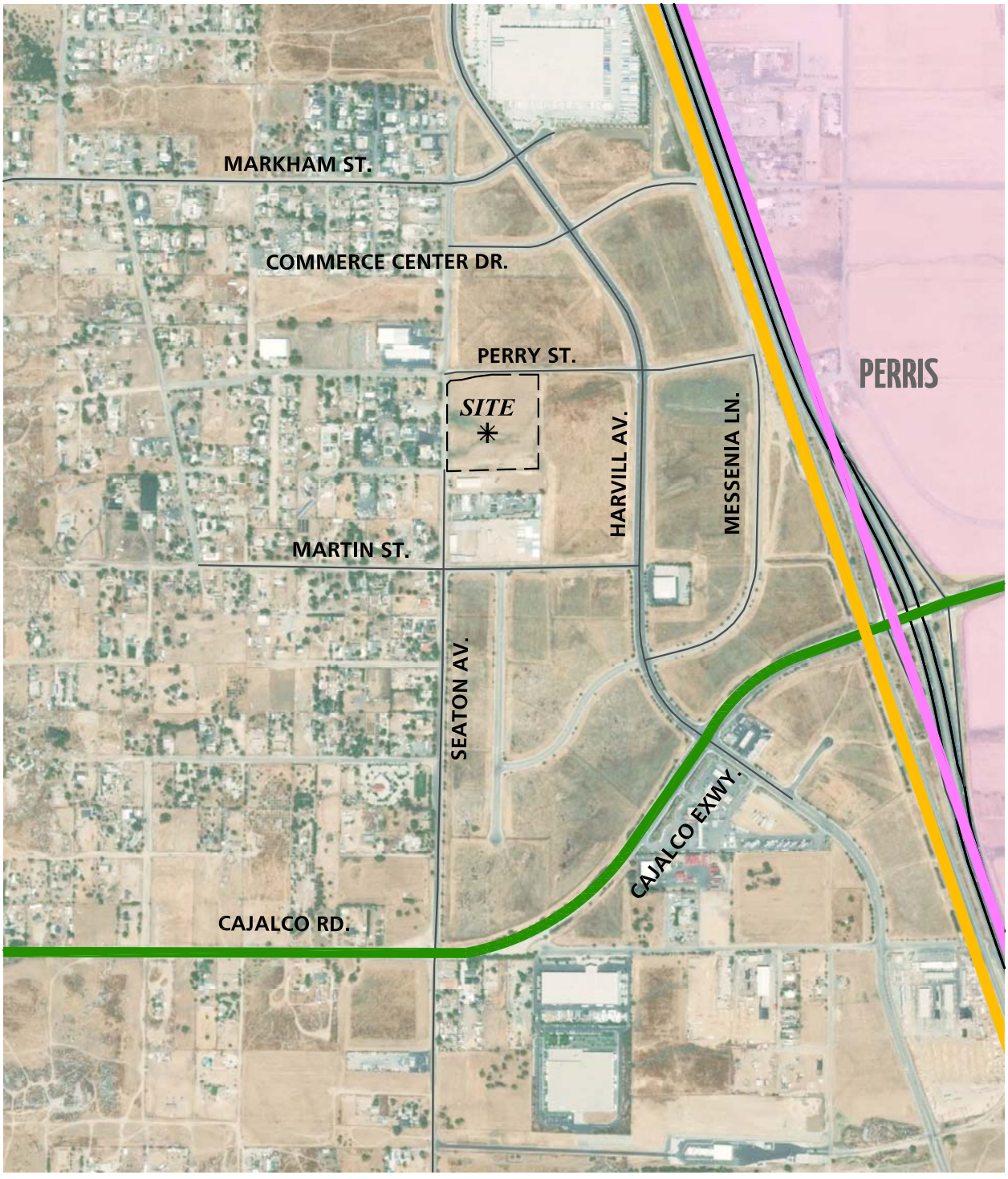
EXHIBIT 3-6: EXISTING TRANSIT ROUTES



To represent the impact large trucks, buses, and recreational vehicles have on traffic flow, all trucks were converted into PCEs. By their size alone, these vehicles occupy the same space as two or more passenger cars. In addition, the time it takes for them to accelerate and slow-down is also much longer than for passenger cars and varies depending on the type of vehicle and number of axles. For this analysis, a PCE factor of 1.5 has been applied to 2-axle trucks, 2.0 for 3-axle trucks, and 3.0 for 4+-axle trucks to estimate each turning movement. These factors are consistent with the values recommended for use in the San Bernardino County CMP and are in excess of the factor recommended for use in the County of Riverside traffic study guidelines. (10) Although the County of Riverside has a recommended PCE factor of 2.0, the San Bernardino County CMP PCE factors have been utilized in an effort to conduct a more conservative analysis.

Existing weekday ADT volumes on arterial highways throughout the study area are shown on Exhibit 3-7. Where actual 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 16.4388 = 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 6.08 percent. As such, the above equation utilizing a factor of 16.4388 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 6.08 percent (i.e., 1/0.0608 = 16.4388) 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 (in PCE) are also shown on Exhibit 3-7.

3.6 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 study area intersections are currently operating at an acceptable LOS during the peak hours (i.e., LOS D or better).

Consistent with Table 3-1, a summary of the peak hour intersection LOS for Existing conditions are shown on Exhibit 3-8. The intersection operations analysis worksheets are included in Appendix 3.2 of this TIA.

EXHIBIT 3-7: EXISTING (2018) TRAFFIC VOLUMES (IN PCE)

1 Seaton Av. & Markham St.	2 Seaton Av. & Perry St.	3 Dwy. 1 & Perry St.	4 Dwy. 2 & Perry St.
3(3) 0(1) 2(3) ← 2(4) ← 503(357) ← 16(45)	15(19) 28(53) 0(0) ← 3(1) ← 1(4) ← 0(0)	Future Intersection	Future Intersection
1(0) → 395(488) → 28(26) → 109(18) 1(0) 47(29)	6(10) → 1(4) → 20(11) → 13(12) 101(39) 1(0)		

LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

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EXHIBIT 3-8: EXISTING (2018) SUMMARY OF LOS

Table 3-1

Intersection Analysis for Existing (2018) 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	AM	PM
1	Seaton Av. & Markham St.	AWS	1	1	0	0	1	0	0	1	0	0	1	1	24.0	18.3	C	C
2	Seaton Av. & Perry St.	CSS	0	1	0	0	1	0	0	1	0	0	1	0	9.2	9.8	A	A
3	Dwy. 1 & Perry St.		Future Intersection															
4	Dwy. 2 & Perry St.		Future Intersection															

[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. HCM delay reported in seconds.

[3] CSS = Cross-street Stop; AWS = All-Way Stop

3.7 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for Existing traffic conditions are based on existing peak hour intersection turning volumes. The following study area intersection currently warrants a traffic signal for Existing traffic conditions:

- Seaton Av. & Markham St. (#1)

However, this intersection currently operates at an acceptable LOS as an all-way stop-controlled intersection. Existing conditions traffic signal warrant analysis worksheets are provided in Appendix 3.3.

3.8 RECOMMENDED IMPROVEMENTS

All study area intersections are currently operating at an acceptable LOS (LOS D or better) for Existing (2018) traffic conditions. As such, no improvements have been recommended.

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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 proposed to consist of up to 162,867 square feet (sf) of high-cube transload/short-term storage warehouse (without cold storage) use (80 percent of the total square footage) and 40,717 square feet of general light industrial use (20 percent of the total square footage) for a total of 203,584 square feet within a single building. The Project is anticipated to be constructed in a single phase by the year 2020.

Vehicular and truck traffic access will be provided via the following driveways (see Exhibit 1-1):

- Perry Street via Driveway 1 – full access for passenger cars only
- Perry Street via Driveway 2 – full access for both trucks and passenger cars

Regional access to the Project site is available from the I-215 Freeway via Ramona Expressway and Harley Knox Boulevard.

4.1 PROJECT TRIP GENERATION

Trip generation represents the amount of traffic that is attracted and produced by a development, and is based upon the specific land uses planned for a given project. Trip generation rates (PCE) for the Project are shown in Table 4-1 and trip generation rates (actual vehicles) for the Project are shown in Table 4-2 illustrating daily and peak hour trip generation estimates based on the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition, 2017, for High-Cube Transload and Short-Term Storage Warehouse (ITE Land Use Code 154) and General Light Industrial (ITE Land Use Code 110). (2)

High-cube transload/short-term storage warehouse data regarding the truck percentage and vehicle mix has been obtained from High Cube Warehouse Vehicle Trip Generation Analysis (October 2016). (11) The High Cube Warehouse Vehicle Trip Generation Analysis provides vehicle mix for Short-Term Storage, Transload & Non-Cold Storage, which consists of 32.2% trucks for daily trips, 30.8% trucks for AM peak hour trips and 21.7% trucks for PM peak hour trips. The South Coast Air Quality Management District's (SCAQMD) recommended truck mix, by axle type for high-cube warehouses has been utilized for the 2-axle, 3-axle, and 4+-axle trucks. (12)

General light industrial data regarding the truck percentage and vehicle mix has been obtained from the City of Fontana's Truck Trip Generation Study (April 2003). This study provides vehicle mix for general light industrial land uses, which consist of 21.4% trucks for AM, PM, and daily trips. The City of Fontana's recommended truck mix, by axle type for general light industrial has been utilized for the 2-axle, 3-axle, and 4+-axle trucks. (13) Both the County of Riverside and the ITE Trip Generation Manual do not have a recommended vehicle mix for the general light industrial use. As such, the City of Fontana's Truck Trip Generation Study has been utilized as it is the best data available for the general light industrial land use.

Table 4-1

Project Trip Generation Summary (PCE)

PCE Trip Generation Rates									
	ITE LU		AM Peak Hour			PM Peak Hour			Daily
Land Use[1]	Code	Units[2]	In	Out	Total	In	Out	Total	
General Light Industrial[3]	110	TSF	0.616	0.084	0.700	0.082	0.548	0.630	4.960
Passenger Cars (78.6%)			0.484	0.066	0.550	0.064	0.431	0.495	3.899
2-Axle Trucks (8.0%) (PCE = 1.5)			0.074	0.010	0.084	0.010	0.066	0.076	0.595
3-Axle Trucks (3.9%) (PCE = 2.0)			0.048	0.007	0.055	0.006	0.043	0.049	0.387
4-Axle+ Trucks (9.5%) (PCE = 3.0)			0.176	0.024	0.200	0.023	0.156	0.180	1.414
High-Cube Transload Short-Term Warehouse[4]	154	TSF	0.062	0.018	0.080	0.028	0.072	0.100	1.400
Passenger Cars (AM-69.2%; PM-78.3%; Daily-67.8%)			0.043	0.013	0.055	0.022	0.056	0.078	0.949
2-Axle Trucks (AM-10.69%; PM-7.53%; Daily-11.17%) (PCE = 1.5)			0.005	0.001	0.006	0.002	0.004	0.005	0.113
3-Axle Trucks (AM-3.39%; PM-2.39%; Daily-3.54%) (PCE = 2.0)			0.008	0.002	0.010	0.003	0.006	0.009	0.187
4-Axle+ Trucks (AM-16.76%; PM-11.80%; Daily-17.52%) (PCE = 3.0)			0.036	0.011	0.046	0.011	0.029	0.041	0.847

Project Trip Generation (PCE)									
			AM Peak Hour			PM Peak Hour			Daily
Project	Quantity	Units[2]	In	Out	Total	In	Out	Total	
General Light Industrial (20%)	40.717	TSF							
Passenger Cars			20	3	23	3	18	21	160
2-Axle Trucks			3	0	3	0	3	3	24
3-Axle Trucks			2	0	2	0	2	2	16
4-Axle+ Trucks			7	1	8	1	6	7	58
- Truck Trips (PCE)			*12*	*1*	*13*	*1*	*11*	*12*	*98*
High-Cube Transload Short-Term Warehouse (80%)	162.867	TSF							
Passenger Cars			7	2	9	4	9	13	156
2-Axle Trucks			1	0	1	0	1	1	18
3-Axle Trucks			1	0	1	0	1	1	30
4-Axle+ Trucks			6	2	8	2	5	7	138
- Truck Trips (PCE)			*8*	*2*	*10*	*2*	*7*	*9*	*186*
TOTAL TRIPS (PCE) [5]			**47**	**8**	**55**	**10**	**45**	**55**	**600**

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).

[2] TSF = Thousand Square Feet

[3] Vehicle Mix Source: City of Fontana Truck Trip Generation Study, August 2003.

[4] Truck Mix Source: SCAQMD Warehouse Truck Trip Study Data Results and Usage (2014).

Normalized % - Without Cold Storage:

16.7% 2-Axle trucks, 20.7% 3-Axle trucks, 62.5% 4-Axle trucks

[5] TOTAL TRIPS (PCE) = Passenger Cars + Truck Trips (PCE)

Table 4-2

Project Trip Generation Summary (Actual Vehicles)

Actual Vehicle Trip Generation Rates									
	ITE LU		AM Peak Hour			PM Peak Hour			Daily
Land Use[1]	Code	Units[2]	In	Out	Total	In	Out	Total	
General Light Industrial[3]	110	TSF	0.616	0.084	0.700	0.082	0.548	0.630	4.960
Passenger Cars (78.6%)			0.484	0.066	0.550	0.064	0.431	0.495	3.899
2-Axle Trucks (8.0%)			0.049	0.007	0.056	0.007	0.044	0.050	0.397
3-Axle Trucks (3.9%)			0.024	0.003	0.027	0.003	0.021	0.025	0.193
4-Axle+ Trucks (9.5%)			0.059	0.008	0.067	0.008	0.052	0.060	0.471
High-Cube Transload Short-Term Warehouse[4]	154	TSF	0.062	0.018	0.080	0.028	0.072	0.100	1.400
Passenger Cars (AM-69.2%; PM-78.3%; Daily-67.8%)			0.043	0.013	0.055	0.022	0.056	0.078	0.949
2-Axle Trucks (AM-10.69%; PM-7.53%; Daily-11.17%)			0.003	0.001	0.004	0.001	0.003	0.004	0.075
3-Axle Trucks (AM-3.39%; PM-2.39%; Daily-3.54%)			0.004	0.001	0.005	0.001	0.003	0.004	0.093
4-Axle+ Trucks (AM-16.76%; PM-11.80%; Daily-17.52%)			0.012	0.004	0.015	0.004	0.010	0.014	0.282

Project Trip Generation (Actual Vehicles)									
			AM Peak Hour			PM Peak Hour			Daily
Project	Quantity	Units[2]	In	Out	Total	In	Out	Total	
General Light Industrial (20%)	40.717	TSF							
Passenger Cars			20	3	23	3	18	21	160
2-Axle Trucks			2	0	2	0	2	2	16
3-Axle Trucks			1	0	1	0	1	1	8
4-Axle+ Trucks			2	0	2	0	2	2	20
- Net Truck Trips (Actual Vehicles)			*5*	*0*	*5*	*0*	*5*	*5*	*44*
High-Cube Transload Short-Term Warehouse (80%)	162.867	TSF							
Passenger Cars			7	2	9	4	9	13	156
2-Axle Trucks			1	0	1	0	0	0	12
3-Axle Trucks			1	0	1	0	1	1	16
4-Axle+ Trucks			2	1	3	1	2	3	46
- Net Truck Trips (Actual Vehicles)			*4*	*1*	*5*	*1*	*3*	*4*	*74*
TOTAL NET TRIPS (Actual Vehicles) [5]			**36**	**6**	**42**	**8**	**35**	**43**	**434**

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).

[2] TSF = Thousand Square Feet

[3] Vehicle Mix Source: City of Fontana Truck Trip Generation Study, August 2003.

[4] Truck Mix Source: SCAQMD Warehouse Truck Trip Study Data Results and Usage (2014).

Normalized % - Without Cold Storage:

16.7% 2-Axle trucks, 20.7% 3-Axle trucks, 62.5% 4-Axle trucks

[5] TOTAL NET TRIPS (Actual Vehicles) = Passenger Cars + Net Truck Trips (Actual Vehicles)

As noted in Table 4-1 and Table 4-2, refinements to the raw trip generation estimates have been made to provide a more detailed breakdown of trips between passenger cars and trucks. Trip generation for heavy trucks was further broken down by truck type (or axle type). The total truck percentage is comprised of 3 different truck types: 2-axle, 3-axle, and 4+-axle trucks. 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. (10) Note that these procedures are consistent with those adopted by the County of Riverside for warehouse projects, with the exception of the PCE factors, where the San Bernardino County CMP factors have been utilized in an effort to conduct a conservative analysis.

The Project is estimated to generate a net total of 600 passenger-car-equivalent (PCE) trip-ends per day on a typical weekday with approximately 55 net AM PCE peak hour trips and 55 net PM PCE peak hour trips, as shown in Table 4-1. The proposed Project's trip generation, based on actual vehicles, has also been included in Table 4-2 for informational purposes only.

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.

The Project trip distribution was developed based on anticipated travel patterns to and from the Project site for both passenger cars and truck traffic, and are consistent with other similar projects that have been reviewed and approved by County of Riverside staff. The Project trip distribution patterns for both passenger cars and trucks 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 truck trip distribution pattern is graphically depicted on Exhibit 4-1. The Project passenger car trip distribution pattern is graphically depicted on Exhibit 4-2. Each of these distribution patterns was reviewed by the County of Riverside as part of the traffic study scoping process (see Appendix 1.1).

As shown in Exhibit 4-1, Driveway 2 will serve as the truck access driveway for the proposed Project. The proposed Project truck traffic will use eastbound on Perry Street to access Harvill Avenue. The Project will post signs at Project Driveway 2 to direct truck traffic per the truck route plan.

EXHIBIT 4-1: PROJECT (TRUCK) TRIP DISTRIBUTION

EXHIBIT 4-2: PROJECT (PASSENGER CAR) TRIP DISTRIBUTION

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 (employee trips only).

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 ADT and peak hour intersection turning movements volumes in PCE are shown on Exhibit 4-3.

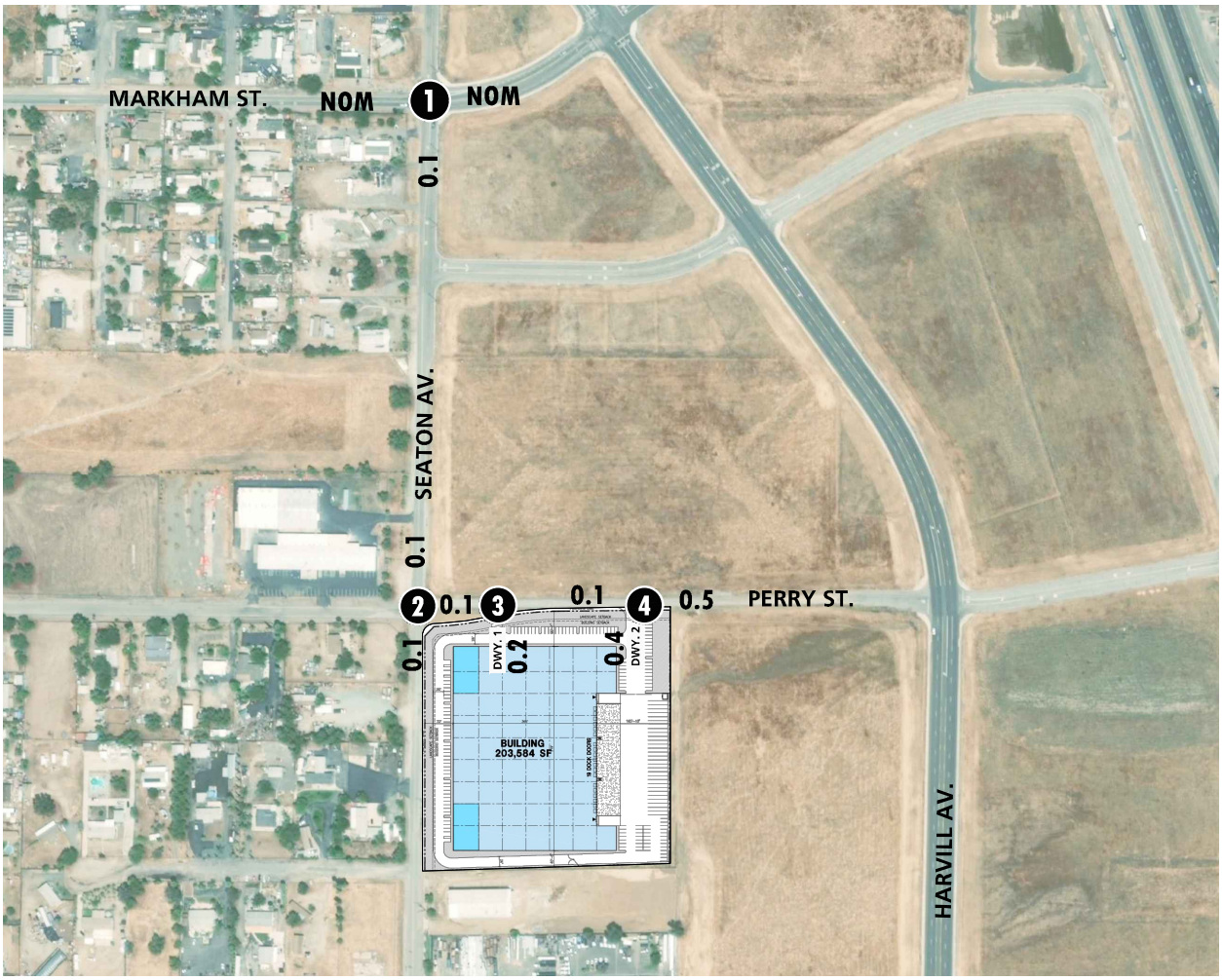
4.5 BACKGROUND TRAFFIC

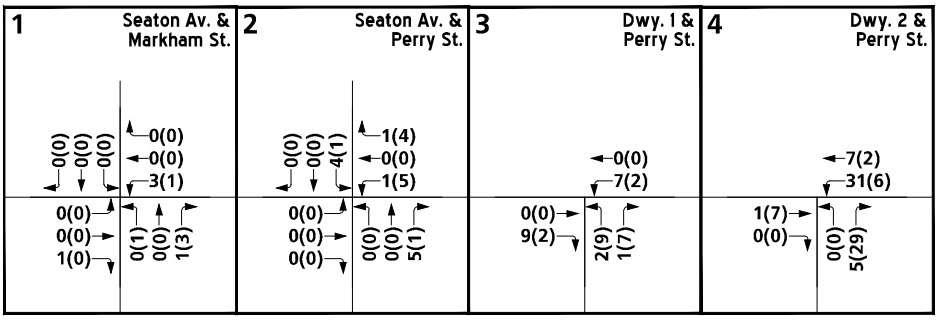
Future year traffic forecasts have been based upon a background (ambient) growth factor of 2% per year for 2020 traffic conditions. The ambient growth factor is intended to approximate traffic growth. The total ambient growth is 4.04% for 2020 traffic conditions (compounded growth of 2 percent per year over 2 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.

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 currently adopted Southern California Association of Governments (SCAG) 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (April 2016) growth forecasts for the County of Riverside identifies projected growth in population of 359,500 in 2012 to 499,200 in 2040, or a 39.1 percent increase over the 28-year period. (14) 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 45.1 percent, or 1.33 percent annual growth rate. Finally, growth in employment over the same 28-year period is projected to increase by 122.1 percent, or a 2.89 percent annual growth rate.

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





LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

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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. The cumulative project list includes known and foreseeable projects that are anticipated to contribute traffic to the study area intersections. Adjacent jurisdictions of the City of Perris (11) and the City of Moreno Valley (12) have also been contacted to obtain the most current list of cumulative projects from their respective jurisdictions.

Where applicable, cumulative projects anticipated to contribute measurable traffic (i.e. 50 or more peak hour trips) to study area intersections have been manually added to the study area network to generate EAPC forecasts. In other words, this list of cumulative development projects has been reviewed to determine which projects would likely contribute measurable traffic through the study area intersections (e.g., those cumulative projects in close proximity to the proposed Project). For the purposes of this analysis, the cumulative projects that were determined to affect one or more of the study area intersections are shown on Exhibit 4-4, listed in Table 4-3, and have been considered for inclusion.

Although it is unlikely that all of these cumulative projects would be fully built and occupied by Year 2020, they have been included in an effort to conduct a conservative analysis and overstate as opposed to understate potential traffic impacts.

Any other cumulative projects located beyond the cumulative study area that are not expected to contribute measurable traffic to study area intersections have not been included since the traffic would dissipate due to the distance from the Project site and study area intersections. Any additional traffic generated by other projects not on the cumulative projects list is accounted for through background ambient growth factors that have been applied to the peak hour volumes at study area intersections as discussed in Section 4.5 *Background Traffic*. Cumulative Only traffic volumes in PCE are shown on Exhibit 4-5.

