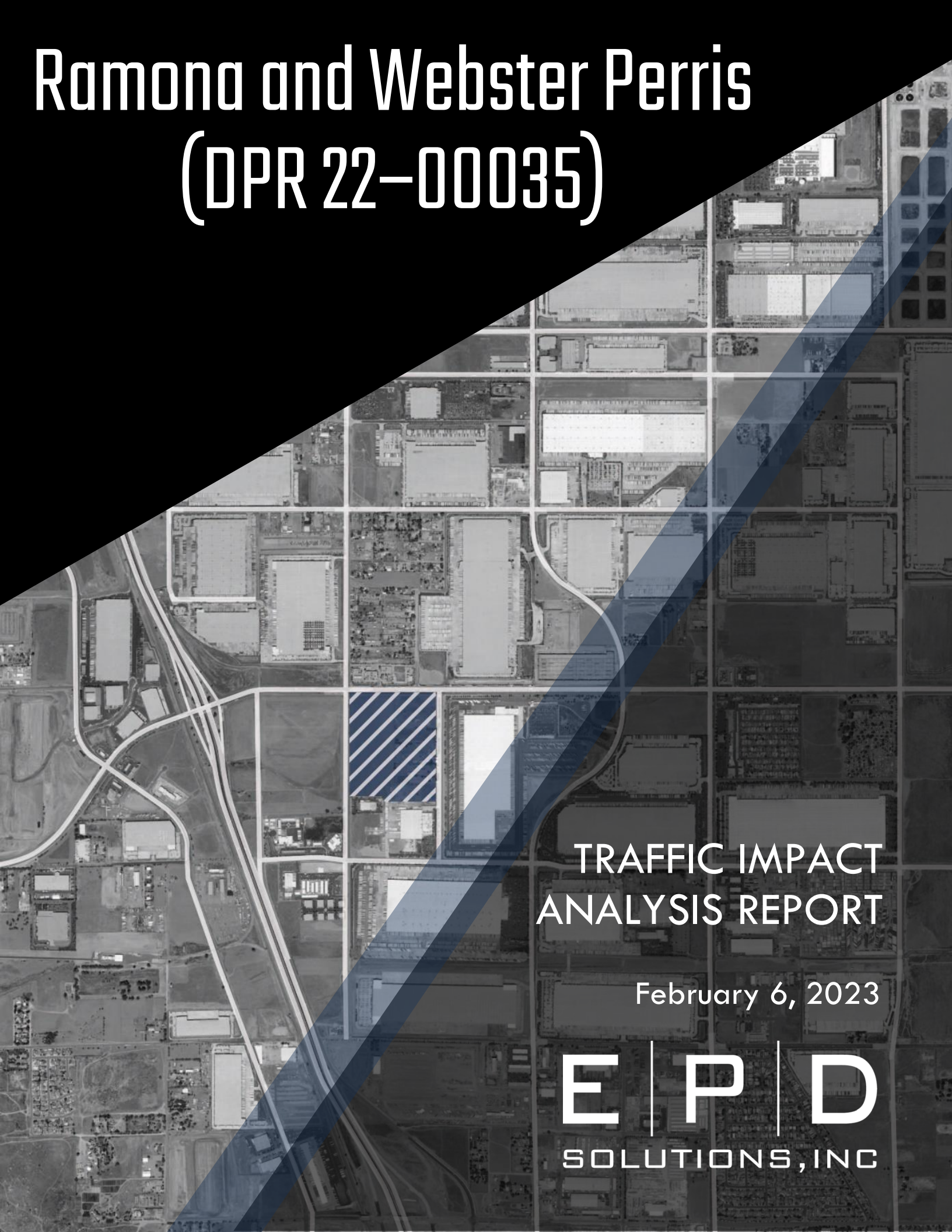
Ramona and Webster Perris (DPR 22–00035)



TRAFFIC IMPACT ANALYSIS REPORT

February 6, 2023

EPD SOLUTIONS, INC

Ramona and Webster (DPR 22–00035)

Traffic Impact Analysis

City of Perris
February 6, 2024

Prepared For

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1 EXECUTIVE SUMMARY

This Traffic Impact Analysis (TIA) has been prepared by EPD Solutions, Inc. (EPD) to analyze the potential traffic related impacts of the proposed high cube warehouse building located at the southeast corner of Webster Avenue and Ramona Expressway in the City of Perris. The development proposes the construction of a one-story high cube warehouse building totaling 551,922 square feet (SF) which includes 5,000 SF of mezzanine space on 29.05 acres.

The trip generation for the proposed development was analyzed as per the ITE *Trip Generation Manual*, 11th Edition, 2021. The proposed Project is estimated to generate approximately 1,176 daily trips, 67 AM peak hour trips, and 94 PM peak hour trips. In terms of passenger car equivalent (PCE), The proposed Project is estimated to generate approximately 1,429 daily PCE trips, 87 PCE AM trips and 108 PCE PM trips.

The following study area intersections were evaluated during the AM and PM peak hours, which are defined as the hours with the highest traffic volumes during the 7 AM to 9 AM and 4 PM to 6 PM peak commute periods:

1. Indian Ave/Ramona Expy
2. Ramona Expy/Project Dwy 1 (Automobile Dwy)
3. Webster Ave/Project Dwy 2 (Automobile Dwy)
4. Brennan Ave/Project Dwy 3 (Truck Dwy)
5. Brennan Ave/Project Dwy 4 (Truck Dwy)

AM and PM peak hour traffic operations were evaluated for the following scenarios:

1. Existing Conditions
2. Existing plus Project Traffic Conditions
3. Opening Year without Project (Existing + Ambient Growth + Cumulative Projects) Traffic Conditions
4. Opening Year (Existing + Ambient Growth + Cumulative Projects) with Project Traffic Conditions

Existing Conditions Intersection Analysis Results

All study intersections are forecast to operate at satisfactory LOS during the AM and PM peak hours in the existing conditions.

Existing plus Project Traffic Conditions

All study intersections are forecast to operate at satisfactory LOS during the AM and PM peak hours in the existing plus project traffic conditions.

Opening Year without Project (Existing + Ambient Growth + Cumulative Projects) Traffic Conditions

All study intersections are forecast to operate at satisfactory LOS during the AM and PM peak hours in the opening year without project conditions.

Opening Year with Project (Existing + Ambient Growth + Cumulative Projects + Project) Traffic Conditions

All study intersections are forecast to operate at satisfactory LOS during the AM and PM peak hours in the opening year with project conditions.

2 INTRODUCTION

This Traffic Impact Analysis (TIA) has been prepared by EPD Solutions, Inc. (EPD) to analyze the potential transportation-related impacts of the proposed high cube warehouse building located east of the I-215, and on the southeast corner of the intersection of Webster Avenue and Ramona Expressway in the City of Perris. The project will have four driveways of which two will be for passenger vehicles and two for trucks. The scope of work for this TIA was reviewed and approved by the City of Perris and is provided in *Appendix A*. The TIA was prepared according to the approved scope of work using methodologies and significance criteria consistent as per the City of Perris TIA thresholds and general plan.

2.1 Project Description

The Project site comprises approximately 29.45 acres. The development proposes the construction of a one-story 551,922 square feet (SF) high cube warehouse building which includes 546,922 SF of warehouse space and 5,000 SF of mezzanine space. A maximum of 25 percent, or 136,730 sf, of the building could be operated as refrigerated storage. The building would have 69 loading docks located on the eastern side of the structure. The existing site is currently vacant, except for the southeast portion of the site, which is currently used as an unpaved storage yard for an existing warehouse building located to the south of the site. The Project site has a General Plan land use designation of Perris Valley Commerce Center Specific Plan (PVCCSP) The PVCCSP establishes the zoning for the properties within PVCCSP planning area. The PVCCSP zoning designation for the site is Light Industrial (LI) which allows a floor-area-ratio (FAR) of up to 0.75. This TIA utilizes the most updated project description for the purpose of analysis. The location of the project is shown in *Figure 2.1: Project Location,* and the project site plan is shown in *Figure 2.2: Project Site Plan*.

2.2 Project Site Access and Truck Turning Template

The project site will have a total of four driveways, with two designated for passenger vehicles located on Webster Avenue and Ramona Expressway. It should be noted there are a total of two driveways on Ramona Expressway of which the westerly driveway is an emergency vehicle access whereas the easternly driveway provides access for passenger vehicles. The remaining two driveways, situated on Brennan Avenue, are exclusively for trucks and are both gated. These truck driveways will have a left turn in and right turn out configuration. Right turning movement into the truck driveways would be prohibited by installing a No Right-Turn Sign (California Manual on Uniform Traffic Control Devices – R3-5R) which will be placed on Brennan Avenue to prohibit right turns into these driveways. Additionally, a truck turning template has been completed and is shown in *Figure 2.3*. Trucks will utilize Harley Knox Boulevard, located to the north of the project site, to reach Morgan Street and then subsequently reach Brennan Avenue to make a left-in into the Project site. On the other hand, passenger vehicles will use Ramona Expressway to access the driveway located on Ramona Expressway, and also to access the driveway located on Webster Avenue.

2.3 Consistency with Perris Valley Commerce Center Specific Plan

The Perris Valley Commerce Center Specific Plan (PVCCSP) specifies minimum distance for spacing between a project's driveway and the nearest intersection which is presented in *Table 1*. As per *Table 1*, the

passenger vehicle driveway on Ramona Expressway would not meet the minimum specified driveway spacing. This driveway is located 300 feet away from the nearest intersection of Webster Avenue and Ramona Expressway. Given the limited distance from the intersection, *Project Driveway 1* will be restricted to right-turn in and right-turn out only. It is to be noted that a deceleration lane was not provided for passenger vehicle entering *Project Driveway 1* located on Ramona Expressway as the total number of project trips entering this driveway during peak hours is less than 50 trips. *Project Driveway 2* on Webster Avenue, being 880 feet away from the nearest intersection would satisfy the minimum specified spacing. Distance from the nearest intersection to the Project driveways are shown in *Table 2*.

