URBAN CROSSROADS

Perris Truck Yard (CUP20-05100)

TRAFFIC ANALYSIS

CITY OF PERRIS

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12913-06 TA Report

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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
CMP	Congestion Management Program
DIF	Development Impact Fee
E+P	Existing Plus Project
EAC	Existing plus Ambient Growth plus Cumulative
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)
NPRBBD	North Perris Road and Bridge Benefit District
PCE	Passenger Car Equivalents
PHF	Peak Hour Factor
Project	Perris Truck Yard
PVCC SP	Perris Valley Commerce Center Specific Plan
RTA	Riverside Transit Authority
sf	Square Feet
TA	Traffic 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 focused traffic analysis (TA) for the proposed Perris Truck Yard development (Project), which is located north of Markham Street and east of Perris Boulevard within the City of Perris' *Perris Valley Commerce Center Specific Plan* (PVCC SP) as shown on Exhibit 1-1.

The purpose of this traffic analysis is to evaluate the potential deficiencies related to traffic and circulation system operations that may result from the development of the proposed Project, and to recommend improvements to mitigate potential deficiencies in order to achieve acceptable circulation system operational conditions. This report has been prepared in accordance with the approved Project Traffic Study Scoping agreement through consultation with City of Perris staff, which is provided in Appendix 1.1 of this report. The scoping agreement provides an outline of the Project study area, trip generation, trip distribution, and analysis methodology.

The PVCC SP Environmental Impact Report (EIR) concluded that the potential deficiencies related to level of service on study area roadways were less than significant. The PVCC SP EIR did not evaluate peak hour operations of any key study area intersections. (1)

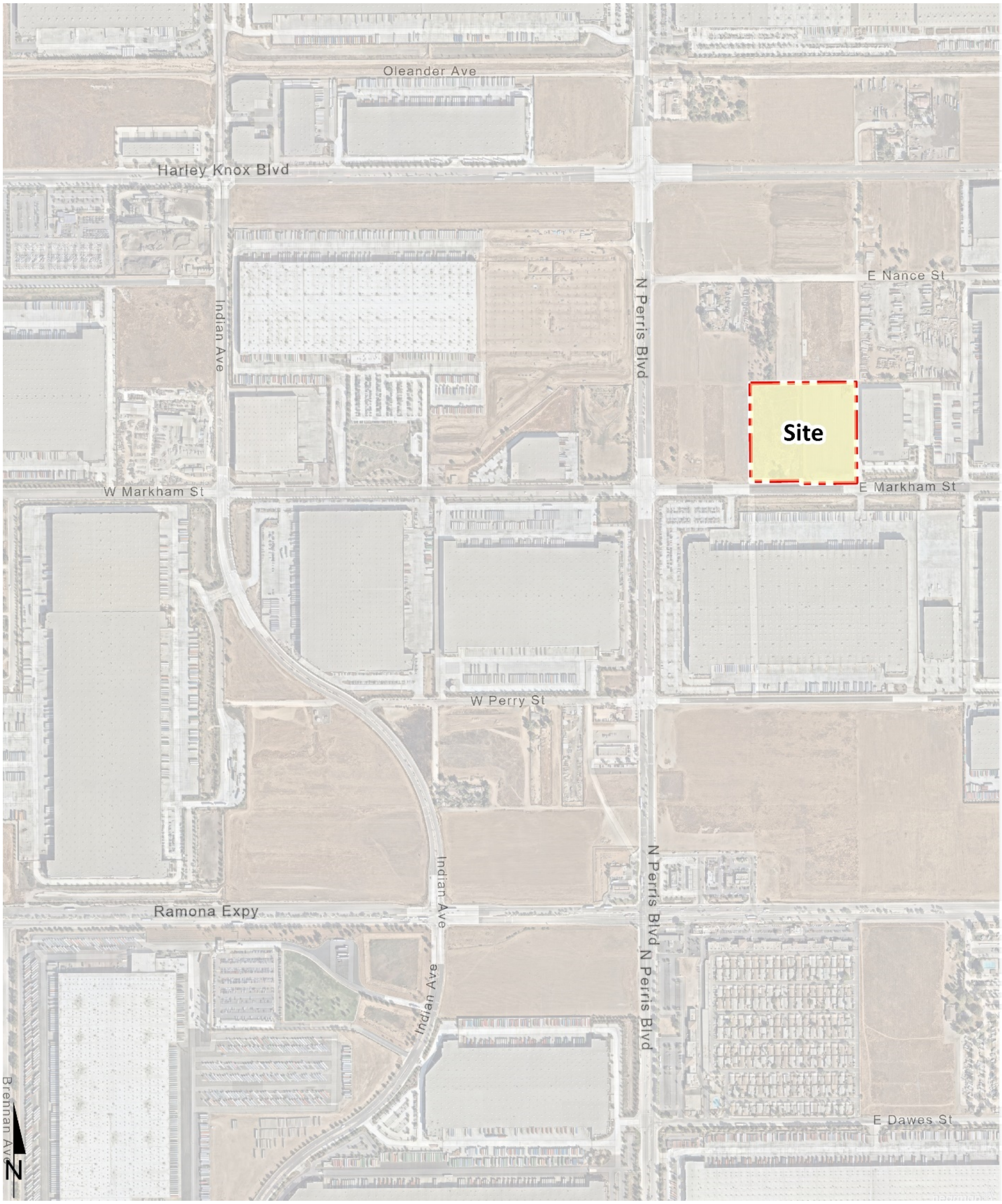
1.1 SUMMARY OF FINDINGS

The Project is proposing to construct the following improvements as design features in conjunction with development of the site:

- The Project's frontage along Markham Street is currently constructed to its ultimate General Plan Roadway cross-section. However, the Project should make improvements needed to accommodate curb-and-gutter, sidewalk, landscaping, and other improvements needed to accommodate site access.
- Project to construct Driveway 1 on Markham Street with stop controls for the southbound traffic in order to facilitate site access. The current design for the northwest corner of Driveway 1 should reflect a 40-foot curb radius in order to accommodate the egress of heavy trucks.
- The proposed driveway is approximately 497-feet from an existing driveway to the west and approximately 311-feet from an existing driveway to the east (measured from centerline to centerline). The PVCCSP driveway spacing (per Table 4.0-2) requires a minimum of 660-feet for a roadway classified as a secondary arterial, such as Markham Street. It should be noted there are existing driveways along Markham Street that currently do not meet the 660-foot intersection spacing. The queuing analysis conducted for the Project driveway indicates there are no queuing issues anticipated with the proposed Project location with respect to the existing driveways to the west and east. As such, a full access driveway has been evaluated for the purposes of this analysis.

Additional details and intersection lane geometrics are provided in Section 1.7 *On-Site Roadway Improvements* and Section 1.8 *Site Access Improvements* of this report.

EXHIBIT 1-1: LOCATION MAP



1.2 PROJECT OVERVIEW

The Project is proposed to consist of a 250-parking stall truck yard on 9.52 acres. The Project is anticipated to be constructed in a single phase in 2021. The proposed Project land use is for the PVCC SP is Business/Professional Office. Vehicular and truck traffic access will be provided via the Driveway 1 on Markham Street (full access) (see Exhibit 1-2). Regional access to the Project site is provided via the I-215 Freeway and Harley Knox Boulevard/Ramona Expressway Interchanges. Note there is no truck traffic permitted on Ramona Expressway within the City of Perris.

The Institute of Transportation Engineers (ITE) Trip Generation Manual (10^{th} Edition, 2017) does not currently have any trip generation rates for a truck yard, as such, trip generation estimates for the proposed Project have been developed using data collected at another facility with operations similar to those proposed. (2) The Project is estimated to generate 464 two-way trips per day on a typical weekday with approximately 33 AM peak hour trips and 36 PM peak hour trips. The assumptions and methods used to estimate the Project's trip generation characteristics are discussed in greater detail in Section 4.1 *Project Trip Generation* of this report.

1.3 ANALYSIS SCENARIOS

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

- Existing (2021)
- Existing Plus Project (E+P)
- Existing Plus Ambient Growth Plus Cumulative Projects (EAC) (2021)
- Existing Plus Ambient Growth Plus Project Plus Cumulative Projects (EAPC) (2021)

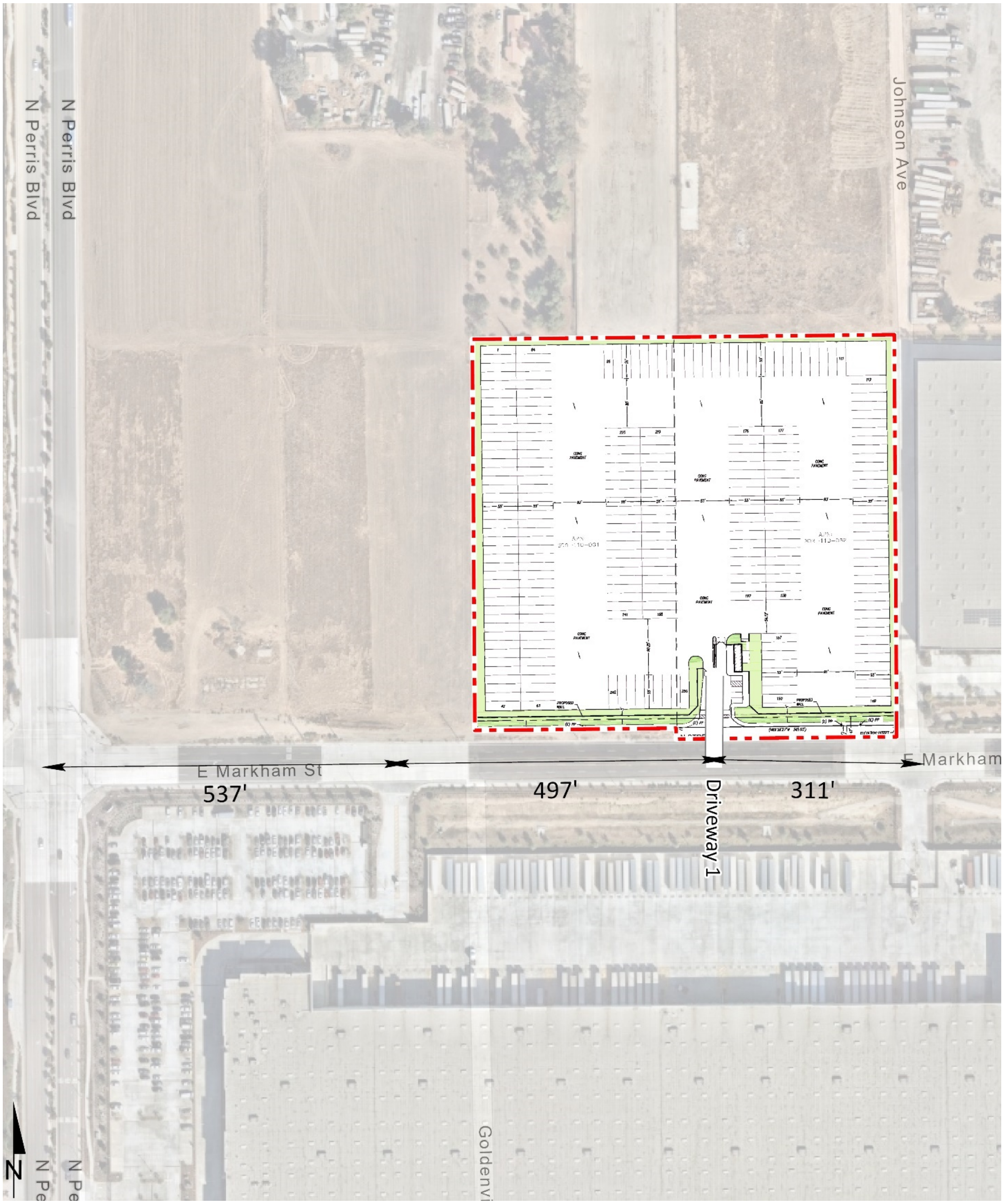
1.3.1 EXISTING (2021) CONDITIONS

Information for Existing (2021) conditions is disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared. Traffic counts were conducted in May 2017, when local schools were in session and operating on a typical bell schedule. Due to the currently ongoing COVID-19 pandemic, new traffic could not be conducted. As such, 2017 traffic counts were adjusted by 3% per year (compounded annually) over 4 years to reflect 2021 baseline traffic conditions. Based on vehicle classification, vehicles were converted to passenger-car-equivalent (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 traffic operation and circulation system deficiencies that would occur on the existing roadway system in the scenario of the Project being placed upon Existing conditions.

EXHIBIT 1-2: PRELIMINARY SITE PLAN



1.3.3 EXISTING PLUS AMBIENT GROWTH PLUS PROJECT PLUS CUMULATIVE (2021) CONDITIONS

No additional background growth has been applied between Existing (2021) conditions and the Project Opening Year (2021) as they occur in the same year. However, the TA conservatively adds traffic generated by other known or probable related projects. In some instances, these related projects would likely not be implemented and operational within the 2021 Opening Year time frame assumed for the Project. A comparison of EAC and EAPC (2021) traffic conditions will be used to identify peak hour cumulative intersection operational deficiencies.

1.4 STUDY AREA

To ensure that this TA satisfies the City of Perris' traffic study requirements, Urban Crossroads, Inc. prepared a Project traffic study scoping package for review by City of Perris staff prior to the preparation of this report.

1.4.1 INTERSECTIONS

The 2 study area intersections shown on Exhibit 1-3 and listed in Table 1-1 were selected for this TA based on the City's Traffic Study Guidelines and in consultation with City of Perris staff. The City requires analysis of intersections where the Project would contribute 50 or more peak hour trips.

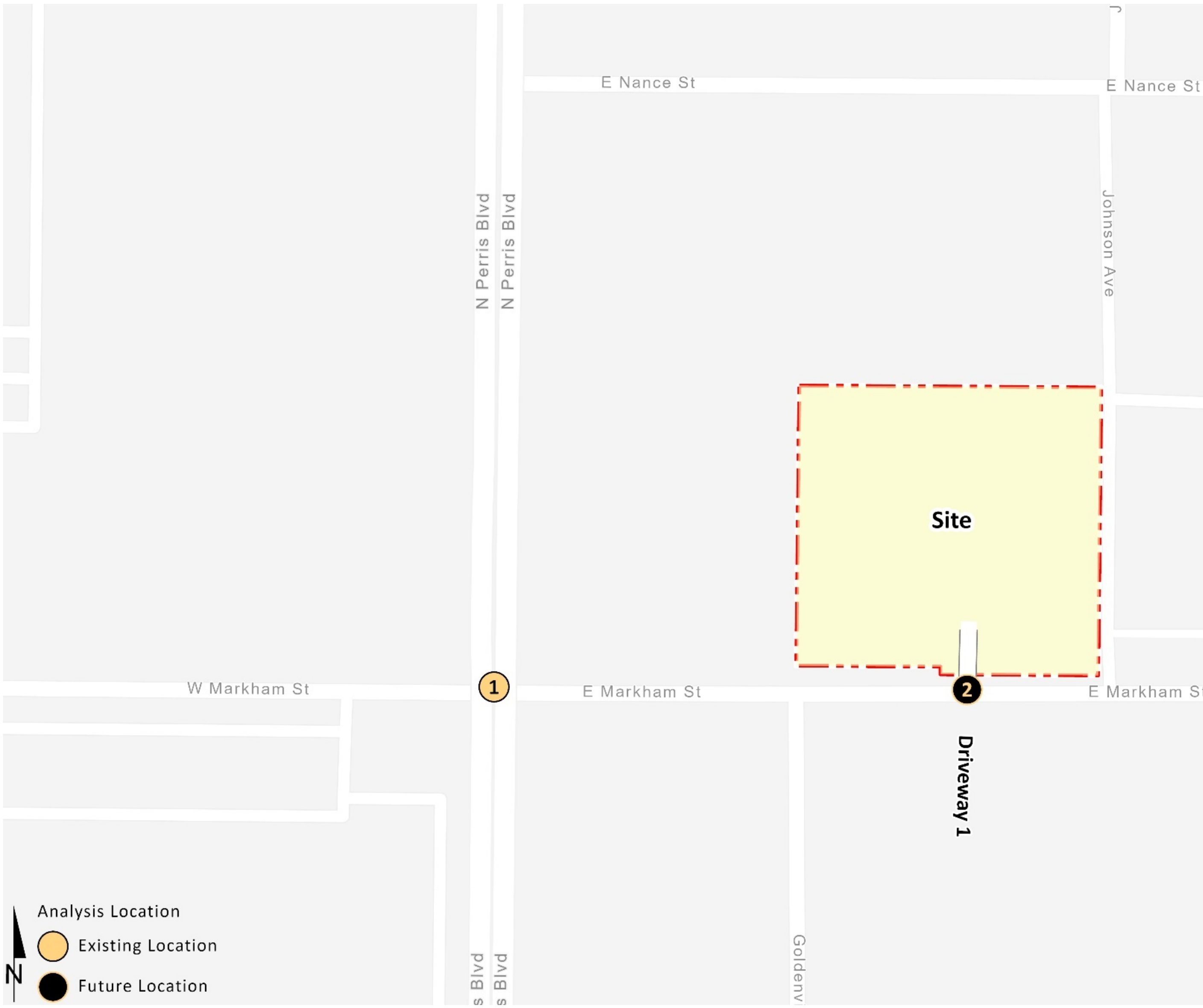
TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction	CMP?
1	Perris Bl. & Markham St.	City of Perris	No
2	Driveway 1 & Markham St. – Future Intersection	City of Perris	No

* Note: CMP = Congestion Management Program

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 deficiencies, 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)

EXHIBIT 1-3: STUDY AREA



1.5 DEFICIENCIES

This section provides a summary of deficiencies by analysis scenario. Section 2 *Methodologies* provides information on the methodologies used in the analysis and Section 6 *EAC and EAPC (2021) Traffic Conditions* includes the detailed analysis. A summary of LOS results for all analysis scenarios is presented on Table 1-2, which indicates all study area intersections are anticipated to operate at an acceptable LOS for all analysis scenarios. As such, no improvements have been recommended.

TABLE 1-2: SUMMARY OF LOS BY ANALYSIS SCENARIO

#	Intersection	Existing AM	Existing PM	E+P AM	E+P PM	EAC (2021) AM	EAC (2021) PM	EAPC (2021) AM	EAPC (2021) PM
1	Perris Bl. & Markham St.	●	●	●	●	●	●	●	●
2	Driveway 1 & Markham St.	N/A	N/A	●	●	N/A	N/A	●	●

● = A - D ● = E ● = F

1.6 RECOMMENDATIONS

This section provides a summary of deficiencies and recommended improvements. Section 2 *Methodologies* provides information on the methodologies used in the analyses and Section 5 *E+P Traffic Analysis*, and Section 6 *EAC and EAPC (2021) Traffic Analysis* include the detailed analyses. The study area intersections are anticipated to operate at an acceptable LOS for all analysis scenarios (see Table 1-2). Each project implementing the PVCC SP is required to incorporate applicable mitigation from the PVCC Specific Plan EIR. The relevant traffic mitigation measures from the PVCC Specific Plan EIR are identified in Section 1.6.1.

1.6.1 PVCC SPECIFIC PLAN EIR TRAFFIC MITIGATION MEASURES

MM Trans 1 Future implementing development projects shall construct on-site roadway improvements pursuant to the general alignments and right-of-way sections set forth in the PVCC Circulation Plan, except where said improvements have previously been constructed.

MM Trans 2 Sight distance at the project entrance roadway of each implementing development project shall be reviewed with respect to standard City of Perris sight distance standards at the time of preparation of final grading, landscape and street improvement plans.

MM Trans 3 Each implementing development project shall participate in the phased construction of off-site traffic signals through payment of that project's fair share of traffic signal mitigation fees and the cost of other off-site improvements through payment of fair share mitigation fees which include Western Riverside Council of Governments (WRCOG) Transportation Uniform Mitigation Fee (TUMF), DIF (Development Impact Fee), and the NPRBBD (North Perris Road and Bridge

Benefit District). The fees shall be collected and utilized as needed by the City of Perris to construct the improvements necessary to maintain the required level of service and build or improve roads to their build-out level.

MM Trans 4 Prior to the approval of individual implementing development projects, the Riverside Transit Agency (RTA) shall be contacted to determine if the RTA has plans for the future provision of bus routing in the project area that would require bus stops at the project access points. If the RTA has future plans for the establishment of a bus route that will serve the project area, road improvements adjacent to the project site shall be designed to accommodate future bus turnouts at locations established through consultation with the RTA. RTA shall be responsible for the construction and maintenance of the bus stop facilities. The area set aside for bus turnouts shall conform to RTA design standards, including the design of the contact between sidewalk and curb and gutter at bus stops and the use of ADA-compliant paths to the major building entrances in the project.

MM Trans 5 Bike racks shall be installed in all parking lots in compliance with City of Perris standards.

MM Trans 6 Each implementing development project that is located adjacent to the MWD Trail shall coordinate with the City of Perris Parks and Recreation Department to determine the development plan for the trail.

MM Trans 7 Implementing project-level traffic studies shall be required for all subsequent implementing development proposals within the boundaries of the PVCC as approved by the City of Perris Engineering Department. These subsequent traffic studies shall identify specific project deficiencies and needed roadway improvements to be constructed in conjunction with each implementing development project. All intersection spacing for individual tracts or maps shall conform to the minimum City intersection spacing standards. All turn pocket lengths shall conform at least to the minimum City turn pocket length standards. If any of the proposed improvements are found to be infeasible, the implementing development project applicant would be required to provide alternative feasible improvements to achieve levels of service satisfactory to the City.

MM Trans 8 Proposed mitigation measures resulting from project-level traffic studies shall be coordinated with the North Perris Road and Bridge Benefit District (NPRBBD) to ensure that they are in conformance with the ultimate improvements planned by the NPRBBD. The applicant shall be eligible to receive proportional credits against the NPRBBD for construction of project level mitigation that is included in the NPRBBD.

1.7 SITE ADJACENT ROADWAY IMPROVEMENTS

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

Markham Street – Markham Street is an east-west oriented roadway located along the Project's southern boundary. Markham Street is currently constructed to its ultimate pavement section width as a Secondary Arterial along the Project's frontage, consistent with the PVCC SP and the City of Perris General Plan Circulation Element. However, the Project should make improvements needed to accommodate curb-and-gutter, sidewalk, landscaping, and other improvements needed to accommodate site access.

1.8 SITE ACCESS IMPROVEMENTS

The recommended site access driveway improvements for the Project are described below. Exhibit 1-4 also illustrates the site access improvements on the concept striping plan. 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 & Markham Street – Install a stop control on the southbound approach and construct the intersection with the following geometrics:

- Northbound Approach: Not Applicable (N/A)
- Southbound Approach (Driveway 1): One shared left-right turn lane.
- Eastbound Approach: One left turn lane (storage to be accommodated within the existing painted median) with two through lanes.
- Westbound Approach: One through lane and one shared through-right turn 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 PVCC Specific Plan or City of Perris General Plan Circulation Element.

On-site traffic signing and striping should be implemented agreeable with the provisions of the California Manual on Uniform Traffic Control Devices (CA MUTCD) and in conjunction with detailed construction plans for the Project site.

Sight distance at each project access point should be reviewed with respect to standard City of Perris sight distance standards at the time of preparation of final grading, landscape and street improvement plans.

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EXHIBIT 1-4: MARKHAM STREET CONCEPT STRIPING PLAN

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1.9 QUEUING ANALYSIS AT THE PROJECT DRIVEWAYS

A queuing analysis was conducted for the Project Driveway on Markham Street for EAPC (2021) traffic conditions to determine the 95th percentile queues. The analysis was conducted for the weekday AM and weekday PM peak hours. The traffic modeling and signal timing optimization software package Synchro/SimTraffic (Version 10) has been utilized to assess queues at the Project access points. Synchro is a macroscopic traffic software program that is based on the signalized and unsignalized intersection capacity analyses as specified in the HCM. SimTraffic is designed to model networks of signalized and unsignalized intersections, with the primary purpose of checking and fine-tuning signal operations. SimTraffic uses the input parameters from Synchro to generate random simulations. The 95th percentile queue is not necessarily ever observed; it is simply based on statistical calculations (or Average Queue plus 1.65 standard deviations). Many jurisdictions utilize the 95th percentile queues for design purposes. SimTraffic simulations have been recorded 5 times, during the weekday AM and weekday PM peak hours, and has been seeded for 15-minute periods with 60-minute recording intervals. Queuing results are provided in Appendix 1.2.

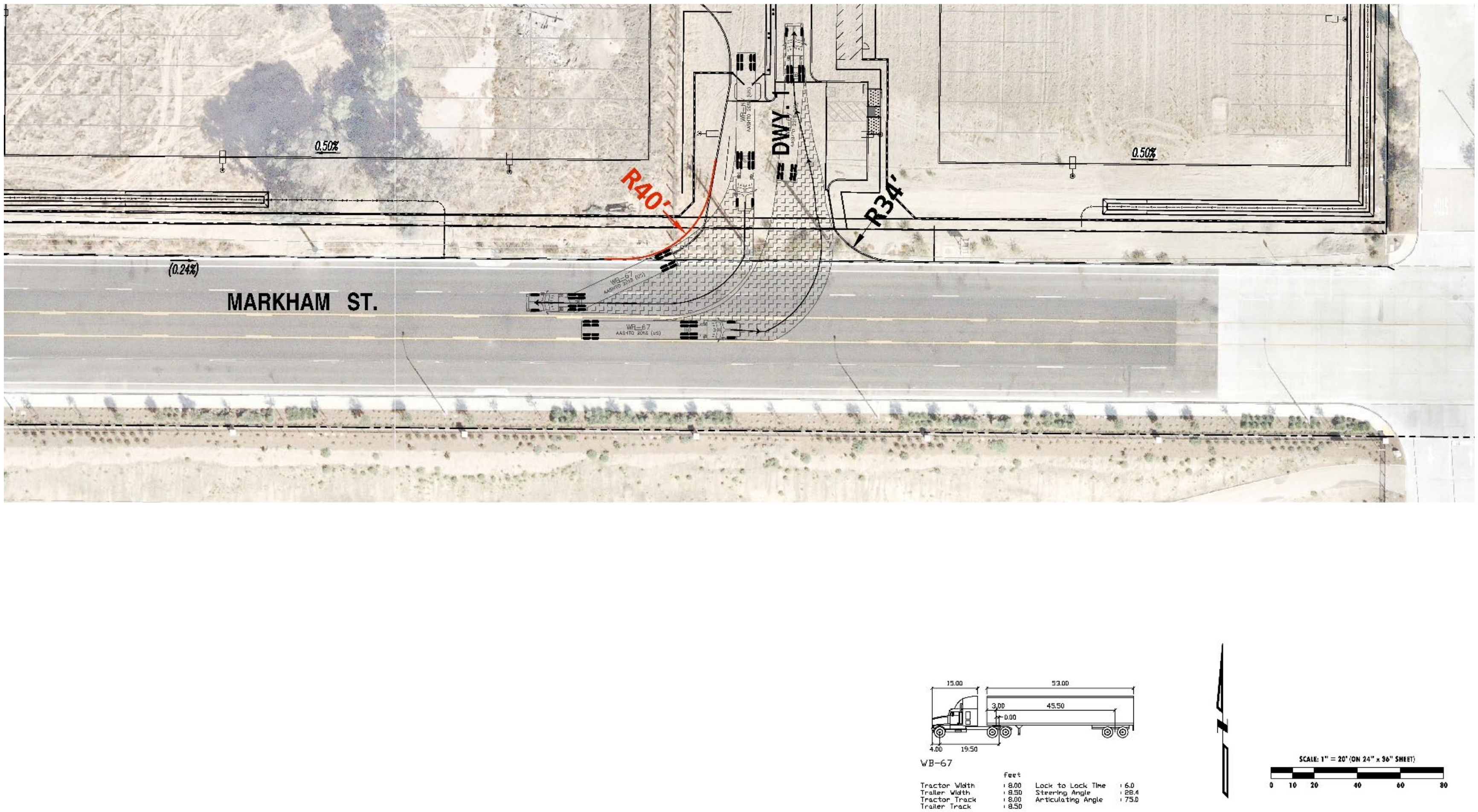
The proposed driveway is approximately 497-feet from an existing driveway to the west and approximately 311-feet from an existing driveway to the east (measured from centerline to centerline). The PVCCSP driveway spacing (per Table 4.0-2) requires a minimum of 660-feet for a roadway classified as a secondary arterial, such as Markham Street. It should be noted there are existing driveways along Markham Street that currently do not meet the 660-foot intersection spacing. Based on the 95th percentile queues under EAPC (2021) traffic conditions, no driveway blockages are anticipated along Markham Street during the peak hours. As such, the proposed Project Driveway spacing with respect to the adjacent existing driveways accommodates enough storage to accommodate the 95th percentile queues in both the eastbound and westbound directions. As such, a full access driveway has been evaluated for the purposes of this analysis.

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 the Project driveways in order to determine appropriate curb radii and to verify that trucks will have sufficient space to execute turning maneuvers. As shown on Exhibit 1-5, it is recommended that the following curb radii be modified in order to accommodate the wide turning radius of heavy trucks (WB-67, which has a 53-foot trailer):

- The northwest corner of Driveway 1 on Markham Street should accommodate a 40-foot curb radius.

EXHIBIT 1-5: TRUCK TEMPLATES



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 City of Perris traffic study guidelines.

2.1 LEVEL OF SERVICE

Traffic operations of roadway facilities are described using the term "Level of Service" (LOS). LOS is a qualitative description of traffic flow based on several factors such as speed, travel time, delay, and freedom to maneuver. Six levels are typically defined ranging from LOS A, representing completely free-flow conditions, to LOS F, representing breakdown in flow resulting in stop-and-go conditions. LOS E represents operations at or near capacity, an unstable level where vehicles are operating with the minimum spacing for maintaining uniform flow.

2.2 INTERSECTION CAPACITY ANALYSIS

The definitions of LOS for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control. The LOS is typically dependent on the quality of traffic flow at the intersections along a roadway. The Highway Capacity Manual (HCM) methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. (4) The HCM uses different procedures depending on the type of intersection control.

2.2.1 SIGNALIZED INTERSECTIONS

The City of Perris requires signalized intersection operations analysis based on the methodology described in the HCM. (4) However, there are currently no siganlized study area intersections. 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.

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 have been adjusted using a peak hour factor (PHF) to reflect peak 15-minute volumes. Common practice for LOS analysis is to use a peak 15-minute rate of flow. However, flow rates are typically expressed in vehicles per hour. The PHF is the relationship between the peak 15-minute flow rate and the full hourly volume (e.g. PHF = [Hourly Volume] / [4 x Peak 15-minute Flow Rate]). The use of a 15-minute PHF produces a more detailed analysis as compared to analyzing vehicles per hour. Existing PHFs have been used for Existing (2020) baseline, E+P, EAC (2023), EAPC (2023) and Horizon Year (2040) traffic conditions.

2.2.2 UNSIGNALIZED INTERSECTIONS

The City of Perris requires the operations of unsignalized intersections be evaluated using the methodology described the HCM. (4) 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. The "worst case" movement delay and LOS is reported for the intersection. 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 TA uses the signal warrant criteria presented in the latest edition of the California Department of Transportation (Caltrans) California Manual on Uniform Traffic Control Devices *(CA MUTCD)* for all study area intersections. (5)

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. (5) Specifically, this TA 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 TA 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
2	Driveway 1 & Markham St.	City of Perris

Traffic signal warrant analyses were performed for all of the full access unsignalized study area intersections. There was no traffic signal warrant analysis performed for Existing traffic conditions as all of the existing study area intersections are signalized. The traffic signal warrant analyses for future conditions are presented in Section 5 *E+P Traffic Analysis* and Section 6 *EAC and EAPC (2021) Traffic Analysis* 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 City of Perris' General Plan. LOS D along all City maintained roads (including intersections) and LOS D along I-215 and SR-74 (including intersections with local streets and roads). An exception to the local road standard is LOS E, at intersections of any Arterials and Expressways with SR-74, the Ramona-Cajalco Expressway, or at I-215 Freeway ramps. (6)

LOS E may be allowed within the boundaries of the Downtown Specific Plan Area to the extent that it would support transit-oriented development and walkable communities. Increased congestion in this area will facilitate an increase in transit ridership and encourage Development of a complementary mix of land uses within a comfortable walking distance from light rail stations.

2.5 SIGNIFICANCE 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 City of Perris. To determine whether the addition of project-related traffic at a study intersection would result in a deficiency, the following will be utilized:

- A project-related deficiency is considered direct and significant when a study intersection operates at an acceptable LOS for existing conditions (without the project) and the addition of 50 or more AM or PM peak hour project trips causes the intersection to operate at an unacceptable LOS for existing plus project (E+P) traffic conditions.
- A project-related deficiency is considered direct and significant when a study intersection operates at an unacceptable LOS for existing conditions (without the project) and the addition of 50 or more AM or PM peak hour project trips causes the intersection delay to increase by 2 seconds or more.
- A cumulative deficiency is considered significant when a study intersection is forecast to operate at an unacceptable LOS with the addition of cumulative/background traffic and 50 or more AM or PM peak hour project trips.

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3 AREA CONDITIONS

This section provides a summary of the existing circulation network, the City of Perris 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 City of Perris staff (Appendix 1.1), the study area includes a total of 2 existing and future intersections as shown previously on Exhibit 1-2. 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 PVCC SP in the City of Perris. Exhibit 3-2 shows the City of Perris General Plan Circulation Element and Exhibit 3-3 illustrates the City of Perris General Plan roadway cross-sections. Exhibit 3-4 illustrates the PVCC SP Circulation Plan and Exhibit 3-5 shows the corresponding PVCC SP roadway cross-sections. Markham Street is designated as a Secondary Arterial on both the City's and PVCC SP circulation plans.