EXHIBIT 4-4: CUMULATIVE DEVELOPMENT LOCATION MAP

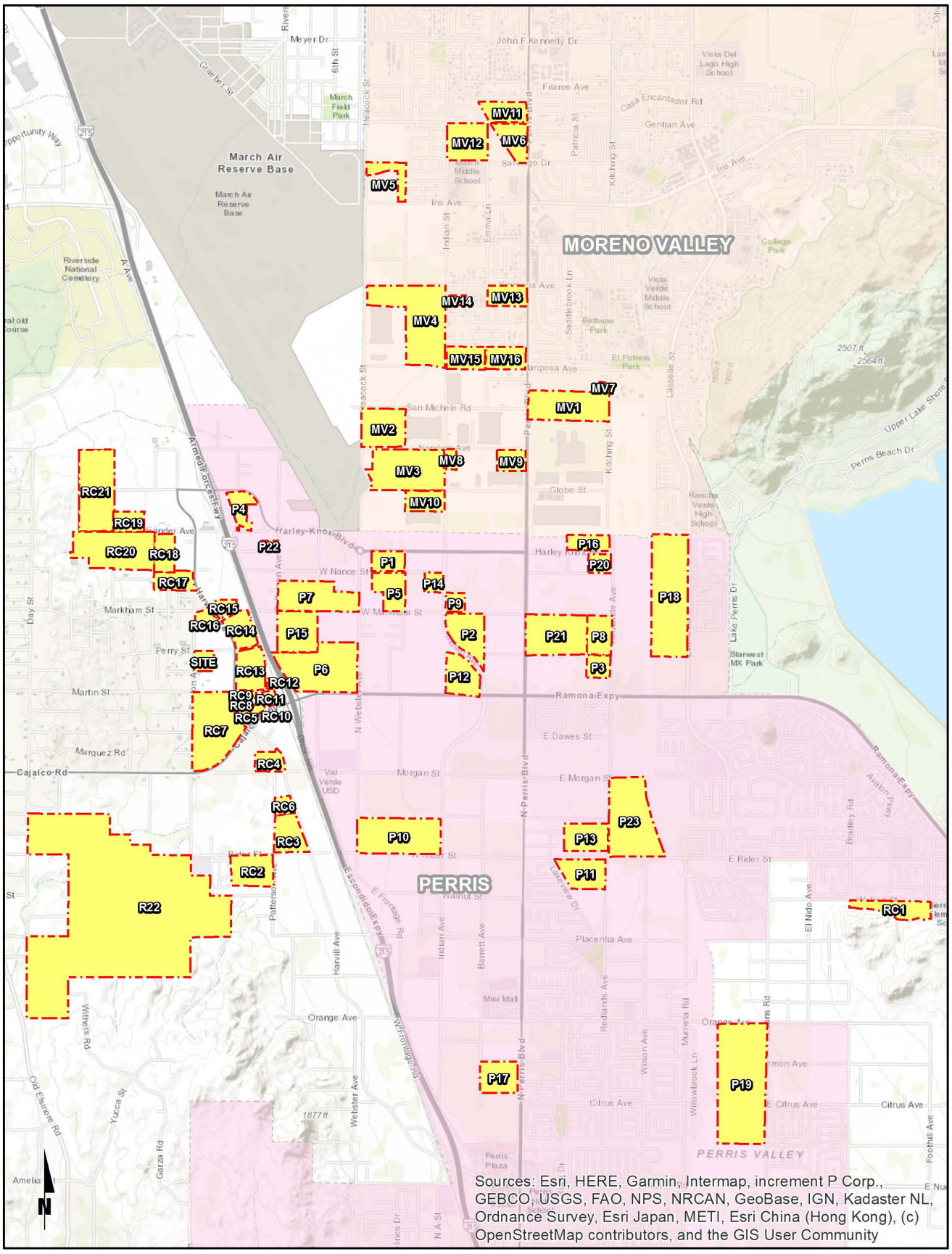

EXHIBIT 4-5: CUMULATIVE ONLY TRAFFIC VOLUMES (IN PCE)

1 Seaton Av. & Markham St.	2 Seaton Av. & Perry St.	3 Dwy. 1 & Perry St.	4 Dwy. 2 & Perry St.
0(0) 0(0) 0(0) → 0(0) ← 16(72) ← 3(3)	0(0) 1(3) 0(0) → 0(0) ← 0(0) ← 0(0)	Future Intersection	Future Intersection
0(0) → 41(31) → 0(0) → 0(0) 0(0) 3(3) ←	0(0) → 0(0) → 0(0) → 0(0) 3(1) 0(0) ←		

LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)
NOM = NOMINAL, LESS THAN 50 VEHICLES PER DAY

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Table 4-3

Cumulative Development Land Use Summary

No.	Project Name / Case Number	Land Use[1]	Quantity	Units[2]	Location
City of Perris					
P1	Bargemann / DPR 07-09-0018	Warehousing	173.000	TSF	NEC OF WEBSTER & NANCE
P2	Duke 2 / DPR 16-00008	High-Cube Warehouse	669.000	TSF	NEC OF INDIAN & MARKHAM
P3	First Perry / DPR 16-00013	High-Cube Warehouse	240.000	TSF	SWC OF REDLANDS AVE. & PERRY ST.
P4	Gateway / DPR 16-00003	High-Cube Warehouse	400.000	TSF	SOUTH OF HARLEY KNOX BLVD. EAST OF HWY. 215
P5	Integra / DPR 14-02-0014	High-Cube Warehouse	864.000	TSF	EAST OF WEBSTER AVE. SOUTH OF NANCE ST.
P6	OLC 1 / DPR 12-10-0005	High-Cube Warehouse	1,455.000	TSF	WEST OF WEBSTER AVE. NORTH OF RAMONA Exwy.
P7	OLC2 / DPR 14-01-0015	High-Cube Warehouse	1,037.000	TSF	WEST OF WEBSTER AVE. NORTH OF MARKHAM ST.
P8	Markham East / DPR 05-0477	High-Cube Warehouse	460.000	TSF	SWC OF REDLANDS AVE. & MARKHAM ST.
P9	Markham Industrial / DPR 16-00015	Warehousing	170.000	TSF	NEC OF INDIAN AVE. & MARKHAM ST.
P10	Rados / DPR 07-0119	High-Cube Warehouse	1,200.000	TSF	NWC OF INDIAN AVE. & RIDER ST.
P11	Rider 1 / DPR 16-0365	High-Cube Warehouse	350.000	TSF	SWC OF REDLANDS AVE. & RIDER ST.
P12	Indian/Ramona Warehouse	High-Cube Warehouse	428.730	TSF	NORTH OF RAMONA EXWY. WEST OF INDIAN AVE.
P13	Rider 3 / DPR 06-0432	High-Cube Warehouse	640.000	TSF	NORTH OF RIDER ST. WEST OF REDLANDS
P14	Westcoast Textile / DPR 16-00001	Warehousing	180.000	TSF	SWC OF INDIAN ST. & NANCE ST.
P15	Duke at Patterson / DPR 17-00001	High-Cube Warehouse	811.000	TSF	SEC OF PATTERSON AVE. & MARKHAM ST.
P16	Harley Knox Commerce Park / DPR 16-004	High-Cube Warehouse	386.278	TSF	NWC OF HARLEY KNOX BLVD. & REDLANDS AVE.
P17	Perris Marketplace / DPR 05-0341	Commercial Retail	520.000	TSF	WEST OF PERRIS BLVD. AT AVOCADO AVE.
P18	Stratford Ranch Residential / TTM 36648	SFDR	270	DU	WEST OF EVANS RD. AT MARKHAM ST.
P19	Pulte Residential / TTM 30850	SFDR	496	DU	WEST OF EVANS RD. AT CITRUS AVE.
P20	Perris Circle 3	Warehousing	210.900	TSF	NWC OF REDLANDS AVE. AND NANCE AVE.
P21	Duke Realty - Perris & Markham	High-Cube Warehouse	1,189.860	TSF	SEC OF PERRIS BL. AND MARKHAM ST.
P22	Canyon Steel	Manufacturing	28.124	TSF	NWC OF PATTERSON AVE. & CALIFORNIA AVE.
P23	Rider 2 and 4	High-Cube Warehouse	1,376.721	TSF	NWC OF REDLANDS AVE. AND RIDER ST.
City of Moreno Valley					
MV1	Kearney	High-Cube Warehouse	1100.000	TSF	EAST OF PERRIS BLVD. AT SAN MICHEL RD.
MV2	IDS	High-Cube Warehouse	701.000	TSF	SEC OF HEACOCK ST. & SAN MICHELE RD.
MV3	First Industrial	High-Cube Warehouse	1380.000	TSF	SWC OF INDIAN AVE. & NANDINA AVE.
MV4	Prologis 1	High-Cube Warehouse	1000.000	TSF	NEC OF INDIAN AVE. & MARIPOSA AVE.
MV5	Moreno Valley Industrial Park	High-Cube Warehouse	207.684	TSF	NEC OF HEACOCK ST. & IRIS AVE.
MV6	Moreno Valley Walmart	Retail	193.000	TSF	SWC OF PERRIS BLVD. & GENTIAN AVE.
MV7	Moreno Valley Utility Substation	High-Cube Warehouse	PUBLIC	TSF	NWC OF EDWIN RD. & KITCHING ST.
MV8	Phelan Development	High-Cube Warehouse	98.210	TSF	SEC OF INDIAN ST. & NANDINA AVE.
MV9	Nandina Industrial Center	High-Cube Warehouse	335.966	TSF	SOUTH OF NANDINA AVE. WEST OF PERRIS BLVD.
MV10	Indian Street Commerce Center	High-Cube Warehouse	433.918	TSF	SWC OF INDIAN ST. & GROVEVIEW RD.

Table 4-3

Cumulative Development Land Use Summary

No.	Project Name / Case Number	Land Use[1]	Quantity	Units[2]	Location
MV11	Tract 22180	SFDR	140	DU	NORTH OF GENTIAN AVE. EAST OF INDIAN ST.
MV12	Tract 36760	SFDR	221	DU	SEC OF INDIAN ST. & GENTIAN AVE.
MV13	PEN18-0042	SFDR	2	DU	SEC OF INDIAN ST. & KRAMERIA AVE.
MV14	Tract 33024	SFDR	8	DU	SEC OF INDIAN ST. & KRAMERIA AVE.
MV15	Tract 32716	SFDR	57	DU	NEC OF INDIAN ST. & MARIPOSA AVE.
MV16	Tract 31442	SFDR	63	DU	NWC OF PERRIS BLVD. & MARIPOSA AVE.
Riverside County					
RC1	McCanna Hills / TTM 33978	SFDR	63	DU	SWC OF SHERMAN AVE. & WALNUT AVE.
RC2	PP26293	High-Cube Warehouse	612.481	TSF	SWC OF PATTERSOM AVE. & RIDER ST.
RC3	PPT180025: Rider Commerce Center	Warehousing	204.330	TSF	NWC OF PATTERSON AVE. & RIDER ST.
RC4	Val Verde Logistics Center	High-Cube Warehouse	280.308	TSF	NWC OF HARVILLA AVE. & OLD CAJALCO RD.
RC5	Farm Boys/Retail Shop	Retail	16.306	TSF	NEC OF HARVILL AVE. & CAJALCO RD.
		Fast-Food with Drive Thru	3.252	TSF	
RC6	PP26173	High-Cube Warehouse	423.665	TSF	SWC OF HARVILL AVE. & RIDER ST.
RC7	Majestic Freeway Business Center - Buildings 1,3,4	High-Cube Warehouse	1244.670	TSF	NWC OF HARVILL AVE. & CAJALCO EXWY.
RC8	Majestic Freeway Business Center - Building 5	Warehousing	40.000	TSF	NEC OF HARVILL AVE. & MESSENIA LN.
RC9	Majestic Freeway Business Center - Building 6	Warehousing	72.000	TSF	NORTH OF MESSENIA LN., EAST OF HARVILL AVE.
RC10	Majestic Freeway Business Center - Building 7	Warehousing	80.000	TSF	NORTH OF CAJALCO EXWY., EAST OF HARVILL AVE.
RC11	Majestic Freeway Business Center - Building 8	Warehousing	110.000	TSF	NORTH OF CAJALCO EXWY., EAST OF HARVILL AVE.
RC12	Majestic Freeway Business Center - Building 9	Warehousing	45.000	TSF	EAST OF MESSENIA LN., NORTH OF HARVILL AVE.
RC13	Majestic Freeway Business Center - Building 10	High-Cube Warehouse	600.000	TSF	SEC OF HARVILL AVE. & PERRY ST.
RC14	Majestic Freeway Business Center - Building 11	High-Cube Warehouse	391.045	TSF	SEC OF HARVILL AVE. & COMMERCE CENTER DR.
RC15	Majestic Freeway Business Center - Building 12	Warehousing	154.751	TSF	NEC OF HARVILL AVE. & COMMERCE CENTER DR.
RC16	Majestic Freeway Business Center - Building 15	Warehousing	90.279	TSF	NWC OF HARVILL AVE. & COMMERCE CENTER DR.
RC17	Majestic Freeway Business Center - Building 19	High-Cube Warehouse	364.560	TSF	SWC OF HARVILL AVE. & OLD OLEANDER AVE.
RC18	Majestic Freeway Business Center - Building 20	High-Cube Warehouse	425.830	TSF	SWC OF HARVILL AVE. & OLD OLEANDER AVE.
RC19	Majestic Freeway Business Center - Building 21,22	Warehousing	241.059	TSF	NEC OF DECKER RD. & OLD OLEANDER AVE.
RC20	Knox Logistics Center	High-Cube Warehouse	1259.410	TSF	NWC OF DECKER RD. & OLD OLEANDER AVE.
RC21	Oleander Business Park	High-Cube Warehouse	680.000	TSF	NWC OF DECKER RD. & HARLEY KNOX BLVD.

[1] SFDR = Single Family Detached Residential

[2] DU = Dwelling Units; TSF = Thousand Square Feet

4.7 NEAR-TERM TRAFFIC CONDITIONS

The "buildup" approach combines existing traffic counts with a background ambient growth factor to forecast EAP (2020) and EAPC (2020) traffic conditions. An ambient growth factor of 2.0% per year account for background (area-wide) traffic increases that occur over time up to the year 2020 from the year 2018 (2.0 percent per year growth rate, compounded over a 2-year period). Traffic volumes generated by the Project are then added to assess the near-term traffic conditions. The 2020 roadway networks are similar to the Existing conditions roadway network, with the exception of future driveways proposed to be developed by the Project.

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

- Existing Plus Ambient Growth Plus Project (2020)
  - Existing 2018 counts
  - Ambient growth traffic (4.04%)
  - Project traffic

- Existing Plus Ambient Growth Plus Project Plus Cumulative (2020)
  - Existing 2018 counts
  - Ambient growth traffic (4.04%)
  - Cumulative Development traffic
  - Project 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 and peak hour intersection turning movement volumes, which can be expected for E+P traffic conditions.

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 indicates that the study area intersections are anticipated to continue to operate at acceptable LOS under E+P traffic conditions, consistent with Existing traffic conditions.

A summary of the peak hour intersection LOS for E+P conditions are shown on Exhibit 5-2. The intersection operations analysis worksheets for E+P traffic conditions are included in Appendix 5.1 of this TIA.

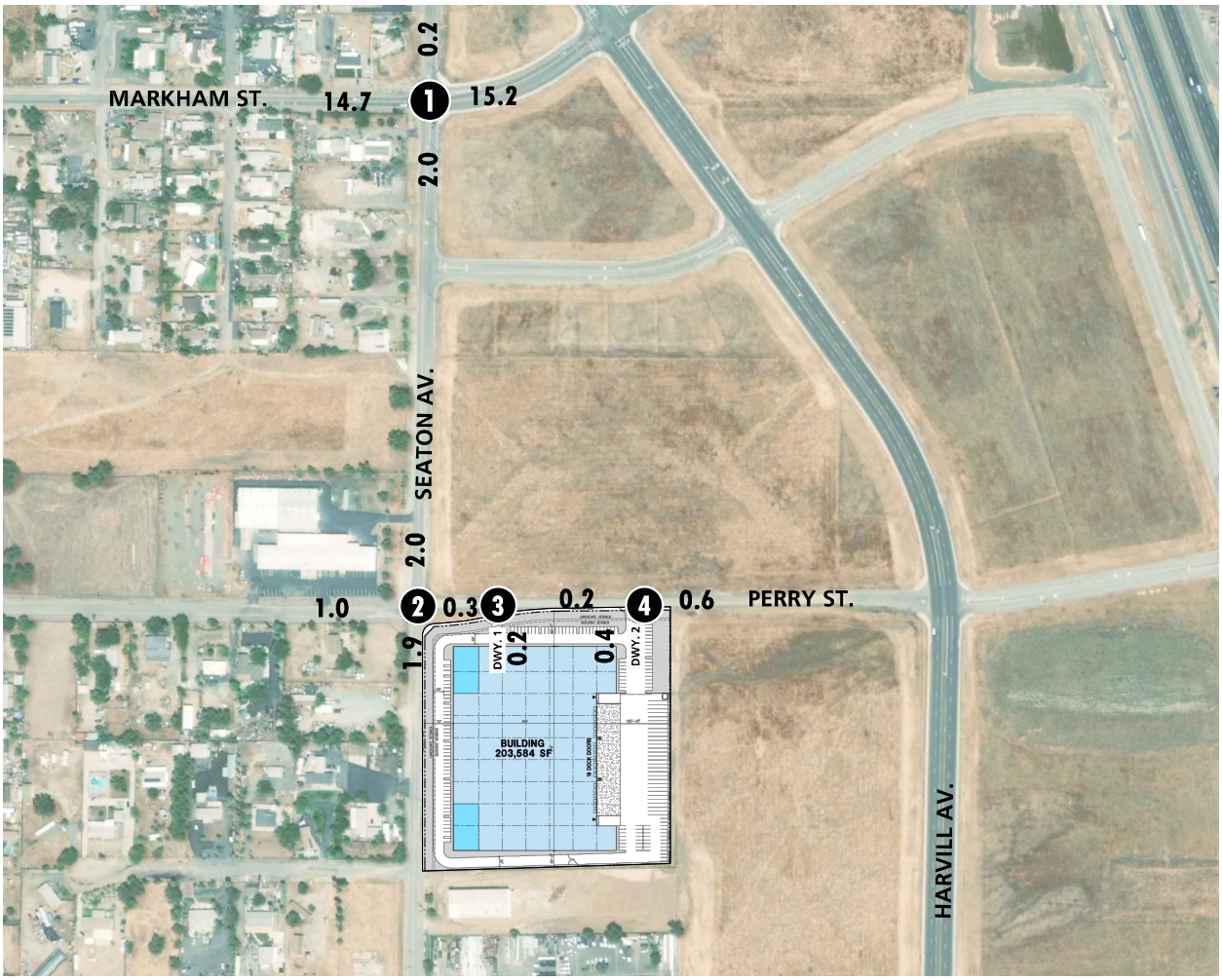
5.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

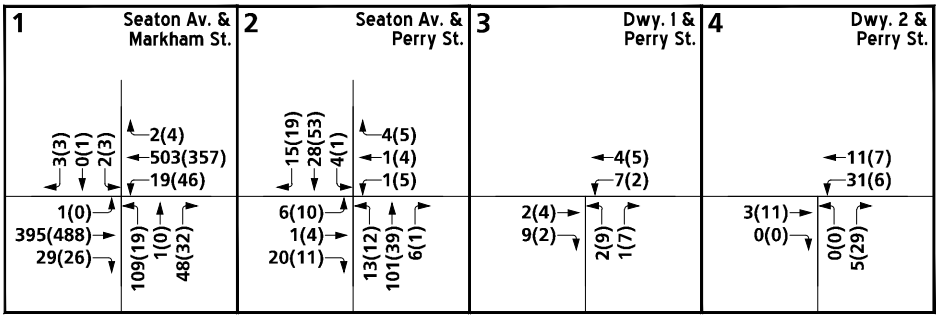
There are no additional study area intersections anticipated to meet planning level (ADT) or peak hour volume-based traffic signal warrants under E+P traffic conditions, in addition to the intersection previously identified under Existing (2018) traffic conditions (see Appendix 5.2).

5.5 RECOMMENDED IMPROVEMENTS

The study area intersections are anticipated to continue to operate at an acceptable LOS during the peak hours with the addition of Project traffic. As such, no improvements have been recommended for E+P traffic conditions.

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





LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

EXHIBIT 5-2: E+P SUMMARY OF LOS

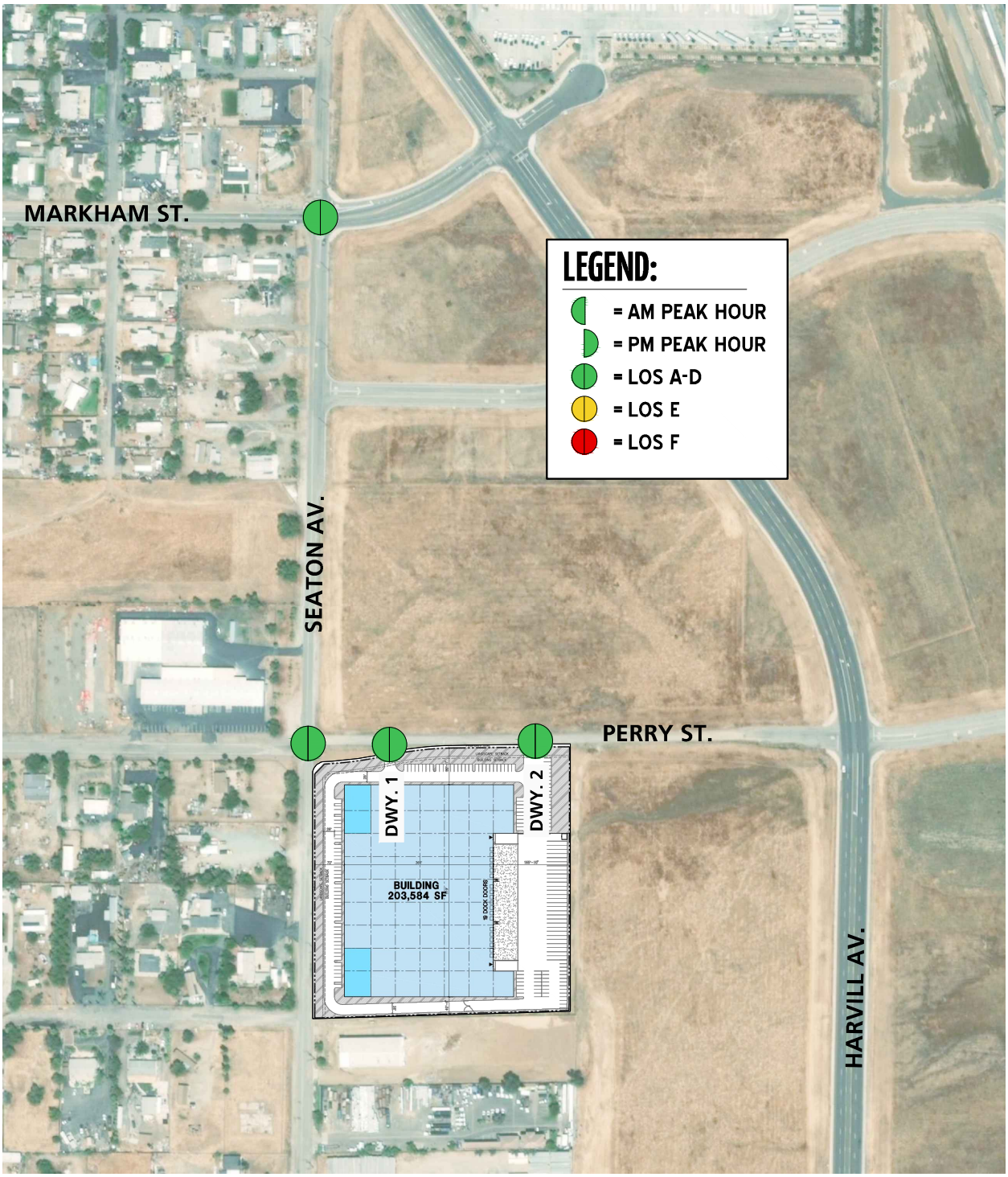


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Table 5-1

Intersection Analysis for E+P Conditions

#	Intersection	Traffic Control[2]	Existing (2018)				E+P			
			Delay[1] (secs.)		Level of Service		Delay[1] (secs.)		Level of Service	
			AM	PM	AM	PM	AM	PM	AM	PM
1	Seaton Av. & Markham St.	AWS	24.0	18.3	C	C	24.3	18.4	C	C
2	Seaton Av. & Perry St.	CSS	9.2	9.8	A	A	9.3	9.8	A	A
3	Dwy. 1 & Perry St.	**CSS**	Future Intersection				8.6	8.5	A	A
4	Dwy. 2 & Perry St.	**CSS**	Future Intersection				8.3	8.5	A	A

[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. HCM delay reported in seconds.

[2] CSS = Cross-street Stop; AWS = All-Way Stop; **CSS** = Improvement

6 EAP (2020) TRAFFIC CONDITIONS

This section discusses the methods used to develop EAP (2020) traffic forecasts, 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 conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).

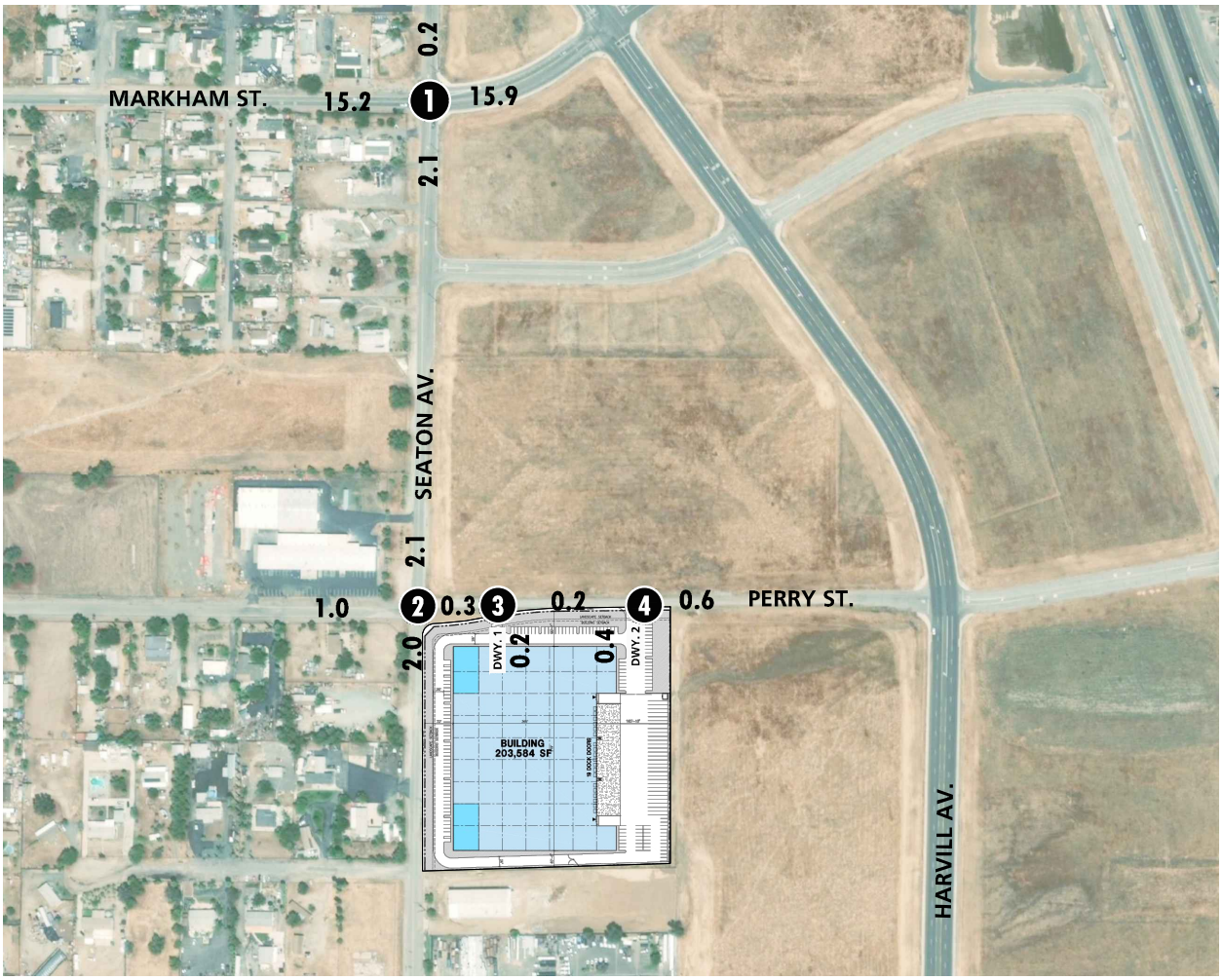
6.2 EAP (2020) TRAFFIC VOLUME FORECASTS

This scenario includes Existing (2018) traffic volumes plus an ambient growth factor of 4.04% and the addition of Project traffic. Exhibit 6-1 shows the weekday ADT volumes and peak hour volumes which can be expected for EAP (2020) traffic conditions (in PCE).

6.3 INTERSECTION OPERATIONS ANALYSIS

LOS calculations were conducted for the study intersections to evaluate their operations under EAP conditions with roadway and intersection geometrics consistent with Section 6.1 *Roadway Improvements*. As shown in Table 6-1, and consistent with Existing conditions, the study area intersections are anticipated to continue to operate at acceptable LOS during the peak hours with the addition of Project traffic for EAP (2020) traffic conditions. A summary of the peak hour intersection LOS for EAP traffic conditions is shown on Exhibit 6-2. The intersection operations analysis worksheets for EAP traffic conditions are included in Appendix 6.1 of this TIA.

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



1 Seaton Av. & Markham St.	2 Seaton Av. & Perry St.	3 Dwy. 1 & Perry St.	4 Dwy. 2 & Perry St.
3(3) 0(1) 2(3) → 2(4) ← 523(371) ← 19(47)	15(19) 29(55) 4(1) → 4(5) ← 1(4) ← 1(5)	← 4(5) ← 7(2)	← 11(7) ← 31(6)
1(0) → 410(508) → 30(27) → 113(20) 1(0) 49(33)	6(10) → 1(4) → 21(11) → 14(12) 105(40) 6(1)	2(4) → 9(2) → 2(9) 1(7)	3(11) → 0(0) → 0(0) 5(29)

LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

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EXHIBIT 6-2: EAP (2020) SUMMARY OF LOS

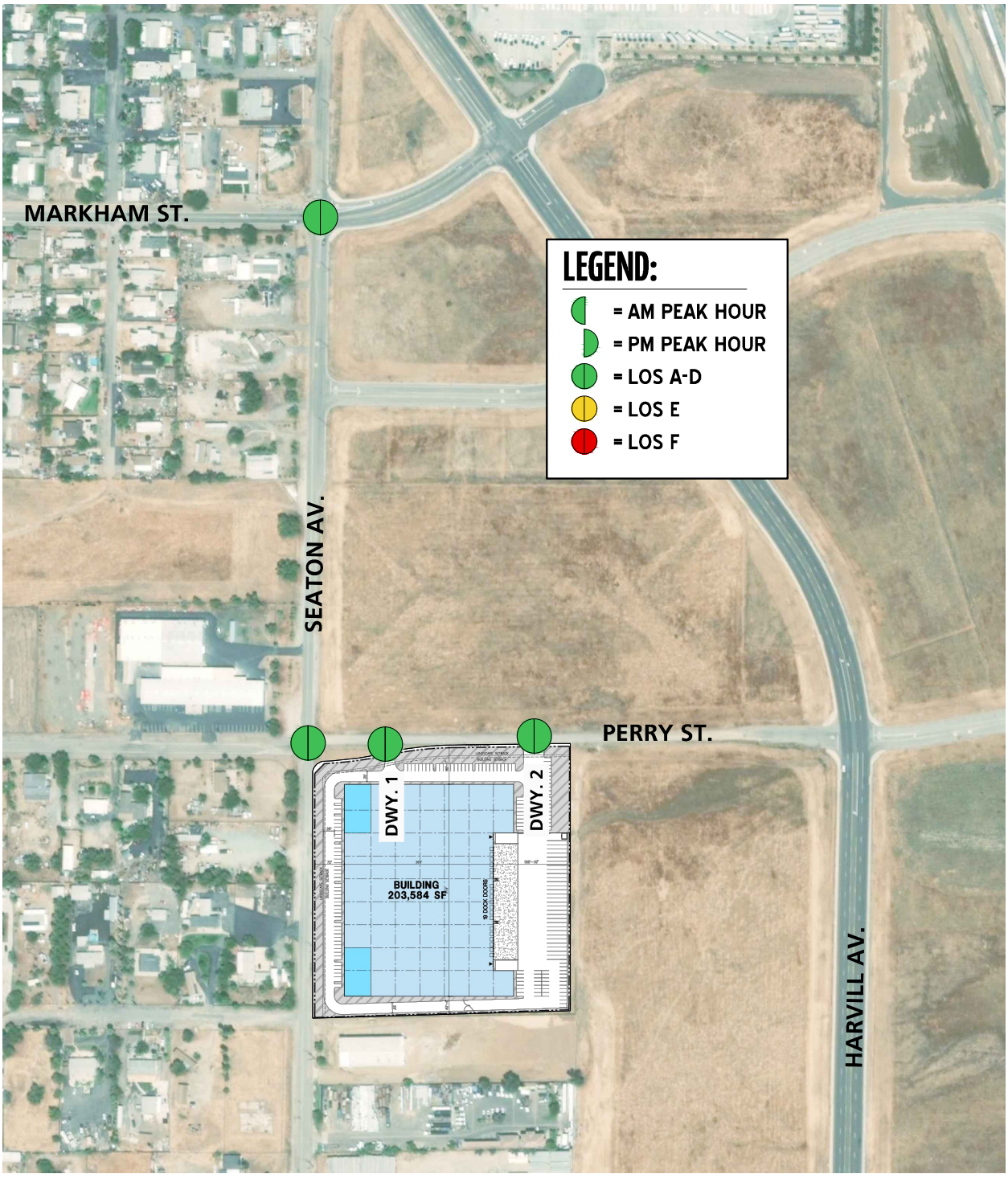

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Table 6-1

Intersection Analysis for EAP (2020) Conditions

#	Intersection	Traffic Control[2]	Existing (2018)				EAP (2020)			
			Delay[1] (secs.)		Level of Service		Delay[1] (secs.)		Level of Service	
			AM	PM	AM	PM	AM	PM	AM	PM
1	Seaton Av. & Markham St.	AWS	24.0	18.3	C	C	27.7	20.1	D	C
2	Seaton Av. & Perry St.	CSS	9.2	9.8	A	A	9.3	9.8	A	A
3	Dwy. 1 & Perry St.	**CSS**	Future Intersection				8.6	8.5	A	A
4	Dwy. 2 & Perry St.	**CSS**	Future Intersection				8.3	8.5	A	A

[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. HCM delay reported in seconds.