Figure 2.1: Project Location

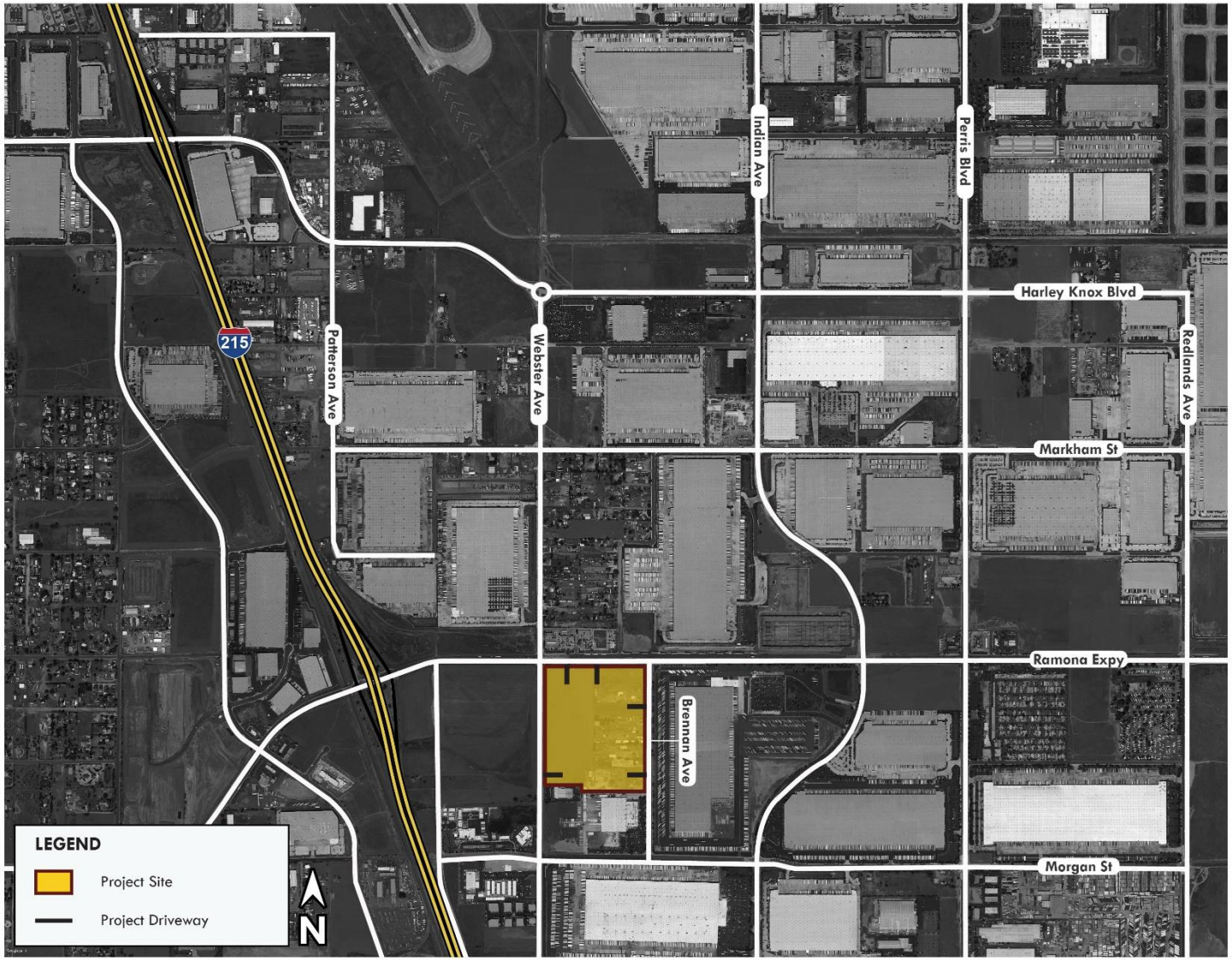


Figure 2.2: Project Site Plan

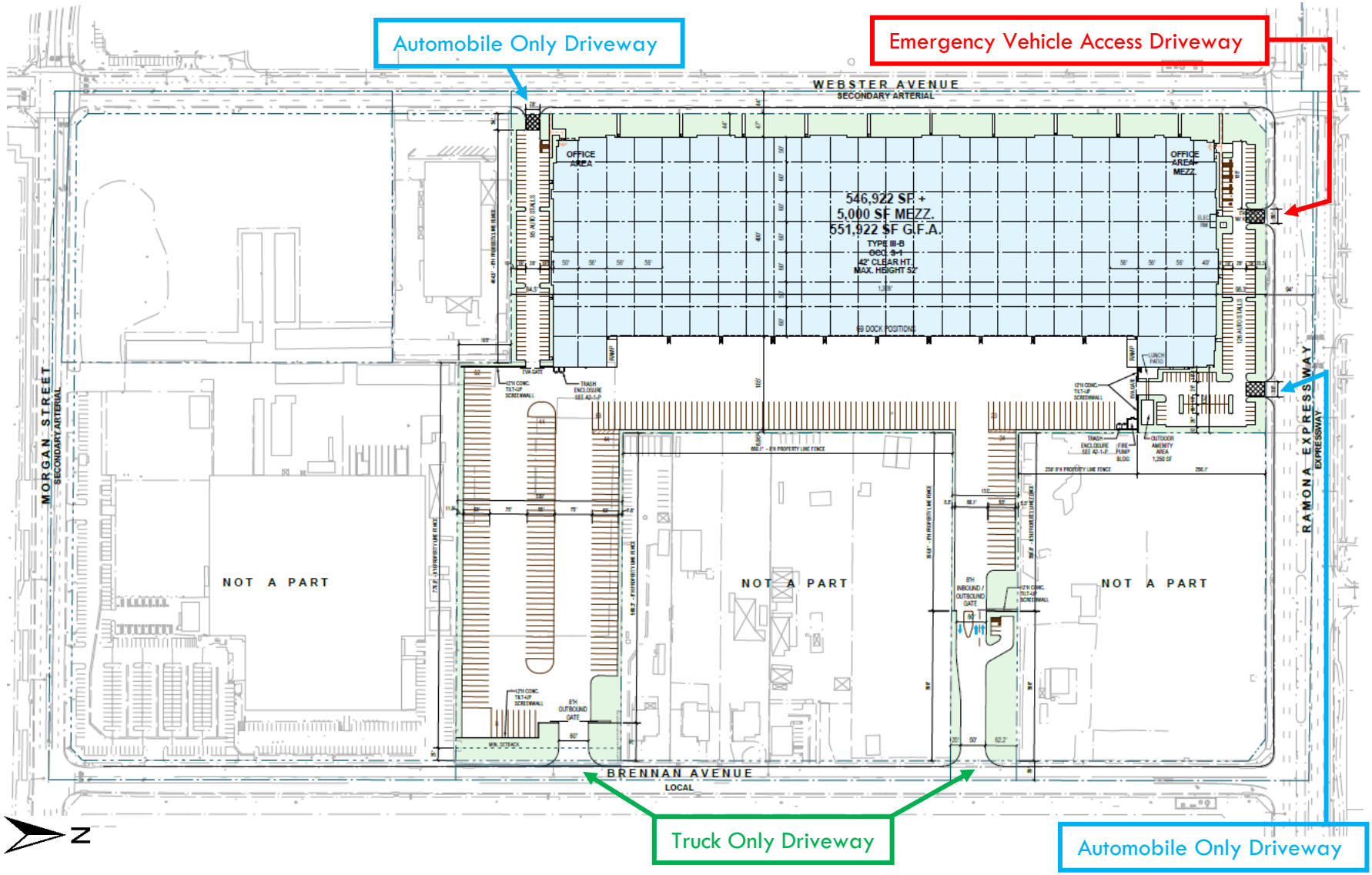


Figure 2.3: Project Site Truck Turning Template

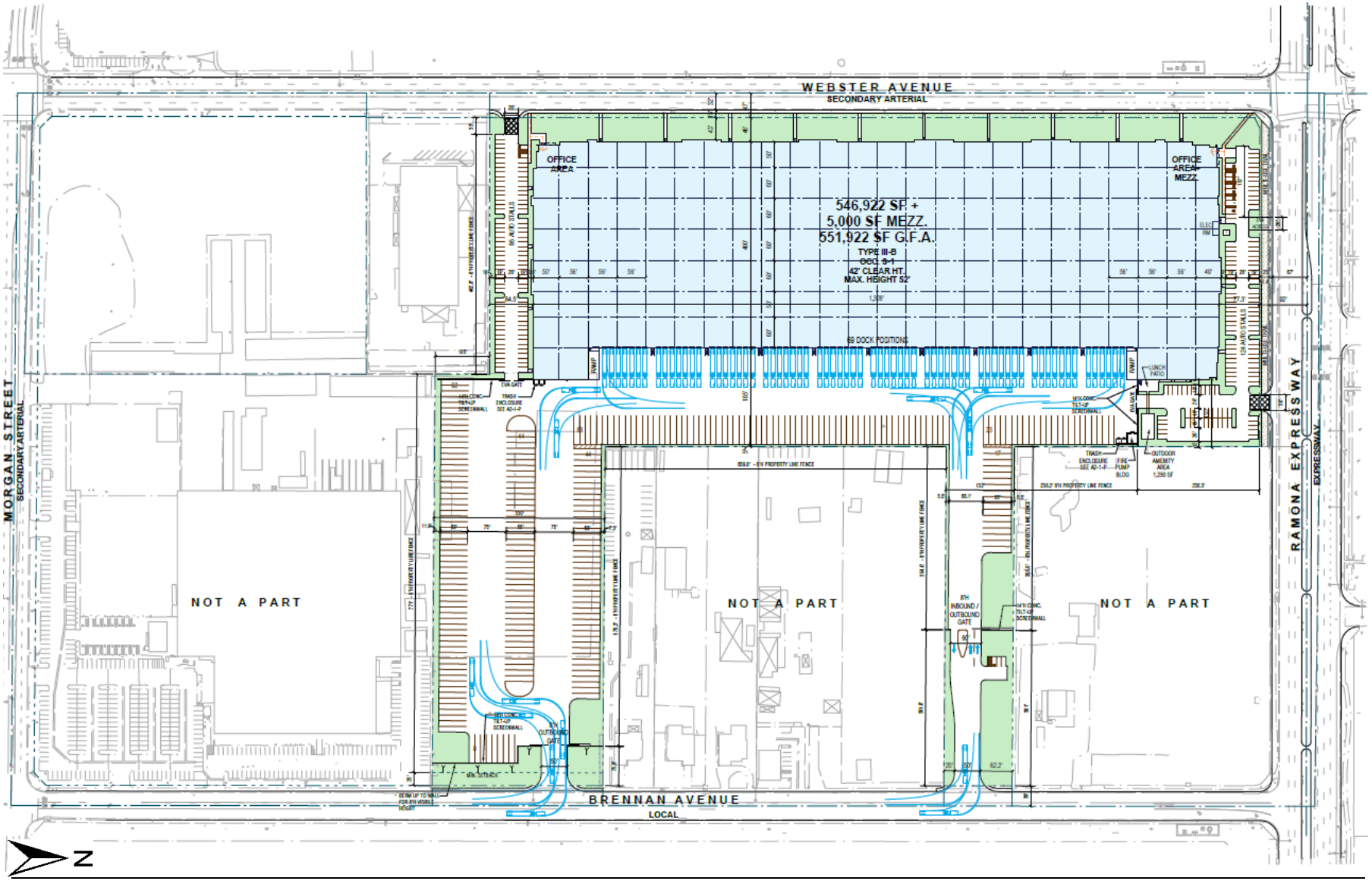


Table 1. PVCCSP Driveway Spacing

	Road Type						
	Local	Collector	Major Collector	Secondary Arterial (Painted Median)	Secondary Arterial (Raised Median)	Arterial	Expressway
Intersection Intervals	200'	330'	330'	660'	660'	1320'	2640'

Table 2. Project Driveway Distance from Nearest Intersection

Driveway	Street	Threshold	Actual Distance
1	Ramona Expressway	2640'	300'
2	Webster Avenue	660'	880'
3	Brennan Avenue	330'	550'
4	Brennan Avenue	330'	1020'

2.4 Study Area and Analysis Scenarios

The study area was selected to include those intersections to which the project would add 50 or more peak hour trips. This TIA includes the analysis of signalized intersections, all-way stop controlled (AWSC) and two-way stop controlled (TWSC) intersections. The following intersections were included in the analysis:

1. Indian Ave/Ramona Expy
2. Ramona Expy/Project Dwy 1 (Automobile Dwy)
3. Webster Ave/Project Dwy 2 (Automobile Dwy)
4. Brennan Ave/Project Dwy 3 (Truck Dwy)
5. Brennan Ave/Project Dwy 4 (Truck Dwy)

The locations of the study area intersections are shown on Figure 2.4. Study area intersections were evaluated during the AM and PM peak hours, which are defined as the hour with the highest traffic volumes during the 7 AM to 9 AM and 4 PM to 6 PM peak commute periods. AM and PM peak hour traffic operations were evaluated for the following scenarios:

1. Existing Conditions
2. Existing plus Project Traffic Conditions
3. Opening Year without Project (Existing + Ambient Growth + Cumulative Projects) Traffic Conditions
4. Opening Year (Existing + Ambient Growth + Cumulative Projects) with Project Traffic Conditions

EPD collected counts for the study intersections on Thursday, April 13th, 2023. Existing plus project traffic volumes were developed by adding project traffic to the existing volumes. Opening Year (2025) traffic volumes were developed by adding an ambient growth rate of three percent per year to existing traffic volumes and by adding traffic generated by other approved and pending development projects. Opening Year (2025) Plus Project traffic volumes were developed by adding project traffic to the Opening Year (2025) condition. All traffic count data are provided in *Appendix B*.

Figure 2.4: Project Study Area

2.5 Methodology

Intersection operations are evaluated using Level of Service (LOS), which is a measure of the delay experienced by drivers on a roadway facility. LOS A indicates free-flow traffic conditions and is generally the best operating conditions. LOS F is an extremely congested condition and is the worst operating condition from the driver's perspective. In this report, LOS at signalized and unsignalized intersections is calculated using the Highway Capacity Manual (HCM), 7th Edition methodology.

LOS at signalized intersections is defined in terms of the weighted average control delay for the intersection as a whole. Control delay is a measure of the increase in travel time that is experienced due to traffic signal control and is expressed in terms of average control delay per vehicle (in seconds). Control delay is determined based on the intersection geometry and volume, signal cycle length, phasing and coordination along the arterial corridor. Table 2.1 shows the relationship between control delay and LOS.

Table 2.1: Relationship between Control Delay and LOS at a Signalized Intersection

LOS	Delay (Seconds per Vehicle)
A	≤ 10
B	>10 – 20
C	>20 – 35
D	>35 – 55
E	>55 – 80
F	>80

Unsignalized intersections are categorized as either all-way stop control (AWSC) or two-way stop control (TWSC). LOS at AWSC intersections is determined by the weighted average control delay of the overall intersection. The HCM TWSC intersection methodology calculates LOS based on the delay experienced by drivers on the minor (stop-controlled) approaches to the intersection. For TWSC intersections, LOS is determined for each minor-street movement, as well as the major-street left-turns. The relationship between delay and LOS at Unsignalized intersections is shown in Table 2.2.

Table 2.2: Relationship between Delay and LOS an Unsignalized Intersection

LOS	Delay (seconds)
A	0-10
B	>10 – 15
C	>15 – 25
D	>25 – 35
E	>35 – 50
F	>50

2.6 City of Perris LOS Standards and Traffic Criteria for Traffic Studies

LOS Standards

Maintain the following target Levels of Service:

- 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.

- 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.

Thresholds of a Traffic Impact

To determine whether the addition of project-generated trips (or alternative-generated trips) results in a project traffic impact, and thus requires improvements, the analysis shall evaluate traffic impacts of the project based on the following criteria:

- A project-related traffic impact is considered direct when a study intersection operates at an acceptable Level of Service for existing conditions (without the project) and the addition of 50 or more a.m. or p.m. peak hour project trips causes the intersection delay to increase by 2 seconds or more and causes the intersection to operate at an unacceptable Level of Service for existing plus project conditions.

- A project-related traffic impact is considered direct when a study intersection operates at an unacceptable Level of Service for existing conditions (without the project) and the addition of 50 or more a.m. or p.m. peak hour project trips causes the intersection delay to increase by 2 seconds or more.

- A cumulative impact is considered direct when a study intersection is forecast to operate at an acceptable Level of Service without the project and with the addition of 50 or more a.m. or p.m. peak hour project trips causes the intersection delay to increase by 2 seconds or more and causes the intersection to operate at an unacceptable Level of Service.

- A cumulative impact is considered an indirect traffic impact when a study intersection is forecast to operate at an unacceptable Level of Service with the addition of cumulative/background traffic and the project contributes 50 or more a.m. or p.m. peak hour project trips and causes the intersection delay to increase by 2 seconds or more.

3 BASELINE CONDITIONS

This section discusses the baseline (without project) conditions. Baseline conditions are those conditions that exist within the study area in the existing condition.

3.1 Existing Transportation System and Access

The proposed Project is located southwest of the intersection of Webster Avenue and Ramona Expressway, east of Highway 215 in the City of Perris. Regional access to the project site is provided by Highway I-215. Local access to the site is via Ramona Expressway, Webster Ave, Morgan Avenue, and Indian Avenue within the jurisdiction of the City of Hemet. The characteristics of each roadway are discussed below in *Table 3.1*:

Table 3.1: Study Area Roadway Characteristics

Roadway	Classification[1]	Jurisdiction	Direction	Existing Travel Lanes	Median Type[2]	Speed Limit (mph)	On-Street Parking
Ramona Expy	Freeway/Expressway	City of Perris	East-West	4	SM	50	No
Indian Ave	Secondary Arterial	City of Perris	North-South	4	SM	40	No
Brennan Ave	Collector	City of Perris	North-South	2	TWLTL	35	Yes
Webster Ave	Secondary Arterial	City of Perris	North-South	4	TWLTL	35	No
I-215	Freeway/Expressway	City of Perris	North-South	6	TWLTL	65	No

[1]City of Perris General Plan Circulation Element (2020)

[2]TWLTL = Two-way Left-Turn Lane, NM = No Median, SM = Solid Median.