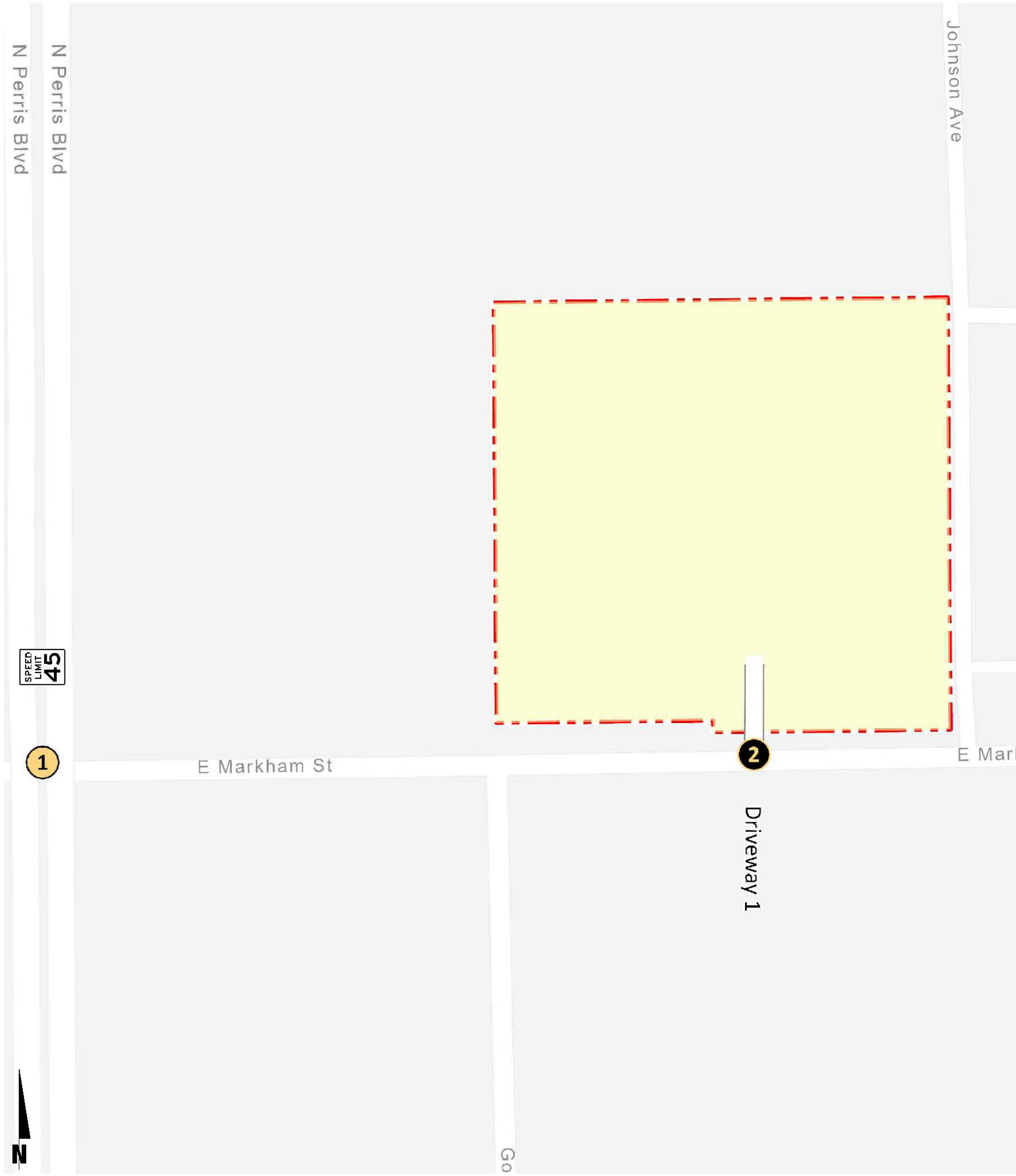
3.3 TRUCK ROUTES

The City of Perris designated truck route map is shown on Exhibit 3-6. Perris Boulevard is identified as a designated truck route. The PVCC SP truck route plan is shown on Exhibit 3-7. The truck route identified within the study area on Exhibit 3-7 is consistent with those identified on Exhibit 3-6. These designated truck route maps have been utilized to route truck traffic from the Project and future cumulative development projects throughout the study area.

3.4 TRANSIT SERVICE

Mass transit routes within the PVCC SP are shown on Exhibit 3-8. Exhibit 3-8 also shows existing routes along Perris Boulevard. The study area is currently served by the Riverside Transit Authority (RTA), a public transit agency serving the Riverside County region. RTA currently serves the study area via Route 19, which could potentially serve the proposed Project. 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.

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



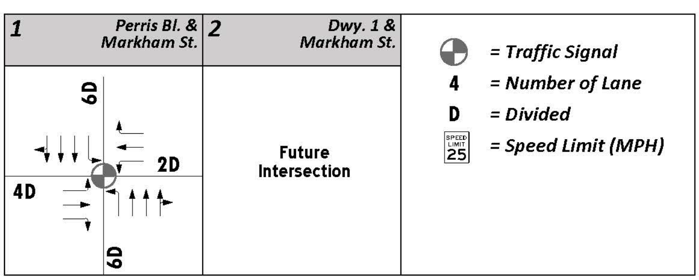


EXHIBIT 3-2: CITY OF PERRIS GENERAL PLAN CIRCULATION ELEMENT

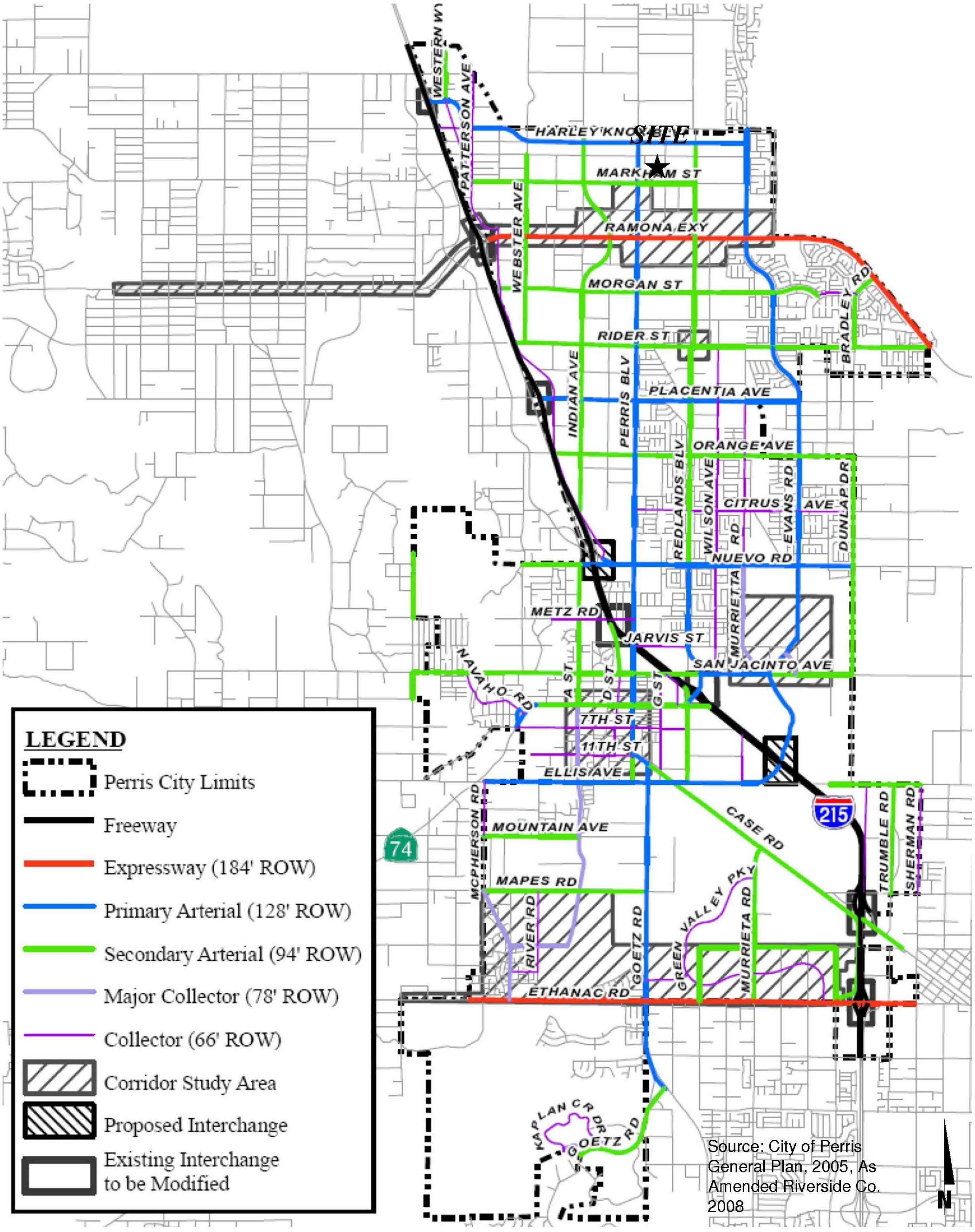
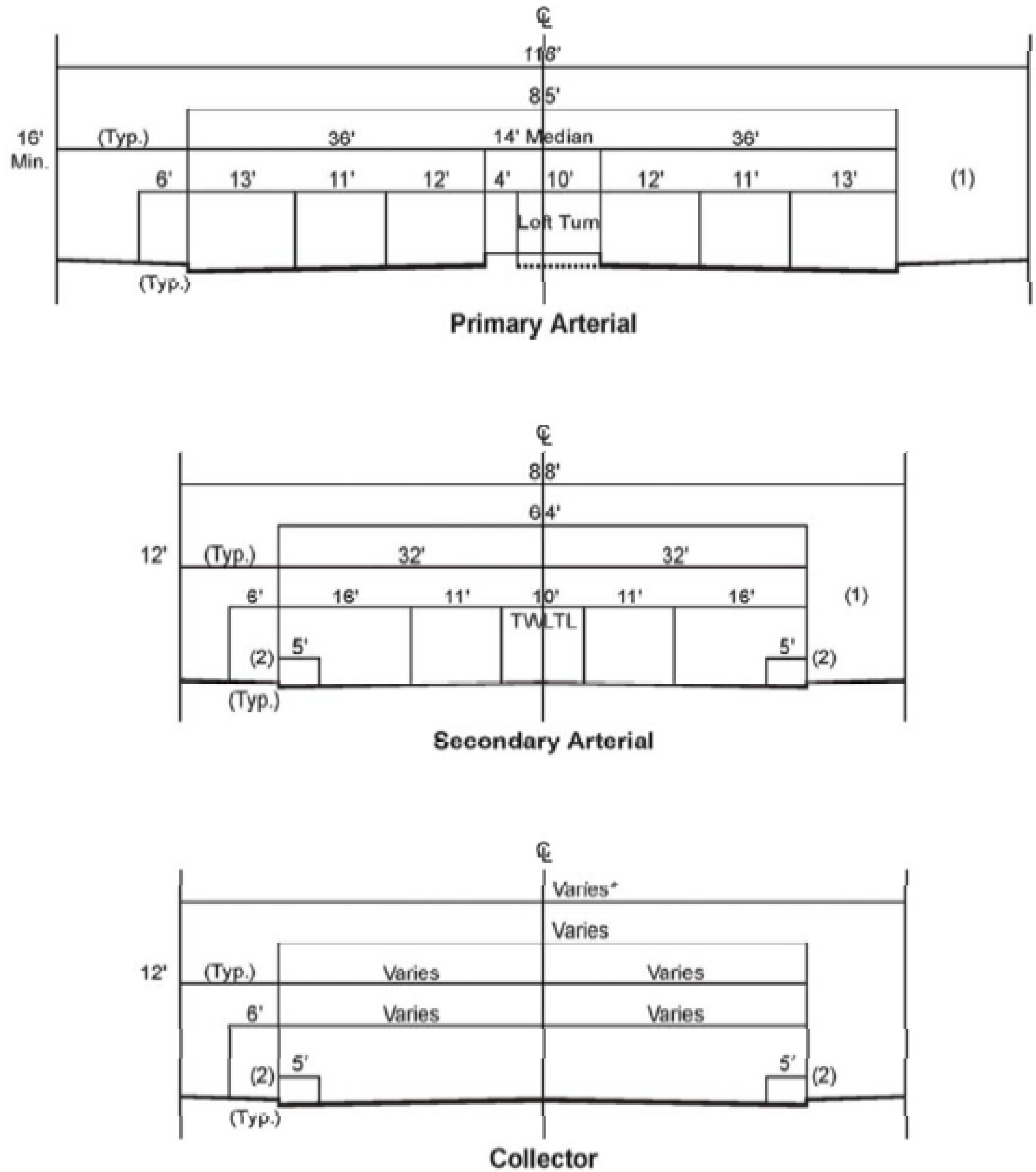


EXHIBIT 3-3: CITY OF PERRIS GENERAL PLAN ROADWAY CROSS-SECTIONS



Legend

(1) No stopping any time both sides.

(2) Bike lane where designated.

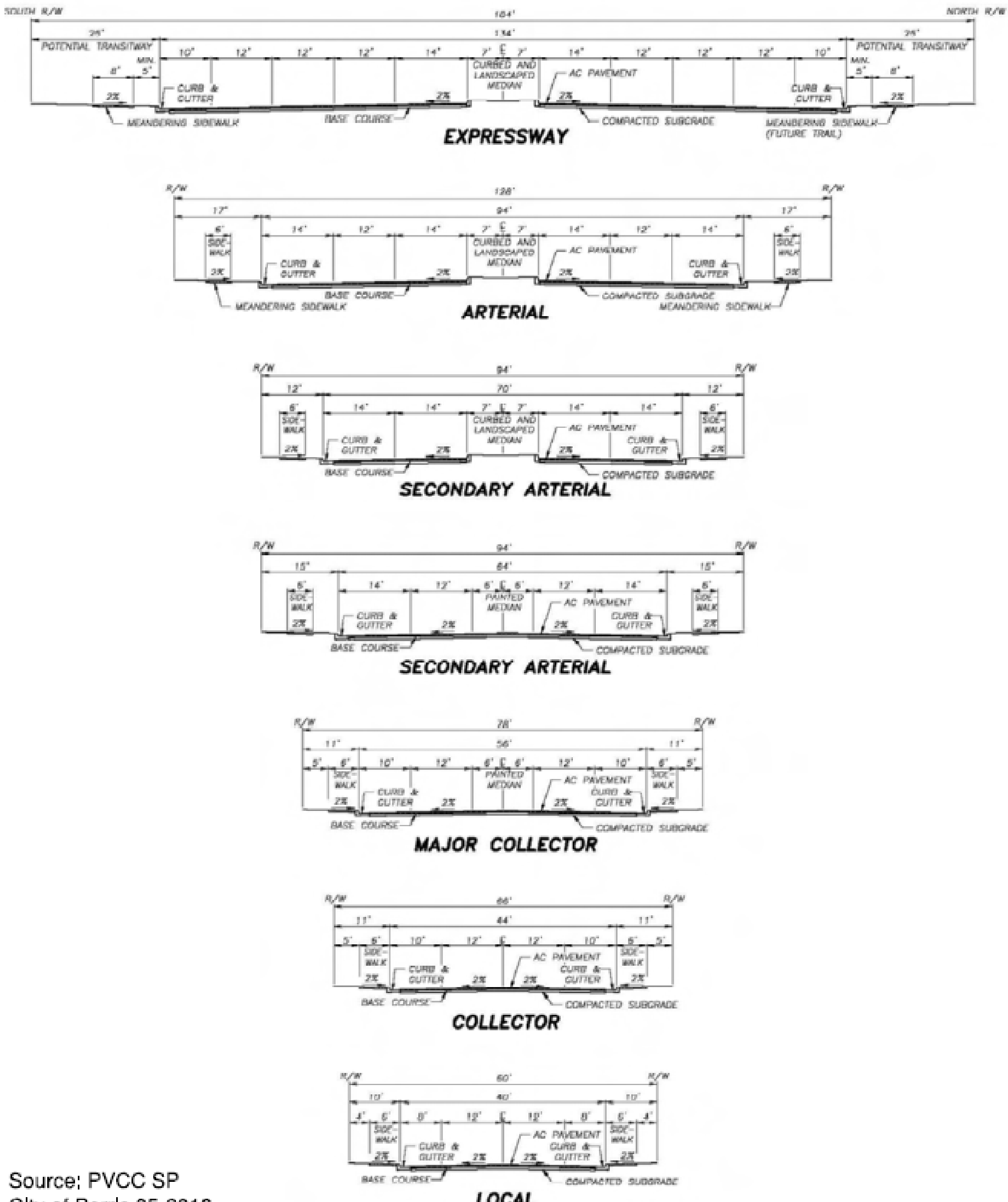
* The width of the collector street can range from 40 feet to 64 feet curb-to-curb.

TWLTL = Two Way Left Turn Lane

Source: City of Perris General Plan 8-2008

EXHIBIT 3-4: PERRIS VALLEY COMMERCE CENTER SPECIFIC PLAN CIRCULATION PLAN

EXHIBIT 3-5: PERRIS VALLEY COMMERCE CENTER SPECIFIC PLAN CROSS-SECTIONS



Source: PVCC SP
City of Perris 05-2018

EXHIBIT 3-6: CITY OF PERRIS TRUCK ROUTES

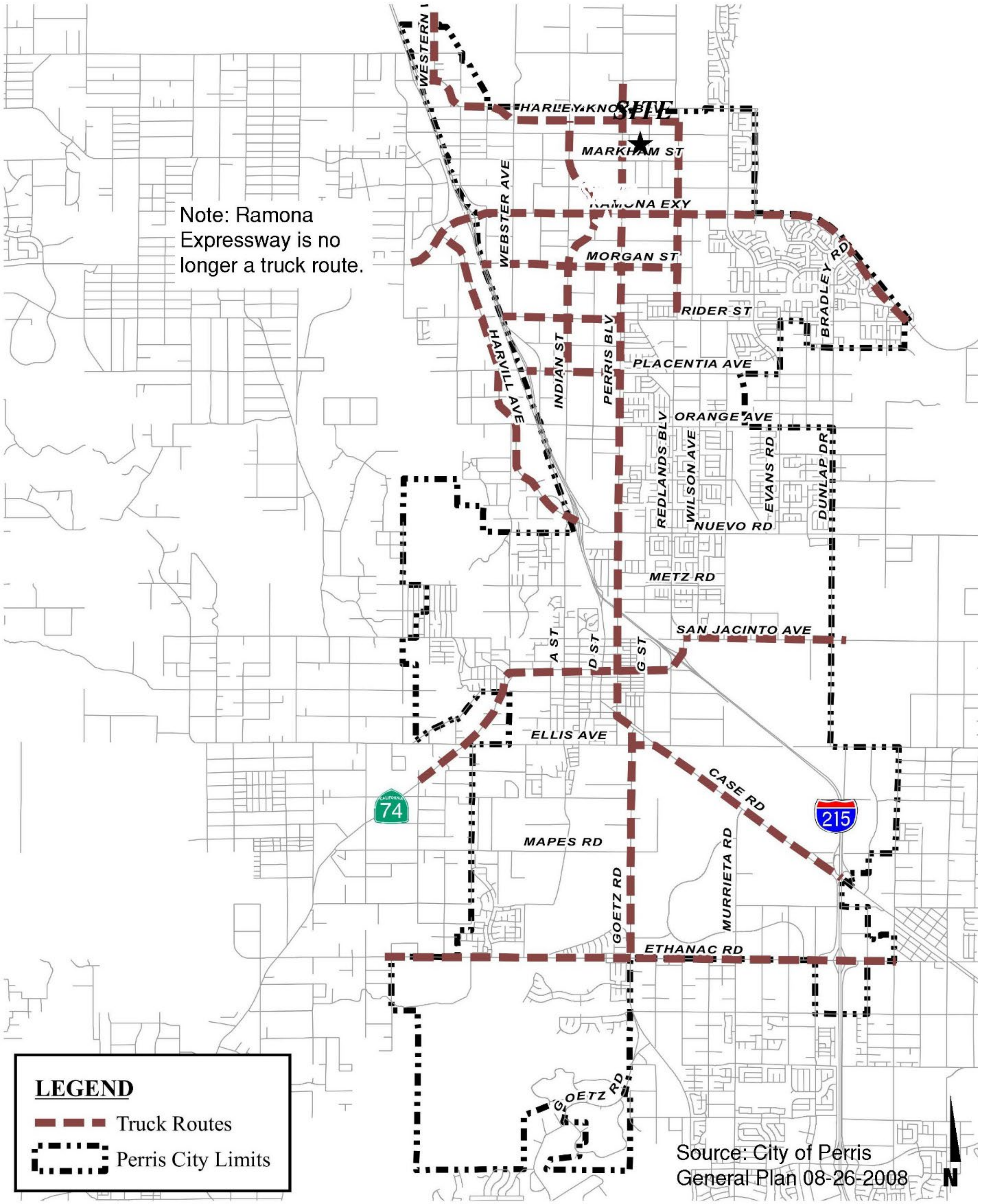


EXHIBIT 3-7: PERRIS VALLEY COMMERCE CENTER SPECIFIC PLAN TRUCK ROUTE PLAN

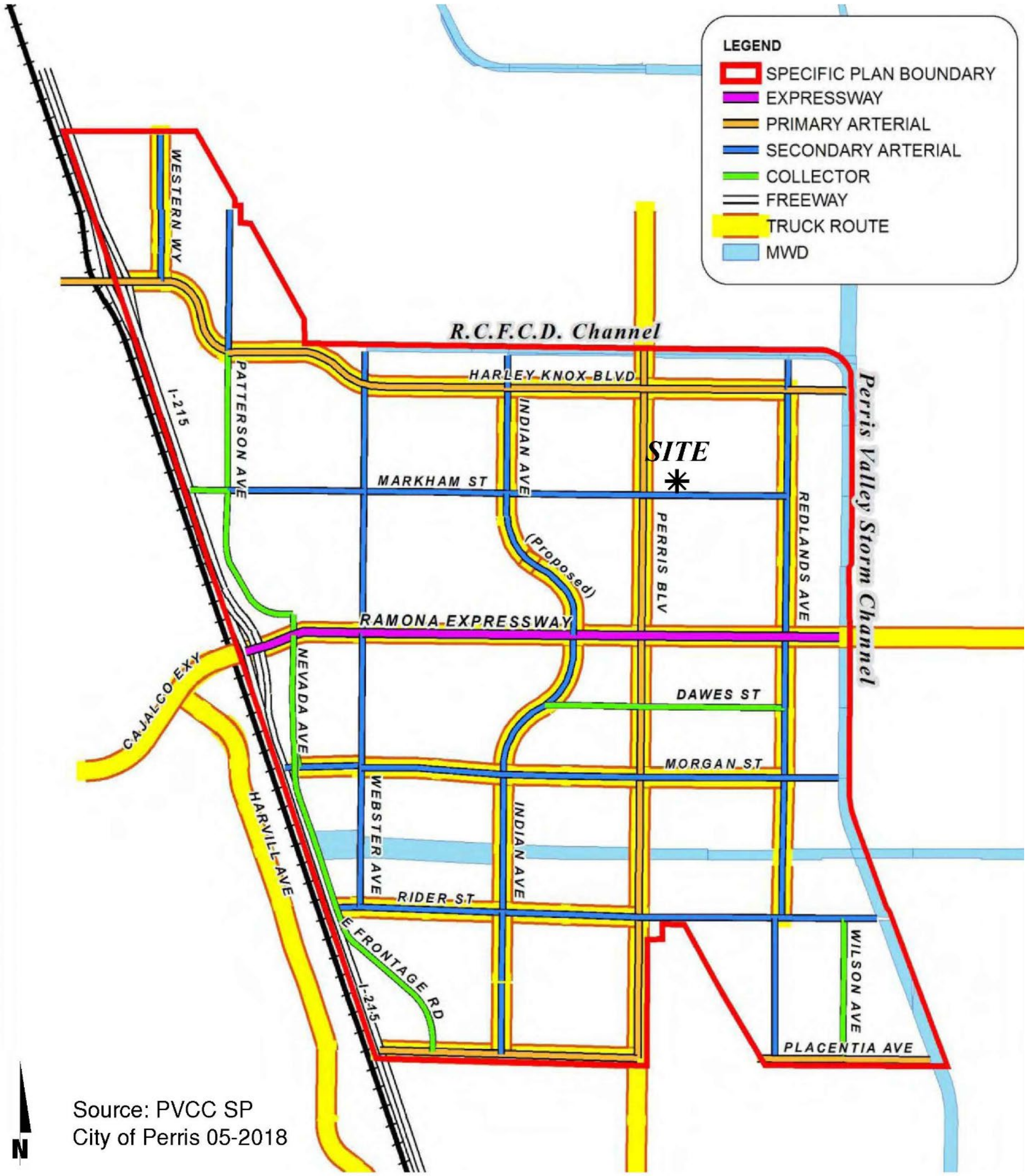


EXHIBIT 3-8: PERRIS VALLEY COMMERCE CENTER SPECIFIC PLAN MASS TRANSIT ROUTES

3.5 Bicycle & Pedestrian Facilities

In an effort to promote alternative modes of transportation, the City of Perris also includes a proposed bikeways and trail system. The City of Perris proposed bikeways and trail system is shown on Exhibit 3-9. Perris Boulevard is proposed to have Class II bike lanes. PVCC SP Trail System is shown on Exhibit 3-10. Exhibit 3-11 illustrates the existing bicycle and pedestrian facilities, including bike lanes, sidewalks and crosswalk locations. Markham Street is currently striped with Class II bike lanes on both the north and south sides of the street.

3.6 Existing Traffic Counts

Due to the currently ongoing COVID-19 pandemic, new traffic counts could not be collected at this location. As such, a historic traffic count collected at the intersection of Perris Boulevard and Markham Street in May 2017 has been used for the purposes of establishing baseline traffic conditions. The May 2017 traffic counts were adjusted by applying a 3% per year growth adjustment (consistent with other studies in the area) to establish a 2021 baseline condition. As such, the adjustment applied is 12.55% (3% per year, compounded annually over 4 years). 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 historic weekday AM and weekday PM peak hour count data are 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 May 2017 include the vehicle classifications as shown below:

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

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 County of Riverside traffic study guidelines. (7)

EXHIBIT 3-9: CITY OF PERRIS PROPOSED BIKEWAYS AND TRAIL IMPROVEMENTS

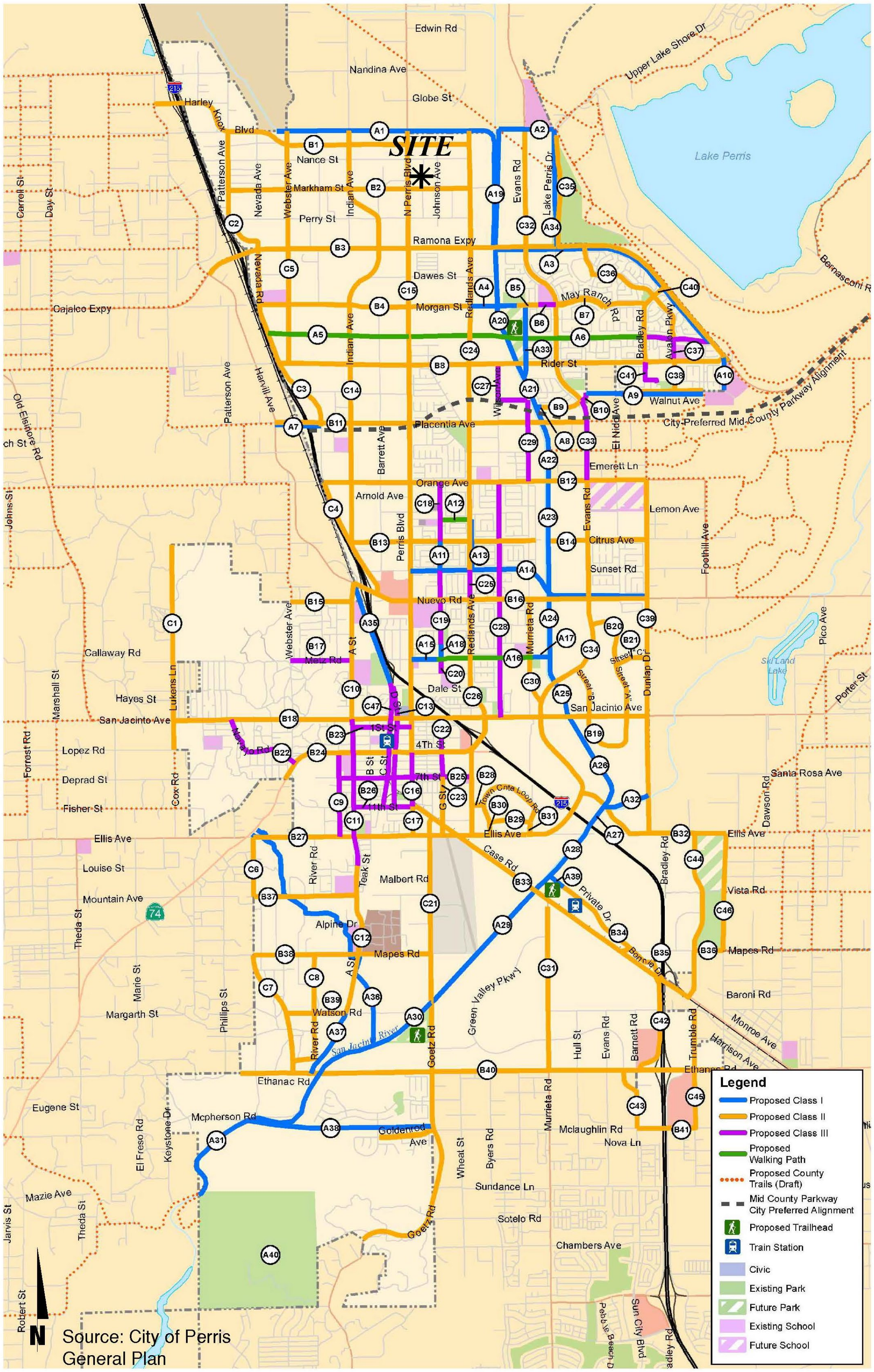
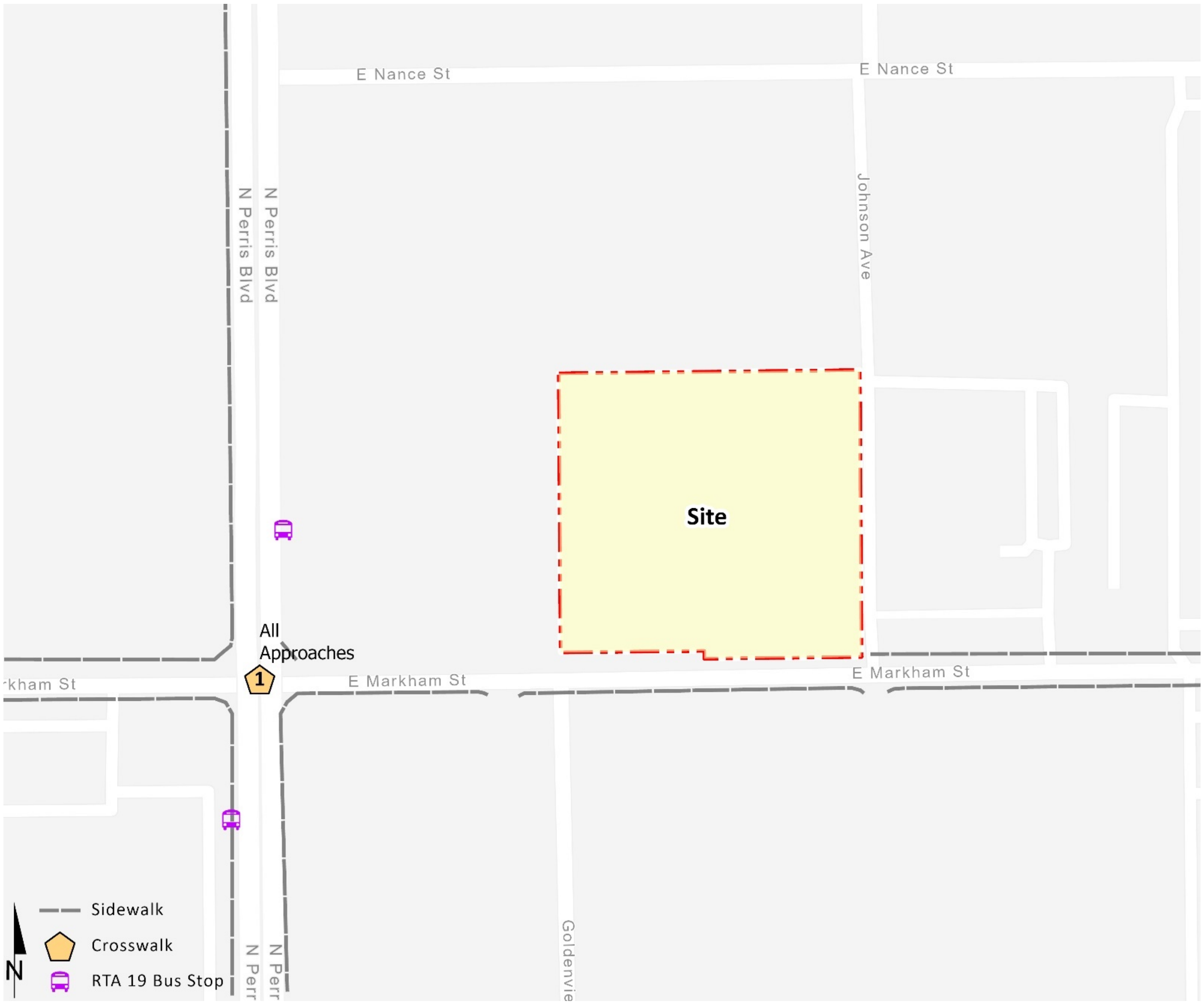


EXHIBIT 3-10: PERRIS VALLEY COMMERCE CENTER SPECIFIC PLAN TRAIL SYSTEM

EXHIBIT 3-11: EXISTING PEDESTRIAN FACILITIES



Existing weekday average daily traffic (ADT) volumes on arterial highways throughout the study area are shown on Exhibit 3-12 (in actual vehicles). 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 12.37 = 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 8.08 percent. As such, the above equation utilizing a factor of 12.37 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 8.08 percent (i.e., 1/0.0808 = 12.37) 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 actual vehicles) are also shown on Exhibit 3-12.