[2] CSS = Cross-street Stop; AWS = All-Way Stop; **CSS** = Improvement

6.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants have been performed (based on CA MUTCD) for EAP (2020) traffic conditions based on peak hour and daily volumes. With the addition of Project traffic, there are no additional study area intersections anticipated to meet planning level (ADT and peak hour) volume-based traffic signal warrants under EAP (2020) traffic conditions, in addition to the intersection previously identified under Existing (2018) traffic conditions (see Appendix 6.2).

6.5 RECOMMENDED IMPROVEMENTS

The study area intersections are anticipated to continue to operate at an acceptable LOS during the peak hours with the addition of Project traffic. As such, no improvements have been recommended for EAP (2020) traffic conditions.

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7 EAPC (2020) TRAFFIC CONDITIONS

This section discusses the methods used to develop EAPC (2020) traffic forecasts 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 conditions only (e.g., intersection and roadway improvements along 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 4.04% of ambient growth for EAPC (2020) traffic conditions in conjunction with traffic associated with the proposed Project. The weekday ADT and weekday AM and PM peak hour volumes which can be expected for EAPC (2020) traffic conditions are shown on Exhibit 7-1.

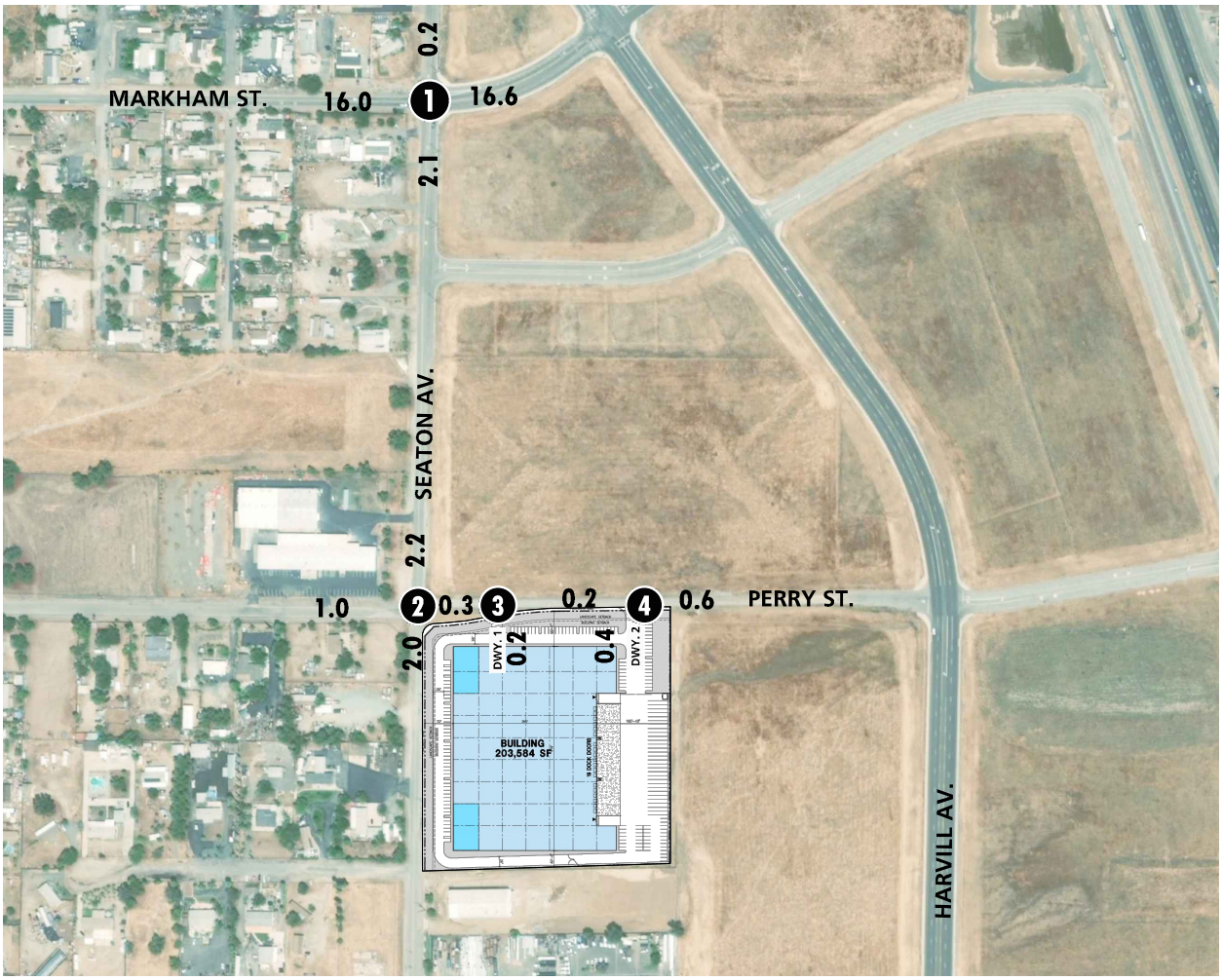
7.3 INTERSECTION OPERATIONS ANALYSIS

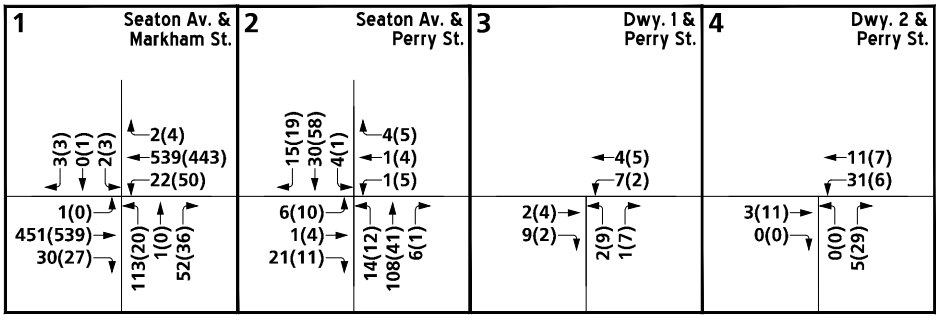
Level of service calculations were conducted for the study intersections to evaluate their operations under EAPC (2020) conditions with existing roadway and intersection geometrics consistent with those described under Section 7.1 *Roadway Improvements*. As shown in Table 7-1 and illustrated on Exhibit 7-2, the following study area intersection is anticipated to operate at an unacceptable LOS under EAPC (2020) traffic conditions:

- Seaton Av. & Markham St. (#1) – LOS E AM peak hour only

The intersection operations analysis worksheets for EAPC (2020) conditions are included in Appendix 7.1 of this report.

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





LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

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EXHIBIT 7-2: EAPC (2020) SUMMARY OF LOS

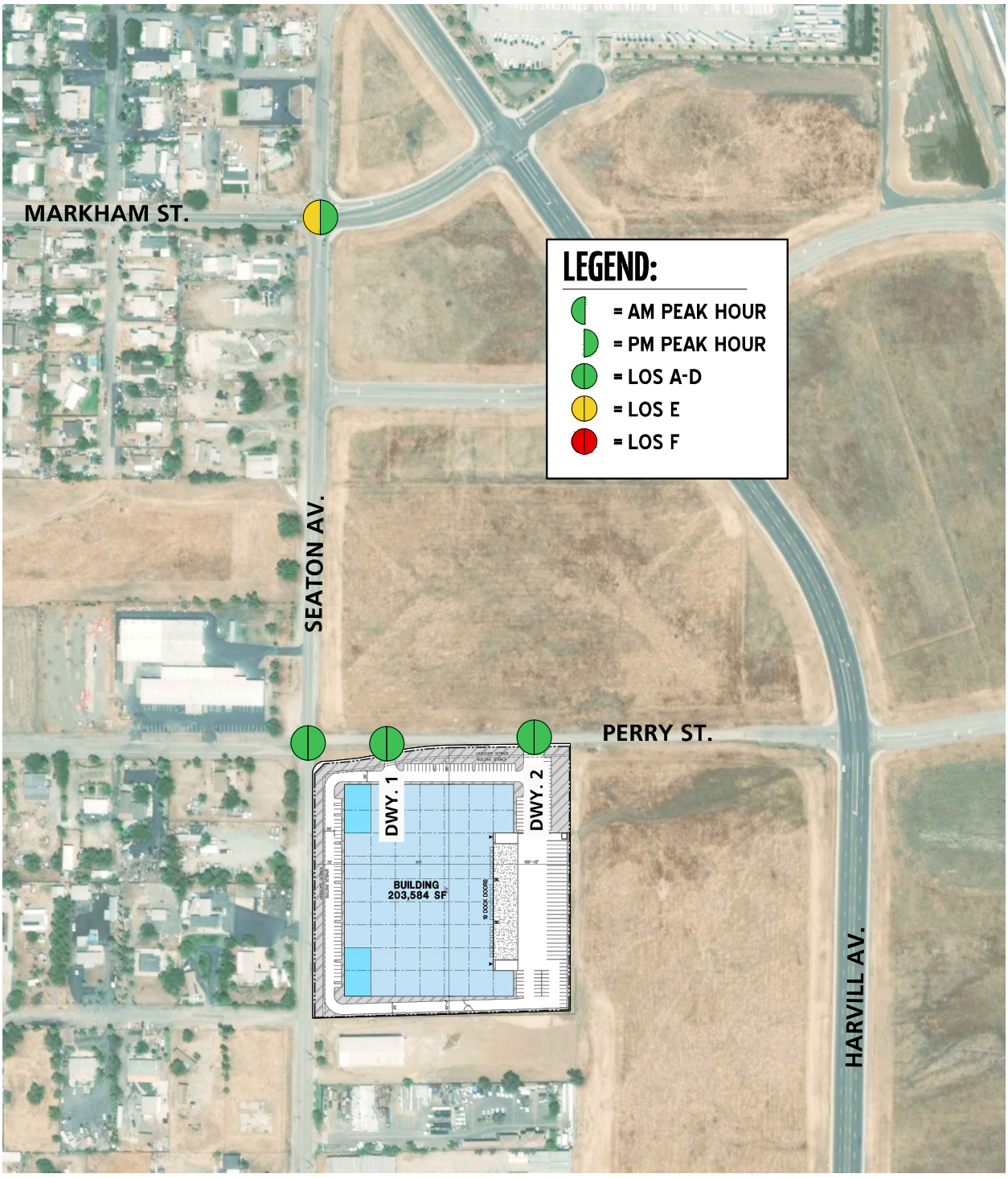

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Table 7-1

Intersection Analysis for EAPC (2020) Conditions

#	Intersection	Traffic Control[2]	Delay[1] (secs.)		Level of Service	
			AM	PM	AM	PM
1	Seaton Av. & Markham St.	AWS	**37.0**	25.3	**E**	D
2	Seaton Av. & Perry St.	CSS	9.3	9.5	A	A
3	Dwy. 1 & Perry St.	**CSS**	8.6	8.5	A	A
4	Dwy. 2 & Perry St.	**CSS**	8.3	8.5	A	A

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

[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. HCM delay reported ir seconds.

[2] CSS = Cross-street Stop; AWS = All-Way Stop; **CSS** = Improvement

7.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants have been performed (based on CA MUTCD) for EAPC (2020) traffic conditions based on peak hour and daily volumes. For EAPC (2020) traffic conditions, no additional study area intersections are anticipated to meet planning level (ADT) and peak hour volume-based traffic signal warrants under EAPC (2020) traffic conditions, in addition to the intersections previously identified under Existing (2018) traffic conditions (see Appendix 7.2).

7.5 RECOMMENDED IMPROVEMENTS

Necessary improvement strategies have been identified at the study area intersection that is 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 is presented in Table 7-2 for EAPC (2020) traffic conditions and described below. Worksheets for EAPC (2020) conditions, with improvements, HCM calculations are provided in Appendix 7.3.

Seaton Avenue & Markham Street (#1):

- Install a traffic signal.
- Add a southbound and eastbound left turn lane.
- Restripe the westbound approach to provide a left and shared through-right turn lane.

The Project Applicant shall participate in the funding of off-site improvements that are needed to serve cumulative traffic conditions through the payment the County of Riverside DIF fees. These fees shall be collected by the County of Riverside, 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 7-2

Intersection Analysis for EAPC (2020) Conditions With Improvements

#	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	AM	PM
1	Seaton Av. & Markham St.																	
	Without Improvements:	AWS	1	1	0	0	1	0	0	1	0	0	1	1	**37.0**	25.3	**E**	D
	With Improvements:	**TS**	1	1	0	**1**	1	0	**1**	1	0	**1**	1	**0**	10.1	9.6	B	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** = Improvement

[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; TS = Traffic Signal; **TS** = Improvement

8 REFERENCES

1. **Riverside County Transportation Department.** *Traffic Impact Analysis Preparation Guide.* County of Riverside : s.n., April 2008.
2. **Institute of Transportation Engineers.** *Trip Generation.* 10th Edition. 2017.
3. **California Department of Transportation.** *Guide for the Preparation of Traffic Impact Studies.* December 2002.
4. **Riverside County Transportation Commission.** *2011 Riverside County Congestion Management Program.* County of Riverside : RCTC, December 14, 2011.
5. **Western Riverside Council of Governments.** *TUMF Nexus Study, 2016 Program Update.* July 2017.
6. **Willdan Financial Services.** *County of Riverside Development Impact Fee Study Update.* County of Riverside : s.n., 2013.
7. **Transportation Research Board.** *Highway Capacity Manual (HCM).* 6th Edition. s.l. : National Academy of Sciences, 2016.
8. —. *Highway Capacity Manual (HCM).* 6th Edition. s.l. : National Academy of Sciences, 2016.
9. **California Department of Transportation.** California Manual on Uniform Traffic Control Devices (MUTCD). [book auth.] California Department of Transportation. *California Manual on Uniform Traffic Control Devices (CAMUTCD).* 2017.
10. **San Bernardino Associated Governments.** *Congestion Management Program for County of San Bernardino.* County of San Bernardino : s.n., Updated 2016.
11. **Institute of Transportation Engineers.** *High Cube Warehouse Vehicle Trip Generation Analysis.* Washington, DC : Institute of Transportation Engineers, October 2016.
12. **South Coast Air Quality Managment District (SCAQMD).** *Warehouse Truck Trip Study Data Results and Usage.* June 2014.
13. **City of Fontana.** *Truck Trip Generation Study.* Fontana : s.n., August 2003.
14. **Southern California Association of Governments.** *2016 Regional Transportation Plan / Sustainable Communities Strategy.* April 2016.
15. **Khan, Bob.** City of Perris Planning Department. City of Perris : s.n., July 24, 2018.
16. **City of Moreno Valley Planning Department.** *City of Moreno Valley California Development Projects.* June 2018.

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APPENDIX 1.1:

APPROVED TRAFFIC STUDY SCOPING AGREEMENT

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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 April 2008.

Case No. PPT180025
Related Cases-
SP No.
EIR No.
GPA No.
CZ No.
Project Name: Seaton Commerce Center
Project Address: Southeast corner of Seaton Avenue and Perry Street
Project Description: 40,384 square feet of general light industrial (20%) and 161,536 square feet of warehousing (without cold storage) (80%)

	Consultant	Developer - Representative
Name:	Urban Crossroads Inc. - Charlene So	T&B Planning
Address:	260 E. Baker Street, Suite 200	17542 17th Street, Suite 100
	Costa Mesa, CA 92626	Tustin, CA 92780
Telephone:	(949) 336-5982	
Fax:		

A. Trip Generation Source: ITE Trip Generation Manual, 10th Edition (2017)

Current GP Land Use	Light Industrial		Proposed Land Use	Light Industrial	
Current Zoning	Light Industrial		Proposed Zoning	Light Industrial	

	Current Trip Generation			Proposed Trip Generation		
	In	Out	Total	In	Out	Total
AM Trips				**47**	**8**	**55**
PM Trips				**10**	**44**	**54**

Internal Trip Allowance ☐ Yes ■ No (0 % Trip Discount)
Pass-By Trip Allowance ☐ Yes ■ No (0 % Trip Discount)

A pass by trip discount of 25% is allowed for appropriate land uses. The pass by trips at adjacent study area intersections and project driveways shall be indicated on a report figure.

B. Trip Geographic Distribution: Trip distribution varies by vehicle type (passenger cars vs. trucks)

N **varies** % S **varies** % E **varies** % W **varies** %

C. Background Traffic

Project Build-out Year: 2020 Annual Ambient Growth Rate: 2 %
Phase Year(s) N/A

Other area Projects to be analyzed: To be provided by the County of Riverside
Model/Forecast Methodology:

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D. Study Intersections: *(NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments form other agencies).* (See Exhibit 2)

1. Seaton Avenue & Markham Street
2. Seaton Avenue & Perry Street
3. Seaton Avenue & Driveway 1 - Future Intersection
4. Seaton Avenue & Driveway 2 - Future Intersection
5. Driveway 3 & Perry Street - Future Intersection
6.
7.
8.
9.
10.
11.
12.
13.
14.
15.
16.
17.
18.
19.
20.

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 boundaries? ■ Yes ☐ No

If so, name of City jurisdiction: City of Perris

G. Site Plan (please attach reduced copy)

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: traffic counts will be conducted once scoping agreement has been approved

***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:

Charlene So — 10/17/2018

Consultant's Representative — Date

Approved Scoping Agreement:

K.S — 07/03/2019

Riverside County Transportation Department — Date

Scoping Agreement Revised on July 1, 2019

URBAN CROSSROADS

URBAN CROSSROADS

260 E. Baker St. | Suite 200 | Costa Mesa, CA 92626 | (949) 660-1994
urbanxroads.com

July 1, 2019

Mr. Kevin Tsang
County of Riverside, Transportation Department
4080 Lemon Street, 8th Floor
Riverside, CA 92501

SUBJECT: SEATON COMMERCE CENTER TRAFFIC IMPACT ANALYSIS SCOPING AGREEMENT (REVISED)

Dear Mr. Kevin Tsang:

The firm of Urban Crossroads, Inc. is pleased to submit this scoping letter regarding the traffic impact analysis for the proposed Seaton Commerce Center development ("Project"), which is located on the southeast corner of Seaton Avenue and Perry Street in the County of Riverside. This letter describes the proposed Project trip generation, trip distribution, and analysis methodology, which have been used to establish the draft proposed Project study area and analysis locations.

PROJECT DESCRIPTION

A preliminary site use plan for the proposed Project is shown on Exhibit 1. Exhibit 2 depicts the location of the proposed project in relation to the existing roadway network. The Project is anticipated to have an Opening Year of 2020. Access to the Project site will be provided to Seaton Avenue (via Driveway 1 for passenger cars only) and Perry Street (via Driveway 2 for passenger cars and trucks). The Project is proposed to consist of up to 161,536 square feet of warehouse (without cold storage) use (80 percent of the total square footage) and 40,384 square feet of general light industrial use (20 percent of the total square footage) for a total of 201,920 square feet within a single building.

TRIP GENERATION

Trip generation represents the amount of traffic that is attracted and produced by a development, and is based upon the specific land uses planned for a given project. In order to develop the traffic characteristics of the proposed project, trip-generation statistics published in the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017) for the proposed land use was used. Trip generation rates for the Project are shown in Table 1 and Table 2 for passenger car equivalent (PCE) and actual vehicles, respectively. The trip generation summary illustrating daily and peak hour trip generation estimates for the proposed Project in PCE and actual vehicles are also shown in Table 1 and Table 2, respectively.

Brief descriptions of the proposed Project land uses are provided below:

- General Light Industrial (ITE 110): A light industrial facility is a free-standing facility devoted to a single use. The facility has an emphasis on activities other than manufacturing and typically has minimal office space. The ITE Trip Generation Manual and the ITE Trip Generation Handbook does not provide a vehicle mix for the General Light Industrial (ITE land use code 110) land use. As such, the vehicle mix identified in the City of Fontana Truck Trip Generation Study has been utilized for the General Light Industrial land use.
- High-Cube Transload and Short-Term Storage Warehouse (Without Cold Storage) (ITE 154): Transload facilities have a primary function of consolidation and distribution of pallet loads (or larger) for manufacturers, wholesalers, or retailers. They typically have little storage duration, high throughput, and are high-efficiency facilities. Short-term high-cube warehouses are high-efficiency distribution facilities often with custom/special features built into structure movement of large volumes of freight with only short-term storage of products. The ITE Trip Generation Manual includes data for total vehicles (passenger cars and trucks), but provides no guidance on vehicle mix (passenger cars vs. trucks and breakdown by each truck axle type). As such, data regarding the specific truck mix has been obtained from a separate report: The South Coast Air Quality Management District's (SCAQMD) Warehouse Truck Trip Study Data Results and Usage recommended truck mix. This recommended procedure will be utilized for the purposes of the analysis for the High Cube Transload Short-term Storage Warehouse land use (ITE land use code 154).

Trip generation for heavy trucks was further broken down by truck type (or axle type). The total truck percentage is comprised of 3 different truck types: 2-axle, 3-axle, and 4+-axle trucks. For the purposes of this analysis, the percentage of trucks, by axle type, were obtained from the SCAQMD interim recommended truck mix. The SCAQMD has recently performed surveys of existing facilities and compiled the data to provide interim guidance on the mix of heavy trucks for these types of warehousing facilities. Based on this interim guidance from the SCAQMD, the following truck fleet mix was utilized for the purposes of estimating the truck trip generation for the site: 16.7% of the total trucks as 2-axle trucks, 20.7% of the total trucks as 3-axle trucks, and 62.5% of the total trucks as 4+-axle trucks.

Finally, 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), as these factors are more conservative than Riverside County's PCE factor of 2.0 for heavy trucks.

As shown on Table 1, the proposed Project is anticipated to generate a net total of 596 PCE trip-ends per day, 55 PCE AM peak hour trips and 54 PCE PM peak hour trips. In comparison, the proposed Project is

anticipated to generate a net total of 430 actual vehicle trip-ends per day with 42 AM peak hour trips and 42 PM peak hour trips (see Table 2).

TRIP DISTRIBUTION

The Project trip distribution and assignment process represents the directional orientation of traffic to and from the Project site. 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. Exhibit 3 illustrates the truck trip distribution patterns for the Project and Exhibit 4 illustrates the passenger car trip distribution patterns.

ANALYSIS SCENARIOS

Consistent with the County's TIA guidelines, intersection analysis will be provided for the following analysis scenarios:

- Existing (2018) Conditions
- Existing plus Project (E+P) Conditions
- Existing plus Ambient Growth plus Project (EAP) Conditions
- Existing plus Ambient Growth plus Project plus Cumulative (EAPC) Conditions

All study area intersections will be evaluated using the Highway Capacity Manual (HCM) 6th Edition analysis methodology.

CUMULATIVE PROJECTS

Cumulative projects are listed on Table 3 and shown graphically on Exhibit 5.

TRAFFIC COUNTS

Traffic counts (classified by vehicle type) will be conducted once the scoping agreement has been approved during a typical Tuesday, Wednesday, or Thursday when local schools are in session and operating on a typical bell schedule.

CONCLUSION

Urban Crossroads, Inc. is pleased to submit this letter documenting the Project trip generation, trip distribution, and the recommended intersection analysis locations for the Seaton Commerce Center Traffic Impact Study. We will continue to move forward towards completing the traffic study after receiving jurisdiction approval or comments finalizing the study area.

If you have any questions, please contact me directly at (949) 336-5982.

Respectfully submitted,

URBAN CROSSROADS, INC.