The existing traffic control and intersection geometrics at study area intersections are shown in Figure 3.1.

Figure 3.1: Existing Lane Geometries and Traffic Control

3.2 Existing Traffic Volumes and Intersection Operations

Existing AM and PM peak hour traffic volumes at the study area intersections are shown in *Figure 3.2* and *Figure 3.3* respectively. The existing levels of service at the study area intersections were determined using the HCM methodology, described previously in *Section 2.5*. The existing levels of service at the study intersections are shown in *Table 3.2*. All LOS calculations are provided in *Appendix C*. As shown in *Table 3.2*, all intersections operate at a satisfactory LOS during the existing peak hours.

Table 3.2: Existing AM and PM Peak Hour Level of Service

Intersection	Threshold of Significance	Traffic Control	Existing Year			
			AM Peak		PM Peak	
			Delay[1]	LOS[2]	Delay[1]	LOS[2]
1. Indian Ave/ Ramona Expy	D	Signal	32.2	C	36.7	D
2. Ramona Expy/Project Dwy 1	C	TWSC	-	-	-	-
3. Webster Ave/Project Dwy 2	C	TWSC	-	-	-	-
4. Brennan Ave/Project Dwy 3	C	TWSC	-	-	-	-
5. Brennan Ave/Project Dwy 4	C	TWSC	-	-	-	-

=Unsatisfactory Level of Service

AWSC = All-Way Stop Control

TWSC = Two-Way Stop Control

[1] Delay in Seconds

[2] Level of Service

Figure 3.2: Existing AM Peak Hour Traffic Volumes

Figure 3.3: Existing PM Peak Hour Traffic Volumes

3.3 Opening Year Traffic Volumes and Intersection Operations

Opening Year Baseline (2025) traffic volumes were developed by applying a growth rate of 3 percent per year to the existing (2023) traffic volumes and by adding traffic generated by other approved and pending development projects. A total of 13 cumulative development projects are included in the Opening Year Baseline traffic volumes. The approved and pending development projects utilized in this scenario were referred from the *Industrial Project Summary Matrix* document provided to EPD by the City of Perris. The location of the approved and pending cumulative projects is shown in *Figure 3.4*. The trip generation for each cumulative project was calculated using trip rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (11th Edition, 2021) or cited from City approved TIA. The AM and PM peak hour cumulative projects trip assignments are shown in *Figure 3.5* and *Figure 3.6 respectively*. The Opening Year AM and PM peak hour traffic volumes at the study area intersections are shown in *Figure 3.7* and *Figure 3.8* respectively. The Opening Year levels of service at the study intersections are shown in *Table 3.3*. The trip generation for the cumulative projects is shown in *Table 3.4*. All LOS calculations are provided in *Appendix C*. As shown in *Table 3.3*, all intersections operate at a satisfactory LOS during both the peak hours.

Table 3.3: Opening Year AM and PM Peak Hour Level of Service

Intersection	Threshold of Significance	Traffic Control	Opening Year Without Project			
			AM Peak		PM Peak	
			Delay[1]	LOS[2]	Delay[1]	LOS[2]
1. Indian Ave/Ramona Expy	D	Signal	35.6	D	42.8	D
2. Ramona Expy/Project Dwy 1	C	TWSC	-	-	-	-
3. Webster Ave/Project Dwy 2	C	TWSC	-	-	-	-
4. Brennan Ave/Project Dwy 3	C	TWSC	-	-	-	-
5. Brennan Ave/Project Dwy 4	C	TWSC	-	-	-	-

=Unsatisfactory Level of Service

AWSC = All-Way Stop Control

TWSC = Two-Way Stop Control

[1] Delay in Seconds

[2] Level of Service

Figure 3.4: Location of Cumulative Projects

Table 3.4: Cumulative Projects Trip Generation

Land Use	ITE Code	Size	Units	Daily	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total
Trip Rates										
High-Cube Transload and Short-Term Warehouse[1]	154		TSF	1.40	0.06	0.02	0.08	0.03	0.07	0.10
Warehouse[2]	150		TSF	1.74	0.13	0.04	0.17	0.05	0.14	0.19
Manufacturing[3]	140		TSF	4.75	0.52	0.16	0.68	0.23	0.51	0.74

Projects	ITE Code	Size	Units	Daily	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total
1. Expressway Industrial (PCE)[1]	154	347	TSF	711	31	10	41	14	37	51
2. Wilson Industrial 1 (PCE)[1]	154	303	TSF	621	27	8	35	12	32	44
3. Lakecreek West (PCE)[1]	154	300	TSF	614	27	8	35	12	32	44
4. Wilson Industrial 2 (PCE)[1]	154	155	TSF	317	14	4	18	6	16	23
5. Chartwell Ind (PCE)[2]	150	141	TSF	359	27	8	35	11	29	39
6. Burge Industrial 1 (PCE)[3]	140	18	TSF	125	14	4	18	6	13	19
7. Burge Industrial 2 (PCE)[3]	140	19	TSF	132	14	5	19	6	14	21
8. Nance Industrial (PCE)[2]	150	157	TSF	359	27	8	35	11	29	39
9. Lakecreek Placentia Industrial Building (PCE)[1]	154	509	TSF	1043	45	14	60	21	54	74
10. Kwasizur Industrial (PCE)[2]	150	138	TSF	359	27	8	35	11	29	40
11. McCay Indus (PCE)[2]	150	232	TSF	359	27	8	35	11	29	39
12. Rider 1 (PCE)[1]	154	350	TSF	891	67	20	87	26	71	97
13. Integra - Expansion (PCE)[1]	154	273	TSF	695	52	16	68	20	55	76
14. Ramona Gateway Commerce Center (PCE)	ITE[4]	967	TSF	8960	531	367	898	322	379	701
15. Ramona and Brennan (PCE)[2]	ITE[5]	99.99	TSF	171	13	4	17	5	13	18
Total Cumulative Trip Generation				15,716	943	492	1,435	494	832	1,326

TSF = Thousand Square Feet

PCE = Passenger Car Equivalent

[1] Trip rates from the Institute of Transportation Engineers, *Trip Generation,11th Edition, 2021*. Land Use Code 154 - High-Cube Transload and Short-Term Warehouse.

[2] Trip rates from the Institute of Transportation Engineers, *Trip Generation,11th Edition, 2021*. Land Use Code 150 - Warehousing.

[3] Trip rates from the Institute of Transportation Engineers, *Trip Generation,11th Edition, 2021*. Land Use Code 140 - Manufacturing.

[4] Trip rates from Project's Traffic Impact Analysis Trip Generation Table Prepared on May 20, 2022 by Urban Crossroads

[5] Trip rates from Project's Focused Traffic Analysis Trip Generation Table Prepared on January 4, 2023 by EPD Solutions, Inc.

Figure 3.5: Cumulative Projects AM Peak Hour Trip Assignment

Figure 3.6: Cumulative Projects PM Peak Hour Trip Assignment

Figure 3.7: Opening Year AM Peak Hour Traffic Volumes

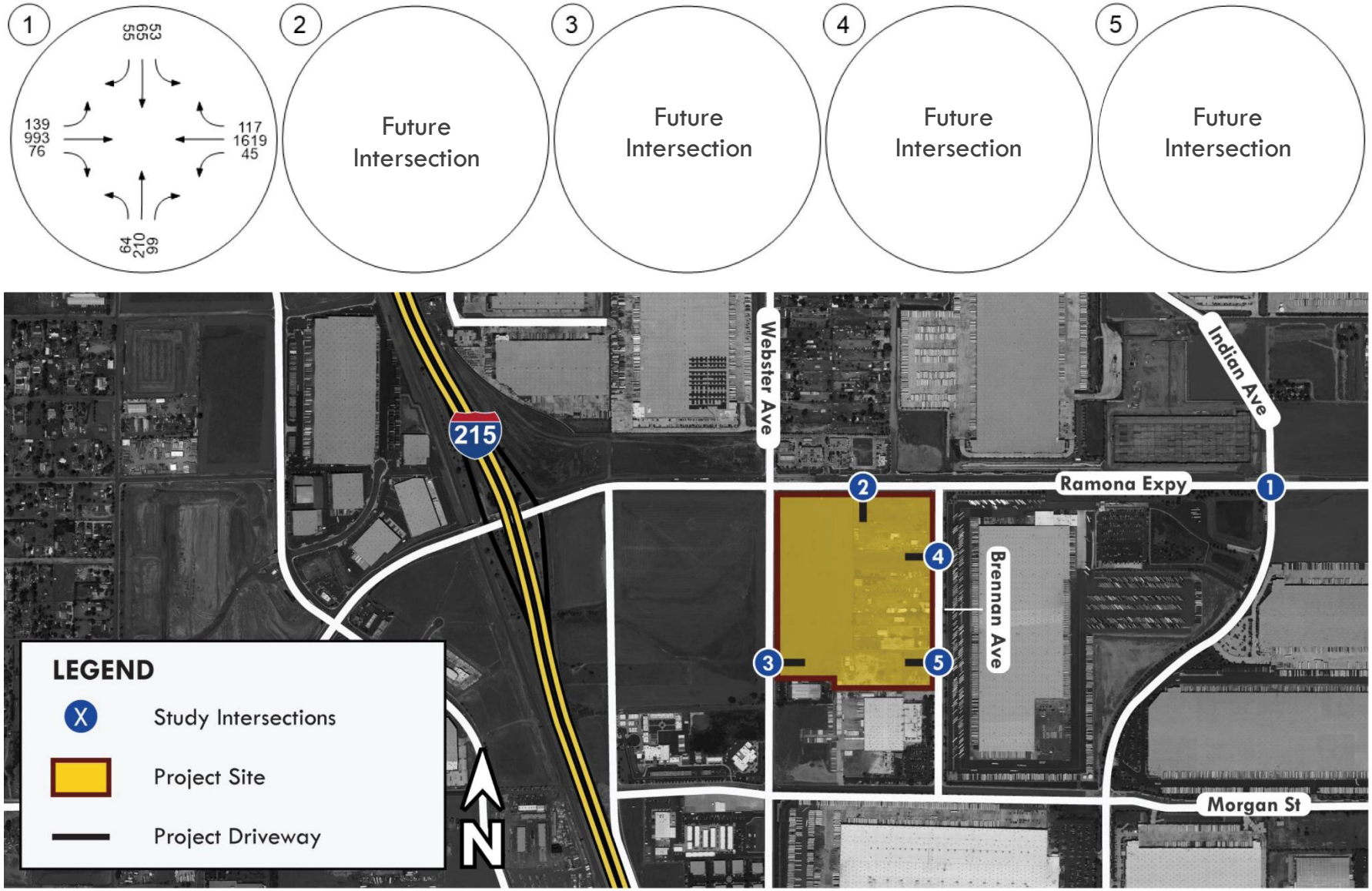


Figure 3.8: Opening Year PM Peak Hour Traffic Volumes

4 PROPOSED PROJECT

4.1 Project Trip Generation

Vehicle trips were generated for the proposed industrial development using trip rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (11th Edition, 2021). The vehicle splits from the SCAQMD Warehouse Truck Study Fleet Mix (utilized with cold storage) were applied to account for the maximum of 25 percent cold storage. The project trip generation is shown in *Table 4.1*. The proposed Project is estimated to generate approximately 1,176 daily trips, 67 AM peak hour trips, and 94 PM peak hour trips. In terms of passenger car equivalent (PCE), The proposed Project is estimated to generate approximately 1429 daily PCE trips, 87 PCE AM trips and 108 PCE PM trips.

4.2 Project Trips

Project trips were distributed to the study area intersections based on the location of the project and logical routes of travel to and from the site. Project trips were assigned to the study area intersections by multiplying the project trip generation by the trip distribution percent at each location. The passenger vehicle trip distribution for the proposed Project is shown in *Figure 4.1* and the truck distribution for the proposed project is shown in *Figure 4.2*. The passenger vehicle AM and PM peak hour project trip assignment is shown in *Figure 4.3* and *Figure 4.4* respectively. The truck AM and PM peak hour project trip assignment is shown in *Figure 4.5* and *Figure 4.6* respectively.

Table 4.1: Project Trip Generation

				AM Peak Hour			PM Peak Hour		
Land Use		**Units**	**Daily**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Trip Rates									
TUMF Fulfillment Center Rates[1]		TSF	2.13	0.10	0.02	0.12	0.07	0.10	0.17
Project Trip Generation									
Ramona/Webster Ave	551.922	TSF	1,176	54	13	67	37	57	94
ITE Vehicle Mix [2]									
Passenger (84.3% Daily, 75% AM, 90% PM)			991	40	10	50	33	51	84
Truck (15.7% Daily, 25% AM, 10% PM)			185	14	3	17	4	6	10
			1,176	54	13	67	37	57	94
Truck Vehicle Mix [3]		***Percent*** [3]							
2-Axle truck		34.70%	64	5	2	7	2	2	4
3-Axle truck		11.00%	20	2	0	2	0	1	1
4+-Axle Trucks		54.40%	100	7	1	8	2	3	5
		100%	184	14	3	17	4	6	10
PCE Trip Generation [4]		***PCE Factor*** [4]							
Passenger Vehicles		1.0	991	40	10	50	33	51	84
2-Axle truck		1.5	96	7	3	10	3	3	6
3-Axle truck		2.0	41	3	0	3	0	2	2
4+-Axle Trucks		3.0	301	21	3	24	7	9	16
			1,429	71	16	87	43	65	108
Total Passenger Trip Generation			991	40	10	50	33	51	84
Total Truck Trip Generation			185	14	3	17	4	6	10
Total Truck (PCE) Trip Generation			438	31	6	37	10	14	24
Total Trip Generation			**1,176**	**54**	**13**	**67**	**37**	**57**	**94**
Total PCE Trip Generation			**1,429**	**71**	**16**	**87**	**43**	**65**	**108**

TSF = Thousand Square Feet

PCE = Passenger Car Equivalent

[1] Trip rates from TUMF High-Cube Warehouse Trip Generation Study, WSP, January 29, 2019. In/Out splits from the Institute of Transportation Engineers, Trip Generation manual,11th Edition, 2021. Land Use Code 154 - High Cube Transload and Short-Term.