3.7 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 the study area intersections are currently operating at an acceptable LOS during the peak hours (i.e., LOS D or better). The intersection operations analysis worksheets are included in Appendix 3.2 of this TA.

TABLE 3-1: INTERSECTION ANALYSIS FOR EXISTING (2021) CONDITIONS

#	Intersection	Traffic Control[1]	Delay[2] (secs.) AM	Delay[2] (secs.) PM	Level of Service AM	Level of Service PM
1	Perris Bl. & Markham St.	TS	10.3	11.2	B	B
2	Driveway 1 & Markham St.		Future Intersection			

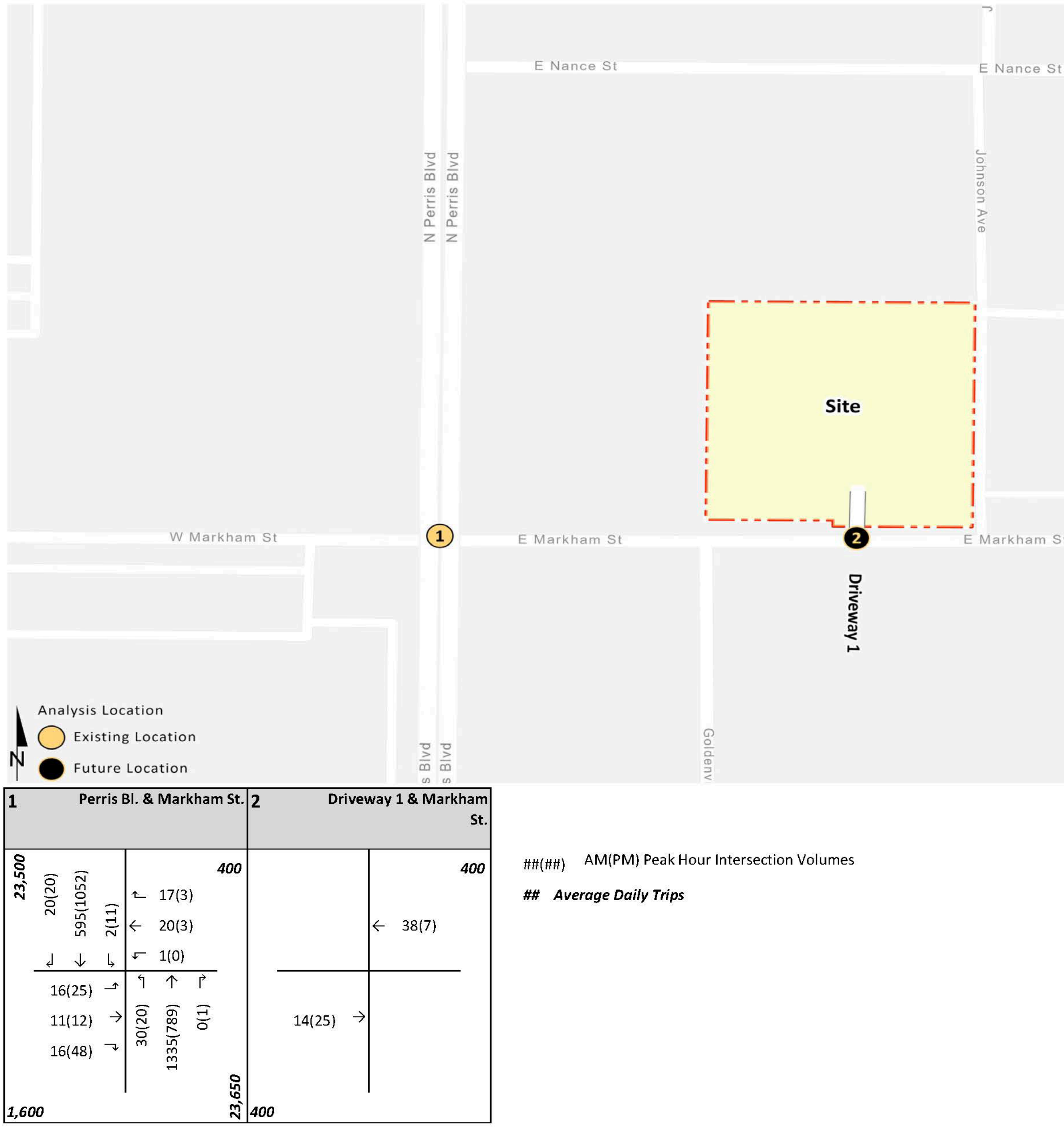
[1] TS = Traffic Signal

[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.

3.8 Traffic Signal Warrants Analysis

Traffic signal warrants for Existing traffic conditions are based on existing peak hour intersection turning volumes. No traffic signal warrant analysis has been performed for Existing (2021) traffic conditions as all of the existing intersections are currently signalized.

EXHIBIT 3-12: EXISTING (2021) TRAFFIC VOLUMES (IN ACTUAL VEHICLES)



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4 PROJECTED FUTURE TRAFFIC

The Project is proposed to consist of a 250-parking stall truck yard on 9.52 acres. The Project is anticipated to be constructed in a single phase by the year 2021. Vehicular and truck traffic access will be provided via the Driveway 1 on Markham Street (full access). Regional access to the Project site is provided via the I-215 Freeway and Harley Knox Boulevard/Ramona Expressway Interchanges. Note there is no truck traffic permitted on Ramona Expressway within the City of Perris.

4.1 PROJECT TRIP GENERATION

4.1.1 PROPOSED 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. The ITE Trip Generation Manual (10th Edition, 2017) does not currently have any trip generation rates for a truck yard, as such, trip generation estimates for the proposed Project have been developed using data collected at another facility with operations similar to those proposed. Table 4-1 summarizes the count data collected at the facility and the actual counts are included in Appendix 1.1. Table 4-2 shows the trip generation rates for the existing facility which have been developed based on acreage using the data collected at the site shown on Table 4-1. The trip generation rates were calculated by dividing the trips by the acreage.

TABLE 4-1: EXISTING EMPIRICAL DATA

		AM Peak Hour			PM Peak Hour			
Existing Site	**Quantity Units[1]**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**Daily**
Trip Generation Summary of Existing Uses:								
5087 Patterson Avenue	4.500 AC							
Passenger Cars:		0	2	2	1	1	2	38
2-axle Trucks:		0	5	5	3	0	3	36
3-axle Trucks:		1	0	1	1	0	1	38
4+-axle Trucks:		1	0	1	0	3	3	58
Total Trucks (Actual Vehicles)		2	5	7	4	3	7	132
5087 Patterson Av. Total Trips (Actual Vehicles)		**2**	**7**	**9**	**5**	**4**	**9**	**170**

** Data presented based on driveway counts conducted on January 23, 2019.

[1] AC = Acres (Total acreage of site)

TABLE 4-2: CALCULATED TRIP GENERATION RATES

Land Use	Units²	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Actual Vehicles:								
Trailer Yard	AC							
Passenger Cars:		0.000	0.444	0.444	0.222	0.222	0.444	8.444
2-axle Trucks:		0.000	1.111	1.111	0.667	0.000	0.667	8.000
3-axle Trucks:		0.222	0.000	0.222	0.222	0.000	0.222	8.444
4+-axle Trucks:		0.222	0.000	0.222	0.000	0.667	0.667	12.889
Passenger Car Equivalent (PCE):								
Trailer Yard	AC							
Passenger Cars:		0.000	0.444	0.444	0.222	0.222	0.444	8.444
2-axle Trucks (PCE = 1.5):		0.000	1.667	1.667	1.000	0.000	1.000	12.000
3-axle Trucks (PCE = 2.0):		0.444	0.000	0.444	0.444	0.000	0.444	16.889
4+-axle Trucks (PCE = 3.0):		0.667	0.000	0.667	0.000	2.000	2.000	38.667

[1] Average trip generation rate developed from empirical data summarized on Table 1.

[2] AC = Acres (Total acreage of site)

As noted on 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 the County's traffic study guidelines.

Based on the calculated trip generation rates shown on Table 4-2, the Project's trip generation is summarized on Table 4-3. The proposed Project trip generation is based on the anticipated operations for the site. Specifically, it has been assumed that approximately 40 spaces that would be available for leasing to private drivers. These drivers would enter the site with their passenger cars to pick up a tractor (no trailers) and return in the evening for their personal vehicles. Approximately 20% of these trips would occur during the morning and evening peak hour. The remainder of the site (7.997 acres) would likely be leased to a single tenant. These assumptions are assumed in the calculation of the trip generation shown on Table 4-3.

TABLE 4-3: CALCULATED TRIP GENERATION RATES

Land Use	Quantity	Units[1]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Actual Vehicles:									
Trailer Yard: Individual Leased Spaces[2]	40	PS							
Passenger Cars:			8	0	8	0	10	10	80
2-axle Trucks:			0	8	8	10	0	10	80
3-axle Trucks:			0	0	0	0	0	0	0
4+-axle Trucks:			0	0	0	0	0	0	0
Total Trucks (Actual Vehicles)			0	8	8	10	0	10	80
Trailer Yard	7.997	AC							
Passenger Cars:			0	4	4	2	2	4	68
2-axle Trucks:			0	9	9	5	0	5	64
3-axle Trucks:			2	0	2	2	0	2	68
4+-axle Trucks:			2	0	2	0	5	5	104
Total Trucks (Actual Vehicles)			4	9	13	7	5	12	236
Total Project Trips (Actual Vehicles)			**12**	**21**	**33**	**19**	**17**	**36**	**464**
Passenger Car Equivalent (PCE):									
Trailer Yard: Individual Leased Spaces[2]	40	PS							
Passenger Cars:			8	0	8	0	10	10	80
2-axle Trucks:			0	12	12	15	0	15	120
3-axle Trucks:			0	0	0	0	0	0	0
4+-axle Trucks:			0	0	0	0	0	0	0
Total Trucks (PCE)			0	12	12	15	0	15	120
Trailer Yard	7.997	AC							
Passenger Cars:			0	4	4	2	2	4	68
2-axle Trucks:			0	13	13	8	0	8	96
3-axle Trucks:			4	0	4	4	0	4	136
4+-axle Trucks:			5	0	5	0	16	16	310
Total Trucks (PCE)			9	13	22	12	16	28	542
Total Project Trips (PCE)			**17**	**29**	**46**	**29**	**28**	**57**	**810**

1 PS = Parking Stalls (Trucks); AC = Acres

2 Initial estimates based on leasing up to 16 percent of the lot to private drivers (40 spaces). Drivers would enter in their passenger car in the morning, pick up and exit their tractors (no trailers), and return in the evening.

5-6 AM = 25% of drivers arriving in car/departing with tractor
6-7 AM = 20% of drivers arriving in car/departing with tractor
7-8 AM = 20% of drivers arriving in car/departing with tractor (with remaining 35% distributed throughout the day)
5-6 PM = 25% of drivers arriving in tractor/departing with car
6-7 PM = 20% of drivers arriving in tractor/departing with car
7-8 PM = 20% of drivers arriving in tractor/departing with car (with remaining 35% distributed throughout the day)

The proposed Project's trip generation is shown on Table 4-3 based on actual vehicles. The proposed Project is anticipated to generate 464 two-way trips per day with 33 AM peak hour trips and 36 PM peak hour trips. For the purposes of the operations analysis, the PCE-based trip generation shown in Table 4-3 will be utilized.

4.1.2 GENERAL PLAN LAND USE COMPARISON

The Project is proposing a zoning change from Business / Professional Office to Light Industrial. As such, a comparison between the proposed Project trip generation estimates and the allowable General Plan uses is shown on Table 4-4. As shown in Table 4-4, the Project is anticipated to generate fewer peak hour trips than the allowable uses in the current General Plan land use. For this reason, Horizon Year traffic conditions has not been evaluated.

TABLE 4-4: TRIP GENERATION COMPARISON

Land Use[1]	Units[2]	ITE LU Code	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Passenger Car Equivalent (PCE) Trip Generation Rates:									
Manufacturing[3]	TSF	140	0.48	0.14	0.62	0.21	0.46	0.67	3.93
Passenger Cars			0.44	0.13	0.57	0.19	0.43	0.62	3.54
2-Axle Trucks (PCE = 1.5)			0.01	0.00	0.01	0.00	0.01	0.01	0.10
3-Axle Trucks (PCE = 2.0)			0.02	0.00	0.02	0.01	0.01	0.02	0.16
4+-Axle Trucks (PCE = 3.0)			0.07	0.02	0.09	0.03	0.06	0.09	0.74
Warehousing[3]	TSF	150	0.13	0.04	0.17	0.05	0.14	0.19	1.74
Passenger Cars			0.11	0.03	0.15	0.04	0.12	0.16	1.27
2-Axle Trucks (PCE = 1.5)			0.00	0.00	0.01	0.00	0.01	0.01	0.12
3-Axle Trucks (PCE = 2.0)			0.01	0.00	0.01	0.00	0.01	0.01	0.19
4+-Axle Trucks (PCE = 3.0)			0.03	0.01	0.04	0.01	0.04	0.05	0.88
General Office Building	TSF	710	1.00	0.16	1.16	0.18	0.97	1.15	9.74
Business Park	TSF	770	0.24	0.16	0.40	0.26	0.16	0.42	12.44

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

[2] TSF = thousand square feet

Land Use	Quantity	Units[1]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Existing General Plan Land Use:									
Manufacturing (0.75 FAR)[2]	311.000	TSF	167	50	217	72	159	231	1,412
Warehousing (0.75 FAR)[2]	311.000	TSF	49	15	64	20	53	73	768
General Office Building (0.75 FAR)[2]	311.000	TSF	310	51	361	57	300	357	3,030
Business Park (0.75 FAR)[2]	311.000	TSF	76	49	125	80	51	131	3,870
Proposed Project (see Table 4):									
Perris Truck Yard	9.520	AC	17	29	46	29	28	57	810
Net Reduction in Trip Generation (Manufacturing, 0.75 FAR):			**-150**	**-21**	**-171**	**-43**	**-131**	**-174**	**-602**
Net Reduction in Trip Generation (Warehousing, 0.75 FAR):			**-32**	**14**	**-18**	**9**	**-25**	**-16**	**42**
Net Reduction in Trip Generation (General Office Building, 0.75 FAR):			**-293**	**-22**	**-315**	**-28**	**-272**	**-300**	**-2,220**
Net Reduction in Trip Generation (Business Park, 0.75 FAR):			**-59**	**-20**	**-79**	**-51**	**-23**	**-74**	**-3,060**

[1] TSF = thousand square feet

[2] Current General Plan land use and zoning is Business/Professional Office. Manufacturing (ITE 140), Warehousing (ITE 150), Business Park (ITE 770), and General Office Building (ITE 820) land use used to calculate trip generation.
The square footage was calculated assuming a 0.75 floor-to-area ratio (FAR):
9.52 acres x 43,560 square feet/acre x 0.75 FAR

[3] Vehicle Mix Source: ITE Trip Generation Handbook Supplement (2020), Appendix C.
Truck Mix: South Coast Air Quality Management District's (SCAQMD) recommended truck mix, by axle type.
Normalized % - Without Cold Storage: 16.7% 2-Axle trucks, 20.7% 3-Axle trucks, 62.6% 4-Axle trucks.

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 City of Perris staff. The truck trip distribution patterns have been developed based on the anticipated travel patterns for the warehousing trucks. 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. It should be noted that the passenger car and truck trip distribution patterns assume the I-215 Freeway and Placentia Avenue interchange is in place (anticipated completion of the intersection per the County of Riverside is 2021).

The Project passenger car trip distribution pattern is graphically depicted on Exhibit 4-1. The Project truck trip distribution pattern is graphically depicted on Exhibit 4-2. Each of these distribution patterns was reviewed and approved by the City of Perris as part of the traffic study scoping process (see Appendix 1.1).

4.3 MODAL SPLIT

The traffic reducing potential of public transit, walking, or bicycling have not been considered in this TA. 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 movement volumes are shown on Exhibit 4-3 in actual vehicles.

4.5 BACKGROUND TRAFFIC

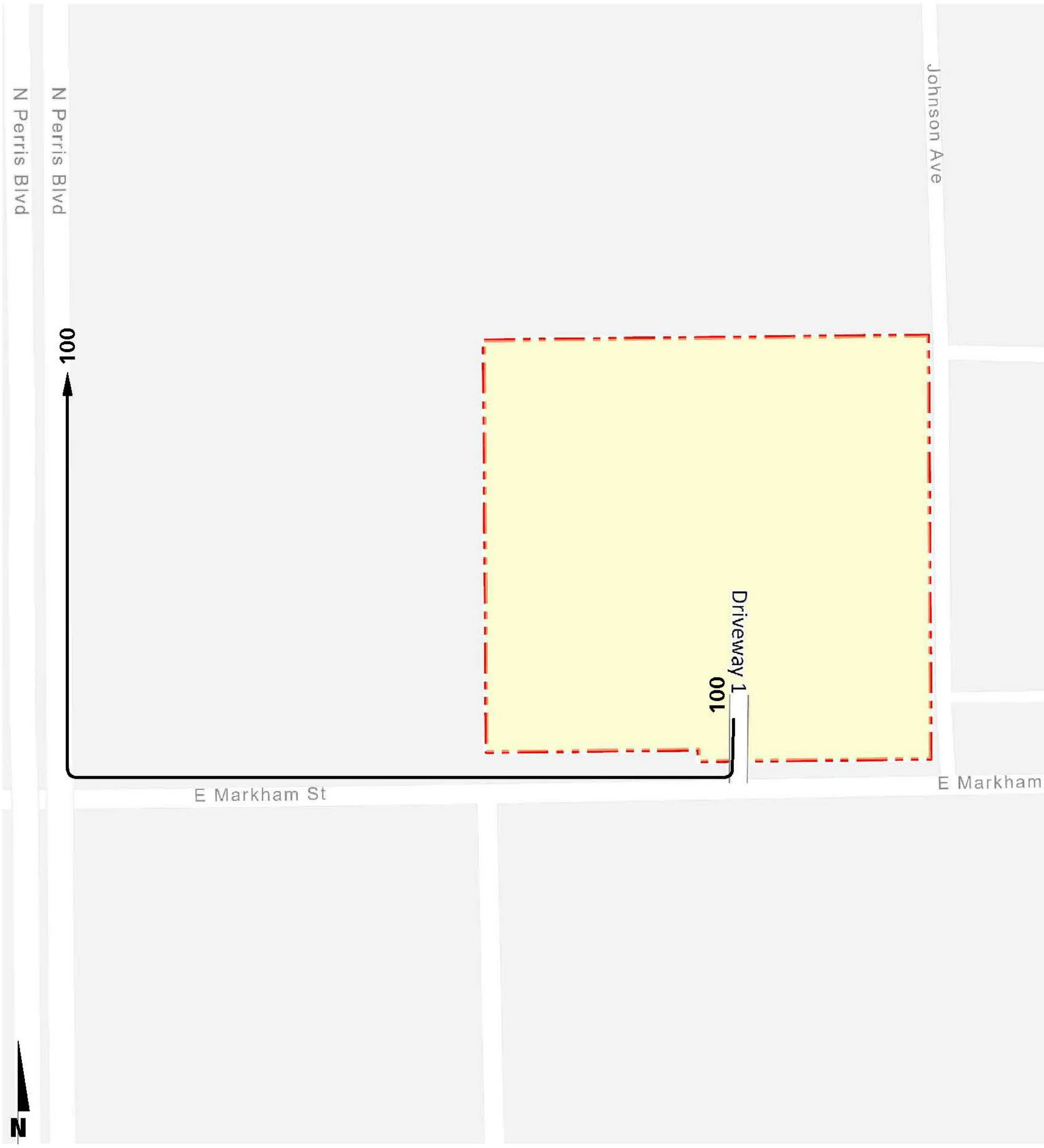
This ambient growth rate is added to existing traffic volumes to account for area-wide growth not reflected by cumulative development projects. However, since the Project's Opening Year is the same as the current baseline year, no additional background growth has been applied to the baseline traffic. However, 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 have been included.

EXHIBIT 4-1: PROJECT (PASSENGER CAR) TRIP DISTRIBUTION

LEGEND:

10 ***= PERCENT TO/FROM PROJECT***

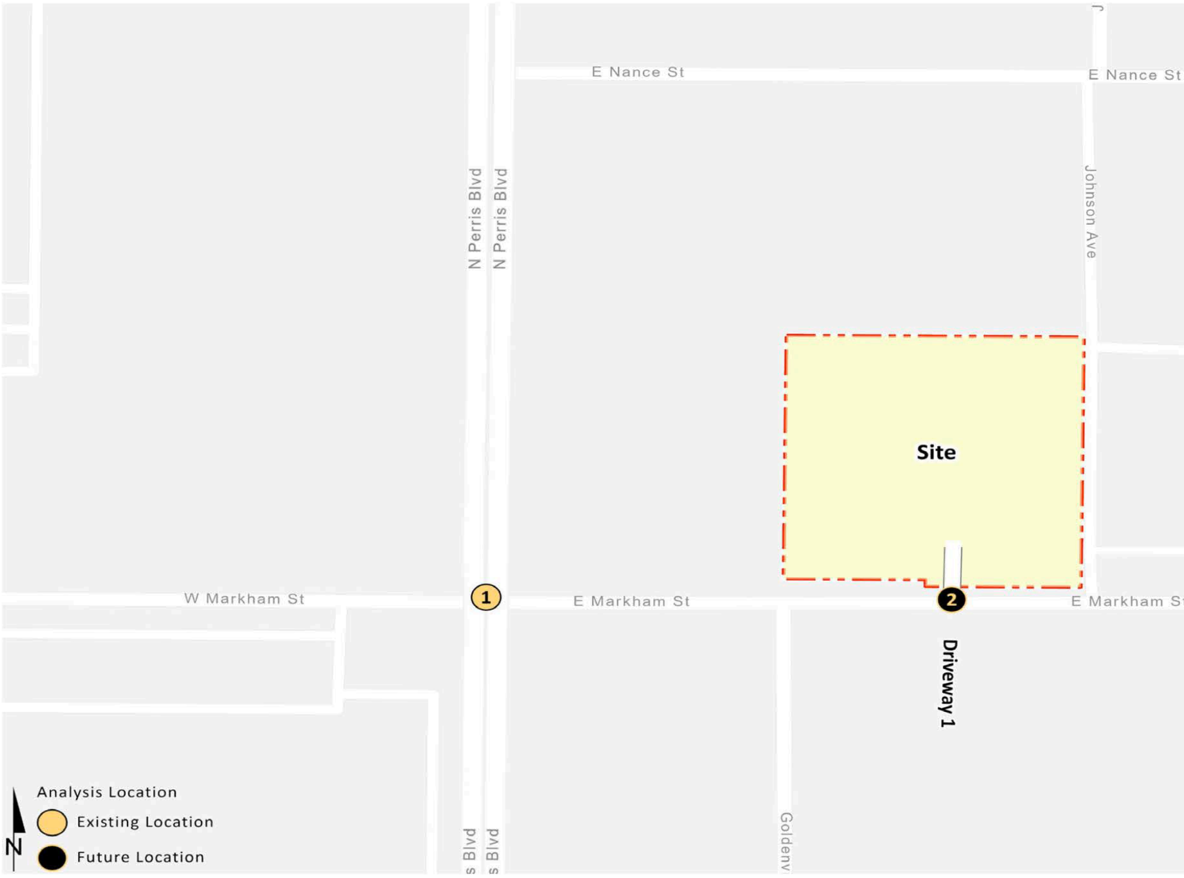
EXHIBIT 4-2: PROJECT (TRUCK) TRIP DISTRIBUTION

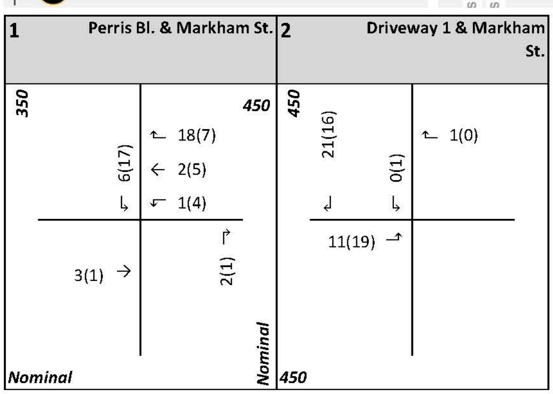


LEGEND:

10 ***= PERCENT TO/FROM PROJECT***

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





##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

4.6 CUMULATIVE DEVELOPMENT TRAFFIC

Other reasonably foreseeable development projects which are either approved or being processed concurrently in the study area have also been 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 City of Perris. The cumulative project list includes known and foreseeable projects that are anticipated to contribute traffic to the study area intersections. The adjacent jurisdictions of the County of Riverside and City of Moreno Valley 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 EAC and 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 4-5, and have been considered for inclusion.

Although it is unlikely that these cumulative projects would be fully built and occupied by Year 2021, they have been included in an effort to conduct a conservative analysis and overstate as opposed to understate potential traffic deficiencies. Any other cumulative projects 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. Cumulative Only ADT and peak hour intersection turning movement volumes are shown on Exhibit 4-5 in actual vehicles.

EXHIBIT 4-4: CUMULATIVE DEVELOPMENT LOCATION MAP

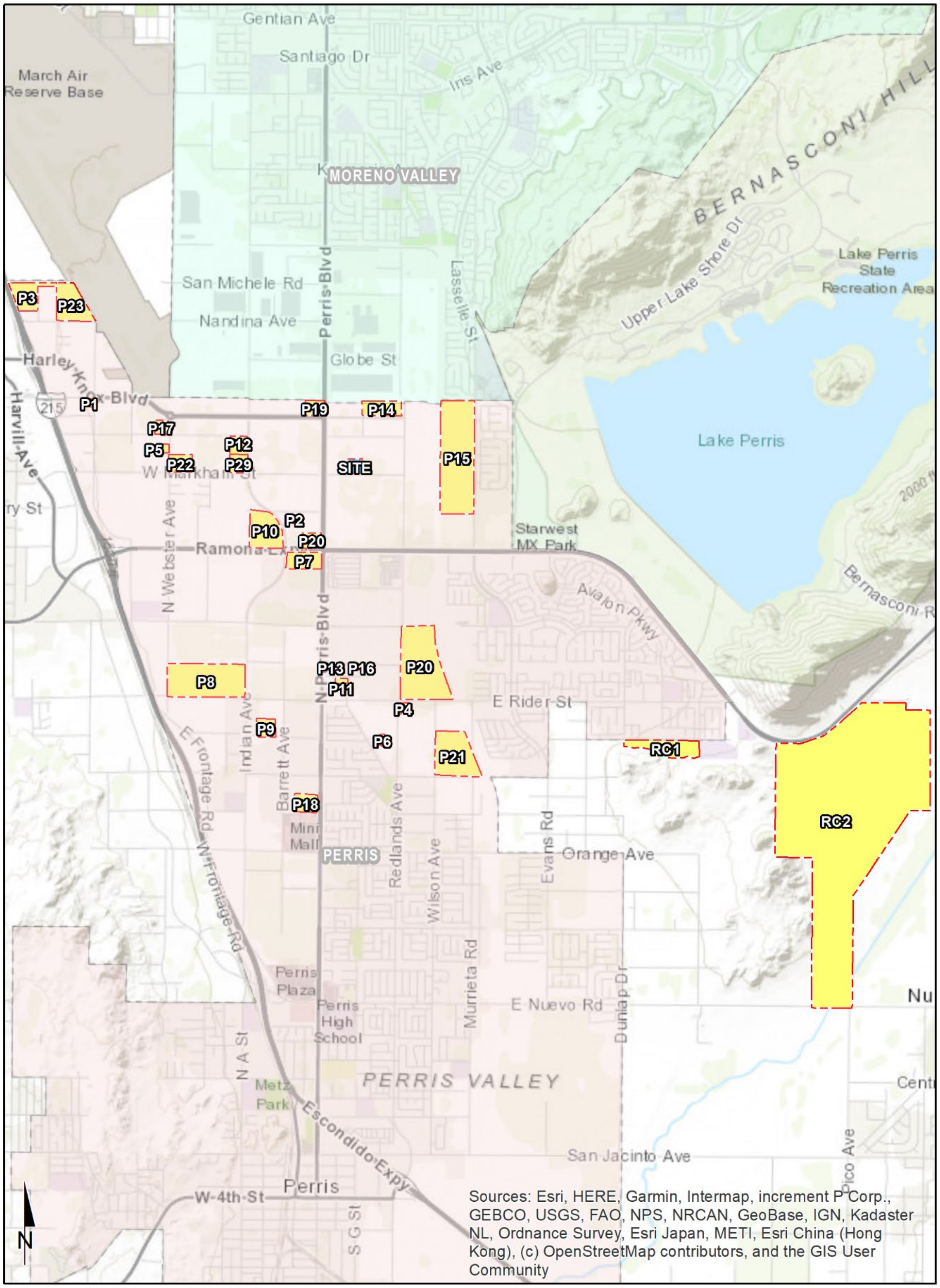
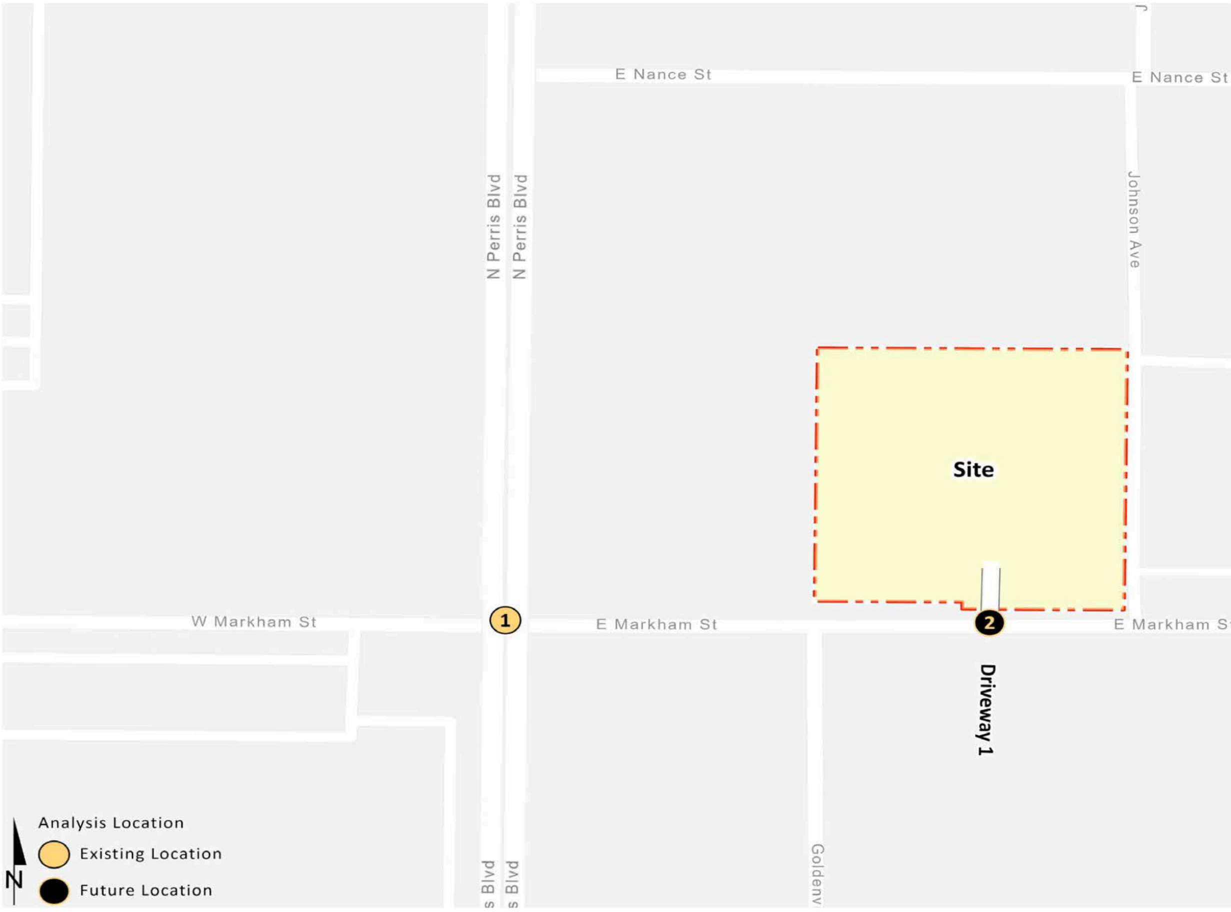
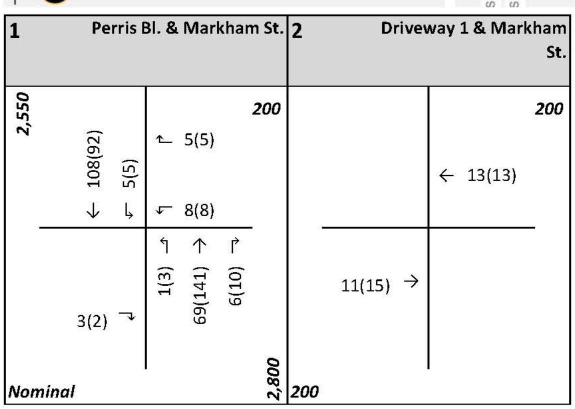