Charlene So

Charlene So, PE
Senior Associate

EXHIBIT 1: PRELIMINARY SITE PLAN

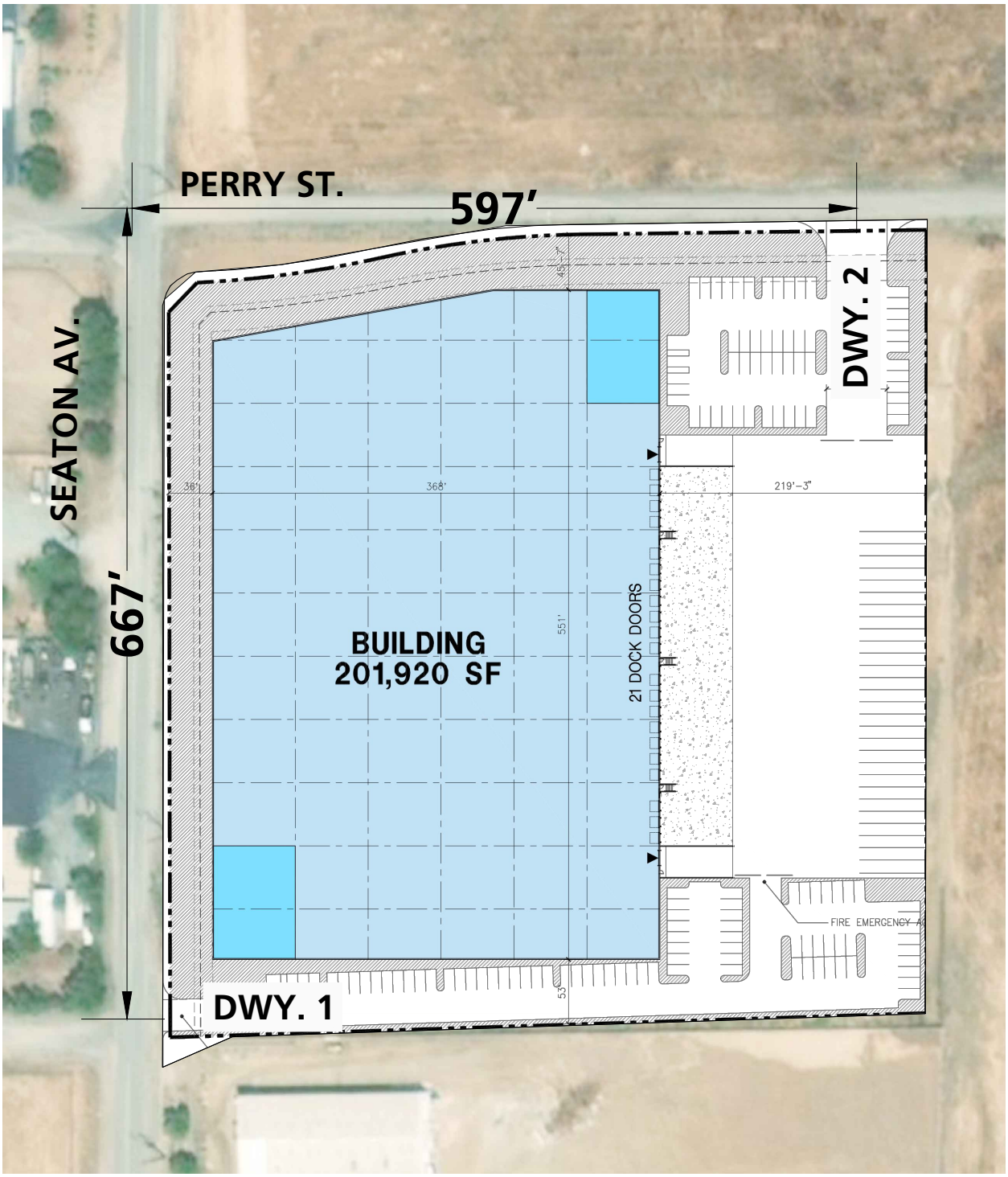

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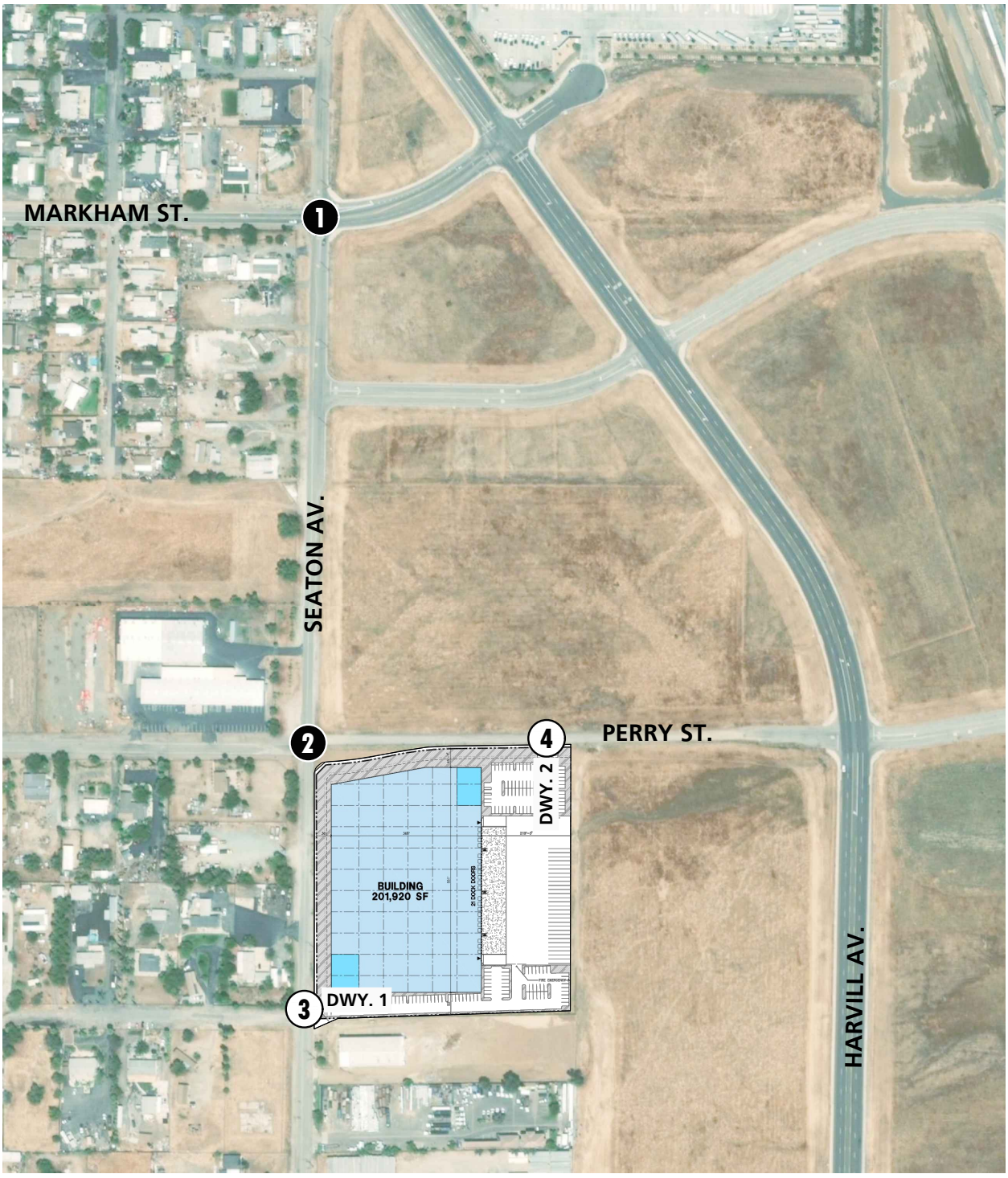
EXHIBIT 2: LOCATION MAP



LEGEND:

① = EXISTING INTERSECTION ANALYSIS LOCATION

① = FUTURE INTERSECTION ANALYSIS LOCATION

N

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EXHIBIT 3: PROJECT (TRUCK) TRIP DISTRIBUTION

LEGEND:

10 = PERCENT TO/FROM PROJECT

N

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EXHIBIT 4: PROJECT (PASSENGER CAR) TRIP DISTRIBUTION

LEGEND:

10 = PERCENT TO/FROM PROJECT

N

EXHIBIT 5: CUMULATIVE DEVELOPMENT LOCATION MAP

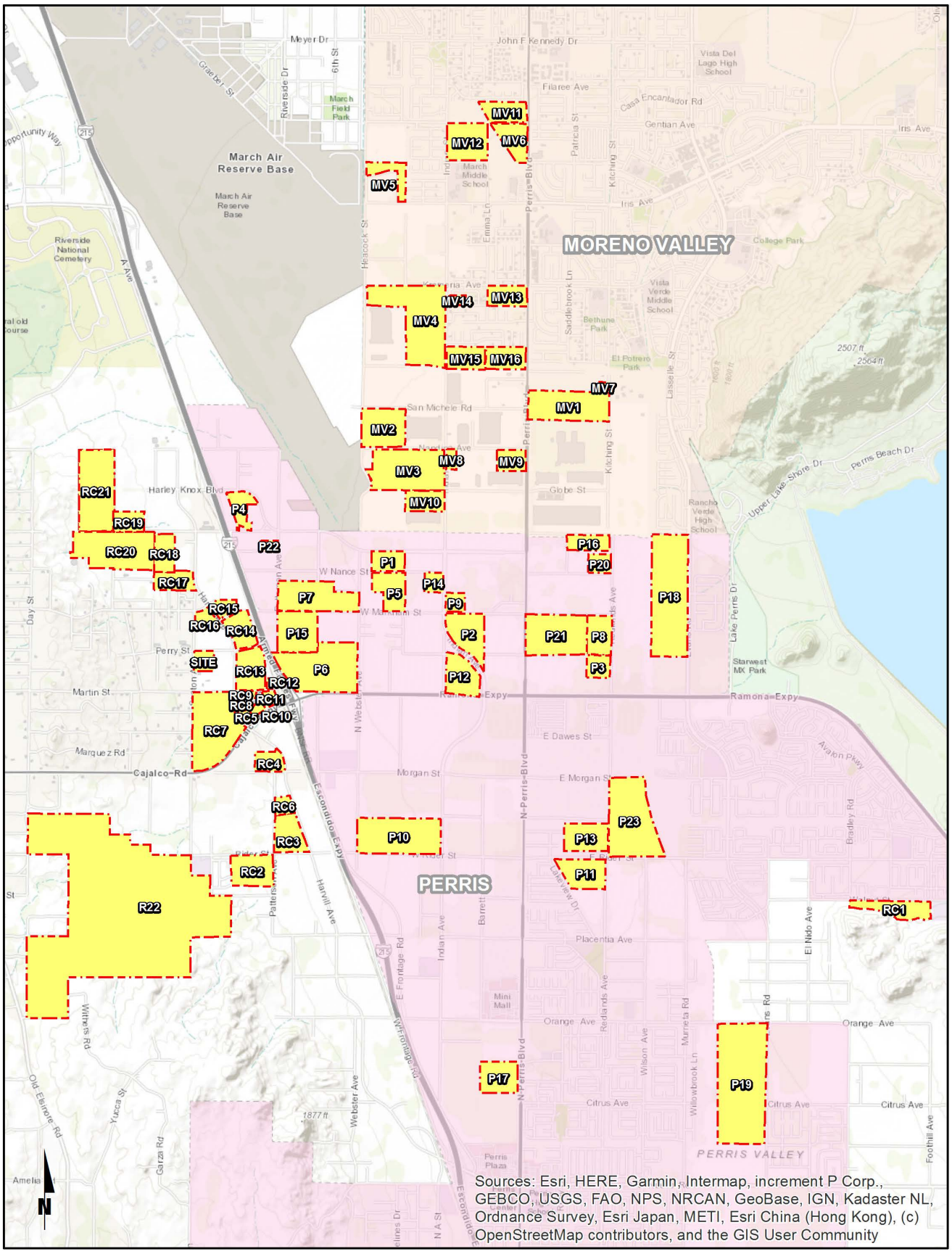

Table 1

Project Trip Generation Summary (PCE)

PCE Trip Generation Rates									
			AM Peak Hour			PM Peak Hour			Daily
Land Use[1]	ITE LU Code	Units[2]	In	Out	Total	In	Out	Total	
General Light Industrial[3]	110	TSF	0.616	0.084	0.700	0.082	0.548	0.630	4.960
Passenger Cars (78.6%)			0.484	0.066	0.550	0.064	0.431	0.495	3.899
2-Axle Trucks (8.0%) (PCE = 1.5)			0.074	0.010	0.084	0.010	0.066	0.076	0.595
3-Axle Trucks (3.9%) (PCE = 2.0)			0.048	0.007	0.055	0.006	0.043	0.049	0.387
4-Axle+ Trucks (9.5%) (PCE = 3.0)			0.176	0.024	0.200	0.023	0.156	0.180	1.414
High-Cube Transload Short-Term Warehouse[4]	154	TSF	0.062	0.018	0.080	0.028	0.072	0.100	1.400
Passenger Cars (AM-69.2%; PM-78.3%; Daily-67.8%)			0.043	0.013	0.055	0.022	0.056	0.078	0.949
2-Axle Trucks (AM-10.69%; PM-7.53%; Daily-11.17%) (PCE = 1.5)			0.005	0.001	0.006	0.002	0.004	0.005	0.113
3-Axle Trucks (AM-3.39%; PM-2.39%; Daily-3.54%) (PCE = 2.0)			0.008	0.002	0.010	0.003	0.006	0.009	0.187
4-Axle+ Trucks (AM-16.76%; PM-11.80%; Daily-17.52%) (PCE = 3.0)			0.036	0.011	0.046	0.011	0.029	0.041	0.847

Project Trip Generation (PCE)									
			AM Peak Hour			PM Peak Hour			Daily
Project	Quantity	Units[2]	In	Out	Total	In	Out	Total	
General Light Industrial (20%)	40.384	TSF							
Passenger Cars			20	3	23	3	17	20	158
2-Axle Trucks			3	0	3	0	3	3	24
3-Axle Trucks			2	0	2	0	2	2	16
4-Axle+ Trucks			7	1	8	1	6	7	58
- Truck Trips (PCE)			*12*	*1*	*13*	*1*	*11*	*12*	*98*
High-Cube Transload Short-Term Warehouse (80%)	161.536	TSF							
Passenger Cars			7	2	9	4	9	13	154
2-Axle Trucks			1	0	1	0	1	1	18
3-Axle Trucks			1	0	1	0	1	1	30
4-Axle+ Trucks			6	2	8	2	5	7	138
- Truck Trips (PCE)			*8*	*2*	*10*	*2*	*7*	*9*	*186*
TOTAL TRIPS (PCE) [5]			**47**	**8**	**55**	**10**	**44**	**54**	**596**

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).

[2] TSF = Thousand Square Feet

[3] Vehicle Mix Source: City of Fontana Truck Trip Generation Study, August 2003.

[4] Truck Mix Source: SCAQMD Warehouse Truck Trip Study Data Results and Usage (2014).

Normalized % - Without Cold Storage:

16.7% 2-Axle trucks, 20.7% 3-Axle trucks, 62.5% 4-Axle trucks

[5] TOTAL TRIPS (PCE) = Passenger Cars + Truck Trips (PCE)

Table 2

Project Trip Generation Summary (Actual Vehicles)

Actual Vehicle Trip Generation Rates									
	ITE LU		AM Peak Hour			PM Peak Hour			Daily
Land Use[1]	Code	Units[2]	In	Out	Total	In	Out	Total	
General Light Industrial[3]	110	TSF	0.616	0.084	0.700	0.082	0.548	0.630	4.960
Passenger Cars (78.6%)			0.484	0.066	0.550	0.064	0.431	0.495	3.899
2-Axle Trucks (8.0%)			0.049	0.007	0.056	0.007	0.044	0.050	0.397
3-Axle Trucks (3.9%)			0.024	0.003	0.027	0.003	0.021	0.025	0.193
4-Axle+ Trucks (9.5%)			0.059	0.008	0.067	0.008	0.052	0.060	0.471
High-Cube Transload Short-Term Warehouse[4]	154	TSF	0.062	0.018	0.080	0.028	0.072	0.100	1.400
Passenger Cars (AM-69.2%; PM-78.3%; Daily-67.8%)			0.043	0.013	0.055	0.022	0.056	0.078	0.949
2-Axle Trucks (AM-10.69%; PM-7.53%; Daily-11.17%)			0.003	0.001	0.004	0.001	0.003	0.004	0.075
3-Axle Trucks (AM-3.39%; PM-2.39%; Daily-3.54%)			0.004	0.001	0.005	0.001	0.003	0.004	0.093
4-Axle+ Trucks (AM-16.76%; PM-11.80%; Daily-17.52%)			0.012	0.004	0.015	0.004	0.010	0.014	0.282

Project Trip Generation (Actual Vehicles)									
			AM Peak Hour			PM Peak Hour			Daily
Project	Quantity	Units[2]	In	Out	Total	In	Out	Total	
General Light Industrial (20%)	40.384	TSF							
Passenger Cars			20	3	23	3	17	20	158
2-Axle Trucks			2	0	2	0	2	2	16
3-Axle Trucks			1	0	1	0	1	1	8
4-Axle+ Trucks			2	0	2	0	2	2	20
- Truck Trips (Actual Vehicles)			*5*	*0*	*5*	*0*	*5*	*5*	*44*
High-Cube Transload Short-Term Warehouse (80%)	161.536	TSF							
Passenger Cars			7	2	9	4	9	13	154
2-Axle Trucks			1	0	1	0	0	0	12
3-Axle Trucks			1	0	1	0	1	1	16
4-Axle+ Trucks			2	1	3	1	2	3	46
- Truck Trips (Actual Vehicles)			*4*	*1*	*5*	*1*	*3*	*4*	*74*
TOTAL TRIPS (Actual Vehicles) [5]			**36**	**6**	**42**	**8**	**34**	**42**	**430**

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).

[2] TSF = Thousand Square Feet

[3] Vehicle Mix Source: City of Fontana Truck Trip Generation Study, August 2003.

[4] Truck Mix Source: SCAQMD Warehouse Truck Trip Study Data Results and Usage (2014).

Normalized % - Without Cold Storage:

16.7% 2-Axle trucks, 20.7% 3-Axle trucks, 62.5% 4-Axle trucks

[5] TOTAL TRIPS (Actual Vehicles) = Passenger Cars + Truck Trips (Actual Vehicles)

Table 3

Cumulative Development Land Use Summary

No.	Project Name / Case Number	Land Use[1]	Quantity	Units[2]	Location
Riverside County					
RC1	McCanna Hills / TTM 33978	SFDR	63	DU	SWC OF SHERMAN AVE. & WALNUT AVE.
RC2	PP26293	High-Cube Warehouse	612.481	TSF	SWC OF PATTERSOM AVE. & RIDER ST.
RC3	PPT180025: Rider Commerce Center	Warehousing	204.330	TSF	NWC OF PATTERSON AVE. & RIDER ST.
RC4	Val Verde Logistics Center	High-Cube Warehouse	280.308	TSF	NWC OF HARVILLA AVE. & OLD CAJALCO RD.
RC5	Farm Boys/Retail Shop	Retail	16.306	TSF	NEC OF HARVILL AVE. & CAJALCO RD.
		Fast-Food with Drive Thru	3.252	TSF	
RC6	PP26173	High-Cube Warehouse	423.665	TSF	SWC OF HARVILL AVE. & RIDER ST.
RC7	Majestic Freeway Business Center - Buildings 1,3,4	High-Cube Warehouse	1244.670	TSF	NWC OF HARVILL AVE. & CAJALCO EXWY.
RC8	Majestic Freeway Business Center - Building 5	Warehousing	40.000	TSF	NEC OF HARVILL AVE. & MESSENIA LN.
RC9	Majestic Freeway Business Center - Building 6	Warehousing	72.000	TSF	NORTH OF MESSENIA LN., EAST OF HARVILL AVE.
RC10	Majestic Freeway Business Center - Building 7	Warehousing	80.000	TSF	NORTH OF CAJALCO EXWY., EAST OF HARVILL AVE.
RC11	Majestic Freeway Business Center - Building 8	Warehousing	110.000	TSF	NORTH OF CAJALCO EXWY., EAST OF HARVILL AVE.
RC12	Majestic Freeway Business Center - Building 9	Warehousing	45.000	TSF	EAST OF MESSENIA LN., NORTH OF HARVILL AVE.
RC13	Majestic Freeway Business Center - Building 10	High-Cube Warehouse	600.000	TSF	SEC OF HARVILL AVE. & PERRY ST.
RC14	Majestic Freeway Business Center - Building 11	High-Cube Warehouse	391.045	TSF	SEC OF HARVILL AVE. & COMMERCE CENTER DR.
RC15	Majestic Freeway Business Center - Building 12	Warehousing	154.751	TSF	NEC OF HARVILL AVE. & COMMERCE CENTER DR.
RC16	Majestic Freeway Business Center - Building 15	Warehousing	90.279	TSF	NWC OF HARVILL AVE. & COMMERCE CENTER DR.
RC17	Majestic Freeway Business Center - Building 19	High-Cube Warehouse	364.560	TSF	SWC OF HARVILL AVE. & OLD OLEANDER AVE.
RC18	Majestic Freeway Business Center - Building 20	High-Cube Warehouse	425.830	TSF	SWC OF HARVILL AVE. & OLD OLEANDER AVE.
RC19	Majestic Freeway Business Center - Building 21,22	Warehousing	241.059	TSF	NEC OF DECKER RD. & OLD OLEANDER AVE.
RC20	Knox Logistics Center	High-Cube Warehouse	1259.410	TSF	NWC OF DECKER RD. & OLD OLEANDER AVE.
RC21	Oleander Business Park	High-Cube Warehouse	680.000	TSF	NWC OF DECKER RD. & HARLEY KNOX BLVD.
RC22	Mead Valley Quarry	Quarry	1000.000	MTPY	SOUTH OF CAJALCO RD. & EAST OF RIDER ST.
City of Perris					
P1	Bargemann / DPR 07-09-0018	Warehousing	173.000	TSF	NEC OF WEBSTER & NANCE
P2	Duke 2 / DPR 16-00008	High-Cube Warehouse	669.000	TSF	NEC OF INDIAN & MARKHAM
P3	First Perry / DPR 16-00013	High-Cube Warehouse	240.000	TSF	SWC OF REDLANDS AVE. & PERRY ST.
P4	Gateway / DPR 16-00003	High-Cube Warehouse	400.000	TSF	SOUTH OF HARLEY KNOX BLVD. EAST OF HWY. 215
P5	Integra / DPR 14-02-0014	High-Cube Warehouse	864.000	TSF	EAST OF WEBSTER AVE. SOUTH OF NANCE ST.
P6	OLC 1 / DPR 12-10-0005	High-Cube Warehouse	1,455.000	TSF	WEST OF WEBSTER AVE. NORTH OF RAMONA Exwy.
P7	OLC2 / DPR 14-01-0015	High-Cube Warehouse	1,037.000	TSF	WEST OF WEBSTER AVE. NORTH OF MARKHAM ST.
P8	Markham East / DPR 05-0477	High-Cube Warehouse	460.000	TSF	SWC OF REDLANDS AVE. & MARKHAM ST.
P9	Markham Industrial / DPR 16-00015	Warehousing	170.000	TSF	NEC OF INDIAN AVE. & MARKHAM ST.
P10	Rados / DPR 07-0119	High-Cube Warehouse	1,200.000	TSF	NWC OF INDIAN AVE. & RIDER ST.

Table 3

Cumulative Development Land Use Summary

No.	Project Name / Case Number	Land Use[1]	Quantity	Units[2]	Location
P11	Rider 1 / DPR 16-0365	High-Cube Warehouse	350.000	TSF	SWC OF REDLANDS AVE. & RIDER ST.
P12	Indian/Ramona Warehouse	High-Cube Warehouse	428.730	TSF	NORTH OF RAMONA EXWY. WEST OF INDIAN AVE.
P13	Rider 3 / DPR 06-0432	High-Cube Warehouse	640.000	TSF	NORTH OF RIDER ST. WEST OF REDLANDS
P14	Westcoast Textile / DPR 16-00001	Warehousing	180.000	TSF	SWC OF INDIAN ST. & NANCE ST.
P15	Duke at Patterson / DPR 17-00001	High-Cube Warehouse	811.000	TSF	SEC OF PATTERSON AVE. & MARKHAM ST.
P16	Harley Knox Commerce Park / DPR 16-004	High-Cube Warehouse	386.278	TSF	NWC OF HARLEY KNOX BLVD. & REDLANDS AVE.
P17	Perris Marketplace / DPR 05-0341	Commercial Retail	520.000	TSF	WEST OF PERRIS BLVD. AT AVOCADO AVE.
P18	Stratford Ranch Residential / TTM 36648	SFDR	270	DU	WEST OF EVANS RD. AT MARKHAM ST.
P19	Pulte Residential / TTM 30850	SFDR	496	DU	WEST OF EVANS RD. AT CITRUS AVE.
P20	Perris Circle 3	Warehousing	210.900	TSF	NWC OF REDLANDS AVE. AND NANCE AVE.
P21	Duke Realty - Perris & Markham	High-Cube Warehouse	1,189.860	TSF	SEC OF PERRIS BL. AND MARKHAM ST.
P22	Canyon Steel	Manufacturing	28.124	TSF	NWC OF PATTERSON AVE. & CALIFORNIA AVE.
P23	Rider 2 and 4	High-Cube Warehouse	1,376.721	TSF	NWC OF REDLANDS AVE. AND RIDER ST.
City of Moreno Valley					
MV1	Kearney	High-Cube Warehouse	1100.000	TSF	EAST OF PERRIS BLVD. AT SAN MICHEL RD.
MV2	IDS	High-Cube Warehouse	701.000	TSF	SEC OF HEACOCK ST. & SAN MICHELE RD.
MV3	First Industrial	High-Cube Warehouse	1380.000	TSF	SWC OF INDIAN AVE. & NANDINA AVE.
MV4	Prologis 1	High-Cube Warehouse	1000.000	TSF	NEC OF INDIAN AVE. & MARIPOSA AVE.
MV5	Moreno Valley Industrial Park	High-Cube Warehouse	207.684	TSF	NEC OF HEACOCK ST. & IRIS AVE.
MV6	Moreno Valley Walmart	Retail	193.000	TSF	SWC OF PERRIS BLVD. & GENTIAN AVE.
MV7	Moreno Valley Utility Substation	High-Cube Warehouse	PUBLIC	TSF	NWC OF EDWIN RD. & KITCHING ST.
MV8	Phelan Development	High-Cube Warehouse	98.210	TSF	SEC OF INDIAN ST. & NANDINA AVE.
MV9	Nandina Industrial Center	High-Cube Warehouse	335.966	TSF	SOUTH OF NANDINA AVE. WEST OF PERRIS BLVD.
MV10	Indian Street Commerce Center	High-Cube Warehouse	433.918	TSF	SWC OF INDIAN ST. & GROVEVIEW RD.
MV11	Tract 22180	SFDR	140	DU	NORTH OF GENTIAN AVE. EAST OF INDIAN ST.
MV12	Tract 36760	SFDR	221	DU	SEC OF INDIAN ST. & GENTIAN AVE.
MV13	PEN18-0042	SFDR	2	DU	SEC OF INDIAN ST. & KRAMERIA AVE.
MV14	Tract 33024	SFDR	8	DU	SEC OF INDIAN ST. & KRAMERIA AVE.
MV15	Tract 32716	SFDR	57	DU	NEC OF INDIAN ST. & MARIPOSA AVE.
MV16	Tract 31442	SFDR	63	DU	NWC OF PERRIS BLVD. & MARIPOSA AVE.