[2] ITE Vehicle Mix for Warehousing for Land Use Code 154 - High Cube Transload and Short-Term.

[3] SCAQMD Warehouse Truck Study Fleet Mix (With Cold Storage).

[4] Passenger Car Equivalent (PCE) factors from County of Riverside Transportation Analysis Guidelines for Level of Service Vehicle Miles Traveled, dated December 2020.

Figure 4.1: Proposed Project Passenger Vehicle Trip Distribution

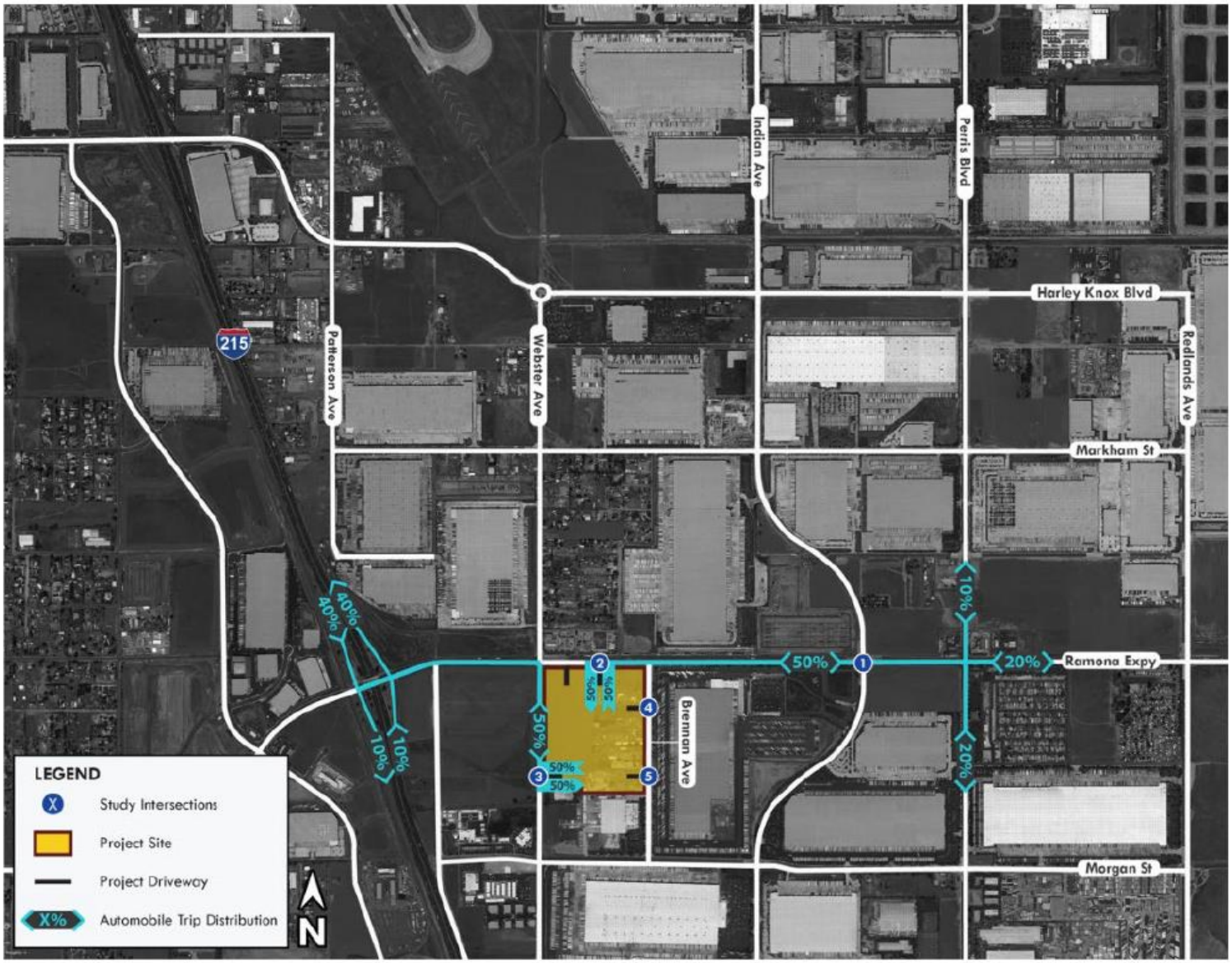


Figure 4.2: Proposed Project Truck Trip Distribution

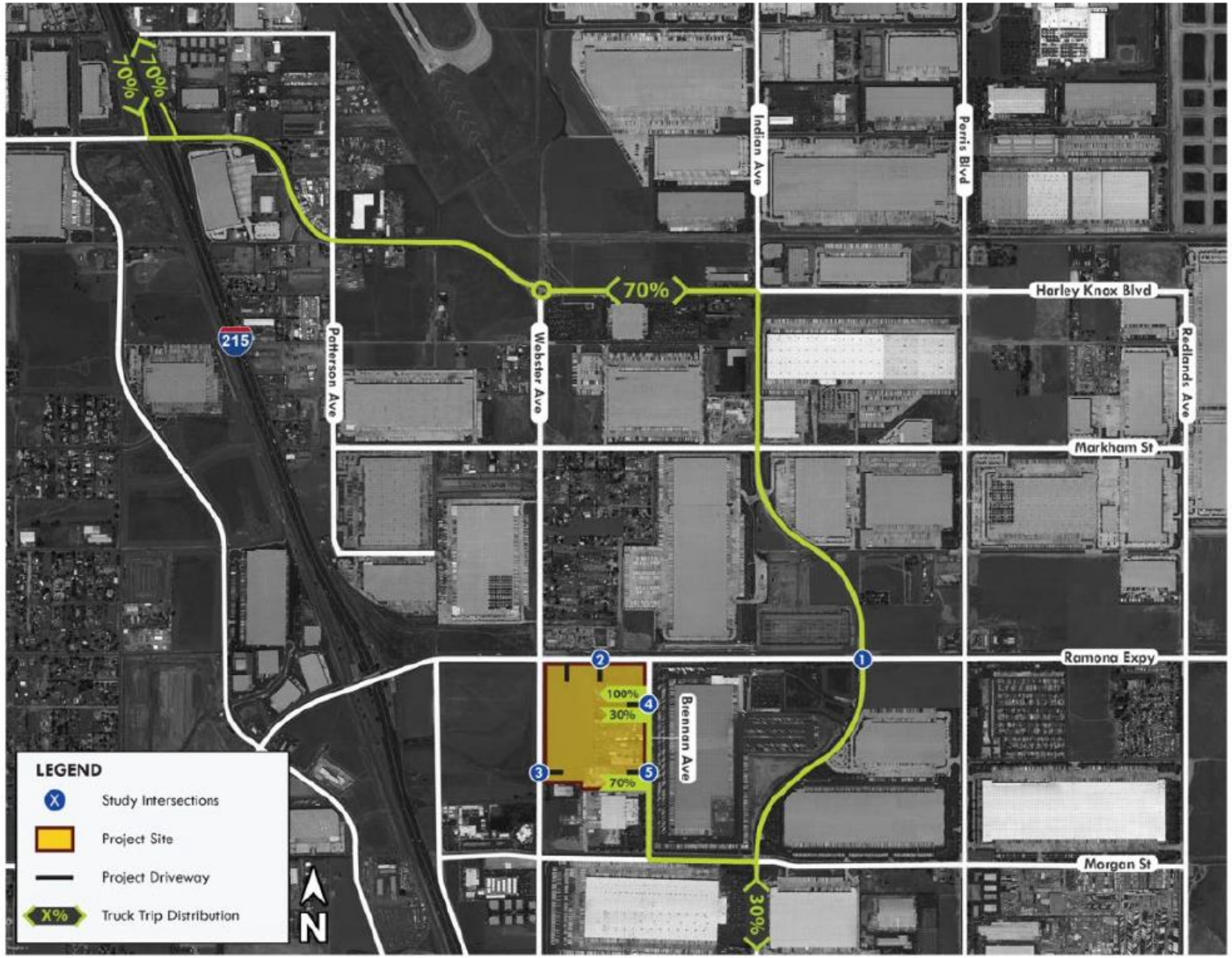


Figure 4.3: Project Passenger Vehicle AM Peak Hour Trip Assignment

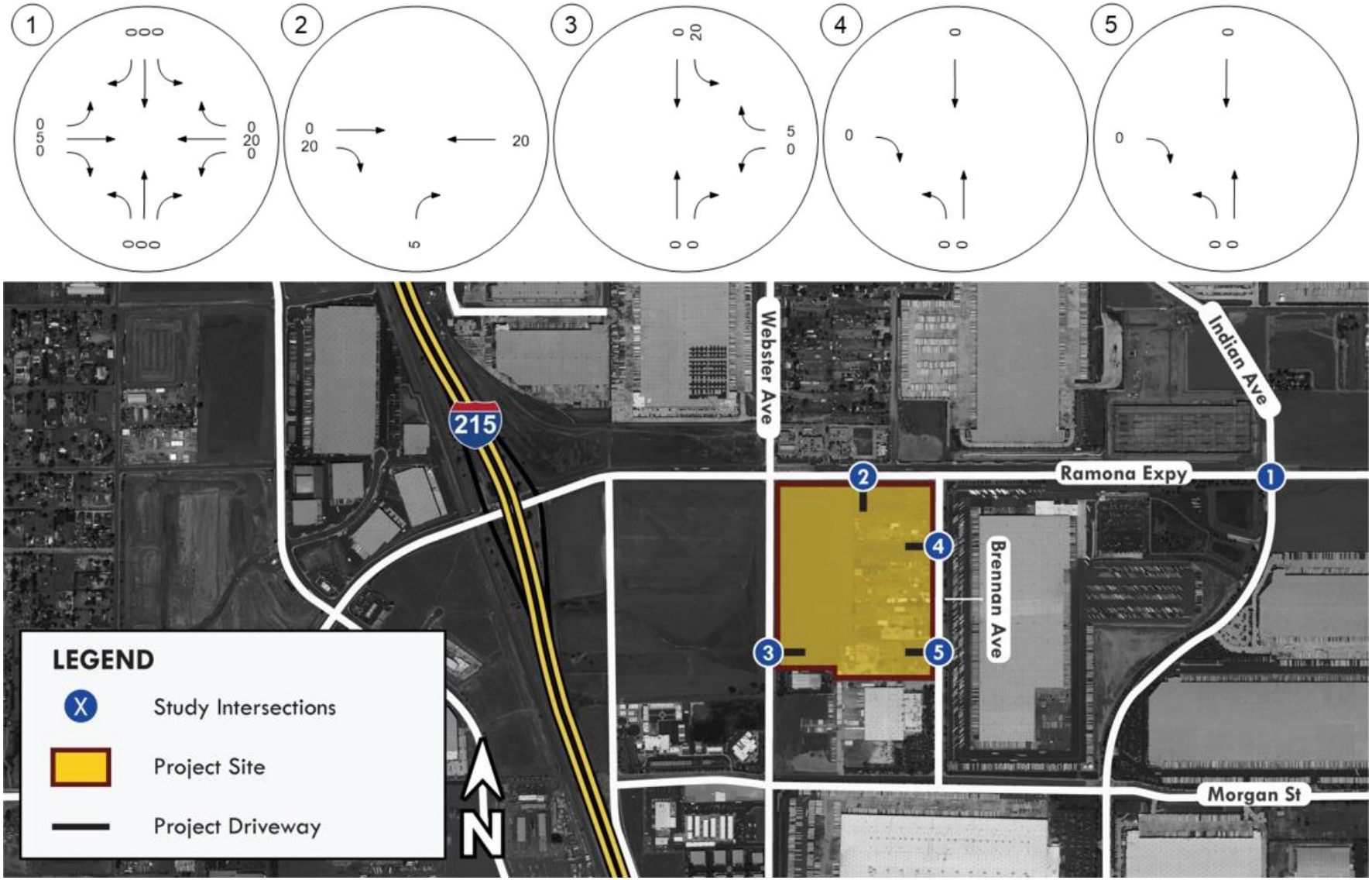


Figure 4.4: Project Passenger Vehicle PM Peak Hour Trip Assignment

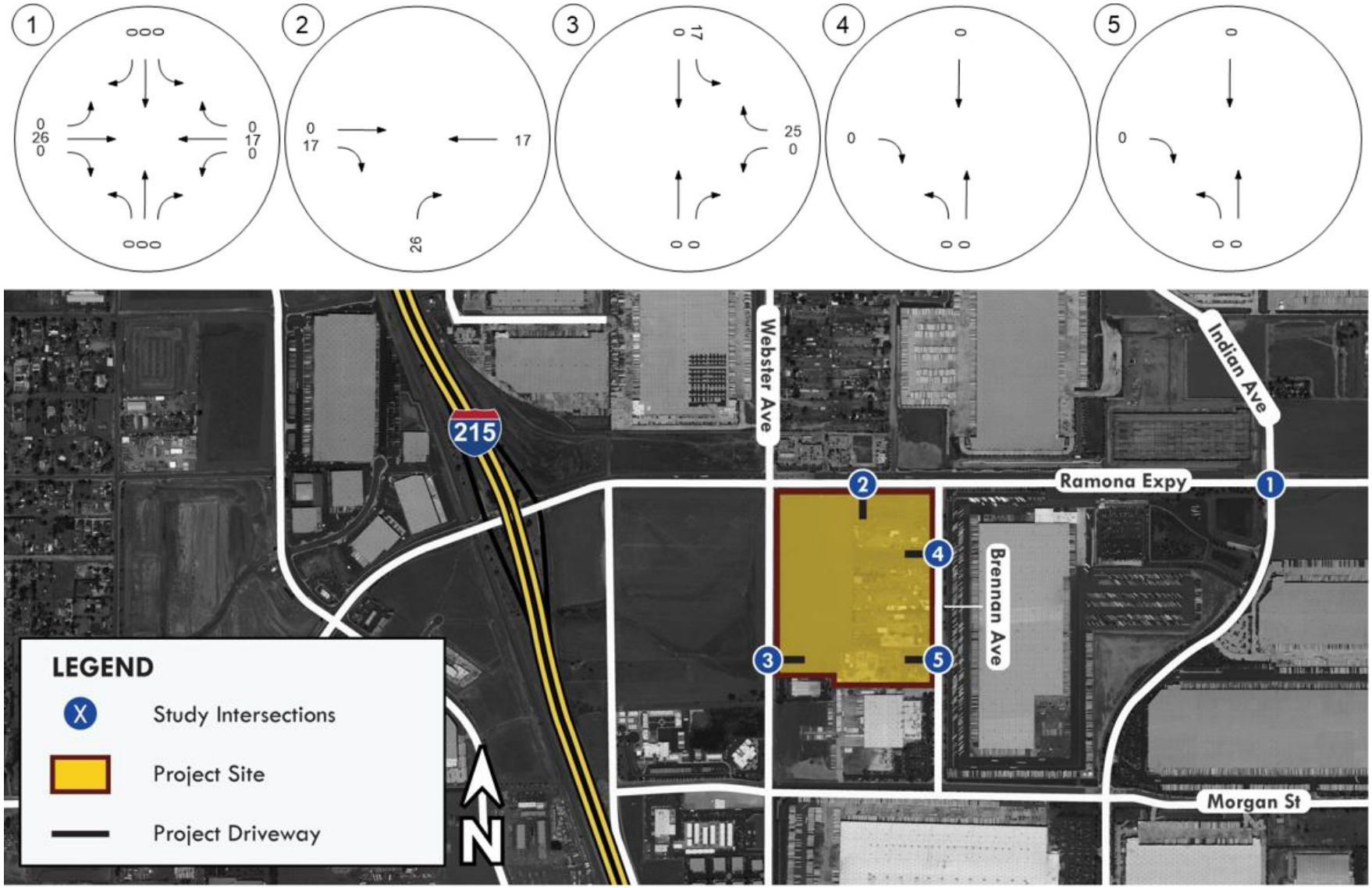


Figure 4.5: Project Truck AM Peak Hour Trip Assignment

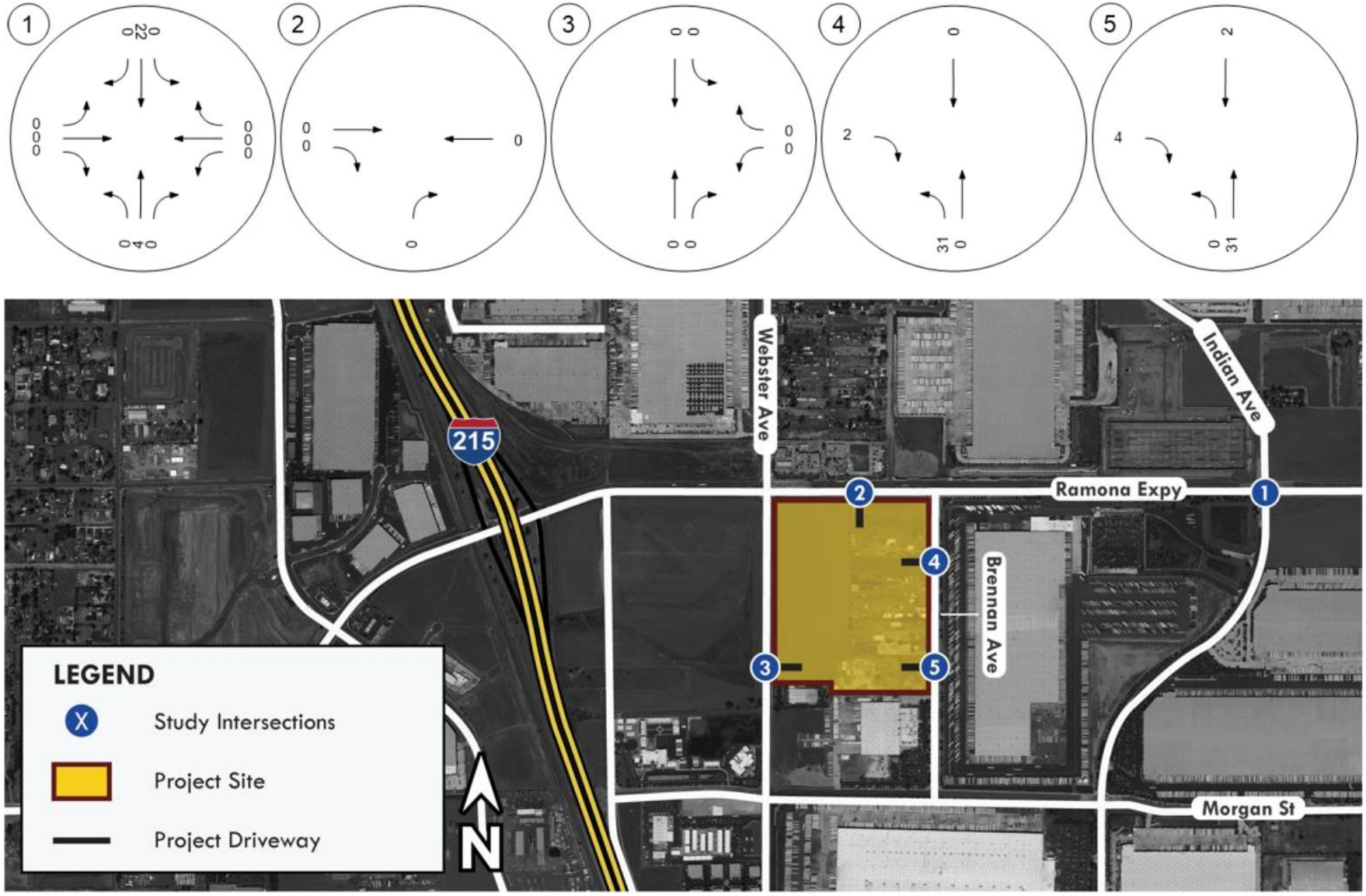


Figure 4.6: Project Truck PM Peak Hour Trip Assignment

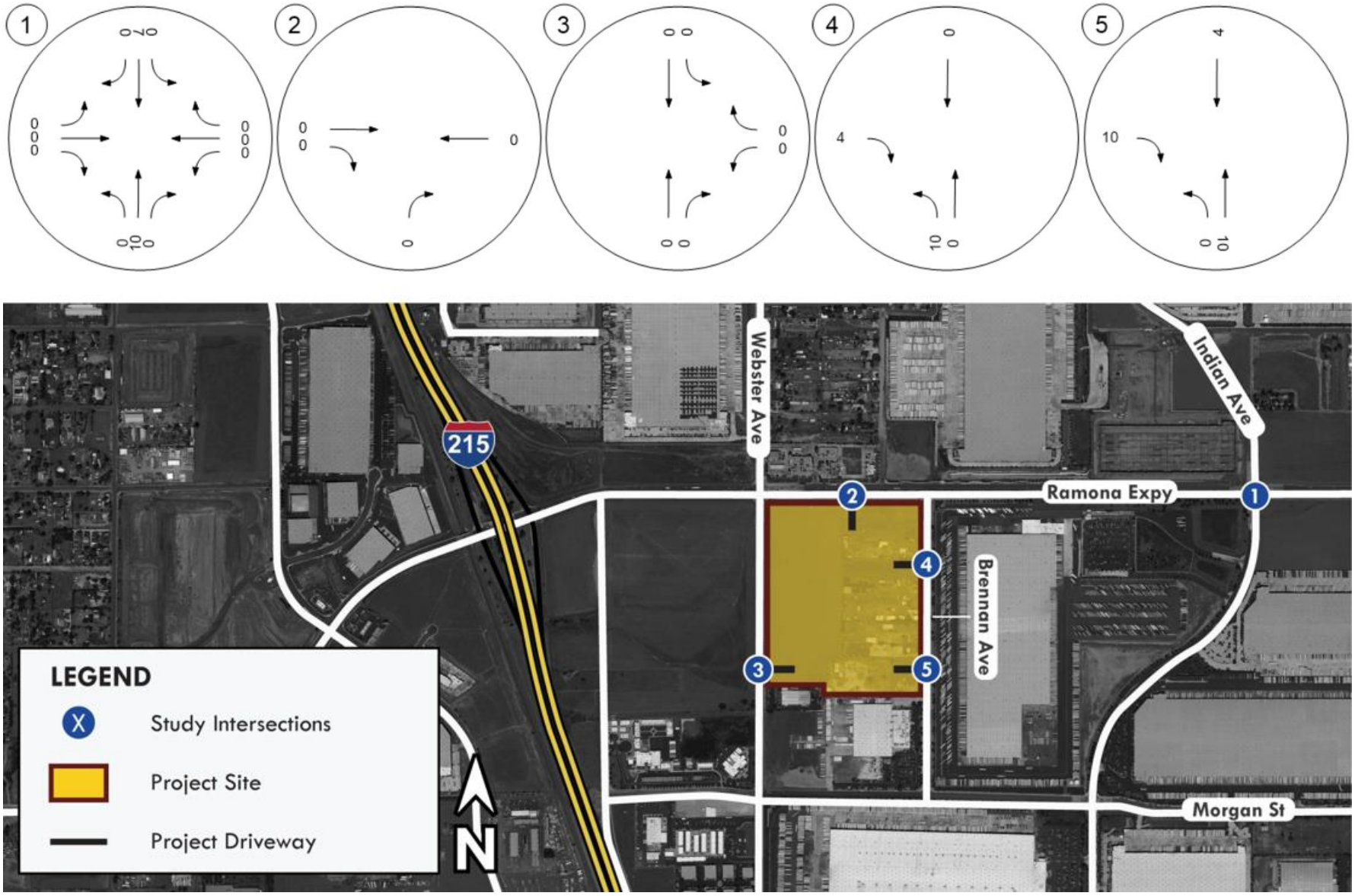


Figure 4.7: Total Project AM Peak Hour Trip Assignment

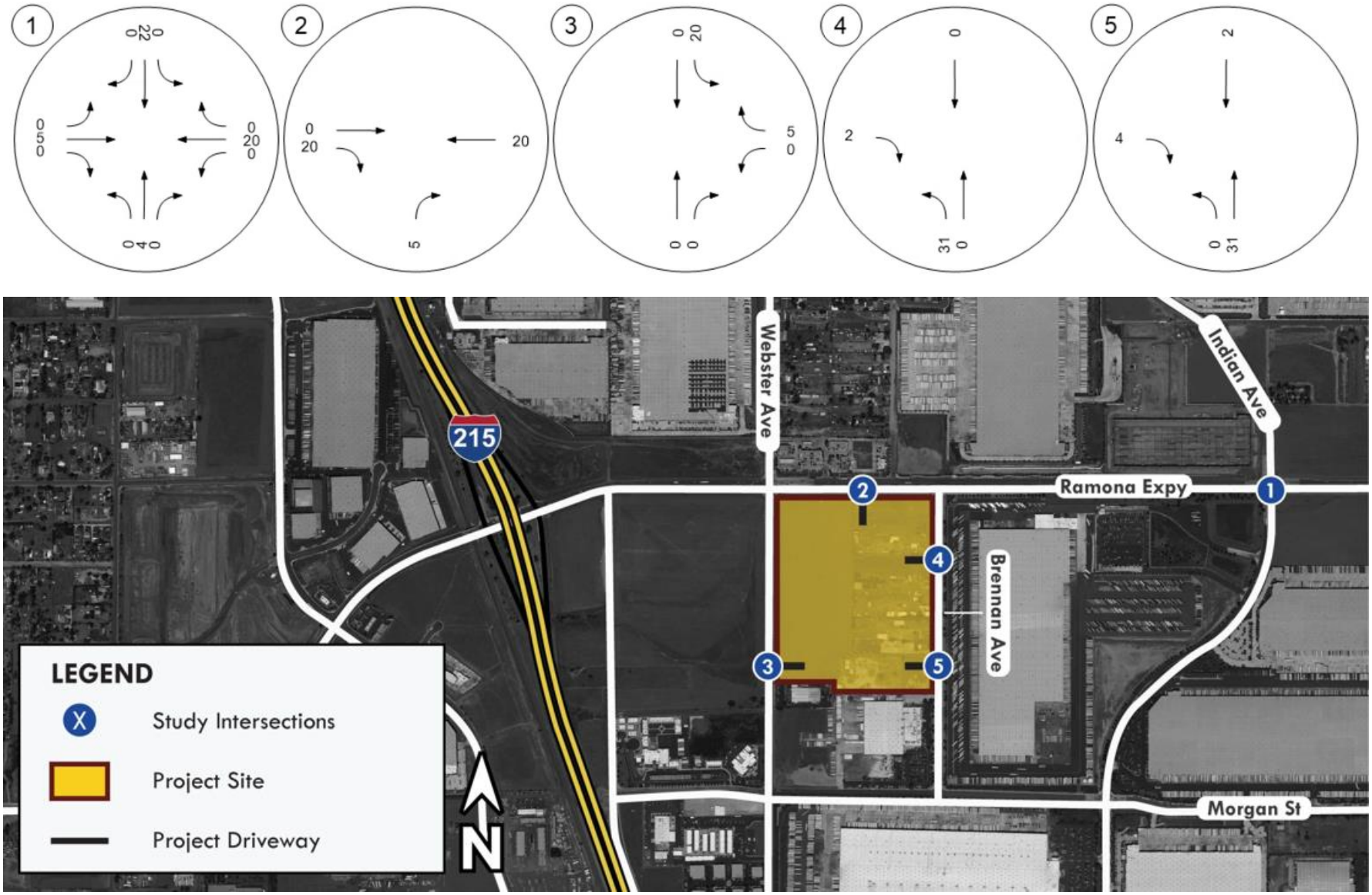
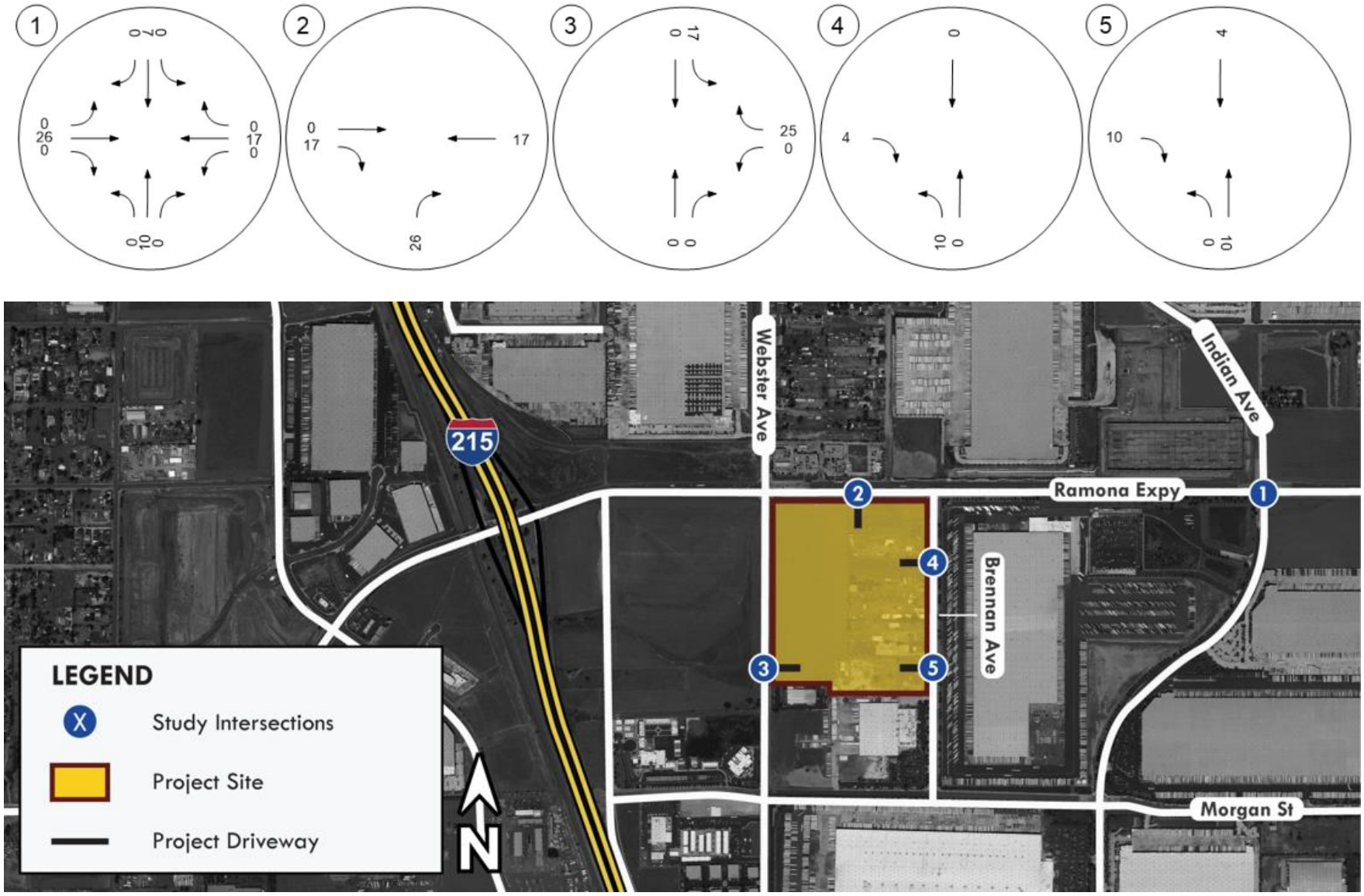


Figure 4.8: Total Project PM Peak Hour Trip Assignment