EXHIBIT 4-5: CUMULATIVE ONLY TRAFFIC VOLUMES (IN ACTUAL VEHICLES)





##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

TABLE 4-5: CUMULATIVE DEVELOPMENT LAND USE SUMMARY

No.	Project Name / Case Number	Jurisdiction	Land Use	Quantity	Units[1]	Location
P1	Canyon Steel (CS)	Perris	Industrial	25.000	TSF	NWC OF PATTERSON AVE. & CALFORNIA AVE.
P2	Duke @ Perry	Perris	Industrial	144.000	TSF	SEC OF PERRY ST. & BARRETT AVE.
P3	First March Logistics	Perris	Manufacturing/High-Cube Fulfillment	450.000	TSF	NEC OF NATWAR ST. & NANDINA AVE.
P4	First Industrial (Godowin)	Perris	Industrial	338.000	TSF	SEC OF REDLANDS AVE. & RIDER ST.
P5	Marijuana Manufacturing (MM)	Perris	Industrial	1.000	TSF	NW CORNER OF WEBSTER AVE. & WASHINGTON ST.
P6	Lakecreek East & West	Perris	Industrial	556.000	TSF	E & W OF REDLANDS AVE., S. OF RIDER ST.
P7	Perris and Ramona Warehouse	Perris	Industrial	347.918	TSF	S SIDE OF RAMONA EXPY. BTW INDIAN AVE. & PERRIS BL.
P8	Rados / DPR 07-0119	Perris	High-Cube Warehouse	1,200.000	TSF	NWC OF INDIAN AVE. & RIDER ST.
P9	Dedeaux Walnut Warehouse	Perris	Industrial	205.830	TSF	N SIDE OF WALNUT AVE. BTW INDIAN AVE. & BARRETT AVE.
P10	Indian/Ramona Warehouse / DPR 18-00002	Perris	High-Cube Warehouse	428.730	TSF	NORTH OF RAMONA EXWY. WEST OF INDIAN AVE.
P11	Burge Indus 1	Perris	Industrial	18.000	TSF	E OF PERRIS BL. & N OF COMMERCE DR.
P12	Westcoast Textile / DPR 16-00001	Perris	Warehousing	180.000	TSF	SWC OF INDIAN ST. & NANCE ST.
P13	Burge Indus 2	Perris	Industrial	19.000	TSF	E OF PERRIS BL. & S OF COMMERCE DR.
P14	Harley Knox Commerce Park / DPR 16-004	Perris	High-Cube Warehouse	386.278	TSF	NWC OF HARLEY KNOX BLVD. & REDLANDS AVE.
P15	Stratford Ranch Residential / TTM 36648	Perris	Single Family Housing	90	DU	WEST OF EVANS RD. AT MARKHAM ST.
P16	Pulliam Indus	Perris	Industrial	16.000	TSF	LOTS 10 & 12 ON COMMERCE DR., E OF PERRIS
P17	AAA	Perris	Industrial	2.000	TSF	SE CORNER OF HARLEY KNOX BL. & WEBSTER AVE.
P18	Weinerschnitzel / CUP 17-05083	Perris	Fast-Food Restaurant	2.000	TSF	WEST OF PERRIS BL., SOUTH OF PLACENTIA AVE.
	Aldi Market Center		Commercial Retail	27.000	TSF	WEST OF PERRIS BL. & CITRUS AVE.
P19	March Plaza / CUP16-05165	Perris	Commercial Retail	47.253	TSF	NWC OF PERRIS BL. AND HARLEY KNOX BL.
P20	Rider 2/4	Perris	High-Cube Warehouse	1,373.449	TSF	NEC OF REDLANDS AV. AND RIDER ST.
P21	Wilson Industrial / DPR 19-00007	Perris	High-Cube Warehouse	303.000	TSF	SEC OF WILSON AVE. AND RIDER ST.
P22	Integra Expansion / MMOD 17-05075	Perris	High-Cube Warehouse	273.000	TSF	NCE OF MARKHAM ST. AND WEBSTER AVE.
P23	Western Industrial / DRP 19-00003	Perris	High-Cube Warehouse	250.000	TSF	NEC OF WESTERN WY. AND NANDINA AVE.
RC1	McCanna Hills / TTM 33978	Riverside County	Single Family Housing	63	DU	SWC OF SHERMAN AVE. & WALNUT AVE.
RC2	Stoneridge	Riverside County	High-Cube Cold Storage	1695.355	TSF	NORTH OF NUEVO RD., SOUTH OF RAMONA EXWY., EAST OF ANTELOPE RD.
			High-Cube Fulfillment	2966.872	TSF	
			High-Cube Warehouse	2966.872	TSF	
			Manufacturing	847.678	TSF	
			Warehouse	427.759	TSF	
			Industrial Park	641.639	TSF	
			Free-Standing Discount Superstore	100.000	TSF	
			Commercial Retail	21.968	TSF	

[1] 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 EAC (2021) and EAPC (2021) traffic conditions. Traffic volumes generated by the Project are then added to assess the near-term traffic conditions. The 2021 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 Cumulative (2021)**
  - Adjusted Existing 2021 counts
  - Cumulative Development traffic
- **Existing Plus Ambient Growth Plus Cumulative Plus Project (2021)**
  - Adjusted Existing 2021 counts
  - Cumulative Development traffic
  - Project traffic

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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. The ADT and peak hour intersection turning movement volumes (in actual vehicles), which can be expected for E+P traffic conditions are shown on Exhibit 5-1.

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 TA. The intersection analysis results are summarized in Table 5-1, which indicates that the study area intersections are anticipated to continue to operate at an acceptable LOS during the peak hours, consistent with Existing (2020) traffic conditions. The intersection operations analysis worksheets are included in Appendix 5.1 of this TA.

TABLE 5-1: INTERSECTION ANALYSIS FOR E+P CONDITIONS

			Existing				Existing + Project			
			Delay[2] (secs.)		Level of Service		Delay[2] (secs.)		Level of Service	
#	Intersection	Traffic Control[1]	AM	PM	AM	PM	AM	PM	AM	PM
1	Perris Bl. & Markham St.	TS	10.3	11.2	B	B	11.9	12.9	B	B
2	Driveway 1 & Markham St.	**CSS**	Does Not Exist				8.5	8.5	A	A

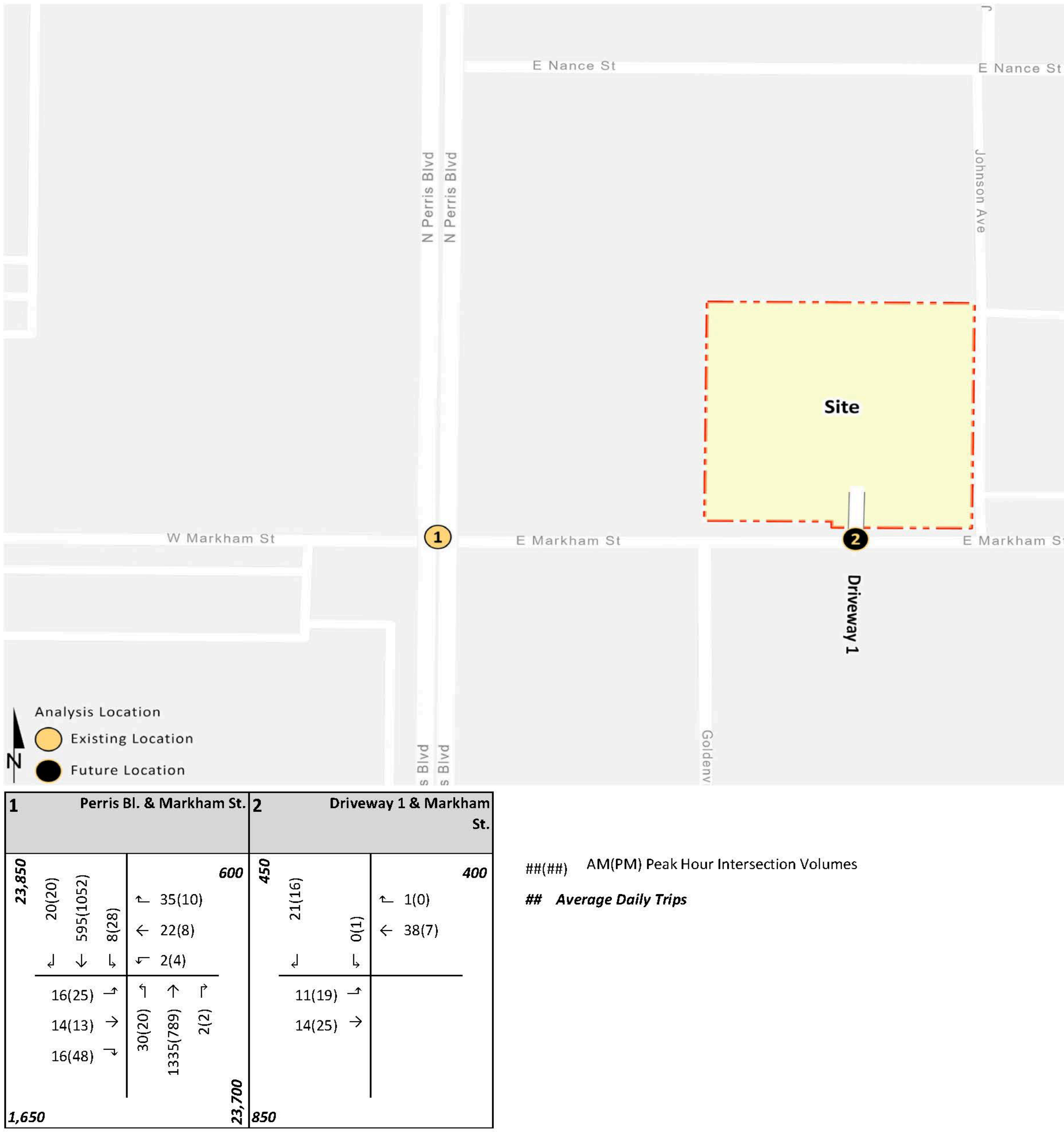
[1] CSS = Cross-street Stop; TS = Traffic Signal; **CSS** = Improvement

[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.

5.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

Driveway 1 on Markham Street is not anticipated to meet planning level (ADT) traffic signal warrants under E+P traffic conditions (see Appendix 5.2).

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



6 EAC AND EAPC (2021) TRAFFIC CONDITIONS

This section discusses the methods used to develop EAC and EAPC (2021) 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 EAC and EAPC (2021) 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 EAC and EAPC (2021) conditions only (e.g., intersection and roadway improvements along the cumulative development's frontages).

6.2 EAC (2021) TRAFFIC VOLUME FORECASTS

To account for background traffic, other known cumulative development projects in the study area were included for EAC (2021) traffic conditions. The weekday ADT and weekday AM and PM peak hour volumes (in actual vehicles) which can be expected for EAC (2021) traffic conditions are shown on Exhibit 6-1.

6.3 EAPC (2021) TRAFFIC VOLUME FORECASTS

To account for background traffic, other known cumulative development projects in the study area were included for EAPC (2021) traffic conditions in conjunction with traffic associated with the proposed Project. The weekday ADT and weekday AM and PM peak hour volumes (in actual vehicles) which can be expected for EAPC (2021) traffic conditions are shown on Exhibit 6-2.

EXHIBIT 6-1: EAC (2021) TRAFFIC VOLUMES (IN ACTUAL VEHICLES)

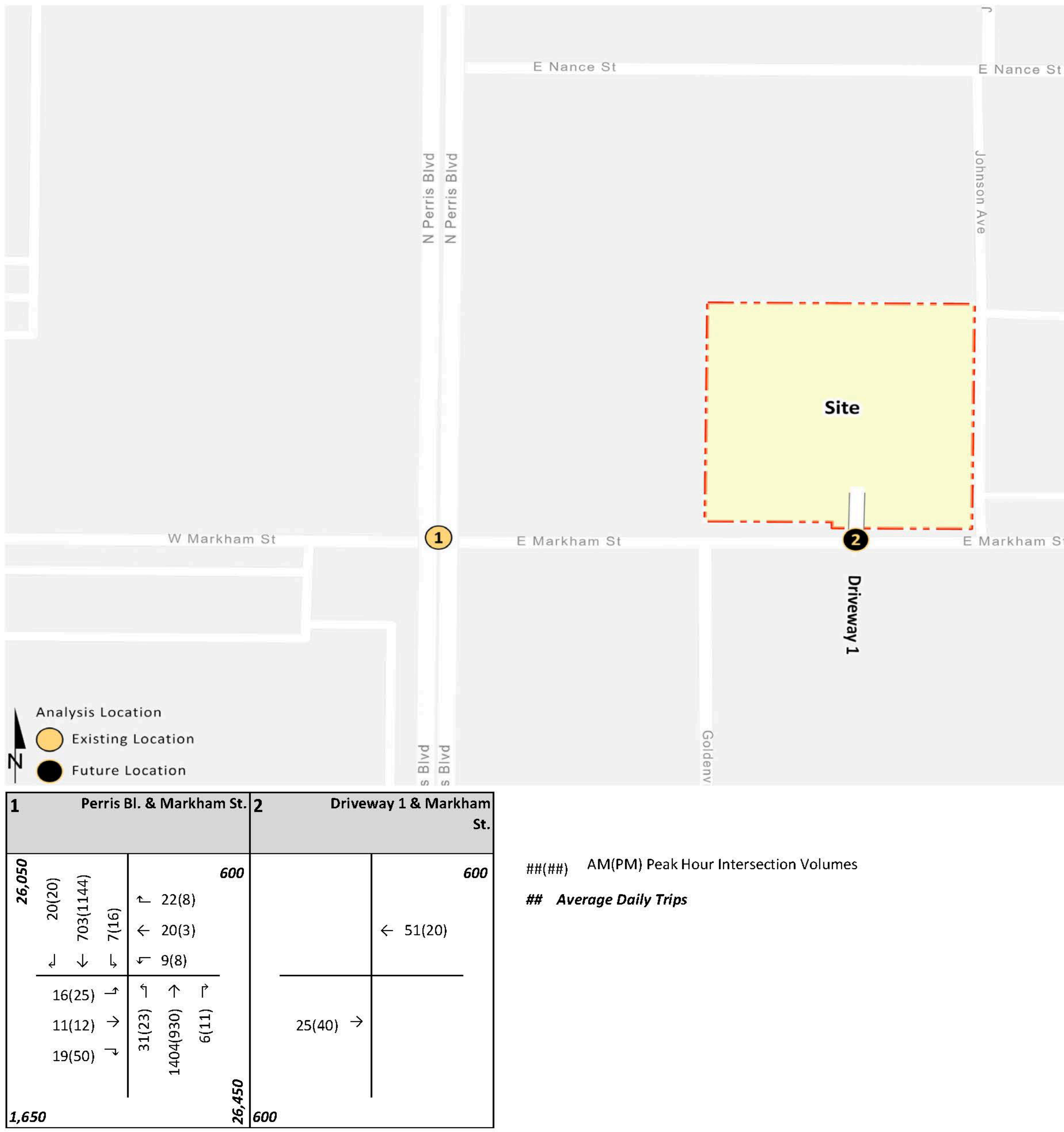
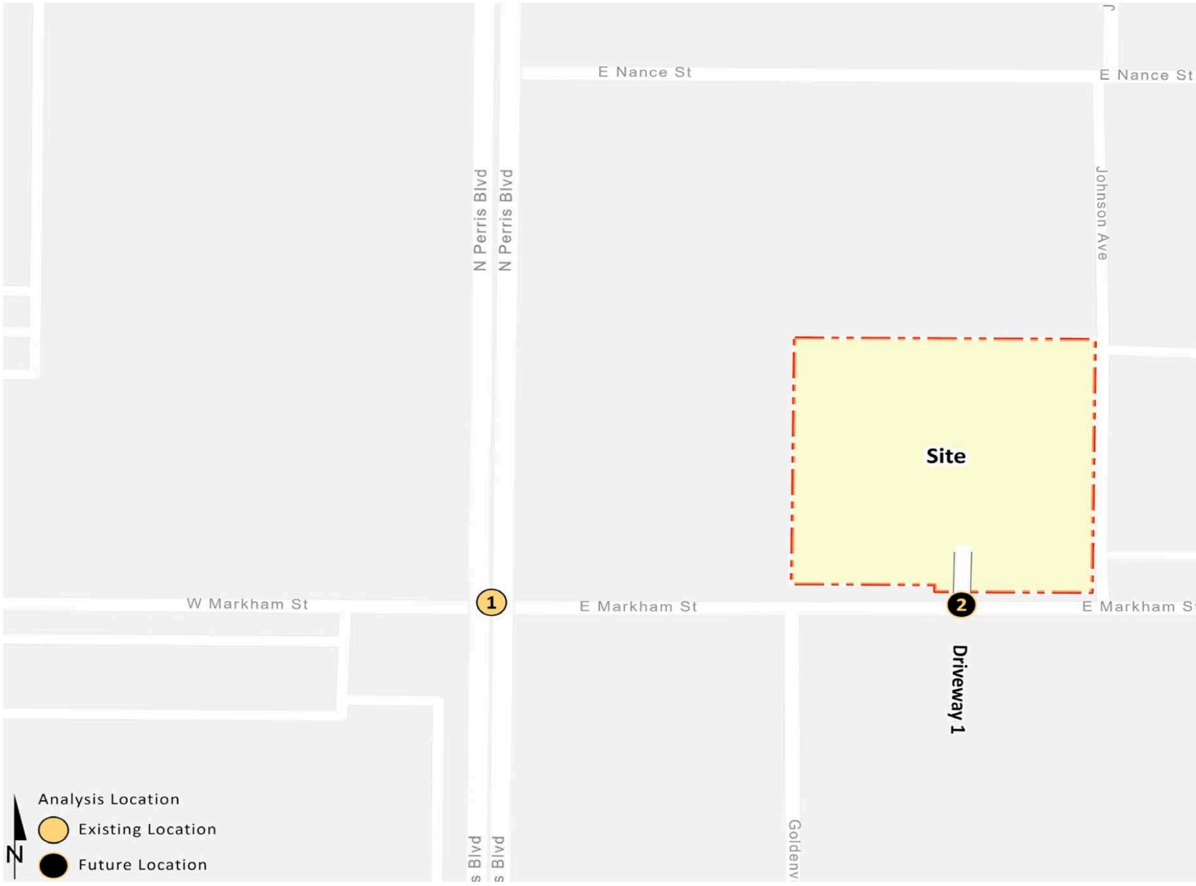
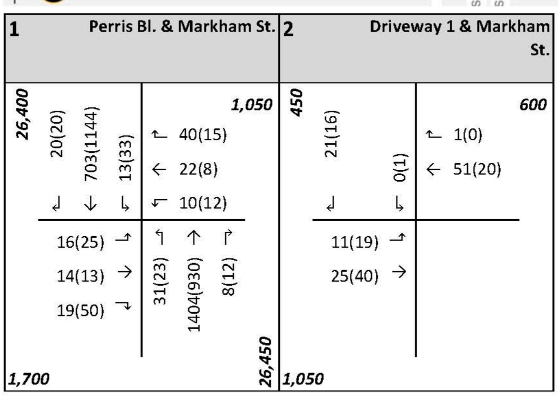


Exhibit 6-2: EAPC (2021) Traffic Volumes (In Actual Vehicles)





##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

6.4 INTERSECTION OPERATIONS ANALYSIS

LOS calculations were conducted for the study intersections to evaluate their operations under EAC (2021) conditions with roadway and intersection geometrics consistent with Section 6.1 *Roadway Improvements*. As shown in Table 6-1, all the study area intersections are anticipated to operate at acceptable LOS during the peak hours under EAC and EAPC (2021) traffic conditions. The intersection operations analysis worksheets for EAC and EAPC (2021) traffic conditions are included in Appendix 6.1 and Appendix 6.2 of this TA, respectively.

TABLE 6-1: INTERSECTION ANALYSIS FOR EAC & EAPC (2021) CONDITIONS

			EAC (2021)				EAPC (2021)			
		Traffic	Delay[2] (secs.)		Level of Service		Delay[2] (secs.)		Level of Service	
#	Intersection	Control[1]	AM	PM	AM	PM	AM	PM	AM	PM
1	Perris Bl. & Markham St.	TS	10.1	12.1	B	B	12.5	13.5	B	B
2	Driveway 1 & Markham St.	**CSS**	Does Not Exist				8.5	8.5	A	A

1 CSS = Cross-street Stop; TS = Traffic Signal; **CSS** = 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.

6.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants have been performed for EAPC (2021) traffic conditions only based on daily traffic (ADT). No traffic signals are warranted at the study area intersections (see Appendix 6.3).

7 LOCAL AND REGIONAL FUNDING MECHANISMS

Transportation improvements throughout the City of Perris are funded through a combination of project mitigation, fair share contributions or development impact fee programs, such as TUMF program, the City's DIF program, or the NPRBBD program.

7.1 TRANSPORTATION UNIFORM MITIGATION FEE (TUMF) PROGRAM

The Western Riverside Council of Governments (WRCOG) is responsible for establishing and updating TUMF rates. The County may grant to developers a credit against the specific components of fees for the dedication of land or the construction of facilities identified in the list of improvements funded by each of these fee programs. Fees are based upon projected land uses and a related transportation need to address growth based upon a 2016 Nexus study.

TUMF is an ambitious regional program created to address cumulative impacts of growth throughout western Riverside County. Program guidelines are being handled on an iterative basis. Exemptions, credits, reimbursements and local administration are being deferred to primary agencies. The County of Riverside serves this function for the proposed Project. Fees submitted to the County are passed on to the WRCOG as the ultimate program administrator.

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.

7.2 CITY OF PERRIS DEVELOPMENT IMPACT FEE (DIF) PROGRAM

In 1991, the City of Perris created a Development Impact Fee program to impose and collect fees from new residential, commercial and industrial development for the purpose of funding roadways and intersections necessary to accommodate City growth as identified in the City's General Plan Circulation Element. This DIF program has been successfully implemented by the City since 1991 and was updated in 2014. The City updated the DIF program to add new roadway segments and intersections necessary to accommodate future growth and to ensure that the identified street improvements would operate at or above the City's LOS performance threshold. The City's DIF program includes facilities that are not part of, or which may exceed improvements identified and covered by the TUMF program. As a result, the pairing of the regional and local fee programs provides a more comprehensive funding and implementation plan to ensure an adequate and interconnected transportation system. Under the City's DIF program, the City may grant to developers a credit against specific components of fees when those developers construct certain facilities and landscaped medians identified in the list of improvements funded by the DIF program.

Similar to the TUMF Program, after the City's DIF fees are collected, they are placed in a separate interest-bearing account pursuant to the requirements of Government Code sections 66000 *et seq*. The timing to use the DIF fees is established through periodic capital improvement programs which are overseen by the City's Public Works Department. Periodic traffic counts, review of traffic accidents, and a review of traffic trends throughout the City are also periodically performed by City staff and consultants. The City uses this data to determine the timing of the improvements listed in its facilities list. The City also uses this data to ensure that the improvements listed on the facilities list are constructed before the LOS falls below the LOS performance standards adopted by the City. In this way, the improvements are constructed before the LOS falls below the City's LOS performance thresholds. The City's DIF program establishes a timeline to fund, design, and build the improvements.

The City has an established, proven track record with respect to implementing the City's DIF Program. Many of the roadway segments and intersections included within the study area for this Traffic Impact Analysis are at various stages of widening and improvement based on the City's collection of DIF fees. Under this Program, as a result of the City's continual monitoring of the local circulation system, the City ensures that DIF improvements are constructed prior to when the LOS would otherwise fall below the City's established performance criteria.

7.3 North Perris Road and Bridge Benefit District (NPRBBD)

The NPRBBD is comprised of approximately 3,500 acres of land located within the northern portion of the City of Perris. The NPRBBD boundary is consistent with the boundary of the PVCC SP. As such, the Project will be subject to the NPRBBD. The purpose of the NPRBBD is to improve the efficiency of the financing of specific regional road and bridge improvements that are determined to provide benefit to the developing properties within the NPRBBD boundary. In addition, the NPRBBD includes additional improvements to supplement the TUMF and DIF network. NPRBBD fees are inclusive of TUMF and DIF. A significant portion of the fees collected through this mechanism are earmarked for use within the boundary sufficient to fully fund the included improvements. The balance of TUMF is transmitted to WRCOG for use in addressing cumulative impacts elsewhere within Western Riverside County. The City treats the DIF component collected within the NPRBBD in a similar way to ensure the local circulation network outside the program boundaries is adequately addressed.

Table 7-1 lists each facility identified within the NPRBBD, the General Plan roadway classification and the current estimated construction cost for the facilities.

TABLE 7-1: NPRBBD FACILITES

Facility Name	General Plan Classification	Estimated Cost
Indian Avenue	Secondary Arterial	$11,343,500
Perris Boulevard	Arterial	$17,350,800
Redlands Avenue	Secondary Arterial	$14,845,000
Harley Knox Boulevard	Arterial	$31,813,700
Markham Street	Secondary Arterial	$2,132,000
Ramona Expressway	Expressway	$10,865,000
Morgan Street	Secondary Arterial	$2,899,500
Rider Street	Secondary Arterial	$3,803,000
Placentia Avenue	Arterial	$18,705,900
Indian Avenue Bridge	Secondary Arterial	$701,800
Harley Knox Boulevard Bridge	Arterial	$4,210,800
Ramona Expressway Bridge	Expressway	$2,105,800
Placentia Avenue Bridge	Arterial	$6,316,200
Harley Knox Boulevard Interchange @ I-215	Arterial	$17,371,000
Placentia Avenue Interchange @ I-215	Arterial	$8,389,000
4-Lane Intersections – Traffic Signals	4 – Signal Locations	$870,000
6-Lane Intersections – Traffic Signals	11 – Signal Locations	$3,190,000
District Totals		**$156,913,000**

The facilities identified within the NPRBBD provide additional benefit by providing alternate truck routes within the City of Perris. It should be noted that NPRBBD fees are to be paid in conjunction with TUMF and City DIF fees as a one-time fee payment to the City prior to the issuance of a building permit.

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8 REFERENCES

1. **City of Perris.** *Perris Valley Commerce Center Specific Plan.* 2012.
2. **Institute of Transportation Engineers.** *Trip Generation.* 10th Edition. 2017.
3. **Riverside County Transportation Commission.** *2011 Riverside County Congestion Management Program.* County of Riverside : RCTC, December 14, 2011.
4. **Transportation Research Board.** *Highway Capacity Manual (HCM).* s.l. : National Academy of Sciences, 2010.
5. **Caltrans.** California Manual on Uniform Traffic Control Devices (MUTCD). [book auth.] California Department of Transportation. *California Manual on Uniform Traffic Control Devices (CAMUTCD).* 2017.
6. **City of Perris.** *General Plan Circulation Element.* City of Perris : s.n., August 26, 2008.
7. **County of Riverside Transportation Department.** *Transportation Analysis Guidelines for Level of Service Vehicle Miles Traveled.* County of Riverside : s.n., December 2020.

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APPENDIX 1.1:

TRAFFIC STUDY SCOPING AGREEMENT

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CITY OF PERRIS
VMT SCOPING FORM FOR LAND USE PROJECTS

This Scoping Form acknowledges the City of Perris requirements for the evaluation of transportation impacts under CEQA. The analysis provided in this form should follow the City of Perris TIA Guidelines, dated May 12, 2020.

I. Project Description

Tract/Case No. CUP #20-05100

Project Name: Perris Truck Yard

Project Location: north of Markham Street and east of Perris Boulevard

Project Description: The Project is proposed to consist of a 250-parking stall truck yard on 9.52 acres
(Please attach a copy of the project Site Plan)

Current GP Land Use: PVCC SP | **Proposed GP Land Use:** PVCC SP

Current Zoning: Business/Professional Office | **Proposed Zoning:** Light Industrial

If a project requires a General Plan Amendment or Zone change, then additional information and analysis should be provided to ensure the project is consistent with RHNA and RTP/SCS Strategies.

II. VMT Screening Criteria

					Attachments
A. Is the Project 100% affordable housing?	YES		NO	X	
B. Is the Project within 1/2 mile of qualifying transit?	YES	X	NO		
C. Is the Project a local serving land use?	YES	X	NO		B
D. Is the Project in a low VMT area?	YES	X	NO		
E. Are the Project's Net Daily Trips less than 500 ADT?	YES	X	NO		

Low VMT Area Evaluation:

Citywide VMT Averages[1]		
Citywide Home-Based VMT =	15.05	VMT/Capita
Citywide Employment-Based VMT =	11.62	VMT/Employee

WRCOG VMT MAP

Project TAZ	VMT Rate for Project TAZ[1]		Type of Project	
3821	13.39	VMT/Capita	Residential:	
	11.26	VMT/Employee	Non-Residential:	X

[1] Base year (2012) projections from RIVTAM.

Trip Generation Evaluation:

Source of Trip Generation: Existing survey data of a similar site

Project Trip Generation: 464 Average Daily Trips (ADT)

Internal Trip Credit:	YES		NO	X	% Trip Credit:	
Pass-By Trip Credit:	YES		NO	X	% Trip Credit:	
Affordable Housing Credit:	YES		NO	X	% Trip Credit:	
Existing Land Use Trip Credit:	YES		NO	X	Trip Credit:	

Net Project Daily Trips: 464 Average Daily Trips (ADT) | Attachments:

Does project trip generation warrant an LOS evaluation outside of CEQA? YES: | NO: X

III. VMT Screening Summary

A. Is the Project presumed to have a less than significant impact on VMT?

A Project is presumed to have a less than significant impact on VMT if the Project satisfies at least one (1) of the VMT screening criteria.

Less Than Significant

B. Is mitigation required?

If the Project does not satisfy at least one (1) of the VMT screening criteria, then mitigation is required to reduce the Project's impact on VMT.

No Mitigation Required

C. Is additional VMT modeling required to evaluate Project impacts?

YES	X	NO	

If the Project requires a zone change and/or General Plan Amendment AND generates 2,500 or more net daily trips, then additional VMT modeling using RIVTAM/RIVCOM is required. If the project generates less than 2,500 net daily trips, the Project TAZ VMT Rate can be used for mitigation purposes.

IV. MITIGATION

A. Citywide Average VMT Rate (Threshold of Significance) for Mitigation Purposes: N/A | N/A

B. Unmitigated Project TAZ VMT Rate: N/A | N/A

C. Percentage Reduction Required to Achieve the Citywide Average VMT: N/A

D. VMT Reduction Mitigation Measures:

Source of VMT Reduction Estimates:	
Project Location Setting	

	VMT Reduction Mitigation Measure:	Estimated VMT Reduction (%)
1.		0.00%
2.		0.00%
3.		0.00%
4.		0.00%
5.		0.00%
6.		0.00%
7.		0.00%
8.		0.00%
9.		0.00%
10.		0.00%
Total VMT Reduction (%)		**0.00%**

(Attach additional pages, if necessary, and a copy of all mitigation calculations.)

E. Mitigated Project TAZ VMT Rate: N/A | N/A

F. Is the project pressumed to have a less than significant impact with mitigation? N/A

If the mitigated Project VMT rate is below the Citywide Average Rate, then the Project is presumed to have a less than significant impact with mitigation. If the answer is no, then additional VMT modeling may be required and a potentially significant and unavoidable impact may occur. All mitigation measures identified in Section IV.D. are subject to become Conditions of Approval of the project. Development review and processing fees should be submitted with, or prior to the submittal of this Form. The Planning Department staff will not process the Form prior to fees being paid to the City.

Prepared By		Developer/Applicant	
Company:	Urban Crossroads, Inc.	Company:	Truck Terminal Properties
Contact:	Charlene Hwang So	Contact:	Bobby Nassir
Address:	1133 Camelback St. #8329, Newport Beach, CA	Address:	
Phone:	(949) 861-0177	Phone:	1-800-485-6821
Email:	cso@urbanxroads.com	Email:	bnassir@truckterminalproperties.com
Date:	1/7/2021	Date:	1/7/2021

Approved by:

Perris Planning Division	**Date**	**Perris City Engineer**	**Date**

urbanxroads.com

January 4, 2021

Ms. Chantal Power
City of Perris
135 N. D Street
Perris, CA 92570

SUBJECT: PERRIS TRUCK YARD (CUP #20-05100) SCOPING AGREEMENT (REVISED)

Dear Ms. Chantal Power:

Urban Crossroads, Inc. is pleased to submit this scoping agreement to the City of Perris for the proposed Perris Truck Yard development ("Project"), , which is located north of Markham Street and east of Perris Boulevard, within the City of Perris' *Perris Valley Commerce Center Specific Plan* (PVCC SP). It is our understanding that the Project is to consist of a 250-parking stall truck yard on 9.52 acres. The Project is anticipated to be constructed in one phase in 2021. A preliminary site plan, of which the traffic study will be based on, is shown on Exhibit 1. Access to the Project site will be provided by a single driveway on Markham Street.