[1] SFDR = Single Family Detached Residential

[2] DU = Dwelling Units; TSF = Thousand Square Feet; MTPY = Million Tons per Year

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APPENDIX 3.1:

EXISTING TRAFFIC COUNTS – OCTOBER 2018

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INTERSECTION TURNING MOVEMENT COUNTS

T816

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Perris	PROJECT #:	SC1954
Tue, Oct 23, 18	NORTH & SOUTH:	Seaton	LOCATION #:	7
	EAST & WEST:	Markham	CONTROL:	STOP ALL

NOTES:

AM PM MD OTHER OTHER

▲ N ◄ W E ► S ▼

Add U-Turns to Left Turns

	NORTHBOUND Seaton			SOUTHBOUND Seaton			EASTBOUND Markham			WESTBOUND Markham			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	0	1	0	0	1	0	0	1	1	
AM 7:00 AM	35	0	13	1	0	0	0	63	3	6	147	0	268
7:15 AM	28	0	4	0	0	0	0	94	7	4	115	1	253
7:30 AM	29	0	11	0	0	1	0	100	4	2	117	1	265
7:45 AM	16	1	9	1	0	2	1	109	11	1	102	0	253
8:00 AM	3	0	5	0	0	0	0	87	7	4	83	1	190
8:15 AM	1	0	7	1	0	0	0	55	2	3	53	0	122
8:30 AM	4	1	5	0	0	1	0	46	2	2	47	0	108
8:45 AM	0	1	4	1	0	1	0	48	4	2	43	1	105
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	116	3	58	4	0	5	1	602	40	24	707	4	1,564
APPROACH %	66%	2%	33%	44%	0%	56%	0%	94%	6%	3%	96%	1%	
APP/DEPART	177	/	8	9	/	64	643	/	664	735	/	828	0
BEGIN PEAK HR		7:00 AM											
VOLUMES	108	1	37	2	0	3	1	366	25	13	481	2	1,039
APPROACH %	74%	1%	25%	40%	0%	60%	0%	93%	6%	3%	97%	0%	
PEAK HR FACTOR		0.760			0.417			0.810			0.810		0.969
APP/DEPART	146	/	4	5	/	38	392	/	405	496	/	592	0
PM 03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	2	0	5	0	0	0	0	99	2	7	74	0	189
4:15 PM	1	0	7	1	0	0	0	90	6	8	67	1	181
4:30 PM	3	0	3	2	0	1	0	125	6	7	85	1	233
4:45 PM	4	0	6	0	0	0	0	113	5	8	88	0	224
5:00 PM	5	0	14	0	0	0	0	104	6	13	91	0	233
5:15 PM	5	0	3	1	1	1	0	126	7	3	77	2	226
5:30 PM	3	0	7	0	0	0	0	118	5	4	74	0	211
5:45 PM	4	0	2	0	0	0	0	109	5	0	70	0	190
VOLUMES	27	0	47	4	1	2	0	884	42	50	626	4	1,687
APPROACH %	36%	0%	64%	57%	14%	29%	0%	95%	5%	7%	92%	1%	
APP/DEPART	74	/	4	7	/	93	926	/	935	680	/	655	0
BEGIN PEAK HR		4:30 PM											
VOLUMES	17	0	26	3	1	2	0	468	24	31	341	3	916
APPROACH %	40%	0%	60%	50%	17%	33%	0%	95%	5%	8%	91%	1%	
PEAK HR FACTOR		0.566			0.500			0.925			0.901		0.983
APP/DEPART	43	/	3	6	/	56	492	/	497	375	/	360	0

	U-TURNS					RTOR			
	NB	SB	EB	WB	TTL	NRR	SRR	ERR	WRR
LANES:	0	0	0	0		X	X	X	X
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0
VOLUMES	0	0	0	0	0	0	0	0	0
PEAK HR VOLUMES						0	0	0	0
03:00 PM	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
VOLUMES	0	0	0	0	0	0	0	0	0
PEAK HR VOLUMES						0	0	0	0

Seaton

NORTH SIDE

Markham WEST SIDE EAST SIDE **Markham**

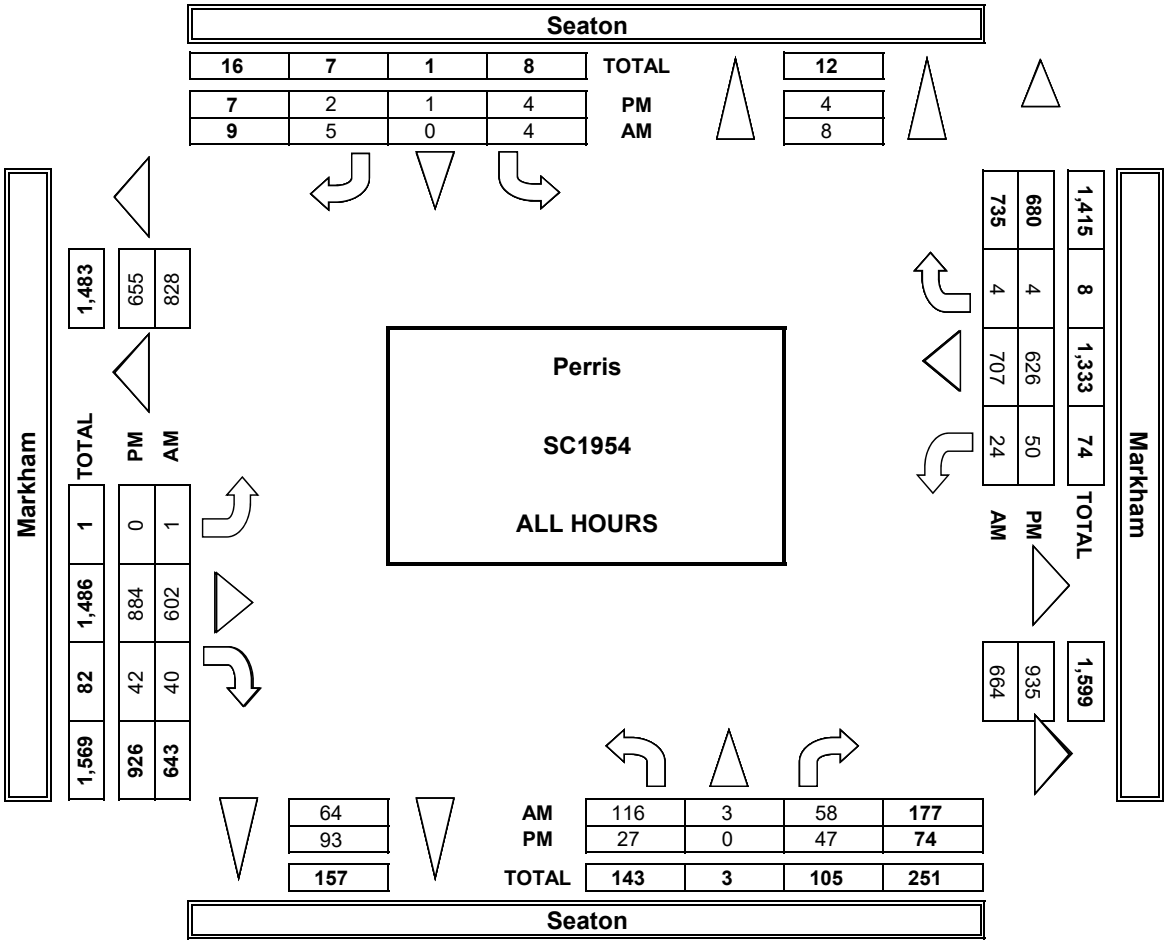
SOUTH SIDE

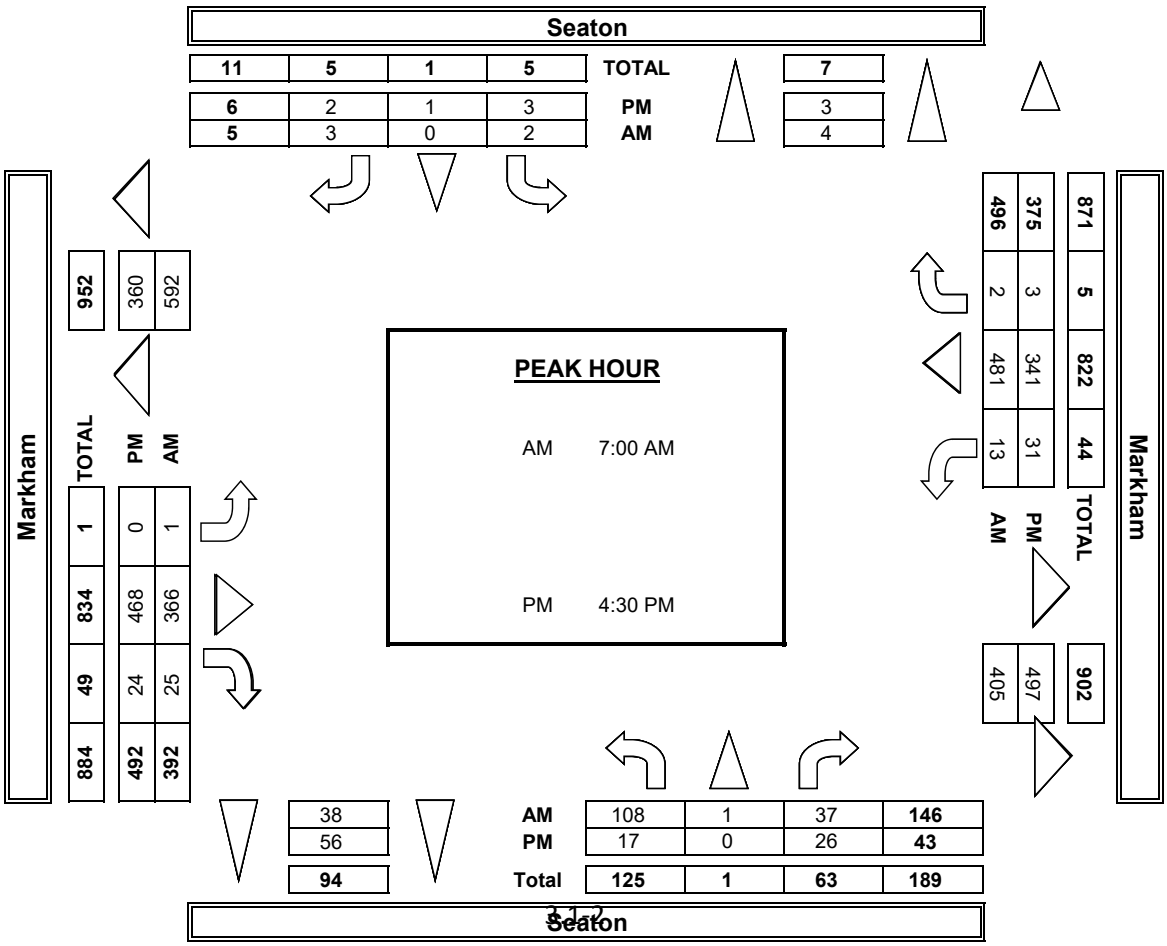
Seaton

	ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	ES	WS	SS	NS	TOTAL
AM 7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM 3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1
TOTAL	1	0	0	1	2	0	0	0	0	0	0	0	0	0	2

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Perris	PROJECT #:	SC1954
10/23/18	NORTH & SOUTH:	Seaton	LOCATION #:	7
TUESDAY	EAST & WEST:	Markham	CONTROL:	STOP ALL

CLASS 1: PASSENGER VEHICLES

NOTES:

AM PM MD OTHER OTHER

▲ N ◄ W E ► S ▼

		NORTHBOUND Seaton			SOUTHBOUND Seaton			EASTBOUND Markham			WESTBOUND Markham			
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	LANES:	1	1	0	0	1	0	0	1	0	0	1	1	
AM	7:00 AM	35	0	12	1	0	0	0	52	2	6	136	0	244
AM	7:15 AM	28	0	4	0	0	0	0	84	6	2	105	1	230
AM	7:30 AM	29	0	9	0	0	1	0	90	3	2	105	1	240
AM	7:45 AM	15	1	4	1	0	2	1	104	11	1	98	0	238
AM	8:00 AM	3	0	5	0	0	0	0	78	7	3	72	1	169
AM	8:15 AM	0	0	7	1	0	0	0	48	2	2	48	0	108
AM	8:30 AM	4	1	4	0	0	1	0	39	2	2	39	0	92
AM	8:45 AM	0	1	2	1	0	1	0	38	3	1	41	1	89
AM	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	VOLUMES	114	3	47	4	0	5	1	533	36	19	644	4	1,410
AM	APPROACH %	70%	2%	29%	44%	0%	56%	0%	94%	6%	3%	97%	1%	
AM	APP/DEPART	164	/	8	9	/	55	570	/	584	667	/	763	0
AM	BEGIN PEAK HR		7:00 AM											
AM	VOLUMES	107	1	29	2	0	3	1	330	22	11	444	2	952
AM	APPROACH %	78%	1%	21%	40%	0%	60%	0%	93%	6%	2%	97%	0%	
AM	PEAK HR FACTOR		0.729			0.417			0.761			0.805		0.975
AM	APP/DEPART	137	/	4	5	/	33	353	/	361	457	/	554	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM	2	0	5	0	0	0	0	94	2	5	67	0	175
PM	4:15 PM	1	0	5	1	0	0	0	84	6	5	61	1	164
PM	4:30 PM	3	0	3	2	0	0	0	118	4	4	78	0	212
PM	4:45 PM	4	0	5	0	0	0	0	105	5	6	79	0	204
PM	5:00 PM	5	0	12	0	0	0	0	100	6	10	88	0	221
PM	5:15 PM	3	0	3	1	1	1	0	120	7	3	74	2	215
PM	5:30 PM	3	0	7	0	0	0	0	115	4	3	72	0	204
PM	5:45 PM	4	0	2	0	0	0	0	105	5	0	67	0	183
PM	VOLUMES	25	0	42	4	1	1	0	841	39	36	586	3	1,578
PM	APPROACH %	37%	0%	63%	67%	17%	17%	0%	96%	4%	6%	94%	0%	
PM	APP/DEPART	67	/	3	6	/	76	880	/	887	625	/	612	0
PM	BEGIN PEAK HR		4:30 PM											
PM	VOLUMES	15	0	23	3	1	1	0	443	22	23	319	2	852
PM	APPROACH %	39%	0%	61%	60%	20%	20%	0%	95%	5%	7%	93%	1%	
PM	PEAK HR FACTOR		0.559			0.417			0.915			0.878		0.964
PM	APP/DEPART	38	/	2	5	/	46	465	/	469	344	/	335	0

	U-TURNS					RTOR			
	NB	SB	EB	WB	TTL	NRR	SRR	ERR	WRR
						X	X	X	X
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0
VOLUMES	0	0	0	0	0	0	0	0	0
PEAK HR VOLUMES						0	0	0	0
03:00 PM	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
VOLUMES	0	0	0	0	0	0	0	0	0
PEAK HR VOLUMES						0	0	0	0

Seaton

NORTH SIDE

Markham WEST SIDE

EAST SIDE **Markham**

SOUTH SIDE

Seaton

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Perris	PROJECT #:	SC1954
10/23/18	NORTH & SOUTH:	Seaton	LOCATION #:	7
TUESDAY	EAST & WEST:	Markham	CONTROL:	STOP ALL

CLASS 2: 2-AXLE WORK VEHICLES/ TRUCKS

NOTES:

AM PM MD OTHER OTHER

▲ N ◄ W E ► S ▼

		NORTHBOUND Seaton			SOUTHBOUND Seaton			EASTBOUND Markham			WESTBOUND Markham			
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	LANES:	1	1	0	0	1	0	0	1	0	0	1	1	
AM	7:00 AM	0	0	0	0	0	0	0	8	0	0	9	0	17
	7:15 AM	0	0	0	0	0	0	0	7	1	1	8	0	17
	7:30 AM	0	0	2	0	0	0	0	8	0	0	7	0	17
	7:45 AM	1	0	1	0	0	0	0	4	0	0	2	0	8
	8:00 AM	0	0	0	0	0	0	0	4	0	1	11	0	16
	8:15 AM	1	0	0	0	0	0	0	5	0	1	4	0	11
	8:30 AM	0	0	1	0	0	0	0	5	0	0	6	0	12
	8:45 AM	0	0	2	0	0	0	0	6	1	1	2	0	12
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	2	0	6	0	0	0	0	47	2	4	49	0	110
	APPROACH %	25%	0%	75%	0%	0%	0%	0%	96%	4%	8%	92%	0%	
	APP/DEPART	8	/	0	0	/	6	49	/	53	53	/	51	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	1	0	3	0	0	0	0	27	1	1	26	0	59
	APPROACH %	25%	0%	75%	0%	0%	0%	0%	96%	4%	4%	96%	0%	
	PEAK HR FACTOR		0.500			0.000			0.875			0.750		0.868
	APP/DEPART	4	/	0	0	/	2	28	/	30	27	/	27	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	4	0	1	5	0	10
	4:15 PM	0	0	2	0	0	0	0	6	0	2	3	0	13
	4:30 PM	0	0	0	0	0	1	0	4	1	2	5	1	14
	4:45 PM	0	0	0	0	0	0	0	4	0	0	8	0	12
	5:00 PM	0	0	1	0	0	0	0	3	0	2	3	0	9
	5:15 PM	0	0	0	0	0	0	0	5	0	0	3	0	8
	5:30 PM	0	0	0	0	0	0	0	3	1	0	1	0	5
	5:45 PM	0	0	0	0	0	0	0	3	0	0	3	0	6
	VOLUMES	0	0	3	0	0	1	0	32	2	7	31	1	77
	APPROACH %	0%	0%	100%	0%	0%	100%	0%	94%	6%	18%	79%	3%	
	APP/DEPART	3	/	1	1	/	9	34	/	35	39	/	32	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	0	0	2	0	0	1	0	18	1	5	21	1	49
	APPROACH %	0%	0%	100%	0%	0%	100%	0%	95%	5%	19%	78%	4%	
	PEAK HR FACTOR		0.250			0.250			0.792			0.844		0.875
	APP/DEPART	2	/	1	1	/	6	19	/	20	27	/	22	0

U-TURNS

Time	NB	SB	EB	WB	TTL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
9:00 AM	0	0	0	0	0
9:15 AM	0	0	0	0	0
9:30 AM	0	0	0	0	0
9:45 AM	0	0	0	0	0
VOLUMES	0	0	0	0	0
03:00 PM	0	0	0	0	0
3:15 PM	0	0	0	0	0
3:30 PM	0	0	0	0	0
3:45 PM	0	0	0	0	0
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
VOLUMES	0	0	0	0	0

RTOR

Time	NRR	SRR	ERR	WRR
LANES	X	X	X	X
7:00 AM	0	0	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	0	0	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	0	0	0
9:00 AM	0	0	0	0
9:15 AM	0	0	0	0
9:30 AM	0	0	0	0
9:45 AM	0	0	0	0
VOLUMES	0	0	0	0
PEAK HR VOLUMES	0	0	0	0
03:00 PM	0	0	0	0
3:15 PM	0	0	0	0
3:30 PM	0	0	0	0
3:45 PM	0	0	0	0
4:00 PM	0	0	0	0
4:15 PM	0	0	0	0
4:30 PM	0	0	0	0
4:45 PM	0	0	0	0
5:00 PM	0	0	0	0
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
VOLUMES	0	0	0	0
PEAK HR VOLUMES	0	0	0	0

Seaton

NORTH SIDE

Markham WEST SIDE

EAST SIDE **Markham**

SOUTH SIDE

Seaton

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: 10/23/18 TUESDAY	LOCATION:	Perris	PROJECT #: SC1954
	NORTH & SOUTH:	Seaton	LOCATION #: 7
	EAST & WEST:	Markham	CONTROL: STOP ALL

CLASS 3: 3-AXLE TRUCKS

NOTES:

AM PM MD OTHER OTHER

▲ N ◄ W E ► S ▼

	NORTHBOUND Seaton			SOUTHBOUND Seaton			EASTBOUND Markham			WESTBOUND Markham			TOTAL	U-TURNS					RTOR			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL	NRR	SRR	ERR	WRR
LANES:	1	1	0	0	1	0	0	1	0	0	1	1							X	X	X	X
AM 7:00 AM	0	0	1	0	0	0	0	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	1	0	0	1	0	2	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	2	0	0	2	0	4	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	0	0	1	0	0	0	0	10	0	0	5	0	16	0	0	0	0	0	0	0	0	0
APPROACH %	0%	0%	100%	0%	0%	0%	0%	100%	0%	0%	100%	0%										
APP/DEPART	1	/	0	0	/	0	10	/	11	5	/	5	0									
BEGIN PEAK HR		7:45 AM																				
VOLUMES	0	0	0	0	0	0	0	7	0	0	3	0	10						0	0	0	0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	100%	0%										
PEAK HR FACTOR		0.000			0.000			0.875			0.375		0.625									
APP/DEPART	0	/	0	0	/	0	7	/	7	3	/	3	0									
PM 03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	1	0	0	2	0	3	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	1	1	0	2	0	4	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	1	0	0	0	0	1	0	0	1	0	3	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	1	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0
5:15 PM	1	0	0	0	0	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0
VOLUMES	1	0	2	0	0	0	0	5	1	2	6	0	17	0	0	0	0	0	0	0	0	0
APPROACH %	33%	0%	67%	0%	0%	0%	0%	83%	17%	25%	75%	0%										
APP/DEPART	3	/	0	0	/	3	6	/	7	8	/	7	0									
BEGIN PEAK HR		4:30 PM																				
VOLUMES	1	0	2	0	0	0	0	3	1	1	3	0	11						0	0	0	0
APPROACH %	33%	0%	67%	0%	0%	0%	0%	75%	25%	25%	75%	0%										
PEAK HR FACTOR		0.750			0.000			0.500			0.500		0.688									
APP/DEPART	3	/	0	0	/	2	4	/	5	4	/	4	0									

Seaton

NORTH SIDE

Markham WEST SIDE

EAST SIDE **Markham**

SOUTH SIDE

Seaton

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Perris	PROJECT #:	SC1954
10/23/18	NORTH & SOUTH:	Seaton	LOCATION #:	7
TUESDAY	EAST & WEST:	Markham	CONTROL:	STOP ALL

CLASS 4: 4 OR MORE AXLE TRUCKS

NOTES:

AM PM MD OTHER OTHER

▲ N ◄ W E ► S ▼

	NORTHBOUND Seaton			SOUTHBOUND Seaton			EASTBOUND Markham			WESTBOUND Markham			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	0	1	0	0	1	0	0	1	1	
AM 7:00 AM	0	0	0	0	0	0	0	1	0	0	1	0	2
7:15 AM	0	0	0	0	0	0	0	2	0	1	0	0	3
7:30 AM	0	0	0	0	0	0	0	1	1	0	2	0	4
7:45 AM	0	0	4	0	0	0	0	0	0	0	0	0	4
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	2	0	0	0	0	2
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	0	0	4	0	0	0	0	6	1	1	3	0	15
APPROACH %	0%	0%	100%	0%	0%	0%	0%	86%	14%	25%	75%	0%	
APP/DEPART	4	/	0	0	/	2	7	/	10	4	/	3	0
BEGIN PEAK HR		7:00 AM											
VOLUMES	0	0	4	0	0	0	0	4	1	1	3	0	13
APPROACH %	0%	0%	100%	0%	0%	0%	0%	80%	20%	25%	75%	0%	
PEAK HR FACTOR		0.250			0.000			0.625			0.500		0.813
APP/DEPART	4	/	0	0	/	2	5	/	8	4	/	3	0
PM 03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	1	1	0	2
4:30 PM	0	0	0	0	0	0	0	2	0	1	0	0	3
4:45 PM	0	0	0	0	0	0	0	2	0	2	0	0	4
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	1	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	1	0	0	0	0	0	0	4	0	5	1	0	11
APPROACH %	100%	0%	0%	0%	0%	0%	0%	100%	0%	83%	17%	0%	
APP/DEPART	1	/	0	0	/	5	4	/	4	6	/	2	0
BEGIN PEAK HR		4:00 PM											
VOLUMES	0	0	0	0	0	0	0	4	0	5	1	0	10
APPROACH %	0%	0%	0%	0%	0%	0%	0%	100%	0%	83%	17%	0%	
PEAK HR FACTOR		0.000			0.000			0.500			0.750		0.625
APP/DEPART	0	/	0	0	/	5	4	/	4	6	/	1	0

	U-TURNS					RTOR			
	NB	SB	EB	WB	TTL	NRR	SRR	ERR	WRR
LANES:						X	X	X	X
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0
VOLUMES	0	0	0	0	0	0	0	0	0
PEAK HR VOLUMES						0	0	0	0
03:00 PM	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
VOLUMES	0	0	0	0	0	0	0	0	0
PEAK HR VOLUMES						0	0	0	0

Seaton

NORTH SIDE

Markham WEST SIDE EAST SIDE **Markham**

SOUTH SIDE

Seaton

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Perris	PROJECT #:	SC1954
10/23/18	NORTH & SOUTH:	Seaton	LOCATION #:	7
TUESDAY	EAST & WEST:	Markham	CONTROL:	STOP ALL

CLASS 5:	NOTES:	AM PM MD OTHER OTHER	▲ N ◄ W E ► S ▼
RV			

		NORTHBOUND Seaton			SOUTHBOUND Seaton			EASTBOUND Markham			WESTBOUND Markham			
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	LANES:	1	1	0	0	1	0	0	1	0	0	1	1	
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
AM	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
AM	BEGIN PEAK HR		7:00 AM											
AM	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
AM	PEAK HR FACTOR		0.000			0.000			0.000			0.000		0.000
AM	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
PM	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
PM	BEGIN PEAK HR		3:00 PM											
PM	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
PM	PEAK HR FACTOR		0.000			0.000			0.000			0.000		0.000
PM	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0

U-TURNS

	NB	SB	EB	WB	TTL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
9:00 AM	0	0	0	0	0
9:15 AM	0	0	0	0	0
9:30 AM	0	0	0	0	0
9:45 AM	0	0	0	0	0
VOLUMES	0	0	0	0	0
03:00 PM	0	0	0	0	0
3:15 PM	0	0	0	0	0
3:30 PM	0	0	0	0	0
3:45 PM	0	0	0	0	0
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
VOLUMES	0	0	0	0	0

RTOR

	NRR	SRR	ERR	WRR
LANES	X	X	X	X
7:00 AM	0	0	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	0	0	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	0	0	0
9:00 AM	0	0	0	0
9:15 AM	0	0	0	0
9:30 AM	0	0	0	0
9:45 AM	0	0	0	0
VOLUMES	0	0	0	0
PEAK HR VOLUMES	0	0	0	0
03:00 PM	0	0	0	0
3:15 PM	0	0	0	0
3:30 PM	0	0	0	0
3:45 PM	0	0	0	0
4:00 PM	0	0	0	0
4:15 PM	0	0	0	0
4:30 PM	0	0	0	0
4:45 PM	0	0	0	0
5:00 PM	0	0	0	0
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
VOLUMES	0	0	0	0
PEAK HR VOLUMES	0	0	0	0

Seaton

NORTH SIDE

Markham WEST SIDE EAST SIDE **Markham**

SOUTH SIDE

Seaton

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Perris	PROJECT #:	SC1954
10/23/18	NORTH & SOUTH:	Seaton	LOCATION #:	7
TUESDAY	EAST & WEST:	Markham	CONTROL:	STOP ALL

CLASS 6:	NOTES:	
BUSES		AM PM MD OTHER OTHER ▲ N ◄ W E ► S ▼

		NORTHBOUND (Seaton)			SOUTHBOUND (Seaton)			EASTBOUND (Markham)			WESTBOUND (Markham)			
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	LANES:	1	1	0	0	1	0	0	1	0	0	1	1	
AM	7:00 AM	0	0	0	0	0	0	0	0	1	0	1	0	2
AM	7:15 AM	0	0	0	0	0	0	0	0	0	0	2	0	2
AM	7:30 AM	0	0	0	0	0	0	0	1	0	0	3	0	4
AM	7:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
AM	8:00 AM	0	0	0	0	0	0	0	3	0	0	0	0	3
AM	8:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
AM	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	VOLUMES	0	0	0	0	0	0	0	6	1	0	6	0	13
AM	APPROACH %	0%	0%	0%	0%	0%	0%	0%	86%	14%	0%	100%	0%	
AM	APP/DEPART	0	/	0	0	/	1	7	/	6	6	/	6	0
AM	BEGIN PEAK HR		7:15 AM											
AM	VOLUMES	0	0	0	0	0	0	0	5	0	0	5	0	10
AM	APPROACH %	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	100%	0%	
AM	PEAK HR FACTOR		0.000			0.000			0.417			0.417		0.625
AM	APP/DEPART	0	/	0	0	/	0	5	/	5	5	/	5	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:15 PM	0	0	0	0	0	0	0	0	0	0	2	0	2
PM	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
PM	5:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
PM	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	VOLUMES	0	0	0	0	0	0	0	2	0	0	2	0	4
PM	APPROACH %	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	100%	0%	
PM	APP/DEPART	0	/	0	0	/	0	2	/	2	2	/	2	0
PM	BEGIN PEAK HR		4:15 PM											
PM	VOLUMES	0	0	0	0	0	0	0	2	0	0	2	0	4
PM	APPROACH %	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	100%	0%	
PM	PEAK HR FACTOR		0.000			0.000			0.500			0.250		0.500
PM	APP/DEPART	0	/	0	0	/	0	2	/	2	2	/	2	0

U-TURNS

	NB	SB	EB	WB	TTL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
9:00 AM	0	0	0	0	0
9:15 AM	0	0	0	0	0
9:30 AM	0	0	0	0	0
9:45 AM	0	0	0	0	0
VOLUMES	0	0	0	0	0
03:00 PM	0	0	0	0	0
3:15 PM	0	0	0	0	0
3:30 PM	0	0	0	0	0
3:45 PM	0	0	0	0	0
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
VOLUMES	0	0	0	0	0

RTOR

	NRR	SRR	ERR	WRR
	X	X	X	X
7:00 AM	0	0	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	0	0	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	0	0	0
9:00 AM	0	0	0	0
9:15 AM	0	0	0	0
9:30 AM	0	0	0	0
9:45 AM	0	0	0	0
VOLUMES	0	0	0	0
PEAK HR VOLUMES	0	0	0	0
03:00 PM	0	0	0	0
3:15 PM	0	0	0	0
3:30 PM	0	0	0	0
3:45 PM	0	0	0	0
4:00 PM	0	0	0	0
4:15 PM	0	0	0	0
4:30 PM	0	0	0	0
4:45 PM	0	0	0	0
5:00 PM	0	0	0	0
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
VOLUMES	0	0	0	0
PEAK HR VOLUMES	0	0	0	0

Seaton

NORTH SIDE

Markham WEST SIDE

EAST SIDE **Markham**

SOUTH SIDE

Seaton

T816

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Perris	PROJECT #:	SC1954
Tue, Oct 23, 18	NORTH & SOUTH:	Seaton	LOCATION #:	5
	EAST & WEST:	Perry	CONTROL:	STOP E/W

NOTES:

AM PM MD OTHER OTHER — ▲ N ◄ W E ► S ▼

Add U-Turns to Left Turns

	NORTHBOUND Seaton			SOUTHBOUND Seaton			EASTBOUND Perry			WESTBOUND Perry			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
AM 7:00 AM	9	23	0	0	2	6	1	1	1	0	0	1	44
7:15 AM	1	27	0	0	8	3	2	0	4	0	0	0	45
7:30 AM	1	28	0	0	6	2	2	0	6	0	0	1	46
7:45 AM	2	12	0	0	10	1	0	0	4	0	0	1	30
8:00 AM	0	7	0	0	6	3	0	0	3	0	0	0	19
8:15 AM	4	8	0	0	4	2	0	0	3	0	0	0	21
8:30 AM	0	8	0	0	2	0	1	0	1	0	0	0	12
8:45 AM	1	4	1	0	2	4	0	1	1	0	1	0	15
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	18	117	1	0	40	21	6	2	23	0	1	3	232
APPROACH %	13%	86%	1%	0%	66%	34%	19%	6%	74%	0%	25%	75%	
APP/DEPART	136	/	126	61	/	63	31	/	3	4	/	40	0
BEGIN PEAK HR		7:00 AM											
VOLUMES	13	90	0	0	26	12	5	1	15	0	0	3	165
APPROACH %	13%	87%	0%	0%	68%	32%	24%	5%	71%	0%	0%	100%	
PEAK HR FACTOR		0.805			0.864			0.656			0.750		0.897
APP/DEPART	103	/	98	38	/	41	21	/	1	3	/	25	0
PM 03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	2	4	0	0	7	2	3	0	2	0	0	0	20
4:15 PM	5	5	0	0	10	4	2	3	3	0	1	0	33
4:30 PM	1	7	0	0	11	3	1	0	1	0	0	1	25
4:45 PM	3	6	0	0	12	4	0	1	1	0	2	0	29
5:00 PM	2	15	0	0	13	0	7	0	6	0	0	0	43
5:15 PM	1	2	0	0	6	3	1	1	3	0	0	0	17
5:30 PM	1	11	0	0	8	1	0	0	5	0	0	0	26
5:45 PM	4	4	0	0	7	2	2	0	1	0	0	0	20
VOLUMES	19	54	0	0	74	19	16	5	22	0	3	1	213
APPROACH %	26%	74%	0%	0%	80%	20%	37%	12%	51%	0%	75%	25%	
APP/DEPART	73	/	71	93	/	96	43	/	5	4	/	41	0
BEGIN PEAK HR		4:15 PM											
VOLUMES	11	33	0	0	46	11	10	4	11	0	3	1	130
APPROACH %	25%	75%	0%	0%	81%	19%	40%	16%	44%	0%	75%	25%	
PEAK HR FACTOR		0.647			0.891			0.481			0.500		0.756
APP/DEPART	44	/	44	57	/	57	25	/	4	4	/	25	0