5 BASELINE PLUS PROJECT CONDITIONS

5.1 Existing Plus Project Traffic Volumes and Intersection Operations

The Existing Plus Project traffic volumes were developed by adding the project trips to the Existing traffic volumes. The AM peak hour and PM peak hour traffic volumes for this scenario are shown in *Figure 5.1* and *Figure 5.2* respectively. *Table 5.1* shows the Existing plus Project AM and PM peak hour levels of service at the study intersections. All LOS calculations are provided in *Appendix C*. As shown in *Table 5.1*, all intersections would operate at a satisfactory LOS during both AM and PM peak hours.

Table 5.1: Existing Plus Project AM and PM Peak Hour Level of Service

Intersection	Threshold of Significance	Traffic Control	Existing Year				Existing With Project			
			AM Peak		PM Peak		AM Peak		PM Peak	
			Delay[1]	LOS[2]	Delay[1]	LOS[2]	Delay[1]	LOS[2]	Delay[1]	LOS[2]
1. Indian Ave/Ramona Expy	D	Signal	32.2	C	36.7	D	31.7	C	36.7	D
2. Ramona Expy/Project Dwy 1	C	TWSC	-	-	-	-	13.8	B	19.7	C
3. Webster Ave/Project Dwy 2	C	TWSC	-	-	-	-	9.0	A	8.7	A