The purpose of this agreement is to obtain comments from City of Perris on the proposed traffic study scope of work. The remainder of this agreement describes the proposed analysis methodology, trip generation, trip distribution, and traffic assignment/project trips on the surrounding roadway network, which have been used to establish the proposed project study area and analysis locations.

STUDY AREA

Consistent with the City's traffic study guidelines, the study area limits have been set based upon a threshold of 50 peak hour project trips. In other words, the study area includes any intersection of Collector roadway or higher classification street with another Collector roadway or higher classification street, at which the proposed Project will add 50 or more peak hour trips. This methodology is also utilized in other near-by agencies, such as the City of Perris. The proposed intersection analysis locations have been identified on Exhibit 2.

ANALYSIS SCENARIOS

The following analysis scenarios will be analyzed for this traffic study:

- Existing (2021)
- Existing Plus Project (E+P)

- Existing Plus Ambient Growth Plus Cumulative (E+A+C) (2021)
- Existing Plus Ambient Growth Plus Project Plus Cumulative (E+A+P+C) (2021)

Existing baseline conditions analysis for the intersection of Perris Boulevard and Markham Street will be based on existing traffic count data collected on March 11, 2020 prior to the shutdowns related to the currently on-going COVID-19 pandemic. A 3% growth adjustment factor will be applied to these counts to reflect a 2021 baseline. No ambient growth will be added to the cumulative scenarios, although cumulative traffic (and Project traffic) will be added for the EAC and EAPC analysis scenarios.

METHODOLOGY

The methodology used to evaluate peak hour intersection performance is based on the Transportation Research Board's Highway Capacity Manual (HCM), 6th Edition. This methodology rates operations based on peak hour delay and associated level of service (LOS).

LEVEL OF SERVICE (LOS) CRITERIA

Required LOS for roadway segments and intersections within the City of Perris is LOS D. An exception to the local road standard is LOS E, at intersections of any Arterials and Expressways with SR-74, the Ramona-Cajalco Expressway or at I-215 Freeway ramps. For the purposes of this traffic impact analysis, LOS D has been considered the acceptable threshold for all intersections within the study area.

PROJECT TRIP GENERATION

A passenger-car equivalent (PCE) of 1.5, 2.0, and 3.0 are applied to 2-axle, 3-axle, and 4+-axle vehicles, consistent with the City's traffic study guidelines.

GENERAL PLAN LAND USE COMPARISON

The Project is proposing a zoning change from Business / Professional Office to Light Industrial. As such, a comparison between the proposed Project trip generation estimates and the allowable General Plan uses is shown on Table 1. As shown in Table 1, the Project is anticipated to generate fewer peak hour trips than the allowable uses in the current General Plan land use. For this reason, we are proposing that Horizon Year traffic conditions not to be evaluated.

TABLE 1: TRIP GENERATION COMPARISON

Land Use[1]	Units[2]	ITE LU Code	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Passenger Car Equivalent (PCE) Trip Generation Rates									
Manufacturing[3]	TSF	140	0.477	0.143	0.620	0.208	0.462	0.670	3.930
Passenger Cars			0.439	0.131	0.570	0.193	0.430	0.623	3.537
2-Axle Trucks (PCE = 1.5)			0.010	0.003	0.012	0.004	0.008	0.012	0.098
3-Axle Trucks (PCE = 2.0)			0.016	0.005	0.021	0.006	0.013	0.019	0.163
4-Axle+ Trucks (PCE = 3.0)			0.072	0.021	0.093	0.027	0.061	0.088	0.738
Warehousing[3]	TSF	150	0.131	0.039	0.170	0.051	0.139	0.190	1.740
Passenger Cars			0.114	0.034	0.148	0.044	0.118	0.162	1.270
2-Axle Trucks (PCE = 1.5)			0.004	0.001	0.006	0.002	0.005	0.007	0.118
3-Axle Trucks (PCE = 2.0)			0.007	0.002	0.009	0.003	0.009	0.012	0.194
4-Axle+ Trucks (PCE = 3.0)			0.032	0.010	0.042	0.014	0.039	0.054	0.882
General Office Building	TSF	710	1.00	0.16	1.16	0.18	0.97	1.15	9.74
Business Park	TSF	770	0.24	0.16	0.40	0.26	0.16	0.42	12.44

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

[2] TSF = thousand square feet

Land Use	Quantity	Units[1]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Existing General Plan Land Use:									
Manufacturing (0.75 FAR)[2]	311.000	TSF	167	50	217	72	159	231	1,412
Warehousing (0.75 FAR)[2]	311.000	TSF	49	15	64	20	53	73	768
General Office Building (0.75 FAR)[2]	311.000	TSF	310	51	361	57	300	357	3,030
Business Park (0.75 FAR)[2]	311.000	TSF	76	49	125	80	51	131	3,870
Proposed Project (see Table 4):									
Perris Truck Yard	9.520	AC	17	29	46	29	28	57	810
Net Reduction in Trip Generation (Manufacturing, 0.75 FAR):			**-150**	**-21**	**-171**	**-43**	**-131**	**-174**	**-602**
Net Reduction in Trip Generation (Warehousing, 0.75 FAR):			**-32**	**14**	**-18**	**9**	**-25**	**-16**	**42**
Net Reduction in Trip Generation (General Office Building, 0.75 FAR):			**-293**	**-22**	**-315**	**-28**	**-272**	**-300**	**-2,220**
Net Reduction in Trip Generation (Business Park, 0.75 FAR):			**-59**	**-20**	**-79**	**-51**	**-23**	**-74**	**-3,060**

[1] TSF = thousand square feet

[2] Current General Plan land use and zoning is Business/Professional Office. Manufacturing (ITE 140), Warehousing (ITE 150), Business Park (ITE 770), and General Office Building (ITE 820) land use used to calculate trip generation.
The square footage was calculated assuming a 0.75 floor-to-area ratio (FAR):
9.52 acres x 43,560 square feet/acre x 0.75 FAR

[3] Vehicle Mix Source: ITE Trip Generation Handbook Supplement (2020), Appendix C.
Truck Mix: South Coast Air Quality Management District's (SCAQMD) recommended truck mix, by axle type.
Normalized % - Without Cold Storage: 16.7% 2-Axle trucks, 20.7% 3-Axle trucks, 62.6% 4-Axle trucks.
Normalized % - With Cold Storage: 34.7% 2-Axle trucks, 11.0% 3-Axle trucks, 54.3% 4-Axle trucks.

DEVELOPMENT OF TRIP GENERATION RATES – EMPIRICAL DATA

The Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017) does not currently have any trip generation rates for a truck yard, as such, trip generation estimates for the proposed Project have been developed using data collected at another facility with operations similar to those proposed. Table 2 summarizes the count data collected at the facility and the actual counts have been attached to this scoping agreement.

Table 3 shows the trip generation rates for the existing facility which have been developed based on both the number of truck parking stalls and acreage using the data collected at the site shown on Table 2. The trip generation rates were calculated by dividing the trips by either the acreage or total number of truck parking stalls.

TABLE 2: EXISTING EMPIRICAL DATA

			AM Peak Hour			PM Peak Hour			
Existing Site	**Quantity**	**Units[1]**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**Daily**
Trip Generation Summary of Existing Uses:									
5087 Patterson Avenue	4.500	AC							
Passenger Cars:			0	2	2	1	1	2	38
2-axle Trucks:			*0*	*5*	*5*	*3*	*0*	*3*	*36*
3-axle Trucks:			*1*	*0*	*1*	*1*	*0*	*1*	*38*
4+-axle Trucks:			*1*	*0*	*1*	*0*	*3*	*3*	*58*
Total Trucks (Actual Vehicles)			2	5	7	4	3	7	132
5087 Patterson Av. Total Trips (Actual Vehicles)			**2**	**7**	**9**	**5**	**4**	**9**	**170**

** Data presented based on driveway counts conducted on January 23, 2019.
[1] AC = Acres (Total acreage of site)

PROPOSED PROJECT TRIP GENERATION

Based on the calculated trip generation rates shown on Table 3, the Project's trip generation is summarized on Table 4. The proposed Project trip generation is based on the anticipated operations for the site. Specifically, it has been assumed that approximately 40 spaces that would be available for leasing to private drivers. These drivers would enter the site with their passenger cars to pick up a tractor (no trailers) and return in the evening for their personal vehicles. Approximately 20% of these trips would occur during the morning and evening peak hour. The remainder of the site (7.997 acres) would likely be leased to a single tenant. These assumptions are assumed in the calculation of the trip generation shown on Table 4.

TABLE 3: CALCULATED TRIP GENERATION RATES

Land Use	Units[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Actual Vehicles:								
Trailer Yard	AC							
Passenger Cars:		0.000	0.444	0.444	0.222	0.222	0.444	8.444
2-axle Trucks:		0.000	1.111	1.111	0.667	0.000	0.667	8.000
3-axle Trucks:		0.222	0.000	0.222	0.222	0.000	0.222	8.444
4+-axle Trucks:		0.222	0.000	0.222	0.000	0.667	0.667	12.889
Passenger Car Equivalent (PCE):								
Trailer Yard	AC							
Passenger Cars:		0.000	0.444	0.444	0.222	0.222	0.444	8.444
2-axle Trucks (PCE = 1.5):		0.000	1.667	1.667	1.000	0.000	1.000	12.000
3-axle Trucks (PCE = 2.0):		0.444	0.000	0.444	0.444	0.000	0.444	16.889
4+-axle Trucks (PCE = 3.0):		0.667	0.000	0.667	0.000	2.000	2.000	38.667

[1] Average trip generation rate developed from empirical data summarized on Table 1.
[2] AC = Acres (Total acreage of site)

As shown on Table 4, the Project is anticipated to generate a total of 810 PCE trip-ends per day with 46 AM PCE peak hour trips and 57 PM PCE peak hour trips.

PROJECT TRIP DISTRIBUTIONS

The project trip distribution patterns for both passenger cars and trucks have been developed based on recent experience on other studies for similar land uses in the vicinity and comments provided by City of Perris staff. Passenger car distribution patterns will be based on existing and planned land uses and roadway infrastructure in the area. Truck distribution patterns will be based on City truck routes and proximity to the freeway system. The truck trip and passenger car distributions are illustrated on Exhibits 3 and 4, respectively.

AMBIENT GROWTH RATE

Consistent with other City of Perris traffic studies performed by Urban Crossroads, an ambient growth rate of 3 percent per year will be used for this analysis (applied to the existing count data to establish 2021 baseline).

TABLE 4: PROJECT TRIP GENERATION SUMMARY

Land Use	Quantity	Units[1]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Actual Vehicles									
Trailer Yard: Individual Leased Spaces[2]	40	PS							
Passenger Cars:			8	0	8	0	10	10	80
2-axle Trucks:			*0*	*8*	*8*	*10*	*0*	*10*	*80*
3-axle Trucks:			*0*	*0*	*0*	*0*	*0*	*0*	*0*
4+-axle Trucks:			*0*	*0*	*0*	*0*	*0*	*0*	*0*
Total Trucks (Actual Vehicles)			0	8	8	10	0	10	80
Trailer Yard	7.997	AC							
Passenger Cars:			0	4	4	2	2	4	68
2-axle Trucks:			*0*	*9*	*9*	*5*	*0*	*5*	*64*
3-axle Trucks:			*2*	*0*	*2*	*2*	*0*	*2*	*68*
4+-axle Trucks:			*2*	*0*	*2*	*0*	*5*	*5*	*104*
Total Trucks (Actual Vehicles)			4	9	13	7	5	12	236
Total Project Trips (Actual Vehicles)			**12**	**21**	**33**	**19**	**17**	**36**	**464**
Passenger Car Equivalent (PCE)									
Trailer Yard: Individual Leased Spaces[2]	40	PS							
Passenger Cars:			8	0	8	0	10	10	80
2-axle Trucks:			*0*	*12*	*12*	*15*	*0*	*15*	*120*
3-axle Trucks:			*0*	*0*	*0*	*0*	*0*	*0*	*0*
4+-axle Trucks:			*0*	*0*	*0*	*0*	*0*	*0*	*0*
Total Trucks (PCE)			0	12	12	15	0	15	120
Trailer Yard	7.997	AC							
Passenger Cars:			0	4	4	2	2	4	68
2-axle Trucks:			*0*	*13*	*13*	*8*	*0*	*8*	*96*
3-axle Trucks:			*4*	*0*	*4*	*4*	*0*	*4*	*136*
4+-axle Trucks:			*5*	*0*	*5*	*0*	*16*	*16*	*310*
Total Trucks (PCE)			9	13	22	12	16	28	542
Total Project Trips (PCE)			**17**	**29**	**46**	**29**	**28**	**57**	**810**

1 PS = Parking Stalls (Trucks); AC = Acres

2 Initial estimates based on leasing up to 16 percent of the lot to private drivers (40 spaces). Drivers would enter in their passenger car in the morning, pick up and exit their tractors (no trailers), and return in the evening.

5-6 AM = 25% of drivers arriving in car/departing with tractor
6-7 AM = 20% of drivers arriving in car/departing with tractor
7-8 AM = 20% of drivers arriving in car/departing with tractor (with remaining 35% distributed throughout the day)
5-6 PM = 25% of drivers arriving in tractor/departing with car
6-7 PM = 20% of drivers arriving in tractor/departing with car
7-8 PM = 20% of drivers arriving in tractor/departing with car (with remaining 35% distributed throughout the day)

SPECIAL ISSUES

The following special issues will be addressed as part of the TA:

- Traffic signal warrant analyses will be conducted for all unsignalized study area intersections for all applicable analysis scenarios.
- Verify intersection spacing for the Project Driveway with respect to the PVCC SP criteria.
- Prepare truck turning templates for entering/exiting vehicles at the Project Driveway.
- Prepare a conceptual striping plan for the Project along Markham Street from Perris Boulevard to the Project's easterly property line.

CUMULATIVE DEVELOPMENT PROJECTS

A list of cumulative development projects and their proposed land uses are shown in Table 5. Exhibit 5 illustrates the locations of these cumulative development projects.

If you have any questions, please contact me directly at (949) 861-0177.

Respectfully submitted,

URBAN CROSSROADS, INC.

Charlene So

Charlene So, PE
Associate Principal

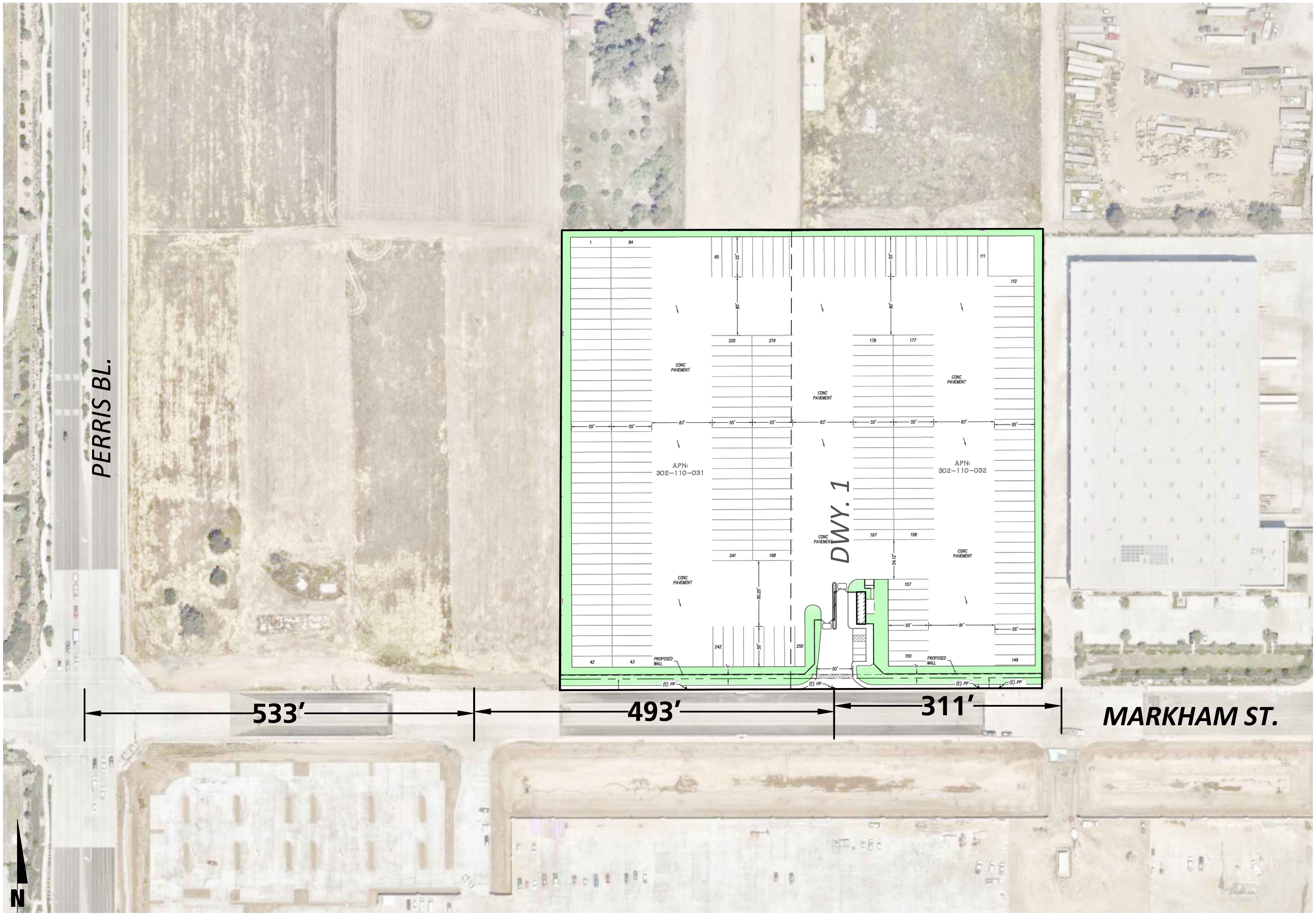
Table 5

Cumulative Development Land Use Summary

No.	Project Name / Case Number	Jurisdiction	Land Use	Quantity	Units[1]	Location
P1	Canyon Steel (CS)	Perris	Industrial	25.000	TSF	NWC OF PATTERSON AVE. & CALFORNIA AVE.
P2	Duke 2 / DPR 16-00008	Perris	High-Cube Warehouse	669.000	TSF	NEC OF INDIAN AVE. & MARKHAM ST.
P3	First Perry / DPR 16-00013	Perris	High-Cube Warehouse	240.000	TSF	SWC OF REDLANDS AVE. & PERRY ST.
P4	Gateway / DPR 16-00003	Perris	High-Cube Warehouse	400.000	TSF	SOUTH OF HARLEY KNOX BLVD. EAST OF HWY. 215
P5	Marijuana Manufacturing (MM)	Perris	Industrial	1.000	TSF	NW CORNER OF WEBSTER AVE. & WASHINGTON ST.
P6	OLC2 / DPR 14-01-0015	Perris	High-Cube Warehouse	1,037.000	TSF	WEST OF WEBSTER AVE. NORTH OF MARKHAM ST.
P7	Markham Industrial / DPR 16-00015	Perris	Warehousing	170.000	TSF	NEC OF INDIAN AVE. & MARKHAM ST.
P8	Rados / DPR 07-0119	Perris	High-Cube Warehouse	1,200.000	TSF	NWC OF INDIAN AVE. & RIDER ST.
P9	Rider 1 / DPR 16-0365	Perris	High-Cube Warehouse	350.000	TSF	SWC OF REDLANDS AVE. & RIDER ST.
P10	Indian/Ramona Warehouse / DPR 18-00002	Perris	High-Cube Warehouse	428.730	TSF	NORTH OF RAMONA EXWY. WEST OF INDIAN AVE.
P11	Rider 3 / DPR 06-0432	Perris	High-Cube Warehouse	640.000	TSF	NORTH OF RIDER ST. WEST OF REDLANDS AVE.
P12	Westcoast Textile / DPR 16-00001	Perris	Warehousing	180.000	TSF	SWC OF INDIAN ST. & NANCE ST.
P13	Duke at Patterson / DPR 17-00001	Perris	High-Cube Warehouse	811.000	TSF	SEC OF PATTERSON AVE. & MARKHAM ST.
P14	Harley Knox Commerce Park / DPR 16-004	Perris	High-Cube Warehouse	386.278	TSF	NWC OF HARLEY KNOX BLVD. & REDLANDS AVE.
P15	Stratford Ranch Residential / TTM 36648	Perris	Single Family Housing	90	DU	WEST OF EVANS RD. AT MARKHAM ST.
P16	Circle Industrial III	Perris	Warehousing	211.000	TSF	NWC OF REDLANDS AVE. AND NANCE AVE.
P17	Duke @ Perris Blvd.	Perris	High-Cube Warehouse	1,070.000	TSF	SEC OF PERRIS BL. AND MARKHAM ST.
P18	Weinerschnitzel / CUP 17-05083	Perris	Fast-Food Restaurant	2.000	TSF	WEST OF PERRIS BL., SOUTH OF PLACENTIA AVE.
P19	March Plaza / CUP16-05165	Perris	Commercial Retail	47.253	TSF	NWC OF PERRIS BL. AND HARLEY KNOX BL.
P20	Cali Express Carwash / CUP 16-05258	Perris	Carwash	5.600	TSF	NWC OF PERRIS BL. AND RAMONA EXWY.
P21	Wilson Industrial / DPR 19-00007	Perris	High-Cube Warehouse	303.000	TSF	SEC OF WILSON AVE. AND RIDER ST.
P22	Integra Expansion / MMOD 17-05075	Perris	High-Cube Warehouse	273.000	TSF	NCE OF MARKHAM ST. AND WEBSTER AVE.
P23	Western Industrial / DRP 19-00003	Perris	High-Cube Warehouse	250.000	TSF	NEC OF WESTERN WY. AND NANDINA AVE.
P24	Rider 2/4	Perris	High-Cube Warehouse	1,373.449	TSF	NEC OF REDLANDS AV. AND RIDER ST.
P25	AAA	Perris	Industrial	2.000	TSF	SE CORNER OF HARLEY KNOX BL. & WEBSTER AVE.
P26	Pulliam Indus	Perris	Industrial	16.000	TSF	LOTS 10 & 12 ON COMMERCE DR., E OF PERRIS
P27	Burge Indus 1	Perris	Industrial	18.000	TSF	E OF PERRIS BL. & N OF COMMERCE DR.
P28	Burge Indus 2	Perris	Industrial	19.000	TSF	E OF PERRIS BL. & S OF COMMERCE DR.
P29	Phelan Indus	Perris	Industrial	81.000	TSF	N SIDE OF MARKHAM BTW WEBSTER AVE. & PERRIS BLVD.
P30	Dedeaux Walnut Warehouse	Perris	Industrial	205.830	TSF	N SIDE OF WALNUT AVE. BTW INDIAN AVE. & BARRETT AVE.
P31	Perris and Ramona Warehouse	Perris	Industrial	347.918	TSF	S SIDE OF RAMONA EXPY. BTW INDIAN AVE. & PERRIS BL.
RC1	McCanna Hills / TTM 33978	Riverside County	Single Family Housing	63	DU	SWC OF SHERMAN AVE. & WALNUT AVE.
RC2	Stoneridge	Riverside County	High-Cube Cold Storage	1695.355	TSF	NORTH OF NUEVO RD., SOUTH OF RAMONA EXWY., EAST OF ANTELOPE RD.
			High-Cube Fulfillment	2966.872	TSF	
			High-Cube Warehouse	2966.872	TSF	
			Manufacturing	847.678	TSF	
			Warehouse	427.759	TSF	
			Industrial Park	641.639	TSF	
			Free-Standing Discount Superstore	100.000	TSF	
			Commercial Retail	21.968	TSF	

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

EXHIBIT 1: PRELIMINARY SITE PLAN



12913 - siteplan.dwg

Exhibit 2: Location Map

LEGEND:

0 = EXISTING INTERSECTION ANALYSIS LOCATION

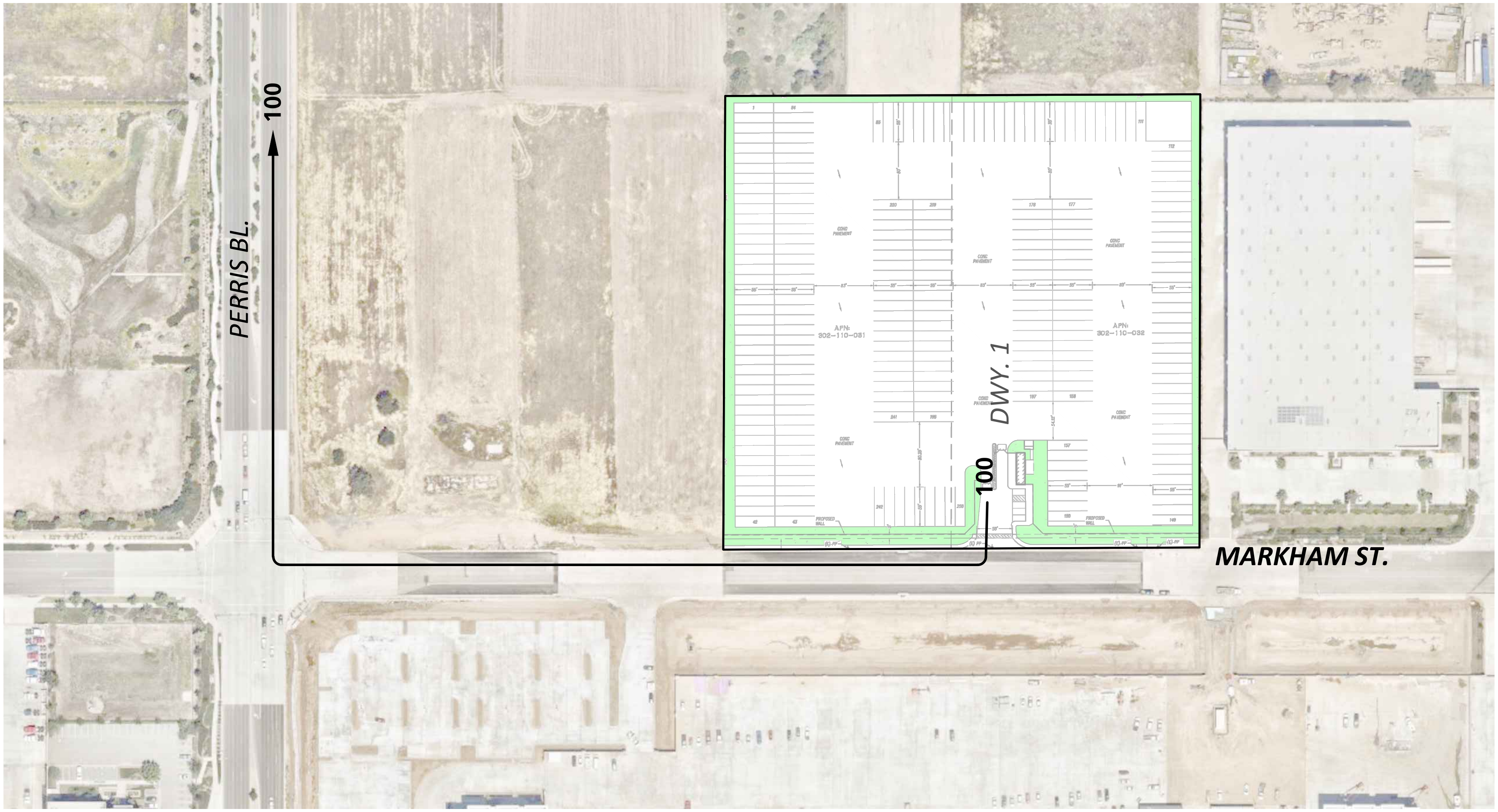
0 = FUTURE INTERSECTION ANALYSIS LOCATION

N

12913 - locmap-a.dwg

URBAN CROSSROADS

EXHIBIT 3: PROJECT (TRUCK) TRIP DISTRIBUTION

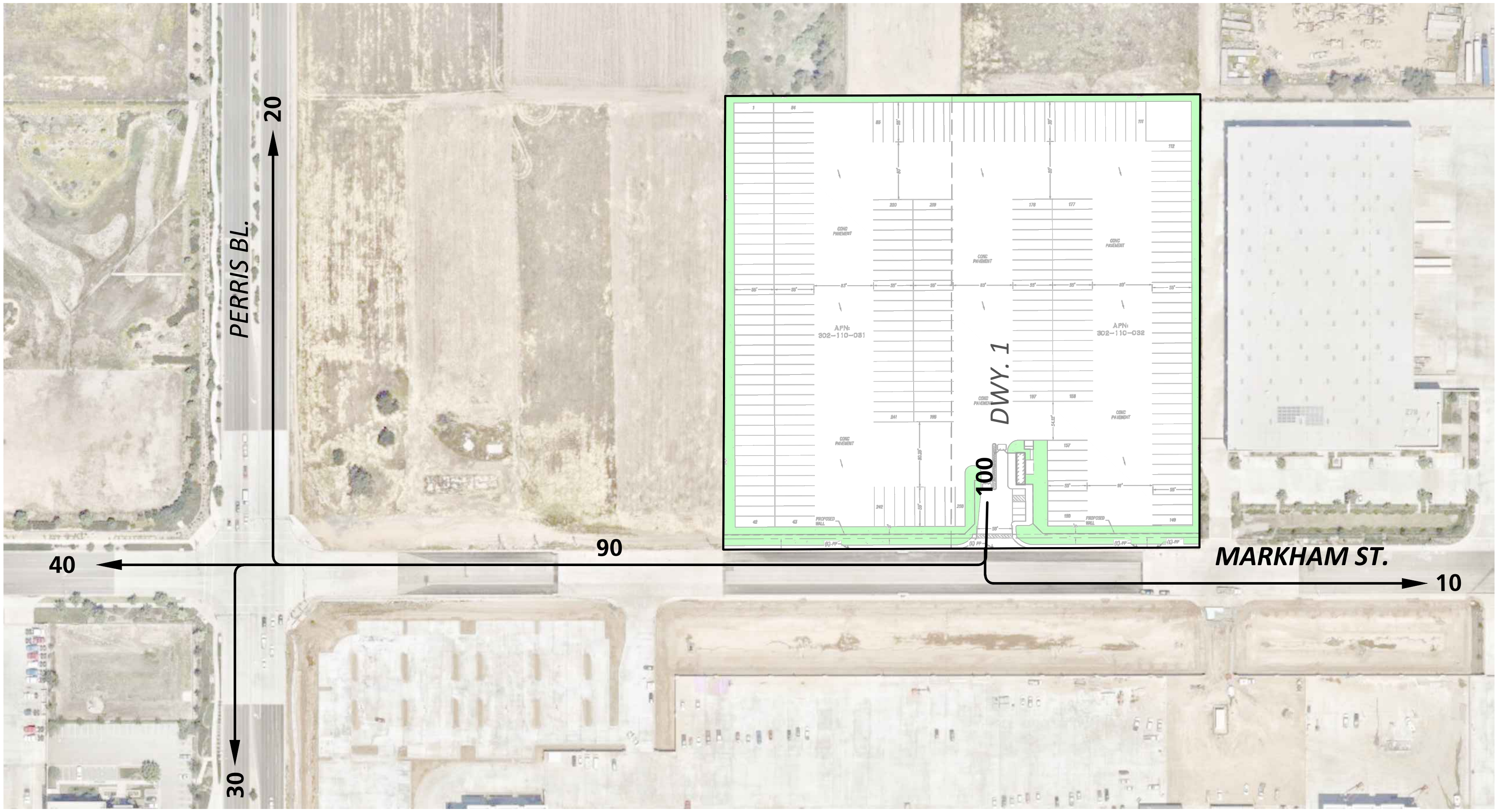


LEGEND:

10 ***= PERCENT TO/FROM PROJECT***

N

EXHIBIT 4: PROJECT (PASSENGER CAR) TRIP DISTRIBUTION

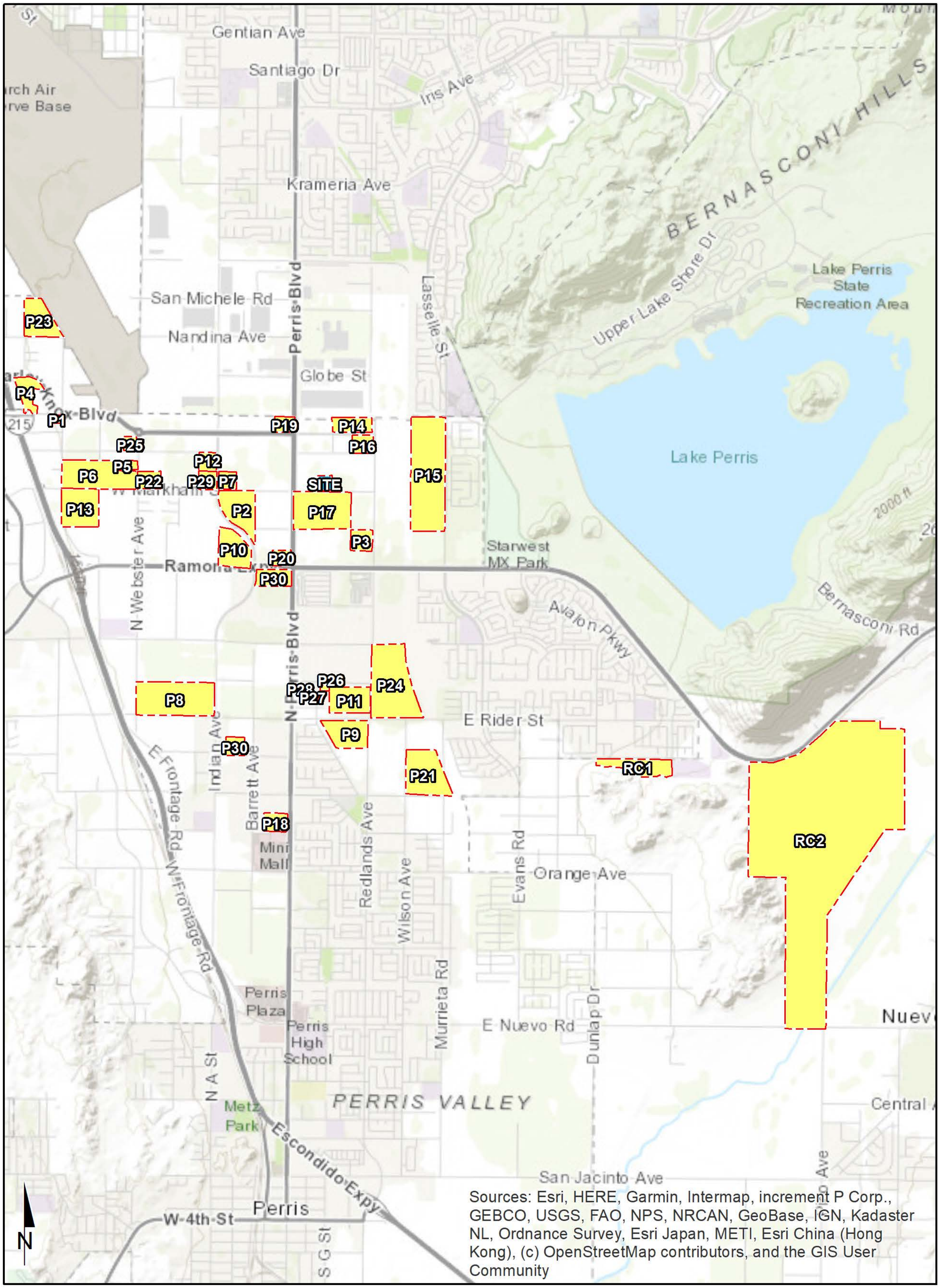


LEGEND:

10 = PERCENT TO/FROM PROJECT

N

EXHIBIT 5: CUMULATIVE DEVELOPMENT LOCATION MAP



ATTACHMENT A: EXISTING DRIVEWAY COUNT FOR 5087 PATTERSON AVENUE

City: Perris
Location: 5087 Patterson Avenue
Date: 1/23/2019
Count Type: Classification

	Entering					
	Pass Veh	Large 2 Axle	3 Axle	4 Axle	5+ Axle	Total
0:00	0	0	0	0	0	0
0:15	0	0	0	0	0	0
0:30	0	0	0	0	0	0
0:45	1	0	0	0	0	1
1:00	1	0	0	0	0	1
1:15	0	0	0	0	0	0
1:30	0	0	0	0	0	0
1:45	0	0	1	0	0	1
2:00	0	0	0	0	0	0
2:15	0	0	0	0	0	0
2:30	0	0	0	0	0	0
2:45	0	0	0	0	0	0
3:00	0	0	0	0	0	0
3:15	0	0	0	0	0	0
3:30	0	0	0	0	0	0
3:45	0	0	0	0	0	0
4:00	0	0	0	0	0	0
4:15	0	0	0	0	0	0
4:30	0	0	0	0	0	0
4:45	0	0	0	0	0	0
5:00	0	0	0	0	0	0
5:15	0	0	0	0	0	0
5:30	0	0	0	0	0	0
5:45	0	0	0	0	0	0
6:00	1	0	0	0	0	1
6:15	0	0	0	0	1	1
6:30	0	0	0	0	1	1
6:45	2	0	0	0	3	5
7:00	0	0	0	0	0	0
7:15	0	0	1	0	0	1
7:30	0	0	0	0	1	1
7:45	0	0	0	0	0	0
8:00	2	0	0	0	0	2
8:15	0	0	0	0	0	0
8:30	0	0	0	0	0	0
8:45	0	1	0	0	0	1
9:00	1	0	0	1	1	3
9:15	0	0	0	0	0	0
9:30	0	0	0	0	0	0
9:45	1	0	0	0	0	1
10:00	0	0	0	0	0	0
10:15	0	0	0	0	0	0
10:30	0	0	0	0	0	0
10:45	0	0	0	0	0	0
11:00	0	0	0	0	1	1
11:15	0	0	1	0	1	2
11:30	0	1	1	0	1	3
11:45	0	0	0	0	0	0
12:00	0	1	0	0	0	1
12:15	0	1	0	0	2	3
12:30	0	2	0	0	0	2
12:45	0	0	0	0	1	1
13:00	0	0	1	0	1	2
13:15	0	0	0	0	0	0
13:30	1	0	0	2	1	4
13:45	0	0	0	0	0	0

	Exiting					
	Pass Veh	Large 2 Axle	3 Axle	4 Axle	5+ Axle	Total
0:00	0	0	0	0	0	0
0:15	0	0	0	0	0	0
0:30	0	0	0	0	0	0
0:45	0	0	0	0	0	0
1:00	0	0	0	0	0	0
1:15	0	0	0	0	0	0
1:30	0	0	0	0	0	0
1:45	0	0	0	0	0	0
2:00	0	0	1	0	0	1
2:15	0	0	0	0	0	0
2:30	0	0	0	0	0	0
2:45	0	0	0	0	0	0
3:00	1	0	0	0	0	1
3:15	1	0	0	0	0	1
3:30	0	0	0	0	0	0
3:45	0	0	0	0	0	0
4:00	0	0	0	0	0	0
4:15	0	0	0	0	0	0
4:30	0	0	0	0	0	0
4:45	0	0	0	0	0	0
5:00	0	0	0	0	0	0
5:15	0	0	0	0	0	0
5:30	0	0	0	0	0	0
5:45	0	0	0	0	0	0
6:00	0	0	0	0	0	0
6:15	0	0	0	0	0	0
6:30	1	0	1	0	0	2
6:45	0	0	0	0	0	0
7:00	1	0	3	0	0	4
7:15	1	0	1	0	0	2
7:30	0	0	1	0	0	1
7:45	0	0	0	0	0	0
8:00	0	1	0	0	0	1
8:15	1	0	0	0	0	1
8:30	0	0	0	0	0	0
8:45	0	1	0	0	0	1
9:00	0	0	0	0	0	0
9:15	1	0	0	0	0	1
9:30	0	1	0	0	0	1
9:45	0	0	1	0	0	1
10:00	1	0	0	0	0	1
10:15	0	0	0	0	0	0
10:30	0	0	0	0	0	0
10:45	0	0	0	0	0	0
11:00	0	0	0	0	0	0
11:15	0	0	1	0	0	1
11:30	0	0	2	0	0	2
11:45	0	0	0	1	1	2
12:00	0	0	1	0	0	1
12:15	0	0	0	2	0	2
12:30	0	0	2	0	0	2
12:45	0	0	0	0	0	0
13:00	1	0	2	2	0	5
13:15	0	0	1	0	0	1
13:30	1	0	1	0	0	2
13:45	0	2	0	0	0	2

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City: Perris
Location: 5087 Patterson Avenue
Date: 1/23/2019
Count Type: Classification

	Entering					
	Pass Veh	Large 2 Axle	3 Axle	4 Axle	5+ Axle	Total
14:00	1	0	0	0	2	3
14:15	0	0	0	0	0	0
14:30	0	0	0	0	0	0
14:45	0	0	0	0	0	0
15:00	1	0	0	0	0	1
15:15	0	0	0	0	0	0
15:30	0	0	0	0	0	0
15:45	0	0	0	0	2	2
16:00	0	0	0	1	0	1
16:15	0	0	0	0	0	0
16:30	1	0	0	0	0	1
16:45	0	0	0	0	0	0
17:00	0	1	0	0	0	1
17:15	1	1	0	0	0	2
17:30	0	0	0	0	0	0
17:45	0	1	1	0	0	2
18:00	1	0	0	0	0	1
18:15	0	0	0	0	2	2
18:30	0	0	0	0	3	3
18:45	0	1	0	0	0	1
19:00	0	1	0	0	0	1
19:15	0	0	0	0	0	0
19:30	1	0	0	1	0	2
19:45	2	0	0	0	1	3
20:00	0	0	0	0	0	0
20:15	0	1	0	0	0	1
20:30	0	2	1	0	0	3
20:45	1	1	0	0	0	2
21:00	0	0	1	0	0	1
21:15	0	0	0	0	0	0
21:30	0	0	0	0	0	0
21:45	0	2	0	0	1	3
22:00	0	2	1	0	0	3
22:15	0	0	0	1	0	1
22:30	0	0	0	0	0	0
22:45	0	1	0	0	0	1
23:00	0	2	0	1	1	4
23:15	0	0	0	0	0	0
23:30	0	0	0	0	0	0
23:45	0	0	0	0	0	0
TOTAL	**19**	**22**	**9**	**7**	**27**	**84**

	Exiting					
	Pass Veh	Large 2 Axle	3 Axle	4 Axle	5+ Axle	Total
14:00	0	0	1	0	0	1
14:15	0	0	0	0	0	0
14:30	0	0	1	0	0	1
14:45	0	0	0	0	0	0
15:00	0	0	0	0	0	0
15:15	1	0	0	0	0	1
15:30	0	0	0	0	0	0
15:45	0	0	1	0	0	1
16:00	0	0	1	0	0	1
16:15	0	1	0	0	0	1
16:30	1	0	0	0	0	1
16:45	0	0	0	0	0	0
17:00	0	0	0	1	0	1
17:15	1	0	0	1	0	2
17:30	0	0	0	0	0	0
17:45	0	0	0	1	0	1
18:00	0	0	0	0	1	1
18:15	0	0	0	0	0	0
18:30	2	2	0	0	0	4
18:45	0	1	2	0	0	3
19:00	0	0	0	0	1	1
19:15	0	0	0	1	0	1
19:30	0	0	0	0	0	0
19:45	0	1	0	0	0	1
20:00	1	0	1	0	0	2
20:15	0	0	0	1	0	1
20:30	0	1	0	1	0	2
20:45	0	0	0	1	1	2
21:00	2	0	0	0	0	2
21:15	0	0	0	0	0	0
21:30	0	0	1	0	0	1
21:45	0	0	0	0	1	1
22:00	0	0	1	2	0	3
22:15	0	0	1	0	1	2
22:30	0	1	0	0	0	1
22:45	0	0	0	1	0	1
23:00	0	1	0	0	0	1
23:15	0	0	1	1	1	3
23:30	0	0	0	0	0	0
23:45	1	0	0	0	0	1
	19	**13**	**29**	**16**	**7**	**84**

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Attachment B: Local Serving Land Use

The proposed Project is anticipated to provide overflow or excess truck trailer storage for nearby warehouses. Although the specific end user(s) are unknown at this time, it is reasonable to assume that the future tenant will select this location, at least in part, as to how it effects their transportation costs. Businesses who have shipping as a significant part of their operations are sensitive to transportation costs and by extension their relative proximity to customers and suppliers. Therefore, the proposed truck and trailer storage lot is anticipated to serve nearby warehouse and distribution facilities that would be looking to locate overflow trailer storage as close as possible to the primary warehouse or distribution facility. As a result, the trips are expected to be local serving and additional VMT analysis is not required.

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APPENDIX 1.2:

SITE ADJACENT QUEUING ANALYSIS

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Intersection: 2: Markham St. & Driveway 1

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	12	46
Average Queue (ft)	0	20
95th Queue (ft)	6	46
Link Distance (ft)		188
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	50	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Markham St. & Driveway 1

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	18	36
Average Queue (ft)	1	20
95th Queue (ft)	9	44
Link Distance (ft)		188
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	50	
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

APPENDIX 3.1:

ANALYSIS (PCE) INTERSECTION VOLUMES & EXISTING TRAFFIC COUNTS

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PCE Volume Development - PM Peak Hour

1: Perris Bl. & Markham St.

PHF: 0.966 4:30pm Count Date: 3/11/2020

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Existing PCE:	**23**	**813**	**2**	**11**	**1,083**	**29**	**34**	**12**	**52**	**0**	**5**	**3**	**2,066**
E+P PCE:	23	813	3	38	1,083	29	34	13	52	4	10	21	2,122
EAC 2021 PCE:	26	954	12	16	1,175	29	34	12	54	8	5	8	2,332
EAPC 2021 PCE:	26	954	13	43	1,175	29	34	13	54	12	10	26	2,388

2: Driveway 1 & Markham St.

PHF: 0.920 Count Date:

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Existing PCE:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**25**	**0**	**0**	**8**	**0**	**33**
E+P PCE:	0	0	0	1	0	27	29	25	0	0	8	0	90
EAC 2021 PCE:	0	0	0	0	0	0	0	40	0	0	21	0	61
EAPC 2021 PCE:	0	0	0	1	0	27	29	40	0	0	21	0	118

PCE Volume Development - AM Peak Hour

1: Perris Bl. & Markham St.

PHF: 0.928 7:00am   Count Date: 3/11/2020

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Existing PCE:	**31**	**1,376**	**0**	**2**	**636**	**22**	**17**	**14**	**19**	**1**	**20**	**17**	**2,156**
E+P PCE:	31	1,376	2	13	636	22	17	17	19	2	22	43	2,201
EAC 2021 PCE:	32	1,445	6	7	745	22	17	14	22	9	20	22	2,361
EAPC 2021 PCE:	32	1,445	8	18	745	22	17	17	22	10	22	48	2,406

2: Driveway 1 & Markham St.

PHF: 0.920   Count Date:

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
Existing PCE:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**16**	**0**	**0**	**39**	**0**	**55**
E+P PCE:	0	0	0	0	0	29	16	16	0	0	39	1	101
EAC 2021 PCE:	0	0	0	0	0	0	0	27	0	0	52	0	79
EAPC 2021 PCE:	0	0	0	0	0	29	16	27	0	0	52	1	125

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Weather: Clear

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Site Code : 05120169
Start Date : 3/11/2020
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Perris Boulevard Southbound					Markham Street Westbound					Perris Boulevard Northbound					Markham Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	112	7	0	119	0	0	0	0	0	2	291	0	0	293	3	0	6	6	9	6	421	427
07:15 AM	0	139	4	0	143	0	0	0	0	0	7	334	0	0	341	4	0	7	5	11	5	495	500
07:30 AM	0	154	14	0	168	0	0	0	0	0	10	288	0	0	298	3	0	4	4	7	4	473	477
07:45 AM	0	173	15	0	188	0	0	0	0	0	19	260	0	0	279	3	0	5	3	8	3	475	478
Total	0	578	40	0	618	0	0	0	0	0	38	1173	0	0	1211	13	0	22	18	35	18	1864	1882
08:00 AM	1	134	7	0	142	0	0	0	0	0	9	182	0	0	191	8	0	9	3	17	3	350	353
08:15 AM	0	137	5	0	142	0	0	0	0	0	9	180	0	0	189	1	0	13	6	14	6	345	351
08:30 AM	0	121	5	1	126	0	0	0	0	0	5	127	0	0	132	3	0	5	4	8	5	266	271
08:45 AM	0	124	3	0	127	0	0	0	0	0	9	138	0	0	147	5	0	6	5	11	5	285	290
Total	1	516	20	1	537	0	0	0	0	0	32	627	0	0	659	17	0	33	18	50	19	1246	1265
Grand Total	1	1094	60	1	1155	0	0	0	0	0	70	1800	0	0	1870	30	0	55	36	85	37	3110	3147
Apprch %	0.1	94.7	5.2			0	0	0			3.7	96.3	0			35.3	0	64.7					
Total %	0	35.2	1.9		37.1	0	0	0		0	2.3	57.9	0		60.1	1	0	1.8		2.7	1.2	98.8	
Passenger Vehicles	0	1041	54		1096	0	0	0		0	66	1735	0		1801	23	0	50		106	0	0	3003
% Passenger Vehicles	0	95.2	90	100	94.8	0	0	0	0	0	94.3	96.4	0	0	96.3	76.7	0	90.9	91.7	87.6	0	0	95.4
Large 2 Axle Vehicles	1	26	2		29	0	0	0		0	1	32	0		33	2	0	2		5	0	0	67
% Large 2 Axle Vehicles	100	2.4	3.3	0	2.5	0	0	0	0	0	1.4	1.8	0	0	1.8	6.7	0	3.6	2.8	4.1	0	0	2.1
3 Axle Vehicles	0	7	0		7	0	0	0		0	2	14	0		16	0	0	1		2	0	0	25
% 3 Axle Vehicles	0	0.6	0	0	0.6	0	0	0	0	0	2.9	0.8	0	0	0.9	0	0	1.8	2.8	1.7	0	0	0.8
4+ Axle Trucks	0	20	4		24	0	0	0		0	1	19	0		20	5	0	2		8	0	0	52
% 4+ Axle Trucks	0	1.8	6.7	0	2.1	0	0	0	0	0	1.4	1.1	0	0	1.1	16.7	0	3.6	2.8	6.6	0	0	1.7

	Perris Boulevard Southbound				Markham Street Westbound				Perris Boulevard Northbound				Markham Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	112	7	119	0	0	0	0	2	291	0	293	3	0	6	9	421
07:15 AM	0	139	4	143	0	0	0	0	7	**334**	0	**341**	**4**	0	**7**	**11**	**495**
07:30 AM	0	154	14	168	0	0	0	0	10	288	0	298	3	0	4	7	473
07:45 AM	0	**173**	**15**	**188**	0	0	0	0	**19**	260	0	279	3	0	5	8	475
Total Volume	0	578	40	618	0	0	0	0	38	1173	0	1211	13	0	22	35	1864
% App. Total	0	93.5	6.5		0	0	0		3.1	96.9	0		37.1	0	62.9		
PHF	.000	.835	.667	.822	.000	.000	.000	.000	.500	.878	.000	.888	.813	.000	.786	.795	.941

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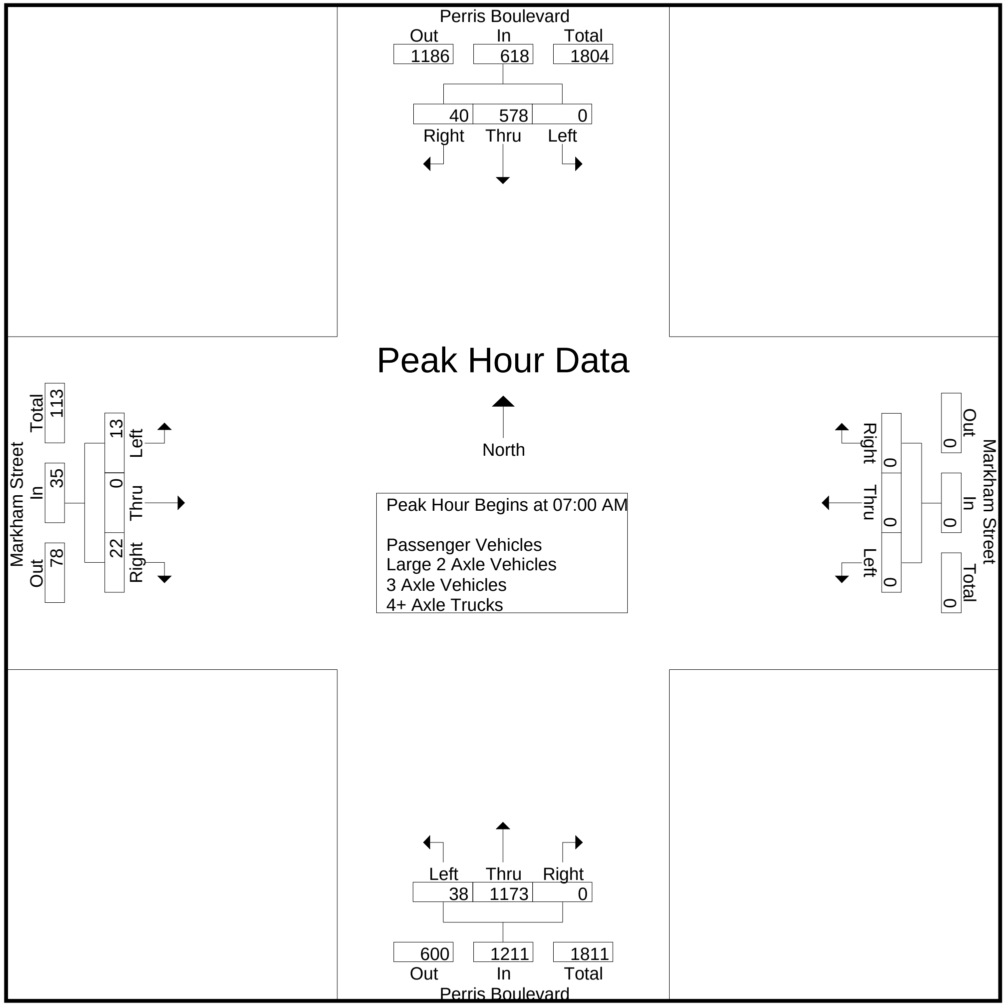

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City of Perris
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File Name : 21_PER_Perris_Mark AM
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Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Perris Boulevard Southbound					Markham Street Westbound					Perris Boulevard Northbound					Markham Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	5	5
07:15 AM	0	1	0	0	1	0	0	0	0	0	1	4	0	0	5	0	0	0	0	0	0	6	6
07:30 AM	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	4	4
07:45 AM	0	4	0	0	4	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	10	10
Total	0	6	0	0	6	0	0	0	0	0	1	18	0	0	19	0	0	0	0	0	0	25	25
08:00 AM	1	5	1	0	7	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	10	10
08:15 AM	0	3	0	0	3	0	0	0	0	0	0	7	0	0	7	0	0	1	0	1	0	11	11
08:30 AM	0	7	1	0	8	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	10	10
08:45 AM	0	5	0	0	5	0	0	0	0	0	0	2	0	0	2	2	0	1	1	3	1	10	11
Total	1	20	2	0	23	0	0	0	0	0	0	14	0	0	14	2	0	2	1	4	1	41	42
Grand Total	1	26	2	0	29	0	0	0	0	0	1	32	0	0	33	2	0	2	1	4	1	66	67
Apprch %	3.4	89.7	6.9			0	0	0			3	97	0			50	0	50					
Total %	1.5	39.4	3		43.9	0	0	0		0	1.5	48.5	0		50	3	0	3		6.1	1.5	98.5	

	Perris Boulevard Southbound				Markham Street Westbound				Perris Boulevard Northbound				Markham Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	5	0	5	0	0	0	0	5
07:15 AM	0	1	0	1	0	0	0	0	**1**	4	0	5	0	0	0	0	6
07:30 AM	0	1	0	1	0	0	0	0	0	3	0	3	0	0	0	0	4
07:45 AM	0	**4**	0	**4**	0	0	0	0	0	**6**	0	**6**	0	0	0	0	**10**
Total Volume	0	6	0	6	0	0	0	0	1	18	0	19	0	0	0	0	25
% App. Total	0	100	0		0	0	0		5.3	94.7	0		0	0	0		
PHF	.000	.375	.000	.375	.000	.000	.000	.000	.250	.750	.000	.792	.000	.000	.000	.000	.625

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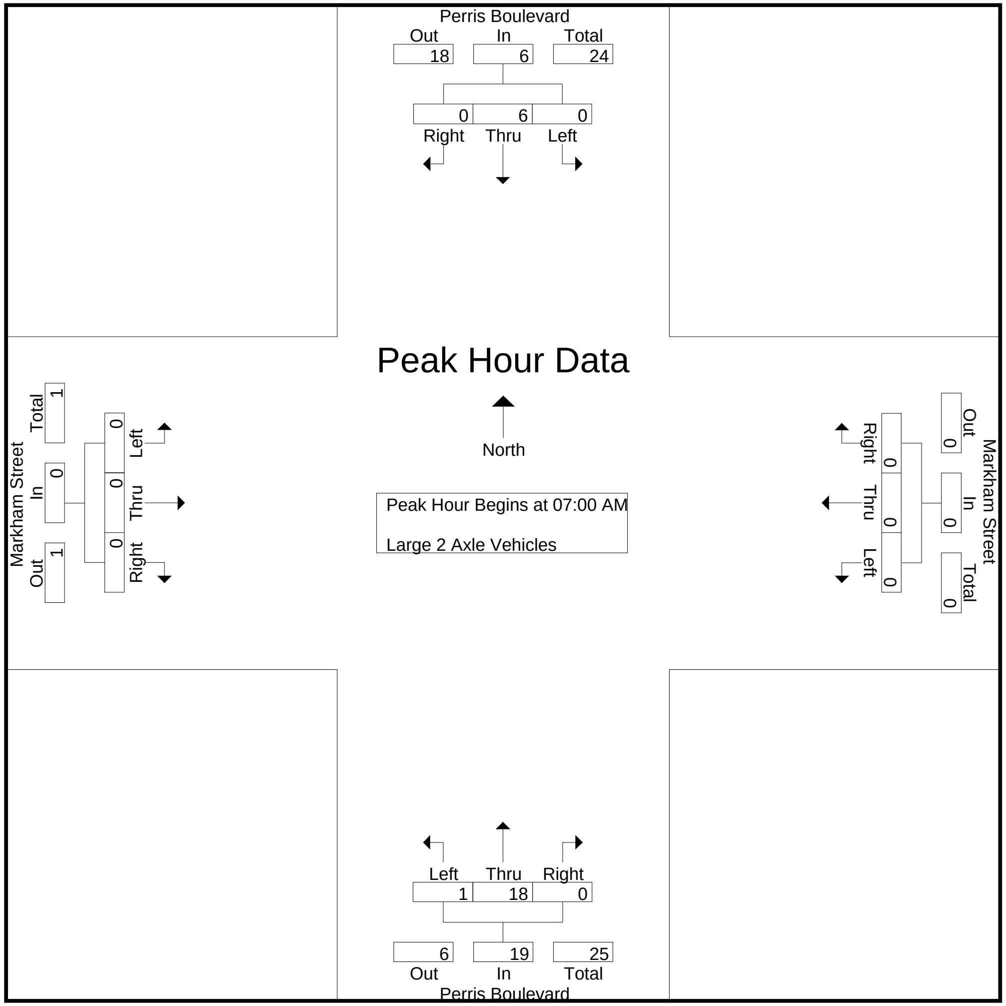

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Groups Printed- 3 Axle Vehicles

	Perris Boulevard Southbound					Markham Street Westbound					Perris Boulevard Northbound					Markham Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	1	1	1	1	4	5
07:15 AM	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	3
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	2
07:45 AM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	3
Total	0	3	0	0	3	0	0	0	0	0	0	8	0	0	8	0	0	1	1	1	1	12	13
08:00 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	2
08:15 AM	0	0	0	0	0	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0	0	4	4
08:30 AM	0	2	0	0	2	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	3	3
08:45 AM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	3
Total	0	4	0	0	4	0	0	0	0	0	2	6	0	0	8	0	0	0	0	0	0	12	12
Grand Total	0	7	0	0	7	0	0	0	0	0	2	14	0	0	16	0	0	1	1	1	1	24	25
Apprch %	0	100	0			0	0	0			12.5	87.5	0			0	0	100					
Total %	0	29.2	0		29.2	0	0	0		0	8.3	58.3	0		66.7	0	0	4.2		4.2	4	96	

	Perris Boulevard Southbound				Markham Street Westbound				Perris Boulevard Northbound				Markham Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	**3**	0	**3**	0	0	**1**	**1**	**4**
07:15 AM	0	**2**	0	**2**	0	0	0	0	0	1	0	1	0	0	0	0	3
07:30 AM	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
07:45 AM	0	1	0	1	0	0	0	0	0	2	0	2	0	0	0	0	3
Total Volume	0	3	0	3	0	0	0	0	0	8	0	8	0	0	1	1	12
% App. Total	0	100	0		0	0	0		0	100	0		0	0	100		
PHF	.000	.375	.000	.375	.000	.000	.000	.000	.000	.667	.000	.667	.000	.000	.250	.250	.750

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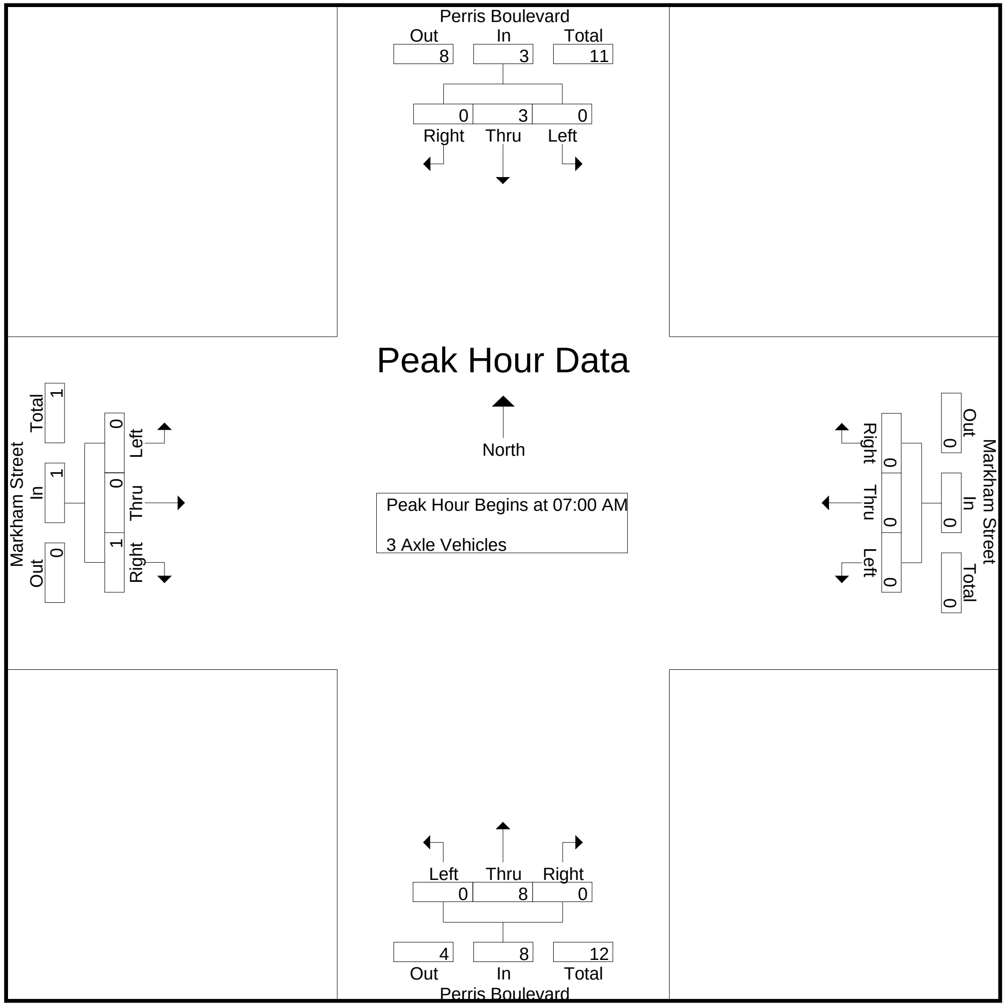

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Weather: Clear

File Name : 21_PER_Perris_Mark AM
Site Code : 05120169
Start Date : 3/11/2020
Page No : 1

Groups Printed- 4+ Axle Trucks

	Perris Boulevard Southbound					Markham Street Westbound					Perris Boulevard Northbound					Markham Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	1	2	0	3	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	4	4
07:15 AM	0	4	1	0	5	0	0	0	0	0	1	1	0	0	2	1	0	1	0	2	0	9	9
07:30 AM	0	3	0	0	3	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	12	12
07:45 AM	0	2	1	0	3	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	4	4
Total	0	10	4	0	14	0	0	0	0	0	1	12	0	0	13	1	0	1	0	2	0	29	29
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	1	0	0	0	1	0	4	4
08:15 AM	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	5	6
08:30 AM	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	2	0	0	0	2	0	7	7
08:45 AM	0	4	0	0	4	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	6	6
Total	0	10	0	0	10	0	0	0	0	0	0	7	0	0	7	4	0	1	1	5	1	22	23
Grand Total	0	20	4	0	24	0	0	0	0	0	1	19	0	0	20	5	0	2	1	7	1	51	52
Apprch %	0	83.3	16.7			0	0	0			5	95	0			71.4	0	28.6					
Total %	0	39.2	7.8		47.1	0	0	0		0	2	37.3	0		39.2	9.8	0	3.9		13.7	1.9	98.1	

	Perris Boulevard Southbound				Markham Street Westbound				Perris Boulevard Northbound				Markham Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	1	**2**	3	0	0	0	0	0	1	0	1	0	0	0	0	4
07:15 AM	0	**4**	1	**5**	0	0	0	0	**1**	1	0	2	**1**	0	**1**	**2**	9
07:30 AM	0	3	0	3	0	0	0	0	0	**9**	0	**9**	0	0	0	0	**12**
07:45 AM	0	2	1	3	0	0	0	0	0	1	0	1	0	0	0	0	4
Total Volume	0	10	4	14	0	0	0	0	1	12	0	13	1	0	1	2	29
% App. Total	0	71.4	28.6		0	0	0		7.7	92.3	0		50	0	50		
PHF	.000	.625	.500	.700	.000	.000	.000	.000	.250	.333	.000	.361	.250	.000	.250	.250	.604