	U-TURNS					RTOR			
	NB	SB	EB	WB	TTL	NRR	SRR	ERR	WRR
LANES:	0	0	0	0		X	X	X	X
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0
VOLUMES	0	0	0	0	0	0	0	0	0
PEAK HR VOLUMES						0	0	0	0
03:00 PM	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
VOLUMES	0	0	0	0	0	0	0	0	0
PEAK HR VOLUMES						0	0	0	0

Seaton

NORTH SIDE

Perry WEST SIDE — EAST SIDE **Perry**

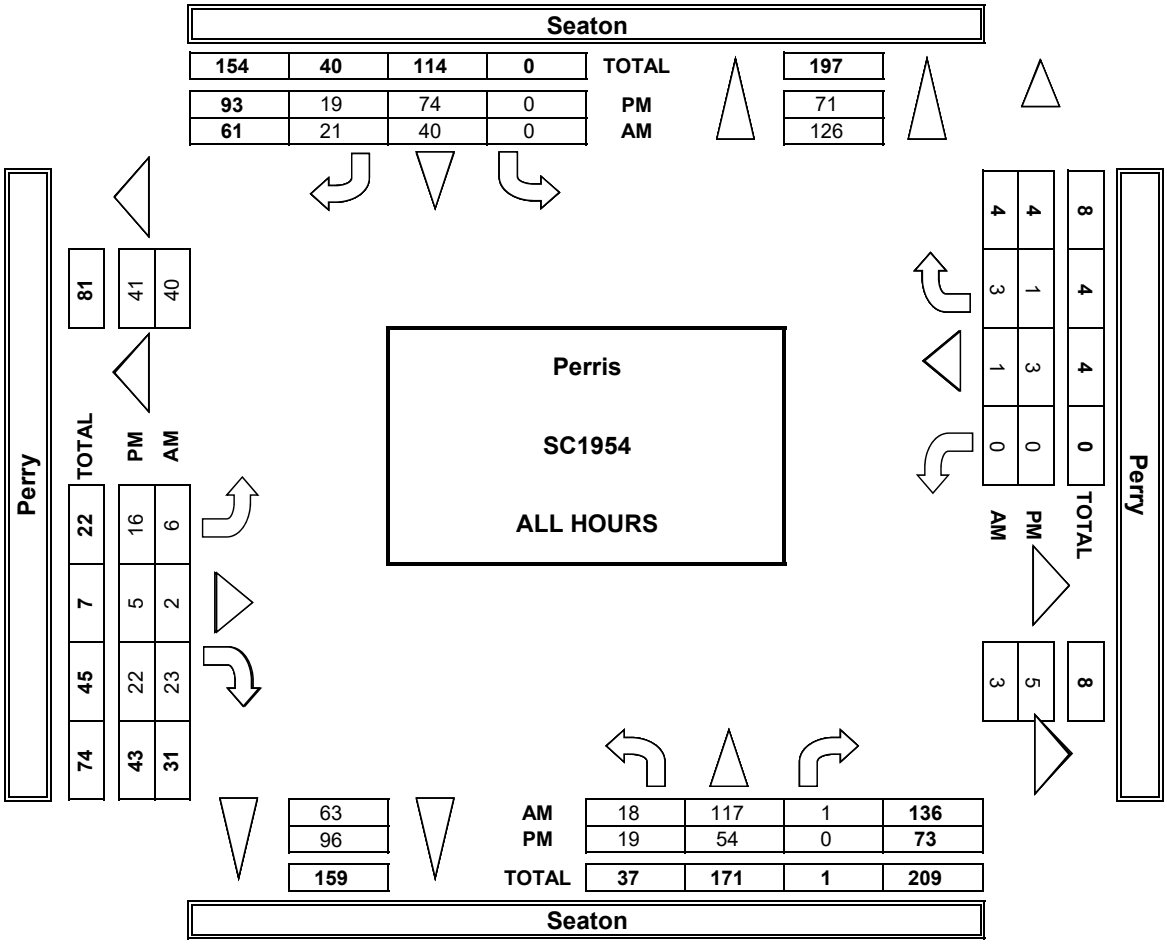
SOUTH SIDE

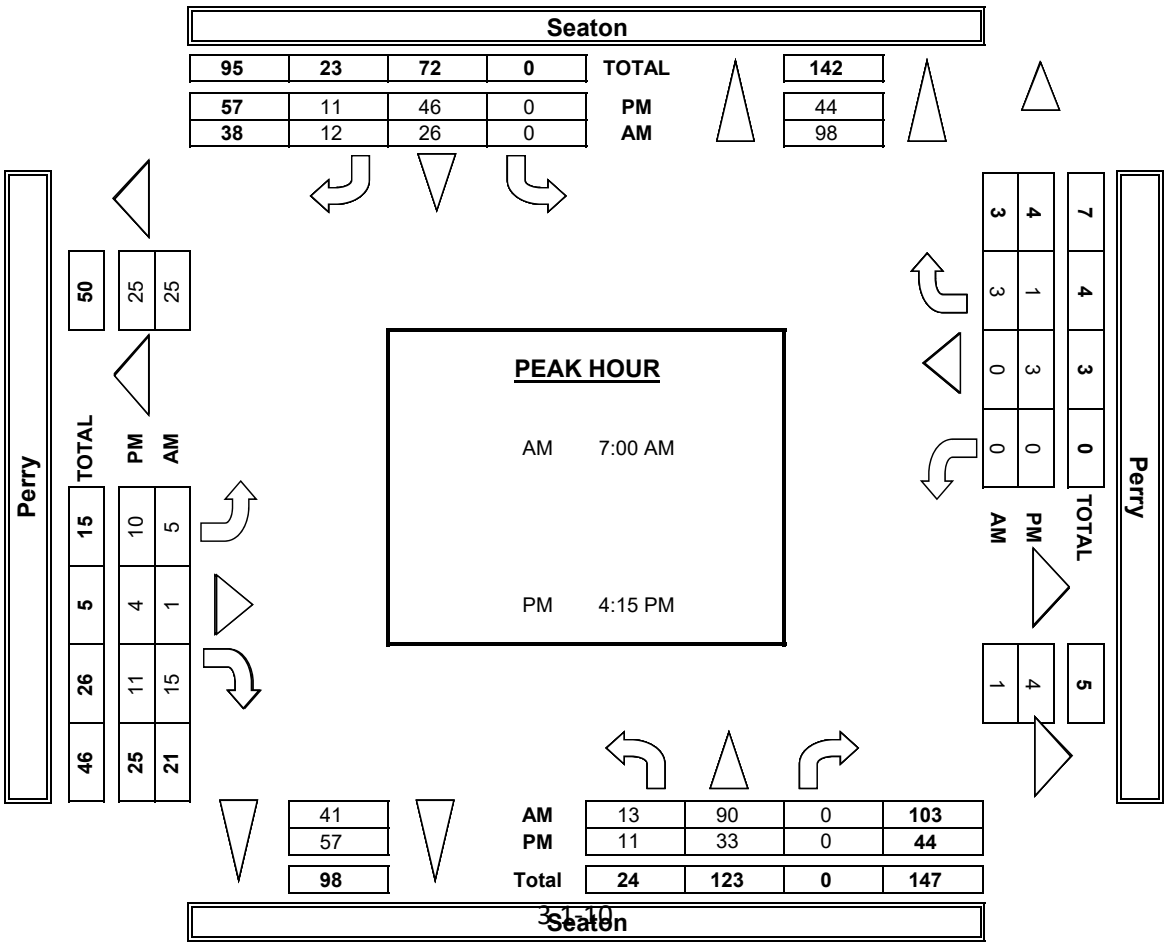
Seaton

	ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	ES	WS	SS	NS	TOTAL
AM 7:00 AM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0
PM 3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Perris	PROJECT #:	SC1954
10/23/18	NORTH & SOUTH:	Seaton	LOCATION #:	5
TUESDAY	EAST & WEST:	Perry	CONTROL:	STOP E/W

CLASS 1: PASSENGER VEHICLES

NOTES:

AM PM MD OTHER OTHER

▲ N ◄ W E ► S ▼

		NORTHBOUND Seaton			SOUTHBOUND Seaton			EASTBOUND Perry			WESTBOUND Perry			
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
AM	7:00 AM	9	23	0	0	1	6	1	1	1	0	0	1	43
AM	7:15 AM	1	27	0	0	7	2	1	0	3	0	0	0	41
AM	7:30 AM	1	24	0	0	6	2	2	0	4	0	0	0	39
AM	7:45 AM	2	9	0	0	10	1	0	0	4	0	0	1	27
AM	8:00 AM	0	6	0	0	5	3	0	0	2	0	0	0	16
AM	8:15 AM	4	7	0	0	3	2	0	0	3	0	0	0	19
AM	8:30 AM	0	7	0	0	1	0	0	0	0	0	0	0	8
AM	8:45 AM	1	3	0	0	1	3	0	1	1	0	0	0	10
AM	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	VOLUMES	18	106	0	0	34	19	4	2	18	0	0	2	203
AM	APPROACH %	15%	85%	0%	0%	64%	36%	17%	8%	75%	0%	0%	100%	
AM	APP/DEPART	124	/	112	53	/	52	24	/	2	2	/	37	0
AM	BEGIN PEAK HR		7:00 AM											
AM	VOLUMES	13	83	0	0	24	11	4	1	12	0	0	2	150
AM	APPROACH %	14%	86%	0%	0%	69%	31%	24%	6%	71%	0%	0%	100%	
AM	PEAK HR FACTOR		0.750			0.795			0.708			0.500		0.872
AM	APP/DEPART	96	/	89	35	/	36	17	/	1	2	/	24	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM	2	4	0	0	5	1	3	0	2	0	0	0	17
PM	4:15 PM	5	4	0	0	9	3	2	3	3	0	1	0	30
PM	4:30 PM	1	7	0	0	9	1	1	0	1	0	0	1	21
PM	4:45 PM	2	5	0	0	9	2	0	1	1	0	1	0	21
PM	5:00 PM	2	11	0	0	12	0	7	0	6	0	0	0	38
PM	5:15 PM	1	2	0	0	6	3	1	1	3	0	0	0	17
PM	5:30 PM	1	11	0	0	6	1	0	0	4	0	0	0	23
PM	5:45 PM	3	4	0	0	7	2	1	0	1	0	0	0	18
PM	VOLUMES	17	48	0	0	63	13	15	5	21	0	2	1	185
PM	APPROACH %	26%	74%	0%	0%	83%	17%	37%	12%	51%	0%	67%	33%	
PM	APP/DEPART	65	/	64	76	/	84	41	/	5	3	/	32	0
PM	BEGIN PEAK HR		4:15 PM											
PM	VOLUMES	10	27	0	0	39	6	10	4	11	0	2	1	110
PM	APPROACH %	27%	73%	0%	0%	87%	13%	40%	16%	44%	0%	67%	33%	
PM	PEAK HR FACTOR		0.712			0.938			0.481			0.750		0.724
PM	APP/DEPART	37	/	38	45	/	50	25	/	4	3	/	18	0

U-TURNS

	NB	SB	EB	WB	TTL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
9:00 AM	0	0	0	0	0
9:15 AM	0	0	0	0	0
9:30 AM	0	0	0	0	0
9:45 AM	0	0	0	0	0
VOLUMES	0	0	0	0	0
03:00 PM	0	0	0	0	0
3:15 PM	0	0	0	0	0
3:30 PM	0	0	0	0	0
3:45 PM	0	0	0	0	0
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
VOLUMES	0	0	0	0	0

RTOR

	NRR	SRR	ERR	WRR
	X	X	X	X
7:00 AM	0	0	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	0	0	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	0	0	0
9:00 AM	0	0	0	0
9:15 AM	0	0	0	0
9:30 AM	0	0	0	0
9:45 AM	0	0	0	0
VOLUMES	0	0	0	0
PEAK HR VOLUMES	0	0	0	0
03:00 PM	0	0	0	0
3:15 PM	0	0	0	0
3:30 PM	0	0	0	0
3:45 PM	0	0	0	0
4:00 PM	0	0	0	0
4:15 PM	0	0	0	0
4:30 PM	0	0	0	0
4:45 PM	0	0	0	0
5:00 PM	0	0	0	0
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
VOLUMES	0	0	0	0
PEAK HR VOLUMES	0	0	0	0

Seaton

NORTH SIDE

Perry WEST SIDE

EAST SIDE **Perry**

SOUTH SIDE

Seaton

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Perris	PROJECT #:	SC1954
10/23/18	NORTH & SOUTH:	Seaton	LOCATION #:	5
TUESDAY	EAST & WEST:	Perry	CONTROL:	STOP E/W

CLASS 2: 2-AXLE WORK VEHICLES/ TRUCKS

NOTES:

AM PM MD OTHER OTHER

▲ N ◀ W E ▶ S ▼

		NORTHBOUND Seaton			SOUTHBOUND Seaton			EASTBOUND Perry			WESTBOUND Perry			
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	1	0	1	0	1	0	0	0	3
	7:30 AM	0	2	0	0	0	0	0	0	0	0	0	1	3
	7:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
	8:00 AM	0	1	0	0	1	0	0	0	1	0	0	0	3
	8:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	2
	8:30 AM	0	1	0	0	1	0	1	0	1	0	0	0	4
	8:45 AM	0	0	1	0	1	1	0	0	0	0	1	0	4
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	6	1	0	5	1	2	0	3	0	1	1	20
	APPROACH %	0%	86%	14%	0%	83%	17%	40%	0%	60%	0%	50%	50%	
	APP/DEPART	7	/	9	6	/	8	5	/	1	2	/	2	0
	BEGIN PEAK HR		8:00 AM											
	VOLUMES	0	3	1	0	4	1	1	0	2	0	1	0	13
	APPROACH %	0%	75%	25%	0%	80%	20%	33%	0%	67%	0%	100%	0%	
	PEAK HR FACTOR		1.000			0.625			0.375			0.250		0.813
	APP/DEPART	4	/	4	5	/	6	3	/	1	1	/	2	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	1	1	0	0	0	0	0	0	2
	4:15 PM	0	1	0	0	0	1	0	0	0	0	0	0	2
	4:30 PM	0	0	0	0	1	1	0	0	0	0	0	0	2
	4:45 PM	1	0	0	0	3	0	0	0	0	0	1	0	5
	5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	1	0	0	0	1	0	0	0	2
	5:45 PM	1	0	0	0	0	0	1	0	0	0	0	0	2
	VOLUMES	2	2	0	0	6	3	1	0	1	0	1	0	16
	APPROACH %	50%	50%	0%	0%	67%	33%	50%	0%	50%	0%	100%	0%	
	APP/DEPART	4	/	3	9	/	7	2	/	0	1	/	6	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	1	1	0	0	5	3	0	0	0	0	1	0	11
	APPROACH %	50%	50%	0%	0%	63%	38%	0%	0%	0%	0%	100%	0%	
	PEAK HR FACTOR		0.500			0.667			0.000			0.250		0.550
	APP/DEPART	2	/	1	8	/	5	0	/	0	1	/	5	0

U-TURNS

	NB	SB	EB	WB	TTL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
9:00 AM	0	0	0	0	0
9:15 AM	0	0	0	0	0
9:30 AM	0	0	0	0	0
9:45 AM	0	0	0	0	0
VOLUMES	0	0	0	0	0
03:00 PM	0	0	0	0	0
3:15 PM	0	0	0	0	0
3:30 PM	0	0	0	0	0
3:45 PM	0	0	0	0	0
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
VOLUMES	0	0	0	0	0

RTOR

	NRR	SRR	ERR	WRR
LANES:	X	X	X	X
7:00 AM	0	0	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	0	0	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	0	0	0
9:00 AM	0	0	0	0
9:15 AM	0	0	0	0
9:30 AM	0	0	0	0
9:45 AM	0	0	0	0
VOLUMES	0	0	0	0
PEAK HR VOLUMES	0	0	0	0
03:00 PM	0	0	0	0
3:15 PM	0	0	0	0
3:30 PM	0	0	0	0
3:45 PM	0	0	0	0
4:00 PM	0	0	0	0
4:15 PM	0	0	0	0
4:30 PM	0	0	0	0
4:45 PM	0	0	0	0
5:00 PM	0	0	0	0
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
VOLUMES	0	0	0	0
PEAK HR VOLUMES	0	0	0	0

Seaton

NORTH SIDE

Perry WEST SIDE

EAST SIDE **Perry**

SOUTH SIDE

Seaton

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Perris	PROJECT #:	SC1954
10/23/18	NORTH & SOUTH:	Seaton	LOCATION #:	5
TUESDAY	EAST & WEST:	Perry	CONTROL:	STOP E/W

CLASS 3: 3-AXLE TRUCKS

NOTES:

AM PM MD OTHER OTHER

▲ N ◄ W E ► S ▼

	NORTHBOUND Seaton			SOUTHBOUND Seaton			EASTBOUND Perry			WESTBOUND Perry			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
AM 7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	0	1	0	0	0	0	0	0	0	0	0	0	1
APPROACH %	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
APP/DEPART	1	/	1	0	/	0	0	/	0	0	/	0	0
BEGIN PEAK HR		8:00 AM											
VOLUMES	0	1	0	0	0	0	0	0	0	0	0	0	1
APPROACH %	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
PEAK HR FACTOR		0.250			0.000			0.000			0.000		0.250
APP/DEPART	1	/	1	0	/	0	0	/	0	0	/	0	0
PM 03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
4:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	2	0	0	1	0	0	0	0	0	0	0	3
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	0	3	0	0	3	0	0	0	0	0	0	0	6
APPROACH %	0%	100%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	
APP/DEPART	3	/	3	3	/	3	0	/	0	0	/	0	0
BEGIN PEAK HR		4:15 PM											
VOLUMES	0	3	0	0	2	0	0	0	0	0	0	0	5
APPROACH %	0%	100%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	
PEAK HR FACTOR		0.375			0.500			0.000			0.000		0.417
APP/DEPART	3	/	3	2	/	2	0	/	0	0	/	0	0

	U-TURNS					RTOR			
	NB	SB	EB	WB	TTL	NRR	SRR	ERR	WRR
LANES:						X	X	X	X
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0
VOLUMES	0	0	0	0	0	0	0	0	0
PEAK HR VOLUMES						0	0	0	0
03:00 PM	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
VOLUMES	0	0	0	0	0	0	0	0	0
PEAK HR VOLUMES						0	0	0	0

Seaton

NORTH SIDE

Perry WEST SIDE

EAST SIDE **Perry**

SOUTH SIDE

Seaton

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

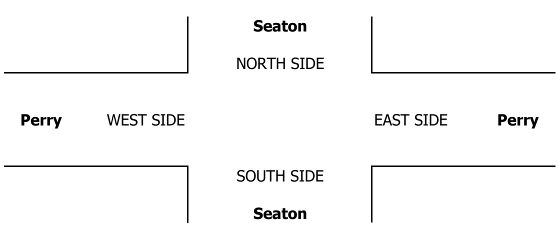
DATE:	LOCATION:	Perris	PROJECT #:	SC1954
10/23/18	NORTH & SOUTH:	Seaton	LOCATION #:	5
TUESDAY	EAST & WEST:	Perry	CONTROL:	STOP E/W

CLASS 4:	NOTES:
4 OR MORE AXLE TRUCKS	

AM / PM / MD / OTHER / OTHER

▲ N / ◄ W / E ► / S ▼

		NORTHBOUND Seaton			SOUTHBOUND Seaton			EASTBOUND Perry			WESTBOUND Perry				U-TURNS					RTOR			
	LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL	NB	SB	EB	WB	TTL	NRR X	SRR X	ERR X	WRR X
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	7:30 AM	0	2	0	0	0	0	0	0	2	0	0	0	4	0	0	0	0	0	0	0	0	0
	7:45 AM	0	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	4	0	0	0	1	0	0	2	0	0	0	7	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	100%	0%	0%	0%	100%	0%	0%	100%	0%	0%	0%										
	APP/DEPART	4	/	4	1	/	2	2	/	0	0	/	1	0									
	BEGIN PEAK HR		7:00 AM																				
	VOLUMES	0	4	0	0	0	1	0	0	2	0	0	0	7						0	0	0	0
	APPROACH %	0%	100%	0%	0%	0%	100%	0%	0%	100%	0%	0%	0%										
	PEAK HR FACTOR		0.500			0.250			0.250			0.000		0.438									
	APP/DEPART	4	/	4	1	/	2	2	/	0	0	/	1	0									
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
	5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	1	0	0	2	3	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	100%	0%	0%	40%	60%	0%	0%	0%	0%	0%	0%										
	APP/DEPART	1	/	1	5	/	2	0	/	0	0	/	3	0									
	BEGIN PEAK HR		4:00 PM																				
	VOLUMES	0	1	0	0	1	3	0	0	0	0	0	0	5						0	0	0	0
	APPROACH %	0%	100%	0%	0%	25%	75%	0%	0%	0%	0%	0%	0%										
	PEAK HR FACTOR		0.250			0.500			0.000			0.000		0.625									
	APP/DEPART	1	/	1	4	/	1	0	/	0	0	/	3	0									



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Perris	PROJECT #:	SC1954
10/23/18	NORTH & SOUTH:	Seaton	LOCATION #:	5
TUESDAY	EAST & WEST:	Perry	CONTROL:	STOP E/W

CLASS 5: RV

NOTES:

AM / PM / MD / OTHER / OTHER

N / ◄ W / E ► / S

	NORTHBOUND Seaton			SOUTHBOUND Seaton			EASTBOUND Perry			WESTBOUND Perry			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
AM 7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
BEGIN PEAK HR		7:00 AM											
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
PEAK HR FACTOR		0.000			0.000			0.000			0.000		0.000
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
PM 03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
BEGIN PEAK HR		3:00 PM											
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
PEAK HR FACTOR		0.000			0.000			0.000			0.000		0.000
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0

	U-TURNS					RTOR			
	NB	SB	EB	WB	TTL	NRR	SRR	ERR	WRR
LANES:						X	X	X	X
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0
VOLUMES	0	0	0	0	0	0	0	0	0
PEAK HR VOLUMES						0	0	0	0
03:00 PM	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
VOLUMES	0	0	0	0	0	0	0	0	0
PEAK HR VOLUMES						0	0	0	0

Seaton

NORTH SIDE

Perry WEST SIDE

EAST SIDE **Perry**

SOUTH SIDE

Seaton

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Perris	PROJECT #:	SC1954
10/23/18	NORTH & SOUTH:	Seaton	LOCATION #:	5
TUESDAY	EAST & WEST:	Perry	CONTROL:	STOP E/W

CLASS 6:	NOTES:	AM / PM / MD / OTHER / OTHER	▲ N ◄ W E ► S ▼
BUSES			

		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
			Seaton			Seaton			Perry			Perry		
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
AM	7:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	0	0	0	1	0	0	0	0	0	0	0	1
	APPROACH %	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	0	/	0	1	/	1	0	/	0	0	/	0	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	0	0	0	0	1	0	0	0	0	0	0	0	1
	APPROACH %	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.000			0.250			0.000			0.000		0.250
	APP/DEPART	0	/	0	1	/	1	0	/	0	0	/	0	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
	BEGIN PEAK HR		3:00 PM											
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.000			0.000			0.000			0.000		0.000
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0

U-TURNS

	NB	SB	EB	WB	TTL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
9:00 AM	0	0	0	0	0
9:15 AM	0	0	0	0	0
9:30 AM	0	0	0	0	0
9:45 AM	0	0	0	0	0
VOLUMES	0	0	0	0	0
03:00 PM	0	0	0	0	0
3:15 PM	0	0	0	0	0
3:30 PM	0	0	0	0	0
3:45 PM	0	0	0	0	0
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
VOLUMES	0	0	0	0	0

RTOR

	NRR	SRR	ERR	WRR
	X	X	X	X
7:00 AM	0	0	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	0	0	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	0	0	0
9:00 AM	0	0	0	0
9:15 AM	0	0	0	0
9:30 AM	0	0	0	0
9:45 AM	0	0	0	0
VOLUMES	0	0	0	0
PEAK HR VOLUMES	0	0	0	0
03:00 PM	0	0	0	0
3:15 PM	0	0	0	0
3:30 PM	0	0	0	0
3:45 PM	0	0	0	0
4:00 PM	0	0	0	0
4:15 PM	0	0	0	0
4:30 PM	0	0	0	0
4:45 PM	0	0	0	0
5:00 PM	0	0	0	0
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
VOLUMES	0	0	0	0
PEAK HR VOLUMES	0	0	0	0

Seaton

NORTH SIDE

Perry WEST SIDE

EAST SIDE **Perry**

SOUTH SIDE

Seaton

APPENDIX 3.2:

EXISTING (2018) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection	
Intersection Delay, s/veh	24
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	395	28	16	503	2	109	1	47	2	0	3
Future Vol, veh/h	1	395	28	16	503	2	109	1	47	2	0	3
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	403	29	16	513	2	111	1	48	2	0	3
Number of Lanes	0	1	0	0	1	1	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	1
HCM Control Delay	21.5	29.8	11.7	10.5
HCM LOS	C	D	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	0%	3%	0%	40%
Vol Thru, %	0%	2%	93%	97%	0%	0%
Vol Right, %	0%	98%	7%	0%	100%	60%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	109	48	424	519	2	5
LT Vol	109	0	1	16	0	2
Through Vol	0	1	395	503	0	0
RT Vol	0	47	28	0	2	3
Lane Flow Rate	111	49	433	530	2	5
Geometry Grp	7	7	6	7	7	6
Degree of Util (X)	0.234	0.087	0.701	0.829	0.003	0.01
Departure Headway (Hd)	7.578	6.365	5.836	5.636	4.912	7.371
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	474	562	619	641	728	483
Service Time	5.332	4.118	3.873	3.369	2.644	5.452
HCM Lane V/C Ratio	0.234	0.087	0.7	0.827	0.003	0.01
HCM Control Delay	12.6	9.7	21.5	29.9	7.7	10.5
HCM Lane LOS	B	A	C	D	A	B
HCM 95th-tile Q	0.9	0.3	5.6	8.8	0	0

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	1	20	0	1	3	13	101	1	0	28	15
Future Vol, veh/h	6	1	20	0	1	3	13	101	1	0	28	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	7	1	22	0	1	3	14	112	1	0	31	17

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	183	182	40	193	190	114	48	0	0	114	0	0
Stage 1	40	40	-	142	142	-	-	-	-	-	-	-
Stage 2	143	142	-	51	48	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	783	716	1037	771	708	944	1572	-	-	1488	-	-
Stage 1	980	866	-	866	783	-	-	-	-	-	-	-
Stage 2	865	783	-	967	859	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	774	708	1037	747	700	943	1572	-	-	1487	-	-
Mov Cap-2 Maneuver	774	708	-	747	700	-	-	-	-	-	-	-
Stage 1	970	866	-	856	774	-	-	-	-	-	-	-
Stage 2	852	774	-	945	859	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.9	9.2	0.8	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1572	-	-	949	868	1487	-	-
HCM Lane V/C Ratio	0.009	-	-	0.032	0.005	-	-	-
HCM Control Delay (s)	7.3	0	-	8.9	9.2	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

Intersection	
Intersection Delay, s/veh	18.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	488	26	45	357	4	18	0	29	3	1	3
Future Vol, veh/h	0	488	26	45	357	4	18	0	29	3	1	3
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	498	27	46	364	4	18	0	30	3	1	3
Number of Lanes	0	1	0	0	1	1	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	1
HCM Control Delay	21.8	15	9.6	9.9
HCM LOS	C	B	A	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	0%	11%	0%	43%
Vol Thru, %	0%	0%	95%	89%	0%	14%
Vol Right, %	0%	100%	5%	0%	100%	43%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	18	29	514	402	4	7
LT Vol	18	0	0	45	0	3
Through Vol	0	0	488	357	0	1
RT Vol	0	29	26	0	4	3
Lane Flow Rate	18	30	524	410	4	7
Geometry Grp	7	7	6	7	7	6
Degree of Util (X)	0.037	0.05	0.747	0.588	0.005	0.014
Departure Headway (Hd)	7.347	6.124	5.126	5.156	4.394	6.809
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	490	588	703	697	810	529
Service Time	5.049	3.824	3.176	2.907	2.145	4.809
HCM Lane V/C Ratio	0.037	0.051	0.745	0.588	0.005	0.013
HCM Control Delay	10.3	9.1	21.8	15.1	7.2	9.9
HCM Lane LOS	B	A	C	C	A	A
HCM 95th-tile Q	0.1	0.2	6.8	3.9	0	0