4. Brennan Ave/Project Dwy 3	C	TWSC	-	-	-	-	8.3	A	8.4	A
5. Brennan Ave/Project Dwy 4	C	TWSC	-	-	-	-	8.4	A	8.4	A

=Unsatisfactory Level of Service

AWSC = All-Way Stop Control

TWSC = Two-Way Stop Control

[1] Delay in Seconds

[2] Level of Service

Figure 5.1: Existing Plus Project AM Peak Hour Volumes

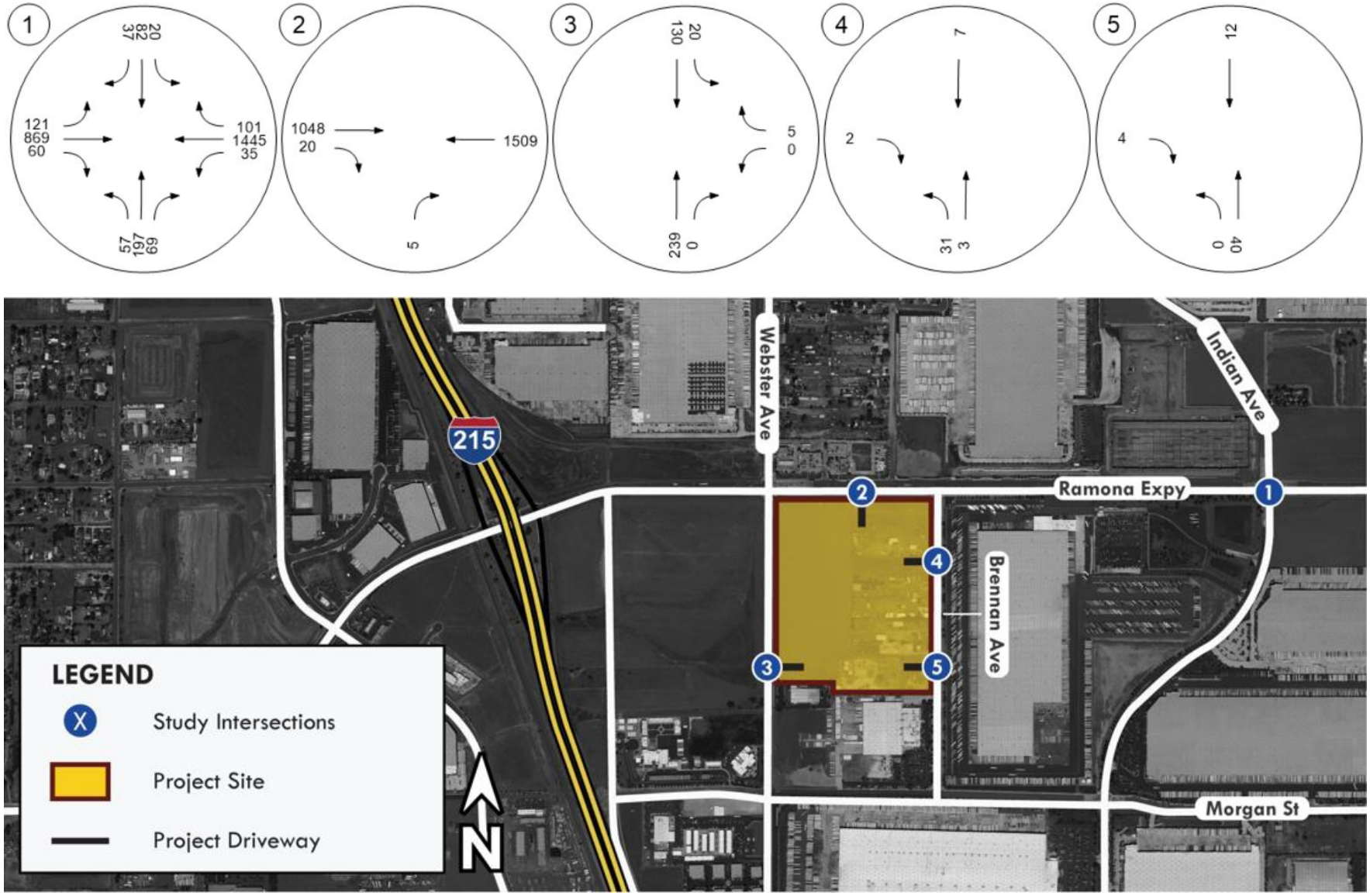
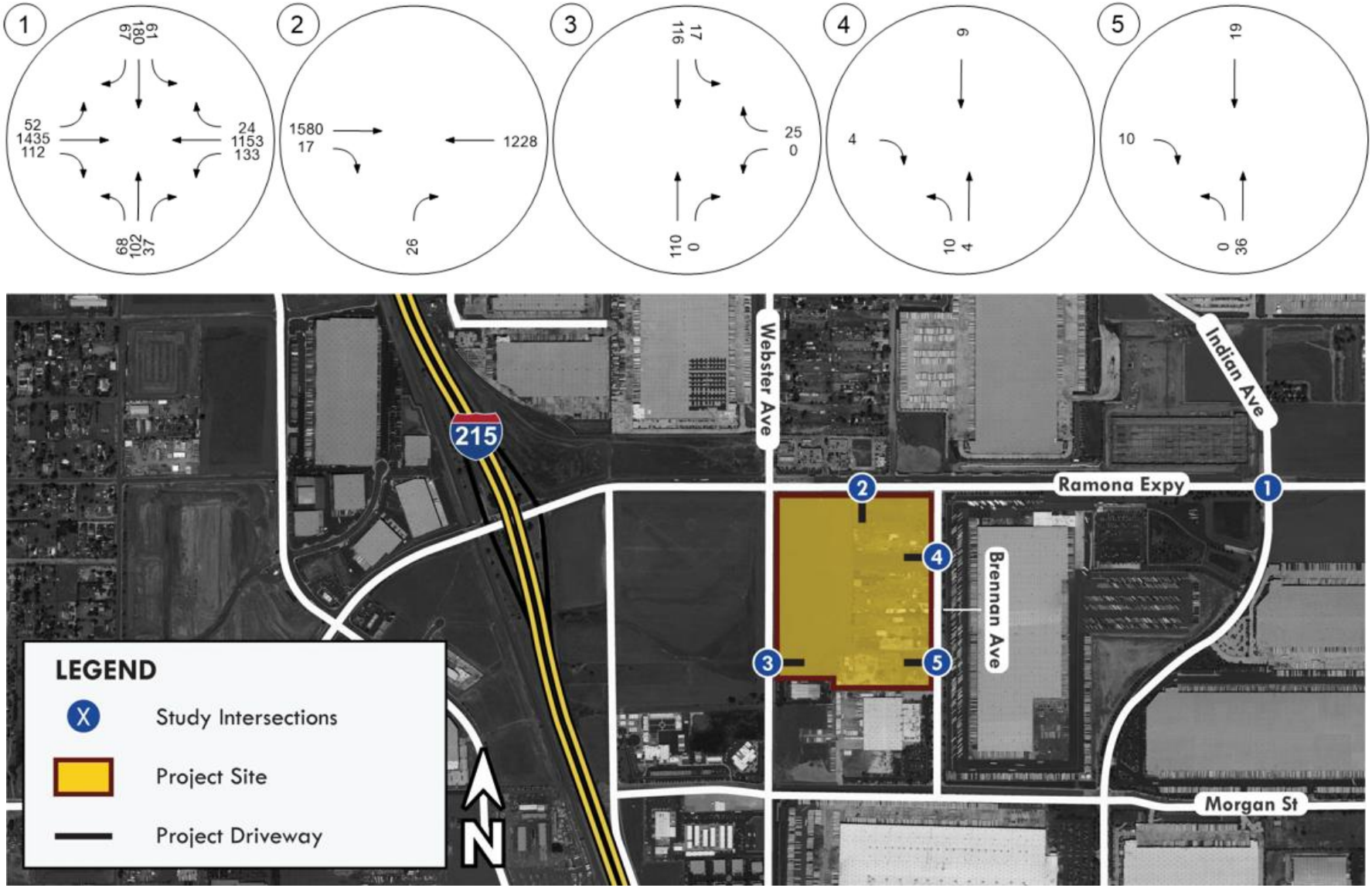


Figure 5.2: Existing Plus Project PM Peak Hour Volumes



5.2 Opening Year Plus Project Traffic Volumes and Intersection Operations

The Opening Year Plus Project traffic volumes were determined by adding the project trips to Opening Year traffic volumes. The Opening Year Plus Project traffic volumes are shown in Figure 5.3 and Figure 5.4. The LOS at the study area intersections were determined using the HCM methodology, described previously in *Section 2.5*. Table 5.2 shows the Opening Year Plus Project AM and PM peak hour LOS at the study area intersections. All LOS calculations are provided in Appendix C. As shown in Table 5.2, all intersections would operate with a satisfactory LOS during both peak hours in the Opening Year Plus Project conditions.