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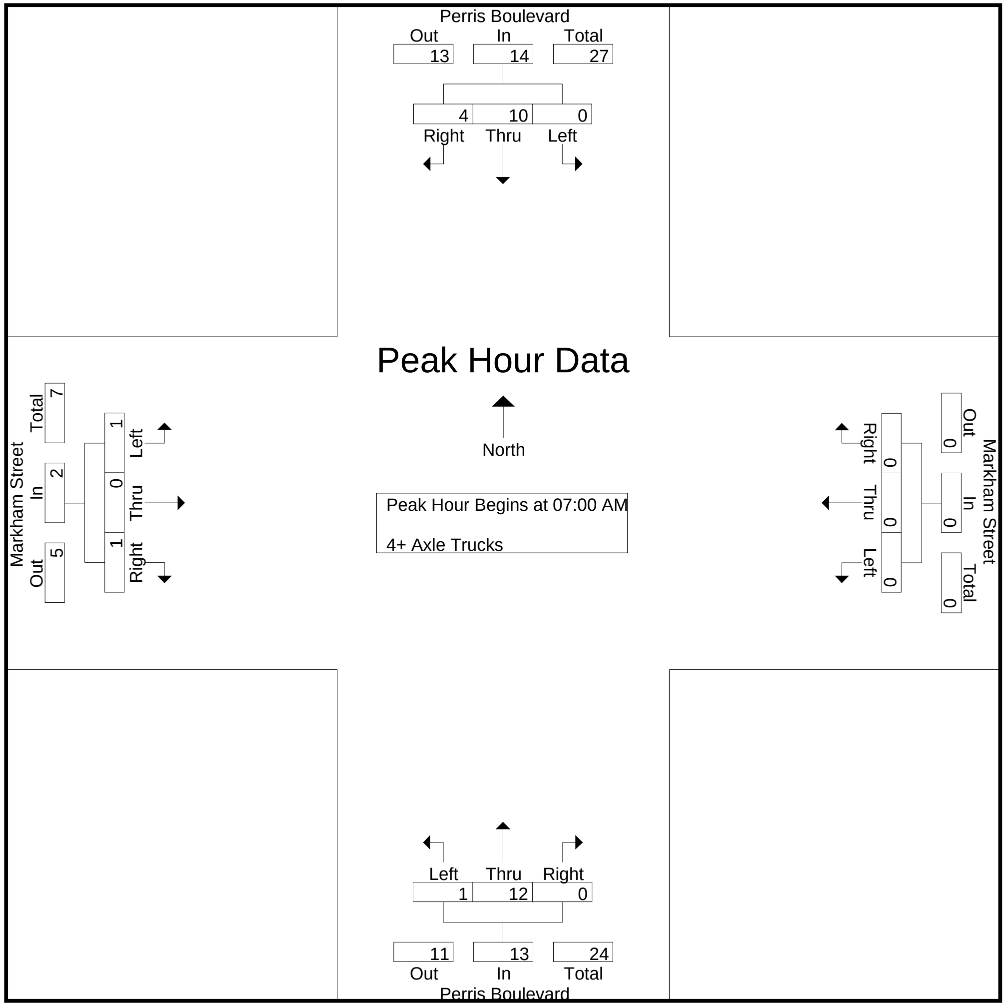

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File Name : 21_PER_Perris_Mark PM
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Perris Boulevard Southbound					Markham Street Westbound					Perris Boulevard Northbound					Markham Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	187	4	0	191	0	0	0	0	0	3	163	0	0	166	6	0	6	4	12	4	369	373
04:15 PM	0	217	9	0	226	0	0	0	0	0	3	197	0	0	200	7	0	10	8	17	8	443	451
04:30 PM	0	250	6	0	256	0	0	0	0	0	4	197	0	0	201	6	0	9	6	15	6	472	478
04:45 PM	0	244	7	0	251	0	0	0	0	0	3	179	0	0	182	3	0	10	8	13	8	446	454
Total	0	898	26	0	924	0	0	0	0	0	13	736	0	0	749	22	0	35	26	57	26	1730	1756
05:00 PM	0	267	4	0	271	0	0	0	0	0	6	162	0	0	168	5	0	13	9	18	9	457	466
05:15 PM	0	248	4	0	252	0	0	0	0	0	4	171	0	0	175	7	0	15	11	22	11	449	460
05:30 PM	0	202	5	0	207	0	0	0	0	0	4	158	0	0	162	11	0	8	4	19	4	388	392
05:45 PM	0	215	5	0	220	0	0	0	0	0	8	162	0	0	170	5	0	8	7	13	7	403	410
Total	0	932	18	0	950	0	0	0	0	0	22	653	0	0	675	28	0	44	31	72	31	1697	1728
Grand Total	0	1830	44	0	1874	0	0	0	0	0	35	1389	0	0	1424	50	0	79	57	129	57	3427	3484
Apprch %	0	97.7	2.3			0	0	0			2.5	97.5	0			38.8	0	61.2					
Total %	0	53.4	1.3		54.7	0	0	0		0	1	40.5	0		41.6	1.5	0	2.3		3.8	1.6	98.4	
Passenger Vehicles	0	1780	31		1811	0	0	0		0	33	1344	0		1377	41	0	77		174	0	0	3362
% Passenger Vehicles	0	97.3	70.5	0	96.6	0	0	0	0	0	94.3	96.8	0	0	96.7	82	0	97.5	98.2	93.5	0	0	96.5
Large 2 Axle Vehicles	0	25	6		31	0	0	0		0	0	17	0		17	0	0	0		0	0	0	48
% Large 2 Axle Vehicles	0	1.4	13.6	0	1.7	0	0	0	0	0	0	1.2	0	0	1.2	0	0	0	0	0	0	0	1.4
3 Axle Vehicles	0	10	2		12	0	0	0		0	1	8	0		9	5	0	1		7	0	0	28
% 3 Axle Vehicles	0	0.5	4.5	0	0.6	0	0	0	0	0	2.9	0.6	0	0	0.6	10	0	1.3	1.8	3.8	0	0	0.8
4+ Axle Trucks	0	15	5		20	0	0	0		0	1	20	0		21	4	0	1		5	0	0	46
% 4+ Axle Trucks	0	0.8	11.4	0	1.1	0	0	0	0	0	2.9	1.4	0	0	1.5	8	0	1.3	0	2.7	0	0	1.3

	Perris Boulevard Southbound				Markham Street Westbound				Perris Boulevard Northbound				Markham Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	250	6	256	0	0	0	0	4	**197**	0	**201**	6	0	9	15	**472**
04:45 PM	0	244	**7**	251	0	0	0	0	3	179	0	182	3	0	10	13	446
05:00 PM	0	**267**	4	**271**	0	0	0	0	**6**	162	0	168	5	0	13	18	457
05:15 PM	0	248	4	252	0	0	0	0	4	171	0	175	**7**	0	**15**	**22**	449
Total Volume	0	1009	21	1030	0	0	0	0	17	709	0	726	21	0	47	68	1824
% App. Total	0	98	2		0	0	0		2.3	97.7	0		30.9	0	69.1		
PHF	.000	.945	.750	.950	.000	.000	.000	.000	.708	.900	.000	.903	.750	.000	.783	.773	.966

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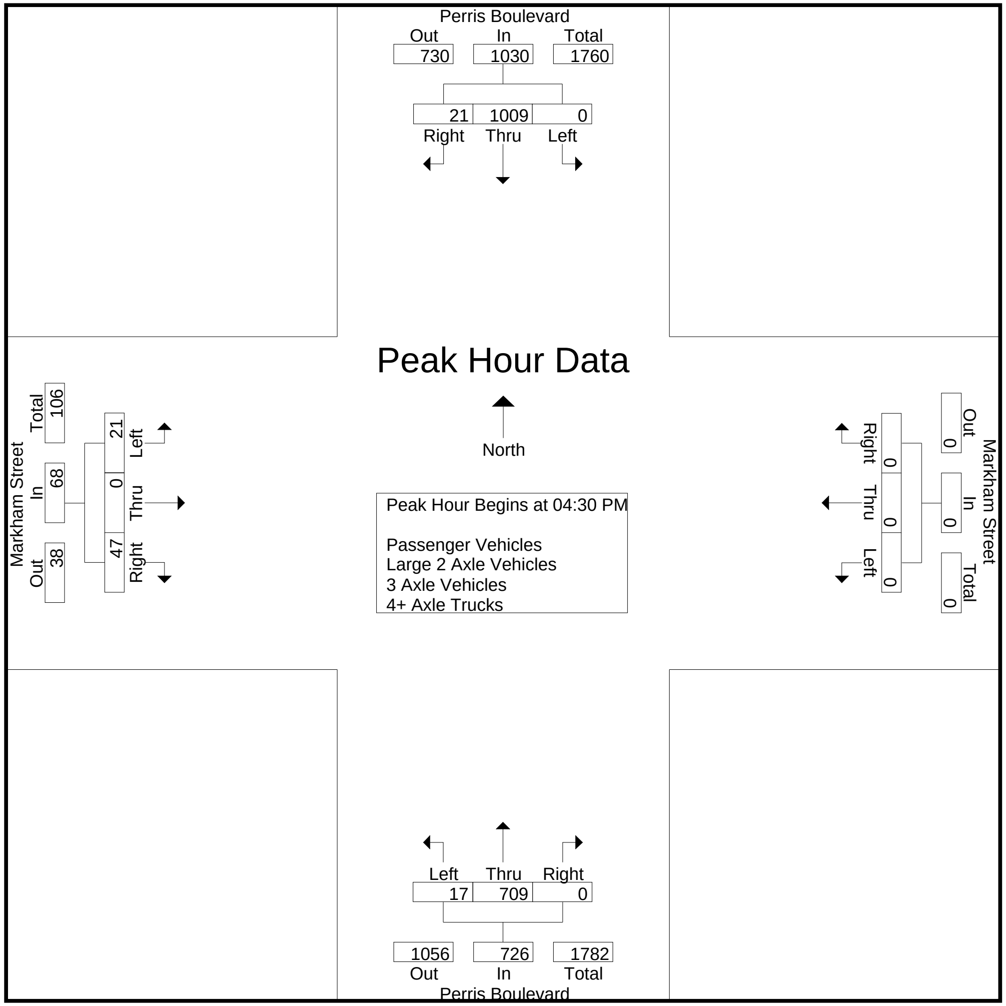

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Groups Printed- Large 2 Axle Vehicles

	Perris Boulevard Southbound					Markham Street Westbound					Perris Boulevard Northbound					Markham Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	4	1	0	5	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	6	6
04:15 PM	0	4	2	0	6	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	9	9
04:30 PM	0	2	2	0	4	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	8	8
04:45 PM	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	5	5
Total	0	12	5	0	17	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	0	28	28
05:00 PM	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
05:15 PM	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	7	7
05:30 PM	0	1	1	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	3
05:45 PM	0	4	0	0	4	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	5	5
Total	0	13	1	0	14	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	20	20
Grand Total	0	25	6	0	31	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	0	48	48
Apprch %	0	80.6	19.4			0	0	0			0	100	0			0	0	0					
Total %	0	52.1	12.5		64.6	0	0	0		0	0	35.4	0		35.4	0	0	0		0	0	100	

	Perris Boulevard Southbound				Markham Street Westbound				Perris Boulevard Northbound				Markham Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	2	**2**	4	0	0	0	0	0	**4**	0	**4**	0	0	0	0	**8**
04:45 PM	0	2	0	2	0	0	0	0	0	3	0	3	0	0	0	0	5
05:00 PM	0	**5**	0	**5**	0	0	0	0	0	0	0	0	0	0	0	0	5
05:15 PM	0	3	0	3	0	0	0	0	0	4	0	4	0	0	0	0	7
Total Volume	0	12	2	14	0	0	0	0	0	11	0	11	0	0	0	0	25
% App. Total	0	85.7	14.3		0	0	0		0	100	0		0	0	0		
PHF	.000	.600	.250	.700	.000	.000	.000	.000	.000	.688	.000	.688	.000	.000	.000	.000	.781

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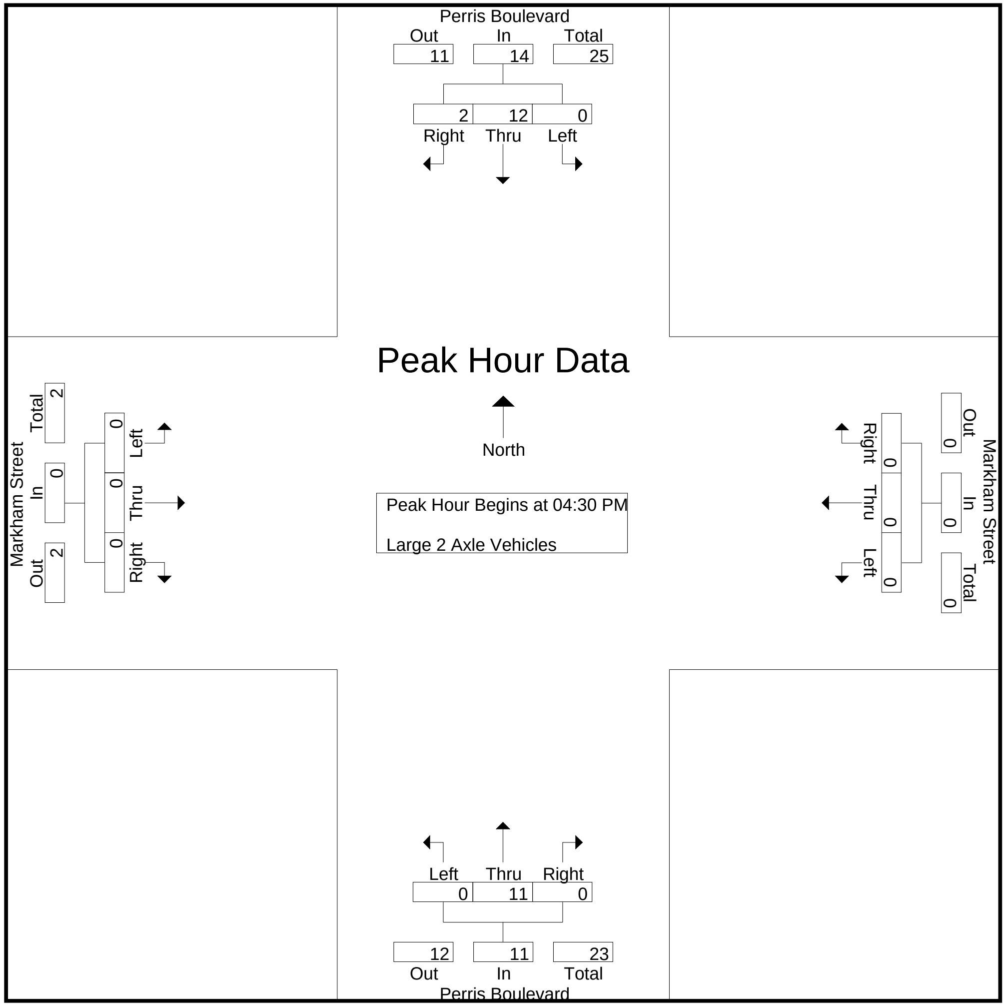

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Groups Printed- 3 Axle Vehicles

	Perris Boulevard Southbound					Markham Street Westbound					Perris Boulevard Northbound					Markham Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	4	4
04:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	2	2
04:45 PM	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	0	0	1	1	1	1	6	7
Total	0	5	0	0	5	0	0	0	0	0	1	5	0	0	6	1	0	1	1	2	1	13	14
05:00 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
05:15 PM	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	4	4
05:30 PM	0	1	1	0	2	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	0	5	5
05:45 PM	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	3	3
Total	0	5	2	0	7	0	0	0	0	0	0	3	0	0	3	4	0	0	0	4	0	14	14
Grand Total	0	10	2	0	12	0	0	0	0	0	1	8	0	0	9	5	0	1	1	6	1	27	28
Apprch %	0	83.3	16.7			0	0	0			11.1	88.9	0			83.3	0	16.7					
Total %	0	37	7.4		44.4	0	0	0		0	3.7	29.6	0		33.3	18.5	0	3.7		22.2	3.6	96.4	

	Perris Boulevard Southbound				Markham Street Westbound				Perris Boulevard Northbound				Markham Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	0	0	0	**1**	1	0	2	0	0	0	0	2
04:45 PM	0	**2**	0	**2**	0	0	0	0	0	**3**	0	**3**	0	0	**1**	**1**	**6**
05:00 PM	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
05:15 PM	0	2	0	2	0	0	0	0	0	1	0	1	**1**	0	0	1	4
Total Volume	0	6	0	6	0	0	0	0	1	5	0	6	1	0	1	2	14
% App. Total	0	100	0		0	0	0		16.7	83.3	0		50	0	50		
PHF	.000	.750	.000	.750	.000	.000	.000	.000	.250	.417	.000	.500	.250	.000	.250	.500	.583

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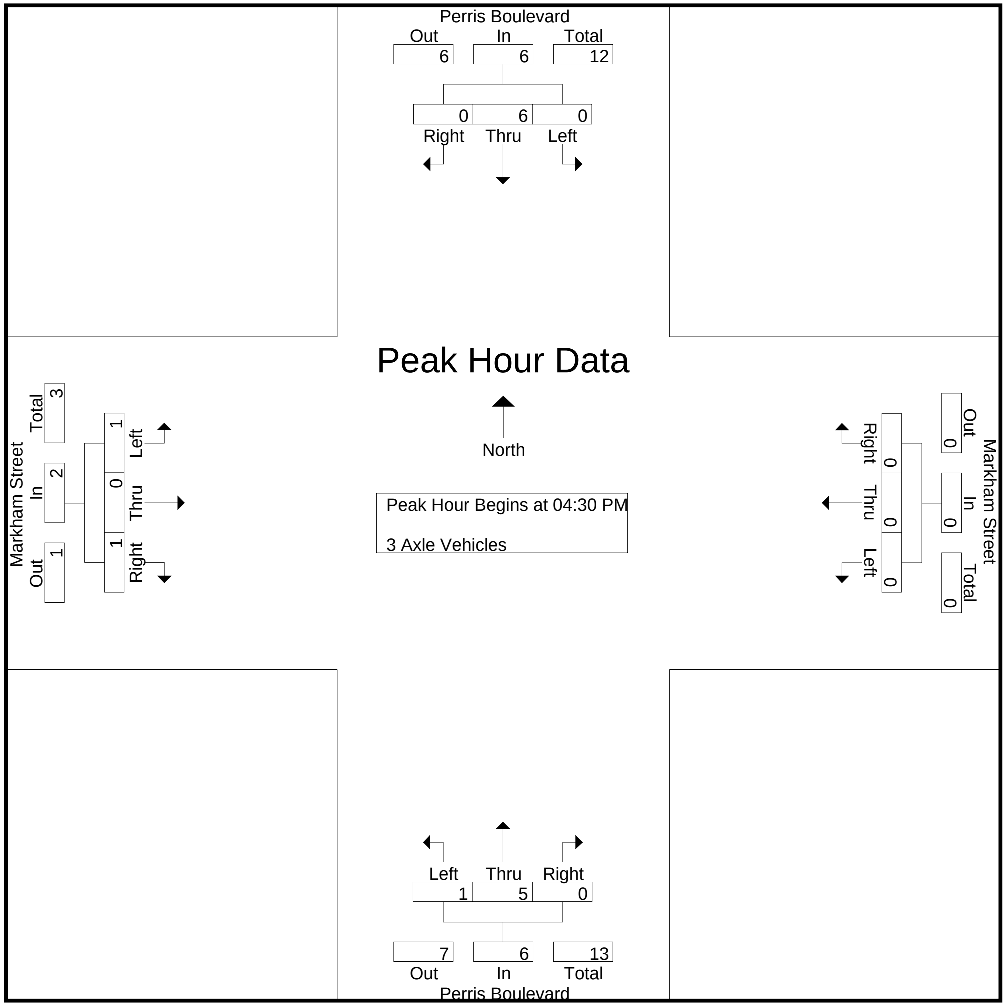

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Groups Printed- 4+ Axle Trucks

	Perris Boulevard Southbound					Markham Street Westbound					Perris Boulevard Northbound					Markham Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	3
04:15 PM	0	2	3	0	5	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	11	11
04:30 PM	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	4	4
04:45 PM	0	3	1	0	4	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	6	6
Total	0	8	4	0	12	0	0	0	0	0	0	11	0	0	11	1	0	0	0	1	0	24	24
05:00 PM	0	2	1	0	3	0	0	0	0	0	0	2	0	0	2	1	0	1	0	2	0	7	7
05:15 PM	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	4	4
05:30 PM	0	1	0	0	1	0	0	0	0	0	0	4	0	0	4	2	0	0	0	2	0	7	7
05:45 PM	0	2	0	0	2	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	4	4
Total	0	7	1	0	8	0	0	0	0	0	1	9	0	0	10	3	0	1	0	4	0	22	22
Grand Total	0	15	5	0	20	0	0	0	0	0	1	20	0	0	21	4	0	1	0	5	0	46	46
Apprch %	0	75	25			0	0	0			4.8	95.2	0			80	0	20					
Total %	0	32.6	10.9		43.5	0	0	0		0	2.2	43.5	0		45.7	8.7	0	2.2		10.9	0	100	

	Perris Boulevard Southbound				Markham Street Westbound				Perris Boulevard Northbound				Markham Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	2	0	2	0	0	0	0	0	1	0	1	**1**	0	0	1	4
04:45 PM	0	**3**	**1**	**4**	0	0	0	0	0	**2**	0	**2**	0	0	0	0	6
05:00 PM	0	2	1	3	0	0	0	0	0	2	0	2	1	0	**1**	**2**	**7**
05:15 PM	0	2	0	2	0	0	0	0	0	2	0	2	0	0	0	0	4
Total Volume	0	9	2	11	0	0	0	0	0	7	0	7	2	0	1	3	21
% App. Total	0	81.8	18.2		0	0	0		0	100	0		66.7	0	33.3		
PHF	.000	.750	.500	.688	.000	.000	.000	.000	.000	.875	.000	.875	.500	.000	.250	.375	.750

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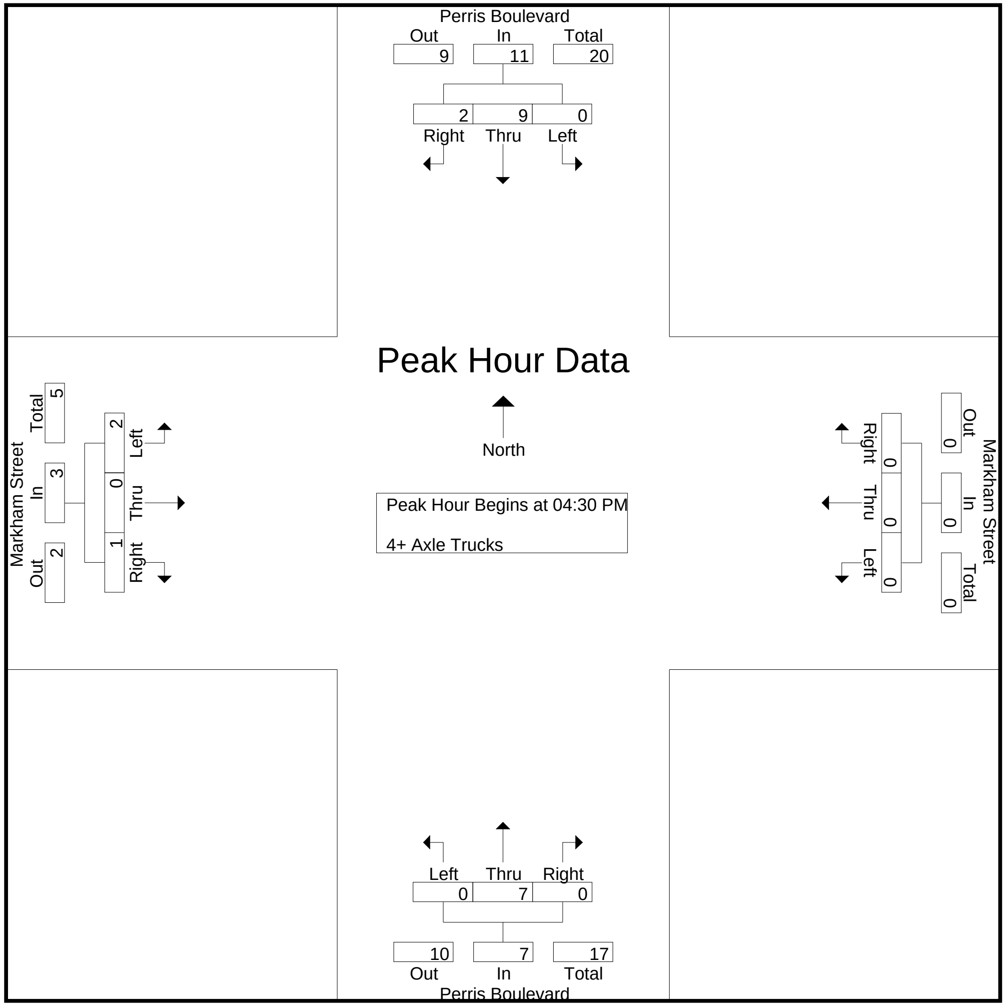

Location: Perris
N/S: Perris Boulevard
E/W: Markham Street

Date: 3/11/2020
Day: Wednesday

PEDESTRIANS

	North Leg Perris Boulevard	East Leg Markham Street	South Leg Perris Boulevard	West Leg Markham Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
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	1	1	0	2
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	2	0	0	2	4
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	2	1	1	2	6

	North Leg Perris Boulevard	East Leg Markham Street	South Leg Perris Boulevard	West Leg Markham Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	1	0	0	2	3
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
TOTAL VOLUMES:	1	0	0	2	3

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
951-268-6268

Location: Perris
N/S: Perris Boulevard
E/W: Markham Street

Date: 3/11/2020
Day: Wednesday

BICYCLES

	Southbound Perris Boulevard			Westbound Markham Street			Northbound Perris Boulevard			Eastbound Markham Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
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
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

	Southbound Perris Boulevard			Westbound Markham Street			Northbound Perris Boulevard			Eastbound Markham Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
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
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

Counts Unlimited, Inc.
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Corona, CA 92878
951-268-6268

APPENDIX 3.2:

EXISTING (2021) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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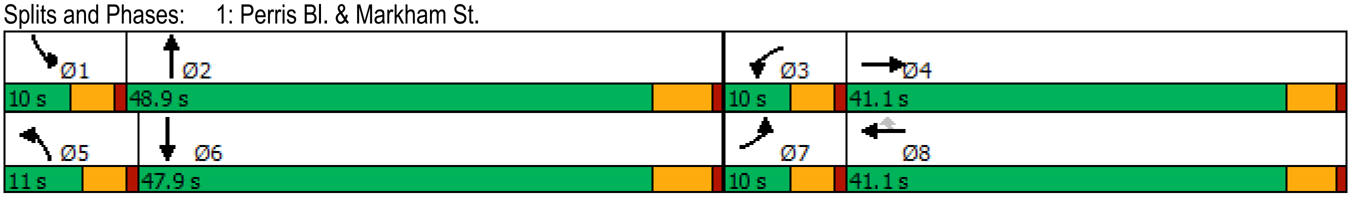
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	17	14	1	20	17	31	1376	2	636
Future Volume (vph)	17	14	1	20	17	31	1376	2	636
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4	3	8		5	2	1	6
Permitted Phases					8				
Detector Phase	7	4	3	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	39.1	9.6	41.1	41.1	9.6	32.8	9.6	32.8
Total Split (s)	10.0	41.1	10.0	41.1	41.1	11.0	48.9	10.0	47.9
Total Split (%)	9.1%	37.4%	9.1%	37.4%	37.4%	10.0%	44.5%	9.1%	43.5%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	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	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	5.1	4.6	5.8	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min

Intersection Summary
Cycle Length: 110
Actuated Cycle Length: 53.1
Natural Cycle: 95
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Perris Bl. & Markham St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	14	19	1	20	17	31	1376	0	2	636	22
Future Volume (veh/h)	17	14	19	1	20	17	31	1376	0	2	636	22
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		0.98
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	18	15	10	1	22	3	33	1480	0	2	684	24
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	40	263	158	4	191	162	66	2510	0	5	2314	81
Arrive On Green	0.02	0.12	0.12	0.00	0.10	0.10	0.04	0.48	0.00	0.00	0.45	0.45
Sat Flow, veh/h	1810	2167	1304	1810	1900	1610	1810	5358	0	1810	5141	180
Grp Volume(v), veh/h	18	12	13	1	22	3	33	1480	0	2	459	249
Grp Sat Flow(s),veh/h/ln	1810	1805	1665	1810	1900	1610	1810	1729	0	1810	1729	1863
Q Serve(g_s), s	0.5	0.3	0.3	0.0	0.5	0.1	0.9	10.6	0.0	0.1	4.3	4.4
Cycle Q Clear(g_c), s	0.5	0.3	0.3	0.0	0.5	0.1	0.9	10.6	0.0	0.1	4.3	4.4
Prop In Lane	1.00		0.78	1.00		1.00	1.00		0.00	1.00		0.10
Lane Grp Cap(c), veh/h	40	219	202	4	191	162	66	2510	0	5	1556	838
V/C Ratio(X)	0.45	0.06	0.06	0.28	0.12	0.02	0.50	0.59	0.00	0.40	0.30	0.30
Avail Cap(c_a), veh/h	190	1263	1165	190	1330	1127	225	4346	0	190	2830	1524
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.8	20.0	20.0	25.7	21.1	20.8	24.3	9.6	0.0	25.6	9.0	9.0
Incr Delay (d2), s/veh	2.9	0.1	0.1	15.6	0.3	0.0	2.2	0.2	0.0	18.5	0.1	0.2
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	0.2	0.1	0.1	0.0	0.2	0.0	0.4	2.7	0.0	0.0	1.2	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.8	20.1	20.1	41.2	21.3	20.9	26.5	9.8	0.0	44.1	9.1	9.2
LnGrp LOS	C	C	C	D	C	C	C	A	A	D	A	A
Approach Vol, veh/h		43			26			1513			710	
Approach Delay, s/veh		23.3			22.0			10.2			9.2	
Approach LOS		C			C			B			A	

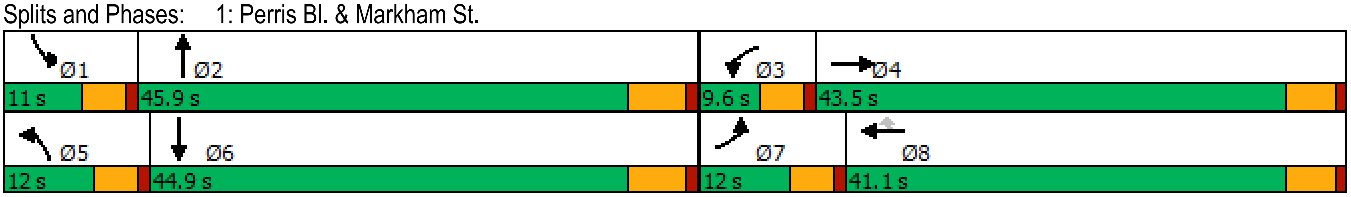
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.7	30.7	4.7	11.3	6.5	29.0	5.7	10.3
Change Period (Y+Rc), s	4.6	5.8	4.6	5.1	4.6	5.8	4.6	5.1
Max Green Setting (Gmax), s	5.4	43.1	5.4	36.0	6.4	42.1	5.4	36.0
Max Q Clear Time (g_c+I1), s	2.1	12.6	2.0	2.3	2.9	6.4	2.5	2.5
Green Ext Time (p_c), s	0.0	12.3	0.0	0.1	0.0	4.5	0.0	0.1

Intersection Summary			
HCM 6th Ctrl Delay			10.3
HCM 6th LOS			B

Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT	Ø3
Lane Configurations									
Traffic Volume (vph)	34	12	5	3	23	813	11	1083	
Future Volume (vph)	34	12	5	3	23	813	11	1083	
Turn Type	Prot	NA	NA	Perm	Prot	NA	Prot	NA	
Protected Phases	7	4	8		5	2	1	6	3
Permitted Phases				8					
Detector Phase	7	4	8	8	5	2	1	6	
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	39.1	41.1	41.1	9.6	32.8	9.6	32.8	9.6
Total Split (s)	12.0	43.5	41.1	41.1	12.0	45.9	11.0	44.9	9.6
Total Split (%)	10.9%	39.5%	37.4%	37.4%	10.9%	41.7%	10.0%	40.8%	9%
Yellow Time (s)	3.6	4.1	4.1	4.1	3.6	4.8	3.6	4.8	3.6
All-Red Time (s)	1.0	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)	4.6	5.1	5.1	5.1	4.6	5.8	4.6	5.8	
Lead/Lag	Lead	Lag	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min	None