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	4	11	0	4	1	12	39	0	0	53	19
Future Vol, veh/h	10	4	11	0	4	1	12	39	0	0	53	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	13	5	14	0	5	1	16	51	0	0	70	25

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	169	166	83	175	178	51	95	0	0	51	0	0
Stage 1	83	83	-	83	83	-	-	-	-	-	-	-
Stage 2	86	83	-	92	95	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	799	730	982	792	719	1023	1512	-	-	1568	-	-
Stage 1	930	830	-	930	830	-	-	-	-	-	-	-
Stage 2	927	830	-	920	820	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	787	722	982	770	711	1023	1512	-	-	1568	-	-
Mov Cap-2 Maneuver	787	722	-	770	711	-	-	-	-	-	-	-
Stage 1	920	830	-	920	821	-	-	-	-	-	-	-
Stage 2	910	821	-	901	820	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.4	9.8	1.7	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1512	-	-	849	757	1568	-	-
HCM Lane V/C Ratio	0.01	-	-	0.039	0.009	-	-	-
HCM Control Delay (s)	7.4	0	-	9.4	9.8	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

APPENDIX 3.3:

EXISTING (2018) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

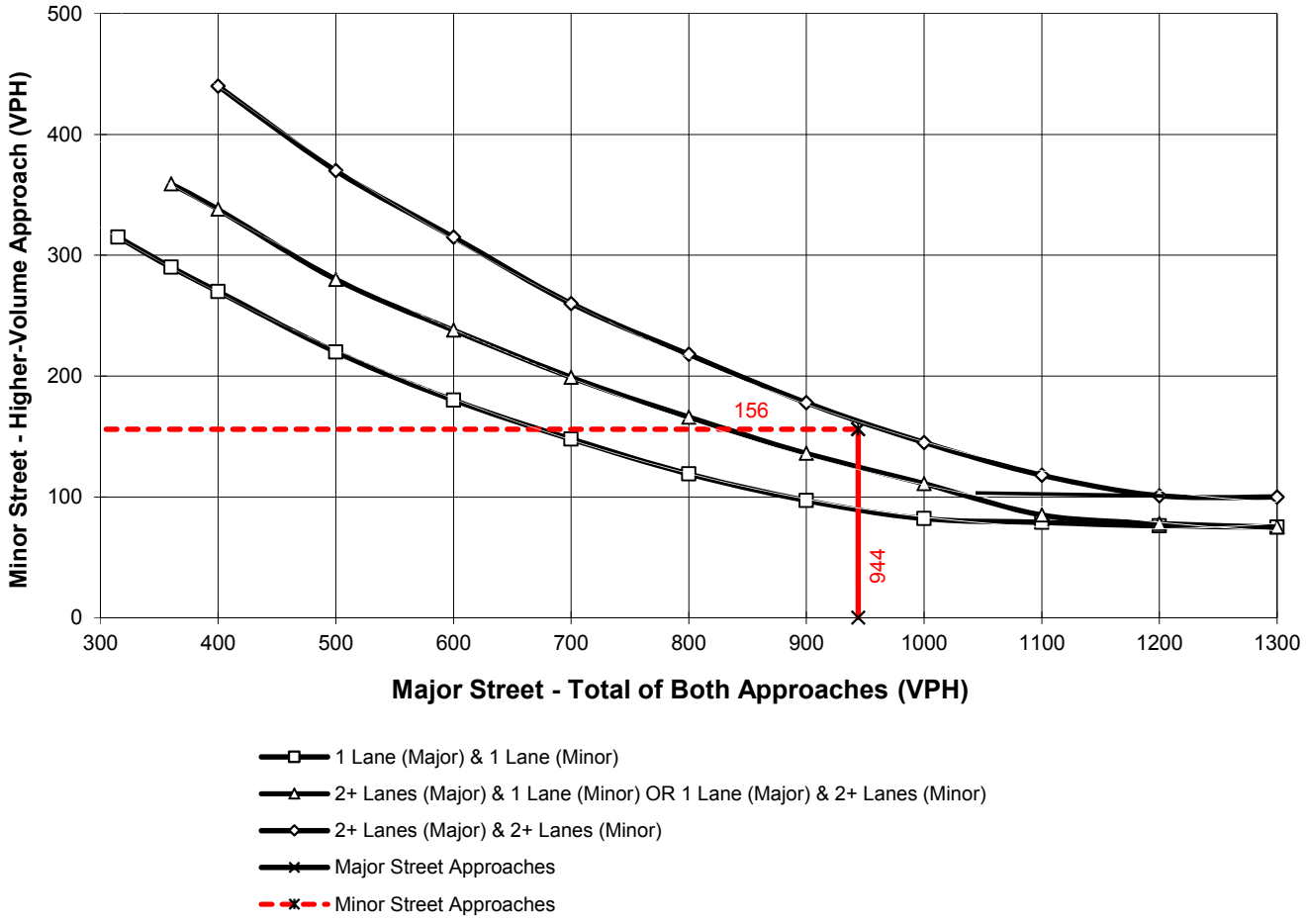
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing (2018) Conditions - Weekday AM Peak Hour**

Major Street Name = **Markham St.** Total of Both Approaches (VPH) = **944**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Seaton Av.** High Volume Approach (VPH) = **156**
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)

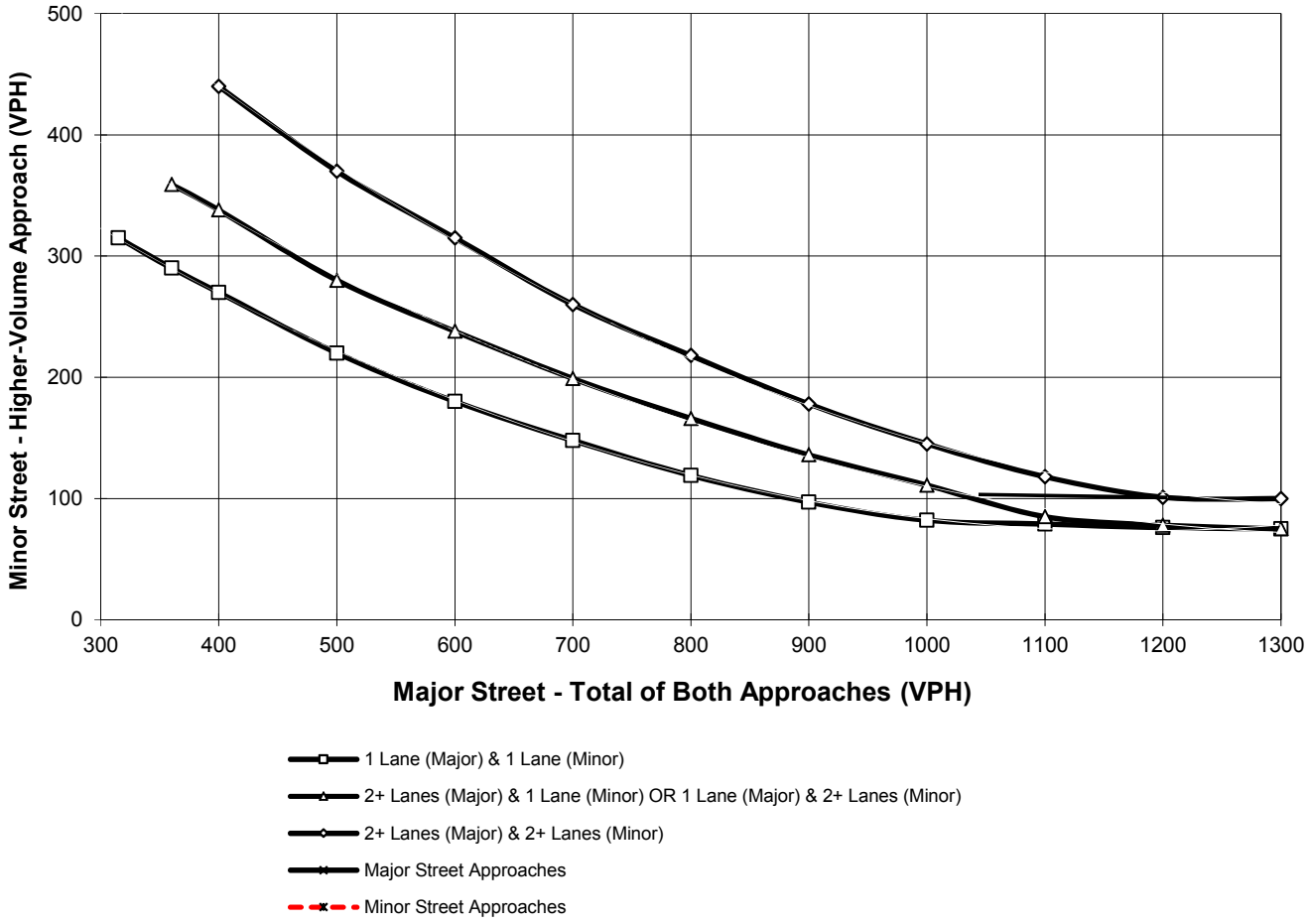
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing (2018) Conditions - Weekday AM Peak Hour**

Major Street Name = **Seaton Av.** Total of Both Approaches (VPH) = **157**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Perry St.** High Volume Approach (VPH) = **27**
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

APPENDIX 5.1:

E+P CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection	
Intersection Delay, s/veh	24.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	395	29	19	503	2	109	1	48	2	0	3
Future Vol, veh/h	1	395	29	19	503	2	109	1	48	2	0	3
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	403	30	19	513	2	111	1	49	2	0	3
Number of Lanes	0	1	0	0	1	1	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	1
HCM Control Delay	21.7	30.4	11.8	10.5
HCM LOS	C	D	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	0%	4%	0%	40%
Vol Thru, %	0%	2%	93%	96%	0%	0%
Vol Right, %	0%	98%	7%	0%	100%	60%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	109	49	425	522	2	5
LT Vol	109	0	1	19	0	2
Through Vol	0	1	395	503	0	0
RT Vol	0	48	29	0	2	3
Lane Flow Rate	111	50	434	533	2	5
Geometry Grp	7	7	6	7	7	6
Degree of Util (X)	0.235	0.089	0.704	0.835	0.003	0.01
Departure Headway (Hd)	7.592	6.378	5.844	5.645	4.918	7.39
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	473	561	620	639	727	482
Service Time	5.345	4.131	3.883	3.38	2.653	5.473
HCM Lane V/C Ratio	0.235	0.089	0.7	0.834	0.003	0.01
HCM Control Delay	12.7	9.8	21.7	30.5	7.7	10.5
HCM Lane LOS	B	A	C	D	A	B
HCM 95th-tile Q	0.9	0.3	5.7	9	0	0

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	1	20	1	1	4	13	101	6	4	28	15
Future Vol, veh/h	6	1	20	1	1	4	13	101	6	4	28	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	7	1	22	1	1	4	14	112	7	4	31	17

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	194	196	40	204	201	117	48	0	0	120	0	0
Stage 1	48	48	-	145	145	-	-	-	-	-	-	-
Stage 2	146	148	-	59	56	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	770	703	1037	758	699	941	1572	-	-	1480	-	-
Stage 1	971	859	-	863	781	-	-	-	-	-	-	-
Stage 2	861	779	-	958	852	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	758	693	1037	733	689	940	1572	-	-	1479	-	-
Mov Cap-2 Maneuver	758	693	-	733	689	-	-	-	-	-	-	-
Stage 1	961	856	-	854	772	-	-	-	-	-	-	-
Stage 2	847	770	-	933	849	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.9	9.3	0.8	0.6
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1572	-	-	943	849	1479	-	-
HCM Lane V/C Ratio	0.009	-	-	0.032	0.008	0.003	-	-
HCM Control Delay (s)	7.3	0	-	8.9	9.3	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

Intersection	
Int Delay, s/veh	3.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2	9	7	4	2	1
Future Vol, veh/h	2	9	7	4	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2	10	8	4	2	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	12	0	27	7
Stage 1	-	-	-	-	7	-
Stage 2	-	-	-	-	20	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1620	-	993	1081
Stage 1	-	-	-	-	1021	-
Stage 2	-	-	-	-	1008	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1620	-	988	1081
Mov Cap-2 Maneuver	-	-	-	-	988	-
Stage 1	-	-	-	-	1021	-
Stage 2	-	-	-	-	1003	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.6	8.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1017	-	-	1620	-
HCM Lane V/C Ratio	0.003	-	-	0.005	-
HCM Control Delay (s)	8.6	-	-	7.2	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	5.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	3	0	31	11	0	5
Future Vol, veh/h	3	0	31	11	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	3	0	34	12	0	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	3	0	83	3
Stage 1	-	-	-	-	3	-
Stage 2	-	-	-	-	80	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1632	-	924	1087
Stage 1	-	-	-	-	1025	-
Stage 2	-	-	-	-	948	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1632	-	905	1087
Mov Cap-2 Maneuver	-	-	-	-	905	-
Stage 1	-	-	-	-	1025	-
Stage 2	-	-	-	-	928	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.4	8.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1087	-	-	1632	-
HCM Lane V/C Ratio	0.005	-	-	0.021	-
HCM Control Delay (s)	8.3	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0.1	-

Intersection	
Intersection Delay, s/veh	18.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	488	26	46	357	4	19	0	32	3	1	3
Future Vol, veh/h	0	488	26	46	357	4	19	0	32	3	1	3
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	498	27	47	364	4	19	0	33	3	1	3
Number of Lanes	0	1	0	0	1	1	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	1
HCM Control Delay	22	15.1	9.6	9.9
HCM LOS	C	C	A	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	0%	11%	0%	43%
Vol Thru, %	0%	0%	95%	89%	0%	14%
Vol Right, %	0%	100%	5%	0%	100%	43%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	19	32	514	403	4	7
LT Vol	19	0	0	46	0	3
Through Vol	0	0	488	357	0	1
RT Vol	0	32	26	0	4	3
Lane Flow Rate	19	33	524	411	4	7
Geometry Grp	7	7	6	7	7	6
Degree of Util (X)	0.04	0.056	0.749	0.591	0.005	0.014
Departure Headway (Hd)	7.355	6.13	5.142	5.172	4.409	6.83
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	490	587	703	695	806	527
Service Time	5.056	3.832	3.198	2.932	2.168	4.833
HCM Lane V/C Ratio	0.039	0.056	0.745	0.591	0.005	0.013
HCM Control Delay	10.4	9.2	22	15.2	7.2	9.9
HCM Lane LOS	B	A	C	C	A	A
HCM 95th-tile Q	0.1	0.2	6.8	3.9	0	0

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	4	11	5	4	5	12	39	1	1	53	19
Future Vol, veh/h	10	4	11	5	4	5	12	39	1	1	53	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	13	5	14	7	5	7	16	51	1	1	70	25

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	175	169	83	178	181	52	95	0	0	52	0	0
Stage 1	85	85	-	84	84	-	-	-	-	-	-	-
Stage 2	90	84	-	94	97	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	10	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	792	728	982	789	601	1021	1512	-	-	1567	-	-
Stage 1	928	828	-	929	829	-	-	-	-	-	-	-
Stage 2	922	829	-	918	819	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	775	719	982	766	594	1021	1512	-	-	1567	-	-
Mov Cap-2 Maneuver	775	719	-	766	594	-	-	-	-	-	-	-
Stage 1	918	827	-	919	820	-	-	-	-	-	-	-
Stage 2	900	820	-	898	818	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.4	9.8	1.7	0.1
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1512	-	-	843	771	1567	-	-
HCM Lane V/C Ratio	0.01	-	-	0.039	0.024	0.001	-	-
HCM Control Delay (s)	7.4	0	-	9.4	9.8	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

Intersection	
Int Delay, s/veh	5.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	4	2	2	5	9	7
Future Vol, veh/h	4	2	2	5	9	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	4	2	2	5	10	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	6	0	14	5
Stage 1	-	-	-	-	5	-
Stage 2	-	-	-	-	9	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1628	-	1010	1084
Stage 1	-	-	-	-	1023	-
Stage 2	-	-	-	-	1019	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1628	-	1009	1084
Mov Cap-2 Maneuver	-	-	-	-	1009	-
Stage 1	-	-	-	-	1023	-
Stage 2	-	-	-	-	1018	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	8.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1040	-	-	1628	-
HCM Lane V/C Ratio	0.017	-	-	0.001	-
HCM Control Delay (s)	8.5	-	-	7.2	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	5.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	11	0	6	7	0	29
Future Vol, veh/h	11	0	6	7	0	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	12	0	7	8	0	32

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	12	0	34	12
Stage 1	-	-	-	-	12	-
Stage 2	-	-	-	-	22	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1620	-	984	1074
Stage 1	-	-	-	-	1016	-
Stage 2	-	-	-	-	1006	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1620	-	980	1074
Mov Cap-2 Maneuver	-	-	-	-	980	-
Stage 1	-	-	-	-	1016	-
Stage 2	-	-	-	-	1002	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.3	8.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1074	-	-	1620	-
HCM Lane V/C Ratio	0.029	-	-	0.004	-
HCM Control Delay (s)	8.5	-	-	7.2	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

APPENDIX 5.2:

E+P CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

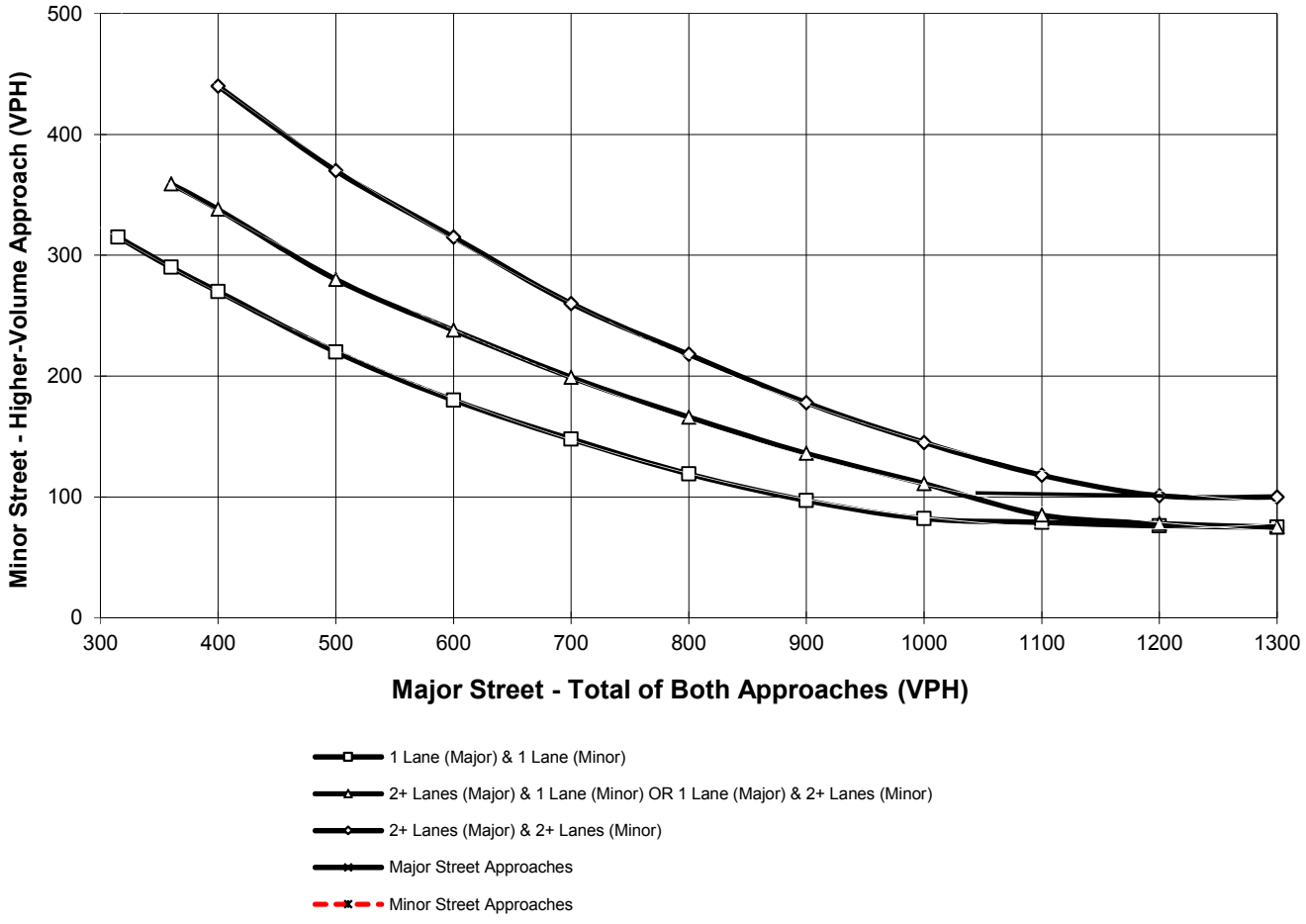
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **E+P Conditions - Weekday AM Peak Hour**

Major Street Name = **Seaton Av.**
Total of Both Approaches (VPH) = **166**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Perry St.**
High Volume Approach (VPH) = **27**
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-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		E+P
				CALC LC	DATE	11/07/18
Jurisdiction: **County of Riverside**				CHK CH	DATE	12/14/11
Major Street: **Perry Street**				Critical Approach Speed (Major)		45 mph
Minor Street: **Driveway 1**				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **234** vpd Minor Street Future ADT = **94** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... √

or

In built up area of isolated community of < 10,000 population ……..

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL	Minimum Requirements EADT			
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 / XX	Urban	Rural	Urban	Rural
Number of lanes for moving traffic on each approach: Major Street / Minor Street				
1 **234** / 1 **94**	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	Urban	Rural	Urban	Rural
Number of lanes for moving traffic on each approach: Major Street / Minor Street				
1 **234** / 1 **94**	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				
Satisfied / Not Satisfied: XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
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.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		E+P	
				CALC	CP	DATE	11/07/18
Jurisdiction:	**County of Riverside**			CHK	CH	DATE	12/14/11
Major Street:	**Perry Street**			Critical Approach Speed (Major)		45	mph
Minor Street:	**Driveway 2**			Critical Approach Speed (Minor)		25	mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes = **1** lane

Major Street Future ADT = **423** vpd Minor Street Future ADT = **205** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); …….. √

or

In built up area of isolated community of < 10,000 population ……..

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL	Minimum Requirements EADT			
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 / XX	Urban	Rural	Urban	Rural
Number of lanes for moving traffic on each approach				
Major Street / Minor Street				
1 **423** / *1* **205**	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	Urban	Rural	Urban	Rural
Number of lanes for moving traffic on each approach				
Major Street / Minor Street				
1 **423** / *1* **205**	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				
Satisfied / Not Satisfied: XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more ….. A: 8% B: 5%				

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.

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APPENDIX 6.1:

EAP (2020) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection	
Intersection Delay, s/veh	27.7
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	410	30	19	523	2	113	1	49	2	0	3
Future Vol, veh/h	1	410	30	19	523	2	113	1	49	2	0	3
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	418	31	19	534	2	115	1	50	2	0	3
Number of Lanes	0	1	0	0	1	1	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	1
HCM Control Delay	23.9	35.6	12	10.7
HCM LOS	C	E	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	0%	4%	0%	40%
Vol Thru, %	0%	2%	93%	96%	0%	0%
Vol Right, %	0%	98%	7%	0%	100%	60%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	113	50	441	542	2	5
LT Vol	113	0	1	19	0	2
Through Vol	0	1	410	523	0	0
RT Vol	0	49	30	0	2	3
Lane Flow Rate	115	51	450	553	2	5
Geometry Grp	7	7	6	7	7	6
Degree of Util (X)	0.246	0.092	0.739	0.876	0.003	0.011
Departure Headway (Hd)	7.695	6.479	5.91	5.7	4.973	7.542
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	466	551	612	636	718	471
Service Time	5.458	4.241	3.954	3.44	2.713	5.637
HCM Lane V/C Ratio	0.247	0.093	0.735	0.869	0.003	0.011
HCM Control Delay	13	9.9	23.9	35.7	7.7	10.7
HCM Lane LOS	B	A	C	E	A	B
HCM 95th-tile Q	1	0.3	6.4	10.3	0	0

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	1	21	1	1	4	14	105	6	4	29	15
Future Vol, veh/h	6	1	21	1	1	4	14	105	6	4	29	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	7	1	23	1	1	4	16	117	7	4	32	17

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	204	206	41	215	211	122	49	0	0	125	0	0
Stage 1	49	49	-	154	154	-	-	-	-	-	-	-
Stage 2	155	157	-	61	57	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	758	694	1036	746	690	935	1571	-	-	1474	-	-
Stage 1	969	858	-	853	774	-	-	-	-	-	-	-
Stage 2	852	772	-	955	851	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	745	684	1036	720	680	934	1571	-	-	1473	-	-
Mov Cap-2 Maneuver	745	684	-	720	680	-	-	-	-	-	-	-
Stage 1	958	855	-	843	765	-	-	-	-	-	-	-
Stage 2	837	763	-	929	848	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9	9.3	0.8	0.6
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1571	-	-	940	840	1473	-	-
HCM Lane V/C Ratio	0.01	-	-	0.033	0.008	0.003	-	-
HCM Control Delay (s)	7.3	0	-	9	9.3	7.5	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

Intersection	
Int Delay, s/veh	3.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2	9	7	4	2	1
Future Vol, veh/h	2	9	7	4	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2	10	8	4	2	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	12	0	27	7
Stage 1	-	-	-	-	7	-
Stage 2	-	-	-	-	20	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1620	-	993	1081
Stage 1	-	-	-	-	1021	-
Stage 2	-	-	-	-	1008	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1620	-	988	1081
Mov Cap-2 Maneuver	-	-	-	-	988	-
Stage 1	-	-	-	-	1021	-
Stage 2	-	-	-	-	1003	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.6	8.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1017	-	-	1620	-
HCM Lane V/C Ratio	0.003	-	-	0.005	-
HCM Control Delay (s)	8.6	-	-	7.2	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	5.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	3	0	31	11	0	5
Future Vol, veh/h	3	0	31	11	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	3	0	34	12	0	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	3	0	83	3
Stage 1	-	-	-	-	3	-
Stage 2	-	-	-	-	80	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1632	-	924	1087
Stage 1	-	-	-	-	1025	-
Stage 2	-	-	-	-	948	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1632	-	905	1087
Mov Cap-2 Maneuver	-	-	-	-	905	-
Stage 1	-	-	-	-	1025	-
Stage 2	-	-	-	-	928	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.4	8.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1087	-	-	1632	-
HCM Lane V/C Ratio	0.005	-	-	0.021	-
HCM Control Delay (s)	8.3	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0.1	-

Intersection	
Intersection Delay, s/veh	20.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	508	27	47	371	4	20	0	33	3	1	3
Future Vol, veh/h	0	508	27	47	371	4	20	0	33	3	1	3
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	518	28	48	379	4	20	0	34	3	1	3
Number of Lanes	0	1	0	0	1	1	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	1
HCM Control Delay	24.5	15.9	9.8	10
HCM LOS	C	C	A	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	0%	11%	0%	43%
Vol Thru, %	0%	0%	95%	89%	0%	14%
Vol Right, %	0%	100%	5%	0%	100%	43%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	20	33	535	418	4	7
LT Vol	20	0	0	47	0	3
Through Vol	0	0	508	371	0	1
RT Vol	0	33	27	0	4	3
Lane Flow Rate	20	34	546	427	4	7
Geometry Grp	7	7	6	7	7	6
Degree of Util (X)	0.042	0.058	0.784	0.616	0.005	0.014
Departure Headway (Hd)	7.447	6.22	5.169	5.2	4.438	6.935
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	484	579	699	691	800	519
Service Time	5.148	3.922	3.228	2.962	2.199	4.937
HCM Lane V/C Ratio	0.041	0.059	0.781	0.618	0.005	0.013
HCM Control Delay	10.5	9.3	24.5	16	7.2	10
HCM Lane LOS	B	A	C	C	A	A
HCM 95th-tile Q	0.1	0.2	7.7	4.3	0	0

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	4	11	5	4	5	12	40	1	1	55	19
Future Vol, veh/h	10	4	11	5	4	5	12	40	1	1	55	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	13	5	14	7	5	7	16	53	1	1	72	25