Table 5.2: Opening Year Plus Project AM and PM Peak Hour Level of Service

Intersection	Threshold of Significance	Traffic Control	Opening Year Without Project				Opening Year With Project			
			AM Peak		PM Peak		AM Peak		PM Peak	
			Delay[1]	LOS[2]	Delay[1]	LOS[2]	Delay[1]	LOS[2]	Delay[1]	LOS[2]
1. Indian Ave/Ramona Expy	D	Signal	35.6	D	42.8	D	35.9	D	44.4	D
2. Ramona Expy/Project Dwy 1	C	TWSC	-	-	-	-	15.0	C	22.3	C
3. Webster Ave/Project Dwy 2	C	TWSC	-	-	-	-	9.0	A	8.7	A
4. Brennan Ave/Project Dwy 3	C	TWSC	-	-	-	-	8.3	A	8.4	A
5. Brennan Ave/Project Dwy 4	C	TWSC	-	-	-	-	8.4	A	8.4	A

=Unsatisfactory Level of Service

AWSC = All-Way Stop Control

TWSC = Two-Way Stop Control

[1] Delay in Seconds

[2] Level of Service

Figure 5.3: Opening Year Plus Project AM Peak Hour Volumes

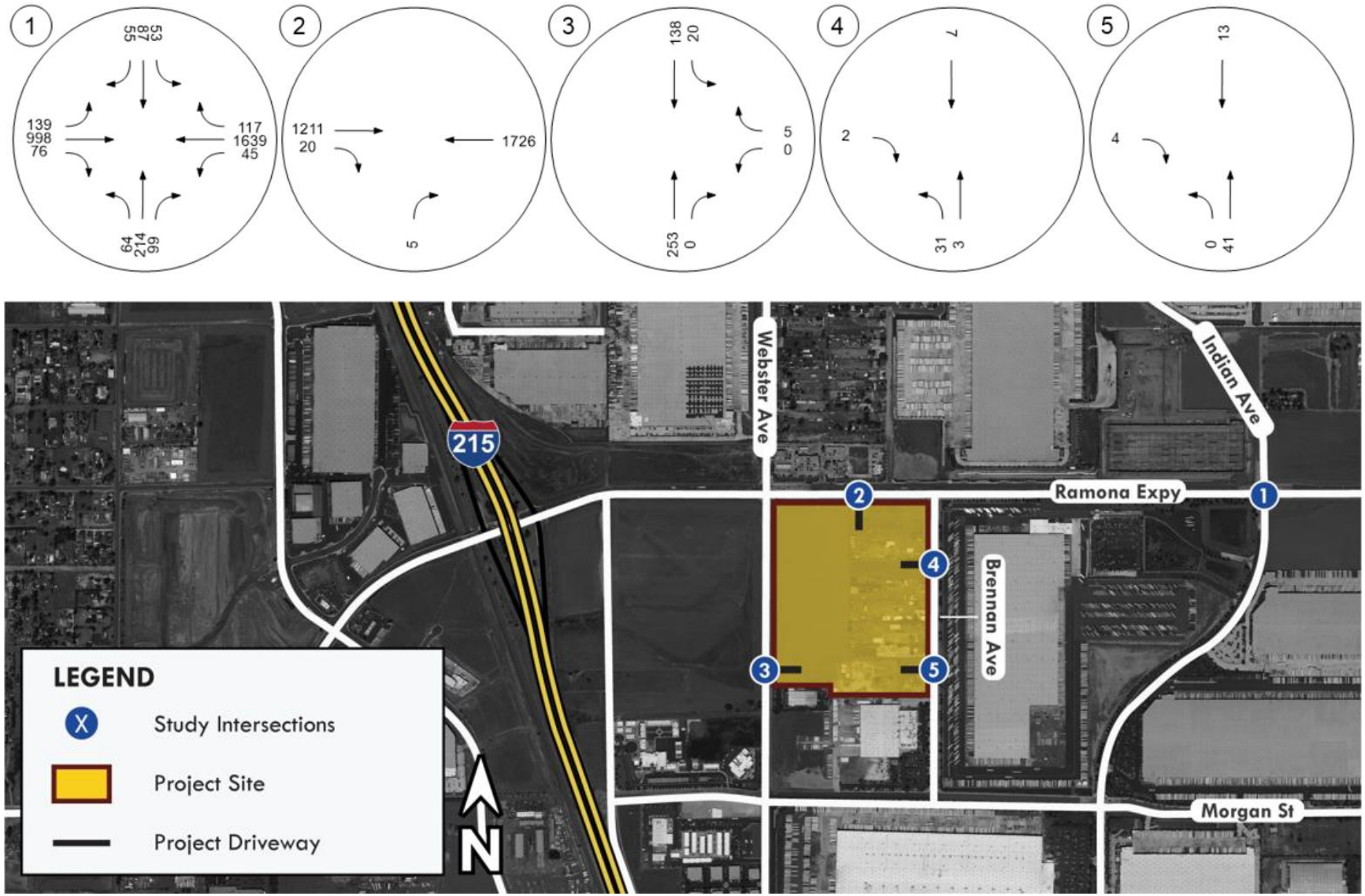
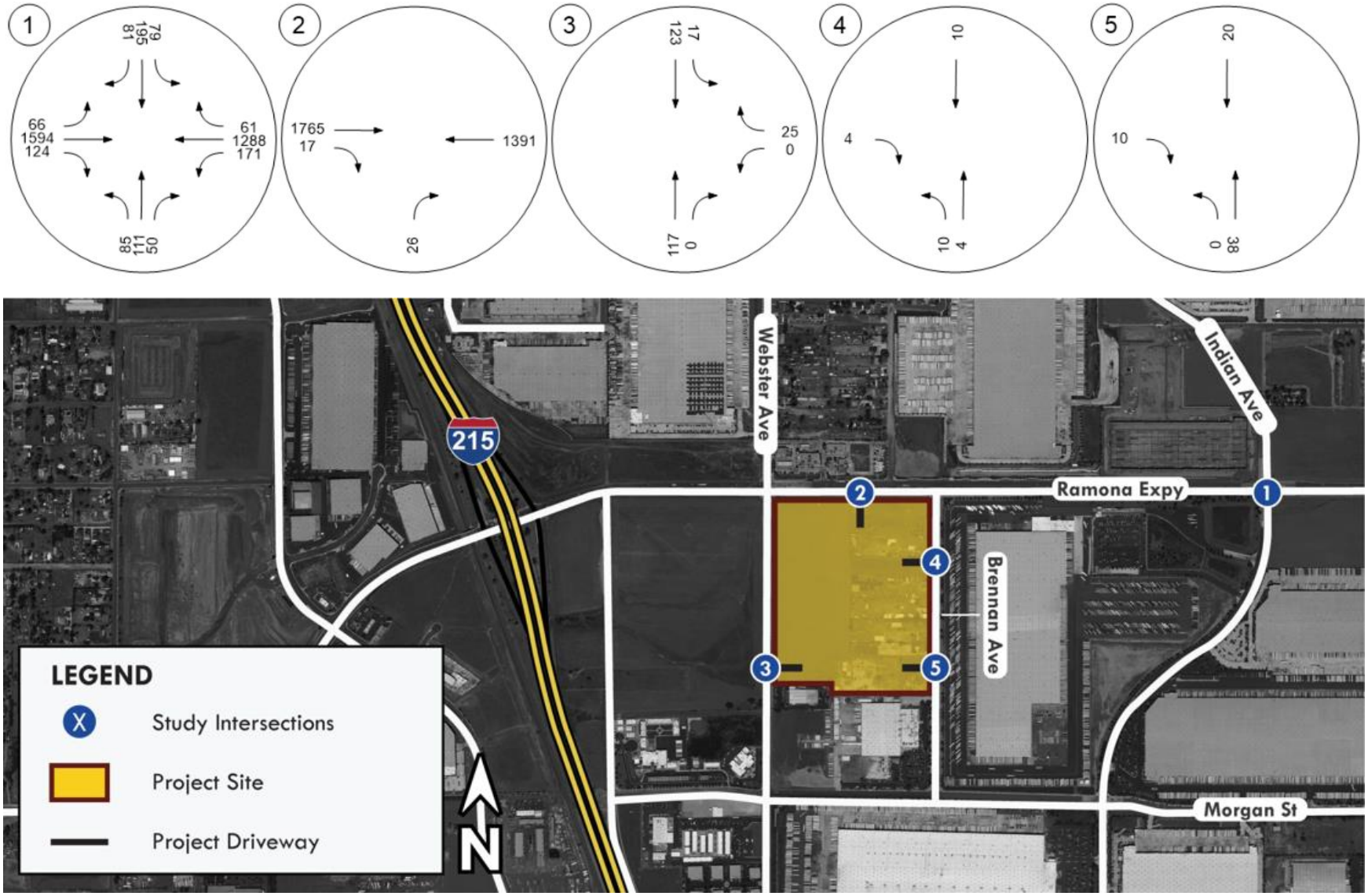


Figure 5.4: Opening Year Plus Project PM Peak Hour Volumes



6 TRUCK GATE QUEUEING ANALYSIS

As mentioned in Section 2.1. Project Description, both truck driveways along Brennan Avenue would be gated. To ensure that truck queues do not back up into the public right of way, a queuing analysis was prepared using the methodology contained in Entrance-Exit Design and Control for Major Parking Facilities (Crommelin Methodology)[1]. This methodology uses a ratio of the average arrival rate and the average service rate to determine the number of vehicles that would be queued behind the access gate.

The arrival rate would be the number of vehicles that enter through the gates during a typical peak hour. The arrival rate would be the same as the inbound truck trip assignment of the project at Brennan Avenue/Project Driveway 3. As shown in the Project's trip generation in Table 4.1, there would be 14 trucks entering the gate during the AM peak hour and 4 trucks entering the gate during the PM peak hour.

The service rate is the number of vehicles per hour that can be served by the gate. The proposed gate is still in the conceptual phase; therefore, a conservative estimate of 25 seconds to open or close was used. Considering the WB-67 truck is 73.5 feet long and drives approximately 5 mph, a 10 second clearance time was assumed for the trucks to enter the gate using the time=distance/speed formula. This would bring the total entry time per vehicle to 35 seconds. This would equate to 1.7 trucks per minute or 102 trucks per hour. The 102 trucks service rate was utilized to analyze the worst peak hour project inbound truck trip assignment (i.e., AM peak hour). To determine the potential queue, the Traffic Intensity is calculated and compared to the graph "Reservoir Needs vs. Traffic Intensity" from the Crommelin report as shown in Figure 6.1. The Traffic Intensity is shown in Table 6.1.

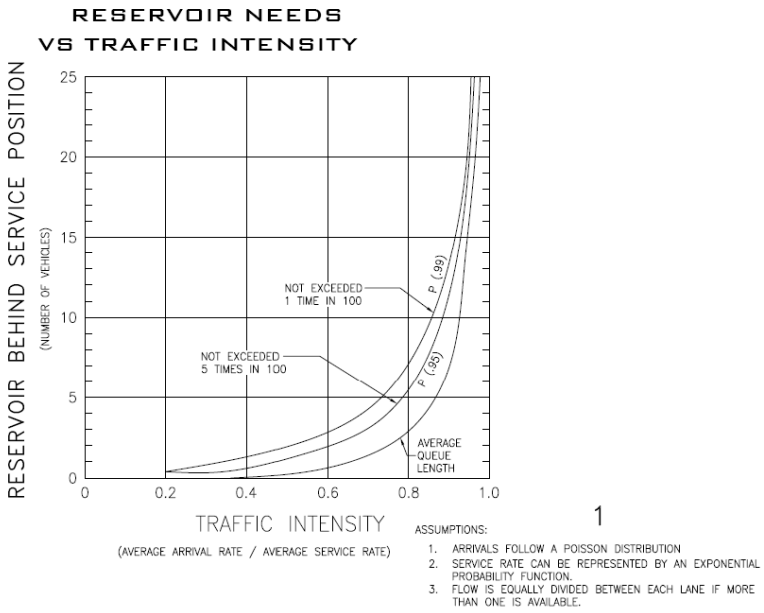
Table 6.1: Gate Closed Traffic Intensity Calculation

	Average Arrival Rate	Average Service Rate	Traffic Intensity[1]
AM Peak Hour (Hour of Highest Inbound Volume)			
Residential Gate at Foothill Boulevard	14	102	0.2

[1] Traffic Intensity = Average Arrival Rate ÷ Average Service Rate

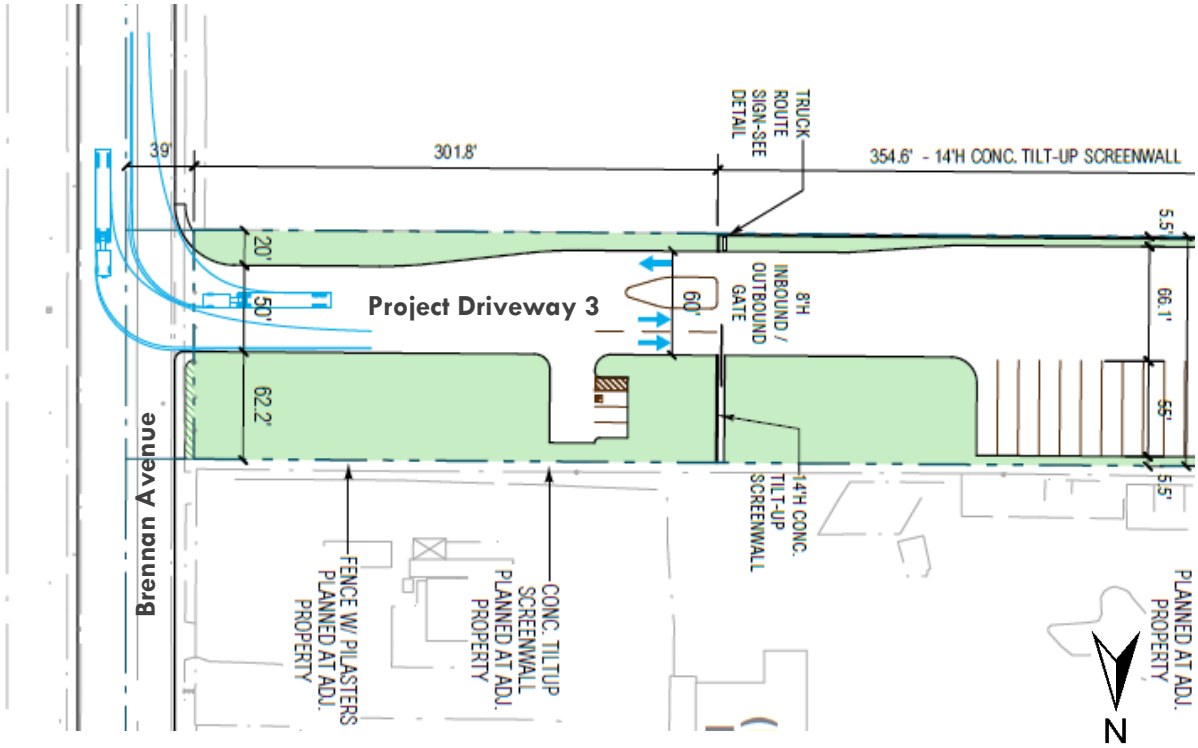
1 Entrance-Exit Design and Control for Major Parking Facilities, Robert W. Crommelin, P.E., October 5, 1972.