Intersection Summary
Cycle Length: 110
Actuated Cycle Length: 51
Natural Cycle: 95
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Perris Bl. & Markham St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	12	52	0	5	3	23	813	2	11	1083	29
Future Volume (veh/h)	34	12	52	0	5	3	23	813	2	11	1083	29
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		0.99	1.00		0.99	1.00		0.98
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	35	12	31	0	5	1	24	838	2	11	1116	30
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	71	437	389	4	193	161	52	2154	5	26	2017	54
Arrive On Green	0.04	0.24	0.24	0.00	0.10	0.10	0.03	0.40	0.40	0.01	0.39	0.39
Sat Flow, veh/h	1810	1805	1610	1810	1900	1589	1810	5343	13	1810	5190	139
Grp Volume(v), veh/h	35	12	31	0	5	1	24	542	298	11	743	403
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1900	1589	1810	1729	1898	1810	1729	1871
Q Serve(g_s), s	0.9	0.2	0.7	0.0	0.1	0.0	0.6	5.1	5.1	0.3	7.6	7.6
Cycle Q Clear(g_c), s	0.9	0.2	0.7	0.0	0.1	0.0	0.6	5.1	5.1	0.3	7.6	7.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.01	1.00		0.07
Lane Grp Cap(c), veh/h	71	437	389	4	193	161	52	1394	765	26	1344	727
V/C Ratio(X)	0.49	0.03	0.08	0.00	0.03	0.01	0.46	0.39	0.39	0.43	0.55	0.55
Avail Cap(c_a), veh/h	294	1523	1359	199	1503	1258	294	3048	1672	255	2972	1608
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.4	13.2	13.3	0.0	18.4	18.4	21.7	9.6	9.6	22.2	10.8	10.8
Incr Delay (d2), s/veh	2.0	0.0	0.1	0.0	0.1	0.0	2.4	0.2	0.3	4.1	0.4	0.7
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	0.4	0.1	0.2	0.0	0.0	0.0	0.2	1.3	1.5	0.1	2.0	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.4	13.2	13.4	0.0	18.5	18.4	24.1	9.8	9.9	26.3	11.2	11.5
LnGrp LOS	C	B	B	A	B	B	C	A	A	C	B	B
Approach Vol, veh/h		78			6			864			1157	
Approach Delay, s/veh		17.8			18.5			10.2			11.4	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.2	24.1	0.0	16.1	5.9	23.5	6.4	9.7				
Change Period (Y+Rc), s	4.6	5.8	4.6	5.1	4.6	5.8	4.6	5.1				
Max Green Setting (Gmax), s	6.4	40.1	5.0	38.4	7.4	39.1	7.4	36.0				
Max Q Clear Time (g_c+I1), s	2.3	7.1	0.0	2.7	2.6	9.6	2.9	2.1				
Green Ext Time (p_c), s	0.0	5.5	0.0	0.2	0.0	8.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			11.2									
HCM 6th LOS			B									

APPENDIX 5.1:

E+P CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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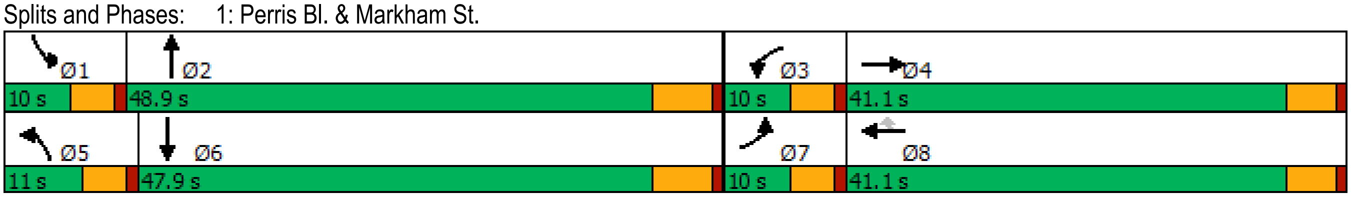
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	17	17	2	22	43	31	1376	13	636
Future Volume (vph)	17	17	2	22	43	31	1376	13	636
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4	3	8		5	2	1	6
Permitted Phases					8				
Detector Phase	7	4	3	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	39.1	9.6	41.1	41.1	9.6	32.8	9.6	32.8
Total Split (s)	10.0	41.1	10.0	41.1	41.1	11.0	48.9	10.0	47.9
Total Split (%)	9.1%	37.4%	9.1%	37.4%	37.4%	10.0%	44.5%	9.1%	43.5%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	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	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	5.1	4.6	5.8	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min

Intersection Summary
Cycle Length: 110
Actuated Cycle Length: 56.4
Natural Cycle: 95
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Perris Bl. & Markham St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	17	19	2	22	43	31	1376	2	13	636	22
Future Volume (veh/h)	17	17	19	2	22	43	31	1376	2	13	636	22
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		0.99	1.00		0.98
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	18	18	10	2	24	31	33	1480	2	14	684	24
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	40	353	180	5	253	215	65	2436	3	32	2246	79
Arrive On Green	0.02	0.15	0.15	0.00	0.13	0.13	0.04	0.46	0.46	0.02	0.44	0.44
Sat Flow, veh/h	1810	2313	1179	1810	1900	1610	1810	5349	7	1810	5141	180
Grp Volume(v), veh/h	18	14	14	2	24	31	33	957	525	14	459	249
Grp Sat Flow(s),veh/h/ln	1810	1805	1688	1810	1900	1610	1810	1729	1899	1810	1729	1863
Q Serve(g_s), s	0.5	0.4	0.4	0.1	0.6	0.9	1.0	11.3	11.3	0.4	4.7	4.7
Cycle Q Clear(g_c), s	0.5	0.4	0.4	0.1	0.6	0.9	1.0	11.3	11.3	0.4	4.7	4.7
Prop In Lane	1.00		0.70	1.00		1.00	1.00		0.00	1.00		0.10
Lane Grp Cap(c), veh/h	40	275	257	5	253	215	65	1575	865	32	1511	814
V/C Ratio(X)	0.45	0.05	0.06	0.40	0.09	0.14	0.50	0.61	0.61	0.44	0.30	0.31
Avail Cap(c_a), veh/h	181	1202	1124	181	1265	1072	214	2757	1514	181	2693	1450
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.1	19.6	19.6	26.9	20.6	20.7	25.6	11.1	11.1	26.3	9.9	9.9
Incr Delay (d2), s/veh	3.0	0.1	0.1	18.5	0.2	0.3	2.2	0.4	0.7	3.5	0.1	0.2
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	0.2	0.1	0.1	0.0	0.3	0.3	0.4	3.1	3.5	0.2	1.3	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.1	19.6	19.7	45.4	20.7	21.0	27.8	11.5	11.8	29.8	10.0	10.1
LnGrp LOS	C	B	B	D	C	C	C	B	B	C	A	B
Approach Vol, veh/h		46			57			1515			722	
Approach Delay, s/veh		23.4			21.7			11.9			10.4	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.5	30.4	4.7	13.3	6.6	29.4	5.8	12.3
Change Period (Y+Rc), s	4.6	5.8	4.6	5.1	4.6	5.8	4.6	5.1
Max Green Setting (Gmax), s	5.4	43.1	5.4	36.0	6.4	42.1	5.4	36.0
Max Q Clear Time (g_c+I1), s	2.4	13.3	2.1	2.4	3.0	6.7	2.5	2.9
Green Ext Time (p_c), s	0.0	11.3	0.0	0.1	0.0	4.5	0.0	0.2

Intersection Summary			
HCM 6th Ctrl Delay			11.9
HCM 6th LOS			B

Intersection						
Int Delay, s/veh	3.6					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	16	16	39	1	0	29
Future Vol, veh/h	16	16	39	1	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	50	-	-	-	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	17	17	42	1	0	32

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	43	0	-	0	86	22
Stage 1	-	-	-	-	43	-
Stage 2	-	-	-	-	43	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1579	-	-	-	911	1056
Stage 1	-	-	-	-	980	-
Stage 2	-	-	-	-	980	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1579	-	-	-	901	1056
Mov Cap-2 Maneuver	-	-	-	-	856	-
Stage 1	-	-	-	-	969	-
Stage 2	-	-	-	-	980	-

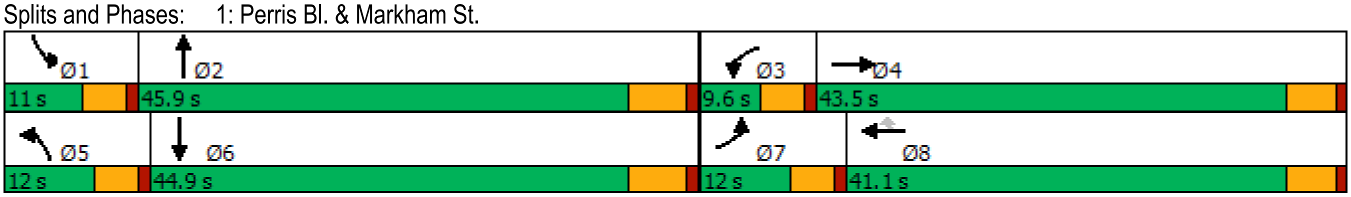
Approach	EB	WB	SB
HCM Control Delay, s	3.7	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1579	-	-	-	1056
HCM Lane V/C Ratio	0.011	-	-	-	0.03
HCM Control Delay (s)	7.3	-	-	-	8.5
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	34	13	4	10	21	23	813	38	1083
Future Volume (vph)	34	13	4	10	21	23	813	38	1083
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4	3	8		5	2	1	6
Permitted Phases					8				
Detector Phase	7	4	3	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	39.1	9.6	41.1	41.1	9.6	32.8	9.6	32.8
Total Split (s)	12.0	43.5	9.6	41.1	41.1	12.0	45.9	11.0	44.9
Total Split (%)	10.9%	39.5%	8.7%	37.4%	37.4%	10.9%	41.7%	10.0%	40.8%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	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	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	5.1	4.6	5.8	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min

Intersection Summary
Cycle Length: 110
Actuated Cycle Length: 56.7
Natural Cycle: 95
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Perris Bl. & Markham St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	13	52	4	10	21	23	813	3	38	1083	29
Future Volume (veh/h)	34	13	52	4	10	21	23	813	3	38	1083	29
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		0.99	1.00		0.99	1.00		0.98
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	35	13	31	4	10	20	24	838	3	39	1116	30
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	70	304	271	10	256	214	52	1949	7	76	1967	53
Arrive On Green	0.04	0.17	0.17	0.01	0.13	0.13	0.03	0.37	0.37	0.04	0.38	0.38
Sat Flow, veh/h	1810	1805	1610	1810	1900	1589	1810	5335	19	1810	5190	139
Grp Volume(v), veh/h	35	13	31	4	10	20	24	543	298	39	743	403
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1900	1589	1810	1729	1896	1810	1729	1871
Q Serve(g_s), s	0.9	0.3	0.8	0.1	0.2	0.5	0.6	5.7	5.7	1.0	8.2	8.2
Cycle Q Clear(g_c), s	0.9	0.3	0.8	0.1	0.2	0.5	0.6	5.7	5.7	1.0	8.2	8.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.01	1.00		0.07
Lane Grp Cap(c), veh/h	70	304	271	10	256	214	52	1263	693	76	1311	709
V/C Ratio(X)	0.50	0.04	0.11	0.41	0.04	0.09	0.46	0.43	0.43	0.51	0.57	0.57
Avail Cap(c_a), veh/h	279	1444	1288	189	1425	1192	279	2890	1585	241	2818	1525
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.6	16.7	16.9	23.8	18.1	18.2	22.9	11.5	11.5	22.5	11.8	11.8
Incr Delay (d2), s/veh	2.0	0.1	0.2	9.8	0.1	0.2	2.4	0.2	0.4	2.0	0.4	0.7
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	0.4	0.1	0.3	0.1	0.1	0.2	0.3	1.6	1.8	0.4	2.3	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.6	16.8	17.1	33.6	18.1	18.4	25.4	11.7	11.9	24.4	12.2	12.5
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		79			34			865			1185	
Approach Delay, s/veh		20.4			20.1			12.1			12.7	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.6	23.3	4.9	13.2	6.0	24.0	6.5	11.6
Change Period (Y+Rc), s	4.6	5.8	4.6	5.1	4.6	5.8	4.6	5.1
Max Green Setting (Gmax), s	6.4	40.1	5.0	38.4	7.4	39.1	7.4	36.0
Max Q Clear Time (g_c+I1), s	3.0	7.7	2.1	2.8	2.6	10.2	2.9	2.5
Green Ext Time (p_c), s	0.0	5.5	0.0	0.2	0.0	8.0	0.0	0.1

Intersection Summary		
HCM 6th Ctrl Delay		12.9
HCM 6th LOS		B

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	29	25	8	0	1	27
Future Vol, veh/h	29	25	8	0	1	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	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	32	27	9	0	1	29

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	9	0	-	0	87	5
Stage 1	-	-	-	-	9	-
Stage 2	-	-	-	-	78	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1624	-	-	-	910	1083
Stage 1	-	-	-	-	1018	-
Stage 2	-	-	-	-	942	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1624	-	-	-	892	1083
Mov Cap-2 Maneuver	-	-	-	-	845	-
Stage 1	-	-	-	-	998	-
Stage 2	-	-	-	-	942	-

Approach	EB	WB	SB
HCM Control Delay, s	3.9	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1624	-	-	-	1072
HCM Lane V/C Ratio	0.019	-	-	-	0.028
HCM Control Delay (s)	7.3	-	-	-	8.5
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

APPENDIX 5.2:

E+P CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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

TRAFFIC CONDITIONS **E+P**

DIST ___ CO ___ RTE ___ PM ___

CALC CS DATE 01/27/21

CHK CS DATE 01/27/21

Jurisdiction: **City of Perris**

Major Street: **Markham St.**

Minor Street: **Driveway 1**

Critical Approach Speed (Major) 35 mph

Critical Approach Speed (Minor) 25 mph

Major Street Approach Lanes = **2** lane

Minor Street Approach Lanes **1** lane

Major Street Future ADT = **622** vpd

Minor Street Future ADT = **232** vpd

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

or **URBAN (U)**

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

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
XX					
CONDITION A - Minimum Vehicular Volume		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	1	8,000	5,600	2,400	1,680
2 + **622**	1 **232**	9,600	6,720	2,400	1,680
2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	1	12,000	8,400	1,200	850
2 + **622**	1 **232**	14,400	10,080	1,200	850
2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B		2 CONDITIONS 80%		2 CONDITIONS 80%	
Satisfied	Not Satisfied				
	XX				
No one condition satisfied, but following conditions fulfilled 80% of more …..	A: **6%** B: **4%**				

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:

EAC (2021) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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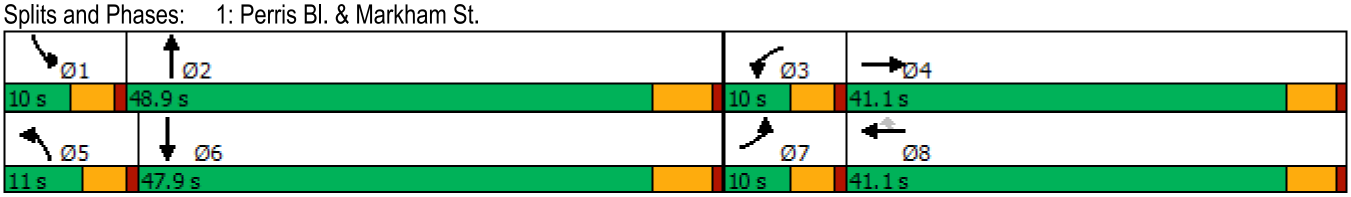
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	17	14	9	20	22	32	1445	7	745
Future Volume (vph)	17	14	9	20	22	32	1445	7	745
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4	3	8		5	2	1	6
Permitted Phases					8				
Detector Phase	7	4	3	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	39.1	9.6	41.1	41.1	9.6	32.8	9.6	32.8
Total Split (s)	10.0	41.1	10.0	41.1	41.1	11.0	48.9	10.0	47.9
Total Split (%)	9.1%	37.4%	9.1%	37.4%	37.4%	10.0%	44.5%	9.1%	43.5%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.1	-0.6	-1.1	-1.1	-0.6	-1.8	-0.6	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min

Intersection Summary
Cycle Length: 110
Actuated Cycle Length: 55.6
Natural Cycle: 95
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Perris Bl. & Markham St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	14	22	9	20	22	32	1445	6	7	745	22
Future Volume (veh/h)	17	14	22	9	20	22	32	1445	6	7	745	22
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		0.99	1.00		0.98
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	18	15	14	10	22	9	34	1554	6	8	801	24
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	60	285	231	44	269	228	87	2689	10	39	2470	74
Arrive On Green	0.03	0.15	0.13	0.02	0.14	0.14	0.05	0.50	0.47	0.02	0.48	0.44
Sat Flow, veh/h	1810	1893	1536	1810	1900	1610	1810	5333	21	1810	5171	155
Grp Volume(v), veh/h	18	14	15	10	22	9	34	1008	552	8	535	290
Grp Sat Flow(s),veh/h/ln	1810	1805	1624	1810	1900	1610	1810	1729	1896	1810	1729	1868
Q Serve(g_s), s	0.5	0.4	0.4	0.3	0.5	0.3	1.0	10.9	10.9	0.2	5.1	5.2
Cycle Q Clear(g_c), s	0.5	0.4	0.4	0.3	0.5	0.3	1.0	10.9	10.9	0.2	5.1	5.2
Prop In Lane	1.00		0.95	1.00		1.00	1.00		0.01	1.00		0.08
Lane Grp Cap(c), veh/h	60	272	244	44	269	228	87	1744	956	39	1652	892
V/C Ratio(X)	0.30	0.05	0.06	0.23	0.08	0.04	0.39	0.58	0.58	0.20	0.32	0.32
Avail Cap(c_a), veh/h	203	1253	1127	203	1319	1118	237	2905	1593	203	2840	1534
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.2	19.4	19.9	25.6	19.9	19.8	24.7	9.3	9.3	25.7	8.6	8.7
Incr Delay (d2), s/veh	1.0	0.1	0.1	1.0	0.1	0.1	1.0	0.3	0.6	0.9	0.1	0.2
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	0.2	0.1	0.2	0.1	0.2	0.1	0.4	2.8	3.1	0.1	1.3	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.3	19.5	20.0	26.6	20.1	19.9	25.7	9.6	9.8	26.6	8.7	8.9
LnGrp LOS	C	B	C	C	C	B	C	A	A	C	A	A
Approach Vol, veh/h		47			41			1594			833	
Approach Delay, s/veh		22.3			21.6			10.0			9.0	
Approach LOS		C			C			B			A	

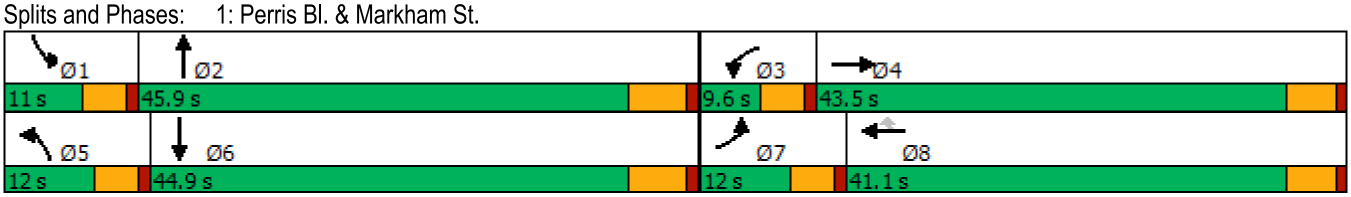
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.2	30.9	5.3	12.0	6.6	29.5	5.8	11.6
Change Period (Y+Rc), s	4.6	5.8	4.6	5.1	4.6	5.8	4.6	5.1
Max Green Setting (Gmax), s	5.4	43.1	5.4	36.0	6.4	42.1	5.4	36.0
Max Q Clear Time (g_c+I1), s	2.2	12.9	2.3	2.4	3.0	7.2	2.5	2.5
Green Ext Time (p_c), s	0.0	12.2	0.0	0.1	0.0	5.4	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	10.1
HCM 6th LOS	B

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	34	12	8	5	8	26	954	16	1175
Future Volume (vph)	34	12	8	5	8	26	954	16	1175
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4	3	8		5	2	1	6
Permitted Phases					8				
Detector Phase	7	4	3	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	39.1	9.6	41.1	41.1	9.6	32.8	9.6	32.8
Total Split (s)	12.0	43.5	9.6	41.1	41.1	12.0	45.9	11.0	44.9
Total Split (%)	10.9%	39.5%	8.7%	37.4%	37.4%	10.9%	41.7%	10.0%	40.8%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	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	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	5.1	4.6	5.8	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min

Intersection Summary
Cycle Length: 110
Actuated Cycle Length: 61.3
Natural Cycle: 95
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Perris Bl. & Markham St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	12	54	8	5	8	26	954	12	16	1175	29
Future Volume (veh/h)	34	12	54	8	5	8	26	954	12	16	1175	29
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		0.99	1.00		0.99	1.00		0.98
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	35	12	33	8	5	6	27	984	12	16	1211	30
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	70	265	236	19	225	188	57	2183	27	36	2091	52
Arrive On Green	0.04	0.15	0.15	0.01	0.12	0.12	0.03	0.41	0.41	0.02	0.40	0.40
Sat Flow, veh/h	1810	1805	1610	1810	1900	1589	1810	5281	64	1810	5203	129
Grp Volume(v), veh/h	35	12	33	8	5	6	27	644	352	16	805	436
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1900	1589	1810	1729	1887	1810	1729	1874
Q Serve(g_s), s	0.9	0.3	0.9	0.2	0.1	0.2	0.7	6.6	6.6	0.4	8.9	8.9
Cycle Q Clear(g_c), s	0.9	0.3	0.9	0.2	0.1	0.2	0.7	6.6	6.6	0.4	8.9	8.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.03	1.00		0.07
Lane Grp Cap(c), veh/h	70	265	236	19	225	188	57	1429	780	36	1390	753
V/C Ratio(X)	0.50	0.05	0.14	0.42	0.02	0.03	0.48	0.45	0.45	0.44	0.58	0.58
Avail Cap(c_a), veh/h	273	1412	1259	184	1393	1165	273	2824	1542	236	2754	1492
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.1	18.0	18.2	24.1	19.1	19.1	23.4	10.4	10.4	23.8	11.4	11.4
Incr Delay (d2), s/veh	2.0	0.1	0.3	5.4	0.0	0.1	2.3	0.2	0.4	3.1	0.4	0.7
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	0.4	0.1	0.3	0.1	0.0	0.1	0.3	1.8	2.0	0.2	2.5	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.2	18.1	18.5	29.5	19.2	19.2	25.7	10.6	10.8	26.9	11.8	12.2
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		80			19			1023			1257	
Approach Delay, s/veh		21.4			23.5			11.1			12.1	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.6	26.1	5.1	12.3	6.1	25.5	6.5	10.9				
Change Period (Y+Rc), s	4.6	5.8	4.6	5.1	4.6	5.8	4.6	5.1				
Max Green Setting (Gmax), s	6.4	40.1	5.0	38.4	7.4	39.1	7.4	36.0				
Max Q Clear Time (g_c+I1), s	2.4	8.6	2.2	2.9	2.7	10.9	2.9	2.2				
Green Ext Time (p_c), s	0.0	6.7	0.0	0.2	0.0	8.8	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			12.1									
HCM 6th LOS			B									

APPENDIX 6.2:

EAPC (2021) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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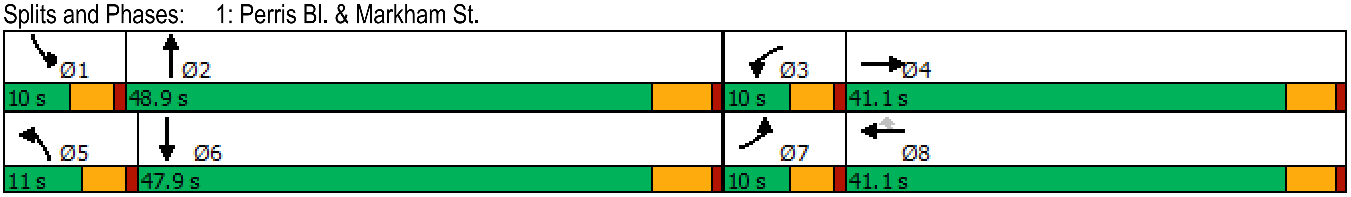
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	17	17	10	22	48	32	1445	18	745
Future Volume (vph)	17	17	10	22	48	32	1445	18	745
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4	3	8		5	2	1	6
Permitted Phases					8				
Detector Phase	7	4	3	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	39.1	9.6	41.1	41.1	9.6	32.8	9.6	32.8
Total Split (s)	10.0	41.1	10.0	41.1	41.1	11.0	48.9	10.0	47.9
Total Split (%)	9.1%	37.4%	9.1%	37.4%	37.4%	10.0%	44.5%	9.1%	43.5%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	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	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	5.1	4.6	5.8	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min

Intersection Summary
Cycle Length: 110
Actuated Cycle Length: 62.3
Natural Cycle: 95
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Perris Bl. & Markham St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	17	22	10	22	48	32	1445	8	18	745	22
Future Volume (veh/h)	17	17	22	10	22	48	32	1445	8	18	745	22
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		0.99	1.00		0.98
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	18	18	14	11	24	37	34	1554	9	19	801	24
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	39	303	210	25	268	227	66	2471	14	41	2330	70
Arrive On Green	0.02	0.15	0.15	0.01	0.14	0.14	0.04	0.46	0.46	0.02	0.45	0.45
Sat Flow, veh/h	1810	2040	1411	1810	1900	1610	1810	5321	31	1810	5171	155
Grp Volume(v), veh/h	18	16	16	11	24	37	34	1010	553	19	535	290
Grp Sat Flow(s),veh/h/ln	1810	1805	1646	1810	1900	1610	1810	1729	1894	1810	1729	1868
Q Serve(g_s), s	0.6	0.4	0.5	0.3	0.6	1.2	1.1	12.7	12.7	0.6	5.8	5.8
Cycle Q Clear(g_c), s	0.6	0.4	0.5	0.3	0.6	1.2	1.1	12.7	12.7	0.6	5.8	5.8
Prop In Lane	1.00		0.86	1.00		1.00	1.00		0.02	1.00		0.08
Lane Grp Cap(c), veh/h	39	268	245	25	268	227	66	1606	879	41	1558	842
V/C Ratio(X)	0.46	0.06	0.07	0.43	0.09	0.16	0.52	0.63	0.63	0.46	0.34	0.34
Avail Cap(c_a), veh/h	170	1132	1032	170	1192	1010	202	2597	1422	170	2536	1370
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.7	21.0	21.0	28.1	21.4	21.7	27.2	11.6	11.6	27.7	10.2	10.3
Incr Delay (d2), s/veh	3.1	0.1	0.1	4.3	0.1	0.3	2.3	0.4	0.7	3.0	0.1	0.2
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	0.3	0.2	0.2	0.2	0.3	0.4	0.5	3.7	4.1	0.3	1.7	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.8	21.1	21.1	32.4	21.6	22.0	29.5	12.0	12.4	30.7	10.4	10.5
LnGrp LOS	C	C	C	C	C	C	C	B	B	C	B	B
Approach Vol, veh/h		50			72			1597			844	
Approach Delay, s/veh		24.6			23.4			12.5			10.9	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.9	32.4	5.4	13.6	6.7	31.7	5.8	13.2				
Change Period (Y+Rc), s	4.6	5.8	4.6	5.1	4.6	5.8	4.6	5.1				
Max Green Setting (Gmax), s	5.4	43.1	5.4	36.0	6.4	42.1	5.4	36.0				
Max Q Clear Time (g_c+I1), s	2.6	14.7	2.3	2.5	3.1	7.8	2.6	3.2				
Green Ext Time (p_c), s	0.0	12.0	0.0	0.1	0.0	5.4	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay			12.5									
HCM 6th LOS			B									

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	16	27	52	1	0	29
Future Vol, veh/h	16	27	52	1	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	50	-	-	-	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	17	29	57	1	0	32

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	58	0	-	0	107	29
Stage 1	-	-	-	-	58	-
Stage 2	-	-	-	-	49	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1559	-	-	-	885	1046
Stage 1	-	-	-	-	963	-
Stage 2	-	-	-	-	973	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1559	-	-	-	875	1046
Mov Cap-2 Maneuver	-	-	-	-	838	-
Stage 1	-	-	-	-	952	-
Stage 2	-	-	-	-	973	-

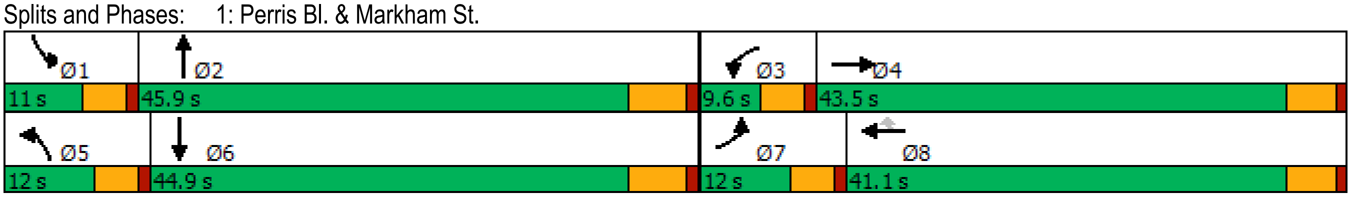
Approach	EB	WB	SB
HCM Control Delay, s	2.7	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1559	-	-	-	1046
HCM Lane V/C Ratio	0.011	-	-	-	0.03
HCM Control Delay (s)	7.3	-	-	-	8.5
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	34	13	12	10	26	26	954	43	1175
Future Volume (vph)	34	13	12	10	26	26	954	43	1175
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4	3	8		5	2	1	6
Permitted Phases					8				
Detector Phase	7	4	3	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	39.1	9.6	41.1	41.1	9.6	32.8	9.6	32.8
Total Split (s)	12.0	43.5	9.6	41.1	41.1	12.0	45.9	11.0	44.9
Total Split (%)	10.9%	39.5%	8.7%	37.4%	37.4%	10.9%	41.7%	10.0%	40.8%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	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	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	5.1	4.6	5.8	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min

Intersection Summary
Cycle Length: 110
Actuated Cycle Length: 59.4
Natural Cycle: 95
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Perris Bl. & Markham St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	13	54	12	10	26	26	954	13	43	1175	29
Future Volume (veh/h)	34	13	54	12	10	26	26	954	13	43	1175	29
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		0.99	1.00		0.99	1.00		0.98
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	35	13	33	12	10	25	27	984	13	44	1211	30
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	69	300	268	28	272	228	56	2005	26	82	2052	51
Arrive On Green	0.04	0.17	0.17	0.02	0.14	0.14	0.03	0.38	0.38	0.05	0.39	0.39
Sat Flow, veh/h	1810	1805	1610	1810	1900	1589	1810	5275	70	1810	5203	129
Grp Volume(v), veh/h	35	13	33	12	10	25	27	645	352	44	805	436
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1900	1589	1810	1729	1886	1810	1729	1874
Q Serve(g_s), s	1.0	0.3	0.9	0.3	0.2	0.7	0.8	7.3	7.3	1.2	9.4	9.4
Cycle Q Clear(g_c), s	1.0	0.3	0.9	0.3	0.2	0.7	0.8	7.3	7.3	1.2	9.4	9.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.04	1.00		0.07
Lane Grp Cap(c), veh/h	69	300	268	28	272	228	56	1314	717	82	1364	739
V/C Ratio(X)	0.51	0.04	0.12	0.43	0.04	0.11	0.48	0.49	0.49	0.54	0.59	0.59
Avail Cap(c_a), veh/h	262	1355	1208	177	1337	1118	262	2710	1478	226	2643	1432
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.1	17.9	18.2	25.0	18.9	19.1	24.4	12.1	12.1	23.9	12.2	12.2
Incr Delay (d2), s/veh	2.1	0.1	0.2	3.9	0.1	0.2	2.3	0.3	0.5	2.0	0.4	0.8
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	0.4	0.1	0.3	0.2	0.1	0.2	0.3	2.1	2.4	0.5	2.7	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.2	18.0	18.4	28.9	18.9	19.3	26.7	12.4	12.6	25.9	12.6	13.0
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		81			47			1024			1285	
Approach Delay, s/veh		21.7			21.7			12.8			13.2	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.9	25.2	5.4	13.6	6.2	26.0	6.6	12.4				
Change Period (Y+Rc), s	4.6	5.8	4.6	5.1	4.6	5.8	4.6	5.1				
Max Green Setting (Gmax), s	6.4	40.1	5.0	38.4	7.4	39.1	7.4	36.0				
Max Q Clear Time (g_c+I1), s	3.2	9.3	2.3	2.9	2.8	11.4	3.0	2.7				
Green Ext Time (p_c), s	0.0	6.7	0.0	0.2	0.0	8.7	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay			13.5									
HCM 6th LOS			B									

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	29	40	21	0	1	27
Future Vol, veh/h	29	40	21	0	1	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	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	32	43	23	0	1	29

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	23	0	-	0	109	12
Stage 1	-	-	-	-	23	-
Stage 2	-	-	-	-	86	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1605	-	-	-	882	1072
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	933	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1605	-	-	-	864	1072
Mov Cap-2 Maneuver	-	-	-	-	828	-
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	933	-

Approach	EB	WB	SB
HCM Control Delay, s	3.1	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1605	-	-	-	1061
HCM Lane V/C Ratio	0.02	-	-	-	0.029
HCM Control Delay (s)	7.3	-	-	-	8.5
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

APPENDIX 6.3:

EAPC (2021) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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

TRAFFIC CONDITIONS **EAPC 2021**

DIST ___ CO ___ RTE ___ PM ___ CALC CS DATE 01/27/21

Jurisdiction: **City of Perris** CHK CS DATE 01/27/21

Major Street: **Markham St.** Critical Approach Speed (Major) 35 mph

Minor Street: **Driveway 1** Critical Approach Speed (Minor) 25 mph

Major Street Approach Lanes = **2** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **820** vpd Minor Street Future ADT = **232** vpd

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

or **URBAN (U)**

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

(Based on Estimated Average Daily Traffic - See Note)

URBAN XX / RURAL		Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume Satisfied	Not Satisfied XX	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Number of lanes for moving traffic on each approach: Major Street	Minor Street	Urban	Rural	Urban	Rural
1	1	8,000	5,600	2,400	1,680
2 + **820**	1 **232**	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 Satisfied	Not Satisfied XX	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Number of lanes for moving traffic on each approach: Major Street	Minor Street	Urban	Rural	Urban	Rural
1	1	12,000	8,400	1,200	850
2 + **820**	1 **232**	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: 9%	B: 6%				

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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