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	179	173	85	182	185	54	97	0	0	54	0	0
Stage 1	87	87	-	86	86	-	-	-	-	-	-	-
Stage 2	92	86	-	96	99	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	10	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	787	724	980	784	596	1019	1509	-	-	1564	-	-
Stage 1	926	827	-	927	827	-	-	-	-	-	-	-
Stage 2	920	827	-	916	817	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	770	715	980	761	589	1019	1509	-	-	1564	-	-
Mov Cap-2 Maneuver	770	715	-	761	589	-	-	-	-	-	-	-
Stage 1	916	826	-	917	818	-	-	-	-	-	-	-
Stage 2	898	818	-	896	816	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.5	9.8	1.7	0.1
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1509	-	-	839	766	1564	-	-
HCM Lane V/C Ratio	0.01	-	-	0.039	0.024	0.001	-	-
HCM Control Delay (s)	7.4	0	-	9.5	9.8	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

Intersection	
Int Delay, s/veh	5.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	4	2	2	5	9	7
Future Vol, veh/h	4	2	2	5	9	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	4	2	2	5	10	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	6	0	14	5
Stage 1	-	-	-	-	5	-
Stage 2	-	-	-	-	9	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1628	-	1010	1084
Stage 1	-	-	-	-	1023	-
Stage 2	-	-	-	-	1019	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1628	-	1009	1084
Mov Cap-2 Maneuver	-	-	-	-	1009	-
Stage 1	-	-	-	-	1023	-
Stage 2	-	-	-	-	1018	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	8.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1040	-	-	1628	-
HCM Lane V/C Ratio	0.017	-	-	0.001	-
HCM Control Delay (s)	8.5	-	-	7.2	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	5.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	11	0	6	7	0	29
Future Vol, veh/h	11	0	6	7	0	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	12	0	7	8	0	32

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	12	0	34	12
Stage 1	-	-	-	-	12	-
Stage 2	-	-	-	-	22	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1620	-	984	1074
Stage 1	-	-	-	-	1016	-
Stage 2	-	-	-	-	1006	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1620	-	980	1074
Mov Cap-2 Maneuver	-	-	-	-	980	-
Stage 1	-	-	-	-	1016	-
Stage 2	-	-	-	-	1002	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.3	8.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1074	-	-	1620	-
HCM Lane V/C Ratio	0.029	-	-	0.004	-
HCM Control Delay (s)	8.5	-	-	7.2	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

APPENDIX 6.2:

EAP (2020) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

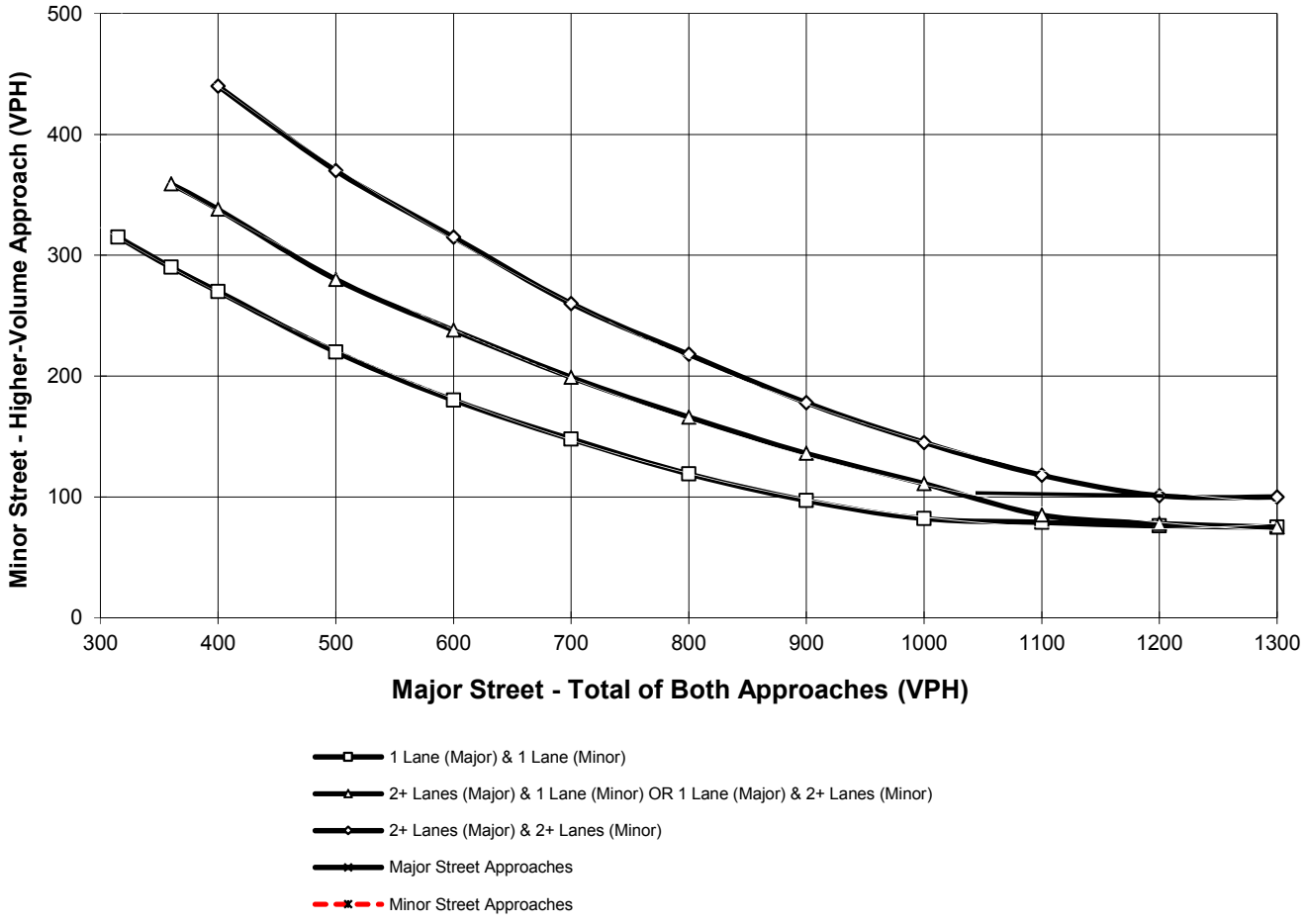
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAP (2020) Conditions - Weekday AM Peak Hour**

Major Street Name = **Seaton Av.**
Total of Both Approaches (VPH) = **172**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Perry St.**
High Volume Approach (VPH) = **28**
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-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS	EAP (2020)
				CALC CP	DATE 11/07/18
				CHK CH	DATE 12/14/11

Jurisdiction: **County of Riverside**
Major Street: **Perry Street** — Critical Approach Speed (Major) 45 mph
Minor Street: **Driveway 1** — Critical Approach Speed (Minor) 25 mph

Major Street Approach Lanes = **1** lane — Minor Street Approach Lanes **1** lane

Major Street Future ADT = **240** vpd — Minor Street Future ADT = **94** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... √

or

In built up area of isolated community of < 10,000 population ……..

RURAL (R)

(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 **240**	*1* **94**	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 **240**	*1* **94**	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					
Satisfied	Not Satisfied XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
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.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS	EAP (2020)
				CALC CP	DATE 11/07/18
				CHK CH	DATE 12/14/11

Jurisdiction: **County of Riverside**
Major Street: **Perry Street** — Critical Approach Speed (Major) 45 mph
Minor Street: **Driveway 2** — Critical Approach Speed (Minor) 25 mph

Major Street Approach Lanes = **1** lane — Minor Street Approach Lanes **1** lane

Major Street Future ADT = **429** vpd — Minor Street Future ADT = **205** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... [√]

or

In built up area of isolated community of < 10,000 population …….. [ ]

RURAL (R)

(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 **429**	*1* **205**	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 **429**	*1* **205**	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					
Satisfied	Not Satisfied XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more …..	**A** 8% **B** 5%				

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.

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APPENDIX 7.1:

EAPC (2020) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection	
Intersection Delay, s/veh	37
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	451	30	22	539	2	113	1	52	2	0	3
Future Vol, veh/h	1	451	30	22	539	2	113	1	52	2	0	3
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	470	31	23	561	2	118	1	54	2	0	3
Number of Lanes	0	1	0	0	1	1	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	1
HCM Control Delay	33	47.8	12.5	11.1
HCM LOS	D	E	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	0%	4%	0%	40%
Vol Thru, %	0%	2%	94%	96%	0%	0%
Vol Right, %	0%	98%	6%	0%	100%	60%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	113	53	482	561	2	5
LT Vol	113	0	1	22	0	2
Through Vol	0	1	451	539	0	0
RT Vol	0	52	30	0	2	3
Lane Flow Rate	118	55	502	584	2	5
Geometry Grp	7	7	6	7	7	6
Degree of Util (X)	0.259	0.103	0.84	0.946	0.003	0.012
Departure Headway (Hd)	7.923	6.703	6.022	5.826	5.096	7.99
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	452	532	597	619	700	451
Service Time	5.701	4.48	4.077	3.575	2.845	5.99
HCM Lane V/C Ratio	0.261	0.103	0.841	0.943	0.003	0.011
HCM Control Delay	13.5	10.3	33	47.9	7.9	11.1
HCM Lane LOS	B	B	D	E	A	B
HCM 95th-tile Q	1	0.3	9	12.8	0	0

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	1	21	1	1	4	14	108	6	4	30	15
Future Vol, veh/h	6	1	21	1	1	4	14	108	6	4	30	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	7	1	23	1	1	4	16	120	7	4	33	17

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	208	210	42	219	215	125	50	0	0	128	0	0
Stage 1	50	50	-	157	157	-	-	-	-	-	-	-
Stage 2	158	160	-	62	58	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	754	691	1034	741	686	931	1570	-	-	1470	-	-
Stage 1	968	857	-	850	772	-	-	-	-	-	-	-
Stage 2	849	769	-	954	851	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	741	681	1034	715	676	930	1570	-	-	1469	-	-
Mov Cap-2 Maneuver	741	681	-	715	676	-	-	-	-	-	-	-
Stage 1	957	854	-	840	763	-	-	-	-	-	-	-
Stage 2	834	760	-	928	848	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9	9.3	0.8	0.6
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1570	-	-	937	836	1469	-	-
HCM Lane V/C Ratio	0.01	-	-	0.033	0.008	0.003	-	-
HCM Control Delay (s)	7.3	0	-	9	9.3	7.5	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

Intersection	
Int Delay, s/veh	3.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2	9	7	4	2	1
Future Vol, veh/h	2	9	7	4	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2	10	8	4	2	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	12	0	27	7
Stage 1	-	-	-	-	7	-
Stage 2	-	-	-	-	20	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1620	-	993	1081
Stage 1	-	-	-	-	1021	-
Stage 2	-	-	-	-	1008	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1620	-	988	1081
Mov Cap-2 Maneuver	-	-	-	-	988	-
Stage 1	-	-	-	-	1021	-
Stage 2	-	-	-	-	1003	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.6	8.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1017	-	-	1620	-
HCM Lane V/C Ratio	0.003	-	-	0.005	-
HCM Control Delay (s)	8.6	-	-	7.2	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	5.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	3	0	31	11	0	5
Future Vol, veh/h	3	0	31	11	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	3	0	34	12	0	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	3	0	83	3
Stage 1	-	-	-	-	3	-
Stage 2	-	-	-	-	80	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1632	-	924	1087
Stage 1	-	-	-	-	1025	-
Stage 2	-	-	-	-	948	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1632	-	905	1087
Mov Cap-2 Maneuver	-	-	-	-	905	-
Stage 1	-	-	-	-	1025	-
Stage 2	-	-	-	-	928	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.4	8.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1087	-	-	1632	-
HCM Lane V/C Ratio	0.005	-	-	0.021	-
HCM Control Delay (s)	8.3	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0.1	-

Intersection	
Intersection Delay, s/veh	25.3
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	539	27	50	443	4	20	0	36	3	1	3
Future Vol, veh/h	0	539	27	50	443	4	20	0	36	3	1	3
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	550	28	51	452	4	20	0	37	3	1	3
Number of Lanes	0	1	0	0	1	1	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	1
HCM Control Delay	30.7	21.1	10	10.3
HCM LOS	D	C	A	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	0%	10%	0%	43%
Vol Thru, %	0%	0%	95%	90%	0%	14%
Vol Right, %	0%	100%	5%	0%	100%	43%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	20	36	566	493	4	7
LT Vol	20	0	0	50	0	3
Through Vol	0	0	539	443	0	1
RT Vol	0	36	27	0	4	3
Lane Flow Rate	20	37	578	503	4	7
Geometry Grp	7	7	6	7	7	6
Degree of Util (X)	0.044	0.066	0.847	0.733	0.005	0.014
Departure Headway (Hd)	7.713	6.483	5.28	5.244	4.487	7.234
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	467	556	682	684	789	497
Service Time	5.413	4.183	3.354	3.021	2.262	5.238
HCM Lane V/C Ratio	0.043	0.067	0.848	0.735	0.005	0.014
HCM Control Delay	10.8	9.6	30.7	21.2	7.3	10.3
HCM Lane LOS	B	A	D	C	A	B
HCM 95th-tile Q	0.1	0.2	9.5	6.4	0	0

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	4	11	5	4	5	12	41	1	1	58	19
Future Vol, veh/h	10	4	11	5	4	5	12	41	1	1	58	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	13	5	14	7	5	7	16	54	1	1	76	25

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	184	178	89	187	190	55	101	0	0	55	0	0
Stage 1	91	91	-	87	87	-	-	-	-	-	-	-
Stage 2	93	87	-	100	103	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	781	719	975	778	708	1018	1504	-	-	1563	-	-
Stage 1	921	823	-	926	827	-	-	-	-	-	-	-
Stage 2	919	827	-	911	814	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	765	710	975	755	700	1018	1504	-	-	1563	-	-
Mov Cap-2 Maneuver	765	710	-	755	700	-	-	-	-	-	-	-
Stage 1	911	822	-	916	818	-	-	-	-	-	-	-
Stage 2	897	818	-	891	813	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.5	9.5	1.6	0.1
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1504	-	-	834	812	1563	-	-
HCM Lane V/C Ratio	0.01	-	-	0.039	0.023	0.001	-	-
HCM Control Delay (s)	7.4	0	-	9.5	9.5	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

Intersection	
Int Delay, s/veh	5.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	4	2	2	5	9	7
Future Vol, veh/h	4	2	2	5	9	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	4	2	2	5	10	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	6	0	14	5
Stage 1	-	-	-	-	5	-
Stage 2	-	-	-	-	9	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1628	-	1010	1084
Stage 1	-	-	-	-	1023	-
Stage 2	-	-	-	-	1019	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1628	-	1009	1084
Mov Cap-2 Maneuver	-	-	-	-	1009	-
Stage 1	-	-	-	-	1023	-
Stage 2	-	-	-	-	1018	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	8.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1040	-	-	1628	-
HCM Lane V/C Ratio	0.017	-	-	0.001	-
HCM Control Delay (s)	8.5	-	-	7.2	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	5.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	11	0	6	7	0	29
Future Vol, veh/h	11	0	6	7	0	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	12	0	7	8	0	32

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	12	0	34	12
Stage 1	-	-	-	-	12	-
Stage 2	-	-	-	-	22	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1620	-	984	1074
Stage 1	-	-	-	-	1016	-
Stage 2	-	-	-	-	1006	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1620	-	980	1074
Mov Cap-2 Maneuver	-	-	-	-	980	-
Stage 1	-	-	-	-	1016	-
Stage 2	-	-	-	-	1002	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.3	8.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1074	-	-	1620	-
HCM Lane V/C Ratio	0.029	-	-	0.004	-
HCM Control Delay (s)	8.5	-	-	7.2	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

APPENDIX 7.2:

EAPC (2020) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

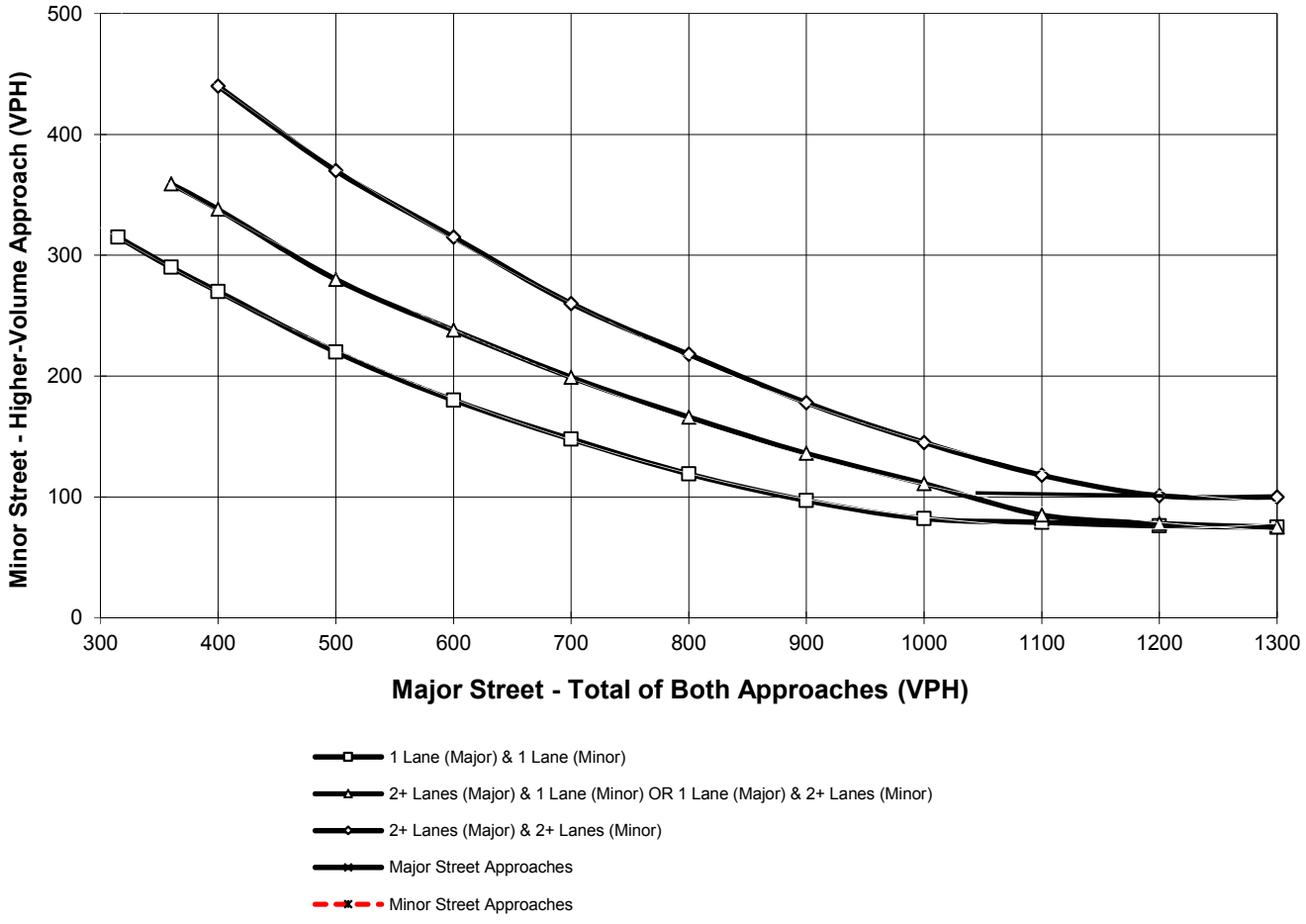
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAPC (2020) Conditions - Weekday AM Peak Hour**

Major Street Name = **Seaton Av.**
Total of Both Approaches (VPH) = **176**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Perry St.**
High Volume Approach (VPH) = **28**
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-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		EAPC (2020)
				CALC CP	DATE	11/07/18
Jurisdiction: **County of Riverside**				CHK CH	DATE	12/14/11
Major Street: **Perry Street**				Critical Approach Speed (Major)		45 mph
Minor Street: **Driveway 1**				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes = **1** lane

Major Street Future ADT = **240** vpd Minor Street Future ADT = **94** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); …….. √

or

In built up area of isolated community of < 10,000 population ……..

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL	Minimum Requirements EADT			
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 / XX	Urban	Rural	Urban	Rural
Number of lanes for moving traffic on each approach				
Major Street / Minor Street				
1 **240** / *1* **94**	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	Urban	Rural	Urban	Rural
Number of lanes for moving traffic on each approach				
Major Street / Minor Street				
1 **240** / *1* **94**	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				
Satisfied / Not Satisfied: XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
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.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		EAPC (2020)
				CALC CP	DATE	11/07/18
Jurisdiction: **County of Riverside**				CHK CH	DATE	12/14/11
Major Street: **Perry Street**				Critical Approach Speed (Major)		45 mph
Minor Street: **Driveway 2**				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **429** vpd Minor Street Future ADT = **205** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... √

or

In built up area of isolated community of < 10,000 population ……..

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL	Minimum Requirements EADT			
	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
CONDITION A - Minimum Vehicular Volume	Urban	Rural	Urban	Rural
Satisfied / Not Satisfied: XX / XX				
Number of lanes for moving traffic on each approach				
Major Street / Minor Street				
1 **429** / *1* **205**	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 **429** / *1* **205**	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				
Satisfied / Not Satisfied: XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more ….. A: 8% B: 5%				

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.

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APPENDIX 7.3:

EAPC (2020) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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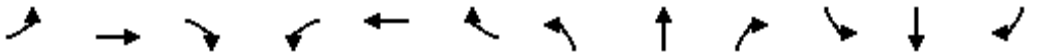
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	1	451	22	539	113	1	2	0
Future Volume (vph)	1	451	22	539	113	1	2	0
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	23.8	23.8	23.8	23.8	23.8	23.8	23.8	23.8
Total Split (s)	90.0	90.0	90.0	90.0	30.0	30.0	30.0	30.0
Total Split (%)	75.0%	75.0%	75.0%	75.0%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effct Green (s)	18.3	18.3	18.3	18.3	10.6	10.6	10.6	10.6
Actuated g/C Ratio	0.45	0.45	0.45	0.45	0.26	0.26	0.26	0.26
v/c Ratio	0.00	0.58	0.06	0.65	0.31	0.12	0.01	0.00
Control Delay	6.0	11.0	6.3	12.5	17.0	6.5	14.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.0	11.0	6.3	12.5	17.0	6.5	14.5	0.0
LOS	A	B	A	B	B	A	B	A
Approach Delay		11.0		12.3		13.7		5.8
Approach LOS		B		B		B		A

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 40.8	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 11.9	Intersection LOS: B
Intersection Capacity Utilization 51.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: Seaton Av. & Markham St.

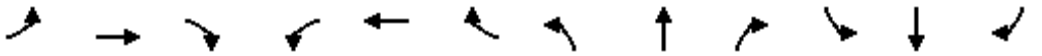


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	451	30	22	539	2	113	1	52	2	0	3
Future Volume (veh/h)	1	451	30	22	539	2	113	1	52	2	0	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	1	460	31	22	550	2	115	1	53	2	0	3
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	337	710	48	376	763	3	594	8	438	544	0	445
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.28	0.28	0.28	0.28	0.00	0.28
Sat Flow, veh/h	870	1760	119	920	1892	7	1436	30	1585	1371	0	1610
Grp Volume(v), veh/h	1	0	491	22	0	552	115	0	54	2	0	3
Grp Sat Flow(s),veh/h/ln	870	0	1879	920	0	1899	1436	0	1615	1371	0	1610
Q Serve(g_s), s	0.0	0.0	7.6	0.7	0.0	8.9	2.3	0.0	0.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	8.9	0.0	7.6	8.4	0.0	8.9	2.3	0.0	0.9	0.9	0.0	0.0
Prop In Lane	1.00		0.06	1.00		0.00	1.00		0.98	1.00		1.00
Lane Grp Cap(c), veh/h	337	0	757	376	0	766	594	0	446	544	0	445
V/C Ratio(X)	0.00	0.00	0.65	0.06	0.00	0.72	0.19	0.00	0.12	0.00	0.00	0.01
Avail Cap(c_a), veh/h	2009	0	4371	2145	0	4417	1157	0	1080	1082	0	1077
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.8	0.0	8.7	12.1	0.0	9.1	10.3	0.0	9.8	10.2	0.0	9.5
Incr Delay (d2), s/veh	0.0	0.0	0.9	0.1	0.0	1.3	0.2	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	1.8	0.1	0.0	2.2	0.5	0.0	0.2	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.8	0.0	9.7	12.2	0.0	10.4	10.5	0.0	9.9	10.2	0.0	9.5
LnGrp LOS	B	A	A	B	A	B	B	A	A	B	A	A
Approach Vol, veh/h		492			574			169			5	
Approach Delay, s/veh		9.7			10.5			10.3			9.8	
Approach LOS		A			B			B			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		15.8		20.4		15.8		20.4				
Change Period (Y+Rc), s		5.8		5.8		5.8		5.8				
Max Green Setting (Gmax), s		24.2		84.2		24.2		84.2				
Max Q Clear Time (g_c+I1), s		4.3		10.9		2.9		10.9				
Green Ext Time (p_c), s		0.5		3.1		0.0		3.7				
Intersection Summary												
HCM 6th Ctrl Delay			10.1									
HCM 6th LOS			B									

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	539	50	443	20	0	3	1
Future Volume (vph)	539	50	443	20	0	3	1
Turn Type	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	4		8		2		6
Permitted Phases		8		2		6	
Detector Phase	4	8	8	2	2	6	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	23.8	23.8	23.8	23.8	23.8	23.8	23.8
Total Split (s)	90.0	90.0	90.0	30.0	30.0	30.0	30.0
Total Split (%)	75.0%	75.0%	75.0%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	5.8	5.8	5.8	5.8
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	None	Min	Min	Min	Min
Act Effct Green (s)	16.7	16.7	16.7	10.1	10.1	10.1	10.1
Actuated g/C Ratio	0.43	0.43	0.43	0.26	0.26	0.26	0.26
v/c Ratio	0.70	0.19	0.55	0.05	0.05	0.01	0.01
Control Delay	14.0	8.3	10.8	12.9	0.1	12.7	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.0	8.3	10.8	12.9	0.1	12.7	10.2
LOS	B	A	B	B	A	B	B
Approach Delay	14.0		10.6		4.6		11.3
Approach LOS	B		B		A		B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 38.5	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 12.0	Intersection LOS: B
Intersection Capacity Utilization 59.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Seaton Av. & Markham St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	539	27	50	443	4	20	0	36	3	1	3
Future Volume (veh/h)	0	539	27	50	443	4	20	0	36	3	1	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	0	550	28	51	452	4	20	0	37	3	1	3
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	188	782	40	346	820	7	560	0	420	527	109	328
Arrive On Green	0.00	0.44	0.44	0.44	0.44	0.44	0.26	0.00	0.26	0.26	0.26	0.26
Sat Flow, veh/h	950	1792	91	849	1880	17	1435	0	1610	1393	419	1256
Grp Volume(v), veh/h	0	0	578	51	0	456	20	0	37	3	0	4
Grp Sat Flow(s),veh/h/ln	950	0	1884	849	0	1897	1435	0	1610	1393	0	1674
Q Serve(g_s), s	0.0	0.0	9.6	2.0	0.0	6.8	0.4	0.0	0.7	0.1	0.0	0.1
Cycle Q Clear(g_c), s	0.0	0.0	9.6	11.6	0.0	6.8	0.5	0.0	0.7	0.7	0.0	0.1
Prop In Lane	1.00		0.05	1.00		0.01	1.00		1.00	1.00		0.75
Lane Grp Cap(c), veh/h	188	0	822	346	0	828	560	0	420	527	0	437
V/C Ratio(X)	0.00	0.00	0.70	0.15	0.00	0.55	0.04	0.00	0.09	0.01	0.00	0.01
Avail Cap(c_a), veh/h	1861	0	4139	1841	0	4168	1092	0	1017	1043	0	1057
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	8.8	13.5	0.0	8.0	10.7	0.0	10.7	11.0	0.0	10.5
Incr Delay (d2), s/veh	0.0	0.0	1.1	0.2	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	2.3	0.3	0.0	1.6	0.1	0.0	0.2	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	9.9	13.7	0.0	8.6	10.7	0.0	10.8	11.0	0.0	10.5
LnGrp LOS	A	A	A	B	A	A	B	A	B	B	A	B
Approach Vol, veh/h		578			507			57			7	
Approach Delay, s/veh		9.9			9.1			10.8			10.7	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		15.8		22.5		15.8		22.5				
Change Period (Y+Rc), s		5.8		5.8		5.8		5.8				
Max Green Setting (Gmax), s		24.2		84.2		24.2		84.2				
Max Q Clear Time (g_c+I1), s		2.7		11.6		2.7		13.6				
Green Ext Time (p_c), s		0.2		3.9		0.0		3.2				

Intersection Summary												
HCM 6th Ctrl Delay			9.6									
HCM 6th LOS			A									