Figure 6.1: Reservoir Needs vs Traffic Intensity



The worst expected traffic intensity of 0.2 (i.e., expected traffic intensity at Project Driveway 3 on Brennan Avenue) would correspond to an expected 95th percentile queue of one truck at a given point of time during the worst peak hour. As shown in Figure 6.2, Project Driveway 3 allows for queuing of 301.8 feet from the access gate to Brennan Avenue. This length could accommodate three trucks; therefore, the queue requirement of one truck would be accommodated.

Figure 6.2: Gate Queueing Storage Length at Project Driveway 3 (Intersection #4)



7 VEHICLE MILES TRAVELLED SCREENING ANALYSIS AND MITIGATIONS

A Vehicle Miles Travelled (VMT) screening analysis has been prepared and is summarized in the City's VMT Scoping Form For Land Use Projects, which is provided Appendix A. The Citywide Average VMT per employee (Threshold of Significance) is 11.62. The Project's traffic analysis zone (TAZ) VMT per employee is 12.02. As shown in the VMT scoping form, the percentage reduction required to achieve the Citywide Average VMT is 3.33%.

The California Air Pollution Control Officers Association (CAPCOA) *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity* (hereafter CAPCOA Guidance)[2] is a document prepared to recommend measures to mitigate greenhouse gas emissions, including measures to reduce vehicle miles traveled. It was prepared in collaboration with academia, agencies, community organizations and leaders, local governments, nongovernmental organizations, and technical experts to provide mitigation measures with reductions calculated using substantial evidence by means of the best available data.

The Project includes two project design features, Providing Pedestrian Network Improvements and Construct or Improve Bike Facilities, and would comply with South Coast Air Quality Management District (SCAQMD) Rule 2202, which requires facilities that employee 250 or more people to participate in a Commute Trip Reduction (CTR) program. The two project design features (PDFs) and one plan program policy (PPP) correlate with quantitative measures in the CAPCOA Guidelines Transportation section. As shown in Table 7.1, the proposed VMT reduction measures would reduce VMT per employee by 3.45%, more than the 3.33% reduction required to reduce the VMT per employee impact. Therefore, upon the implementation of the recommended VMT reduction measures identified below, the VMT impact would be reduced to less than significant. The reduction calculations for the CAPCOA measures can be found in Appendix D.

- Transportation PPP 1 – T-6. Implement Commute Trip Reduction Program (Mandatory): This measure requires implementation of a mandatory commute trip reduction program (CTR) program for employees, encouraging alternative modes of transportation like carpooling, transit, walking, and biking. Reporting requirements will be required with SCAQMD. The CTR program required by SCAQMD Rule 2202 would meet the requirements of Transportation PPP 1. A minimum of 25% of the employees must be eligible to participate.

- Transportation PDF 1 – T-18. Provide Pedestrian Network Improvement: This measure will increase the sidewalk coverage to improve pedestrian access. The project would construct sidewalks along the project frontage on Ramona Expressway and Webster Avenue, thereby providing additional pedestrian facilities within the project area.

- Transportation PDF 2 – T-19-A. Construct or Improve Bike Facility: This measure will increase bicyclist access to the project site and surrounding areas. The project would construct Class II

[2] California Air Pollution Control Officers Association (CAPCOA), *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*, December 2021.

bicycle lanes along the project frontage on Webster Ave, thereby providing a bicycle lane that connects to a larger existing bikeway network.

Table 7.1: VMT Reduction Measures

Mitigation Measure (Number corresponds to the CAPCOA Handbook)	Max Reduction in Overall VMT (%)[1]	Max Reduction in Commute VMT (%)	Formula	Comments	Calculated Reduction in Commute VMT (%)	Calculated Reduction in VMT (%)[1]	Cost
Trip Reduction Programs (maximum reduction of 45% commute VMT)							
T-6 Implement Commute Trip Reduction Program (Mandatory)	15.6%	26.0%	A = B * C, where B = Percent of employees eligible for program, C = Percent reduction in commute VMT from eligible employees	The project would implement a mandatory CTR program to encourage employees carpooling, taking transit, walking and biking to work. Calculation assumes that 25 percent of employees are eligible.	-6.50%	-3.90%	Commute Trip Reduction Program available at no cost from IE Commuter (https://www.iecommuter.org/rp2/home/EmployerSupport).
				Total VMT Reduction from Individual Trip Reduction Programs (T-6)[2]	-6.50%	-3.90%	
Neighborhood Design							
T-18 Provide Pedestrian Network Improvement	6.4%		A = ((C/B)-1) * D, where B = Existing sidewalk length in study area, C = Sidewalk length in study area with measure, and D = Elasticity of household VMT with respect to the ratio of sidewalks-to-streets (-0.05 constant).	The project would construct sidewalks along the project frontage on Ramona Expressway and Webster Avenue.	0.22%	0.22%	Per Caltrans cost estimator, 10' concrete sidewaly is approximately $126.73 per linear foot. Costs would vary depending on other factors such as availability of right-of-way.
T-19-A Construct or Improve Bike Facility	0.8%		A = -B * F/I * (C+D) * E * G/H, where B = Percent of plan/community VMT on parallel roadway, C = Active transportation adjustment factor, D = Credits for key destinations near project, E = Growth factor adjustment for facility type, F = Annual days of use of new facility, G = Existing regional average one-way bicycle trip length, H = Existing regional average one-way vehicle trip length, I = Days per year (365 constant)	The project would construct a Class II bike lanes along the project frontage on Webster Avenue.	0.22%	0.22%	Per Caltrans cost estimator, 8' cycle track is $121.04 per linear foot. Costs would vary depending on other factors such as availability of right-of-way.
				Total VMT Reduction from Neighborhood Designs[2]	0.44%	**0.44%**	
				Total VMT Reduction from All Subsectors[2]	-6.03%	**-3.45%**	

[1] Per CAPCOA overall VMT reduction is approximately 60% of commute VMT reduction.

[2] Per CAPCOA total VMT reduction for multiple strategies within same subsector is calculated using the equation: 1-(1-A)*(1-B)*(1-C)... where A, B, C are equal to individual mitigation strategy reduction percentages.

SCOPING AGREEMENT FOR TRAFFIC IMPACT STUDY

This letter acknowledges the City of Perris requirements for traffic impact analysis of the following project.

Case No. 22-00035
Related Cases -
SP No.
EIR No.
GPA No.
CZ No.
Project Name: Ramona and Webster Perris
Project Address: Southeast corner of Webster Avenue and Ramona
Project Description: 551,922 SF high cube warehouse building

	Consultant	Developer
Name:	EPD Solutions	Prologis
Address:	3333 Michelson Drive, #Suite 500 Irvine, CA 92612	3546 Concours St, Suite 100 Ontario, CA 91764
Telephone:	949-794-1180	
Fax:		

A. Trip Generation Source: Trip rates from TUMF High-Cube Warehouse Trip Generation Study, WSP, January 29, 2019. In/Out splits from the Institute of Transportation Engineers, Trip Generation manual,11th Edition, 2021. Land Use Code 155 - High-Cube Fulfillment Center Warehouse.

Current GP Land Use: PVCC SP
Current Zoning: PVCC SP - Light Industrial
Proposed Land Use: PVCC SP
Proposed Zoning PVCC SP - Light Industrial

	Current Trip Generation:			Non-PCE Proposed Trip Generation		
Passenger Cars	In	Out	Total	In	Out	Total
AM Trips	0	0	0	47	11	58
PM Trips	0	0	0	37	57	94

	Current Trip Generation:			Non-PCE Proposed Trip Generation		
Truck	In	Out	Total	In	Out	Total
AM Trips	0	0	0	7	1	8
PM Trips	0	0	0	7	10	17

Please note that the trip generation for trucks is listed as non-PCE. The traffic study will utilize PCE trip generation for level of service calculations.

Internal Trip Allowance	Yes	No	X	% Trip Discount
Pass-By Trip Allowance	Yes	No	X	% Trip Discount

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

B. Trip Geographic Distribution

Project Truck and Automobile trip distributions are shown in Figures 3 and 4. Project PCE Trip Assignment is shown in Figures 5 and 6.

	Trucks	N	70%	S	30%	E	0%	W	0%
Exisitng Year (2023)	**Passenger Cars**	N	50%	S	30%	E	20%	W	0%

Opening Year (2025)

C. Background Traffic

Annual Ambient Growth Rate: 3%

Project buildout Year:
Phase Year(s)

Other area projects to be analyzed: To be provided by City

Model forecast methodology: Build-Up Method

Study Scenarios:

-Existing Traffic Conditions

-Existing Plus Project Traffic Conditions

-Opening Year Without Project (Existing + Ambient Growth + Cumulative Projects) Traffic Conditions

-Opening Year with Project Traffic Conditions

D. Study Intersections: Note: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies.

1 Indian Ave/Ramona Expy
2 Ramona Expy/Project Dwy 1
3 Webster Ave/Project Dwy 2
4 Brennan Ave/Project Dwy 3
5 Brennan Ave/Project Dwy 4

E. Study Roadway Segments: Note: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies.

1	6
2	7
3	8
4	9
5	10

F. Other Jurisdictional Impacts

Is the project within a City's sphere of influence or one-mile radius of City boundaries? Yes No X

If so, name of City or Jurisdiction:

G. Site Plan (Copy Attached)

H. Specific Issues to be addressed in the Study (in addition of the standard analysis described in the Guidelines) - To be filled out by transportation department. Note: If the traffic study states that a "traffic signal is warranted" or "a traffic signal appears to be warranted" , or similar statement, at an existing unsignalized intersection, under existing conditions, 8-hour approach traffic volume information must be submitted in addition to the peak hourly turning movement counts for that intersection.

1) TIA will discuss consistency with PVCC SP spacing standards.
2) TIA will identify that the northerly Ramona Expressway driveway is for emergency vehicle access only.
3) TIA will include truck turning templates into and out of the driveway(s).
4) TIA will include a discussion pertaining to the need for a right-turn deceleration lane for the easterly Ramona Expressway driveway.
5) TIA will include an analysis of potential queuing at the Brennan Avenue truck access gate for inbound traffic.

I. Existing Conditions

Traffic count data must be new or recent. Provide traffic count dates if using other than new counts.

New counts will be collected at the study intersections and will include truck classifications

Note: Traffic Study Submittal Form and appropriate fee must be submitted with, or prior to submittal of this form. Transportation Department staff will not process the Scoping Agreement prior to the fee.

Recommended by:

Meghan Macias, TE

Consultant's Representative

3/28/2023

Date

Approved by:

Transportation Department Date

Scoping agreement submitted on: 02/07/2023

Scoping agreement revised on: 3/28/2023

Table 1: Proposed Trip generation

				AM Peak Hour			PM Peak Hour		
Land Use		**Units**	**Daily**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Trip Rates									
TUMF Fulfillment Center Rates[1]		TSF	2.13	0.10	0.02	0.12	0.07	0.10	0.17
Project Trip Generation									
Ramona/Webster Ave	551.922	TSF	1,176	54	13	67	37	57	94
ITE Vehicle Mix[2]									
Passenger (64.9% Daily, 88.2% AM, 83.3% PM)			763	47	11	58	30	47	77
Truck (35.1% Daily, 11.8% AM, 16.7% PM)			413	7	1	8	7	10	17
			1,176	54	12	66	37	57	94
Truck Vehicle Mix[3]		***Percent***[3]							
2-Axle truck		16.70%	69	1	0	1	1	2	3
3-Axle truck		20.70%	86	2	0	2	2	2	4
4+-Axle Trucks		62.50%	258	4	1	5	4	6	10
		100%	413	7	1	8	7	10	17
PCE Trip Generation[4]		***PCE Factor***[4]							
Passenger Vehicles		1.0	763	47	11	58	30	47	77
2-Axle truck		1.5	103	2	0	2	2	2	4
3-Axle truck		2.0	172	4	1	5	4	4	8
4+-Axle Trucks		3.0	774	13	3	16	13	19	32
			1,812	66	15	81	49	72	121
Total Passenger Trip Generation			763	47	11	58	30	47	77
Total Truck Trip Generation			413	7	1	8	7	10	17
Total Truck (PCE) Trip Generation			1,049	19	4	23	19	25	44
Total Trip Generation			**1,176**	**54**	**12**	**66**	**37**	**57**	**94**
Total PCE Trip Generation			**1,812**	**66**	**15**	**81**	**49**	**72**	**121**

TSF = Thousand Square Feet

PCE = Passenger Car Equivalent

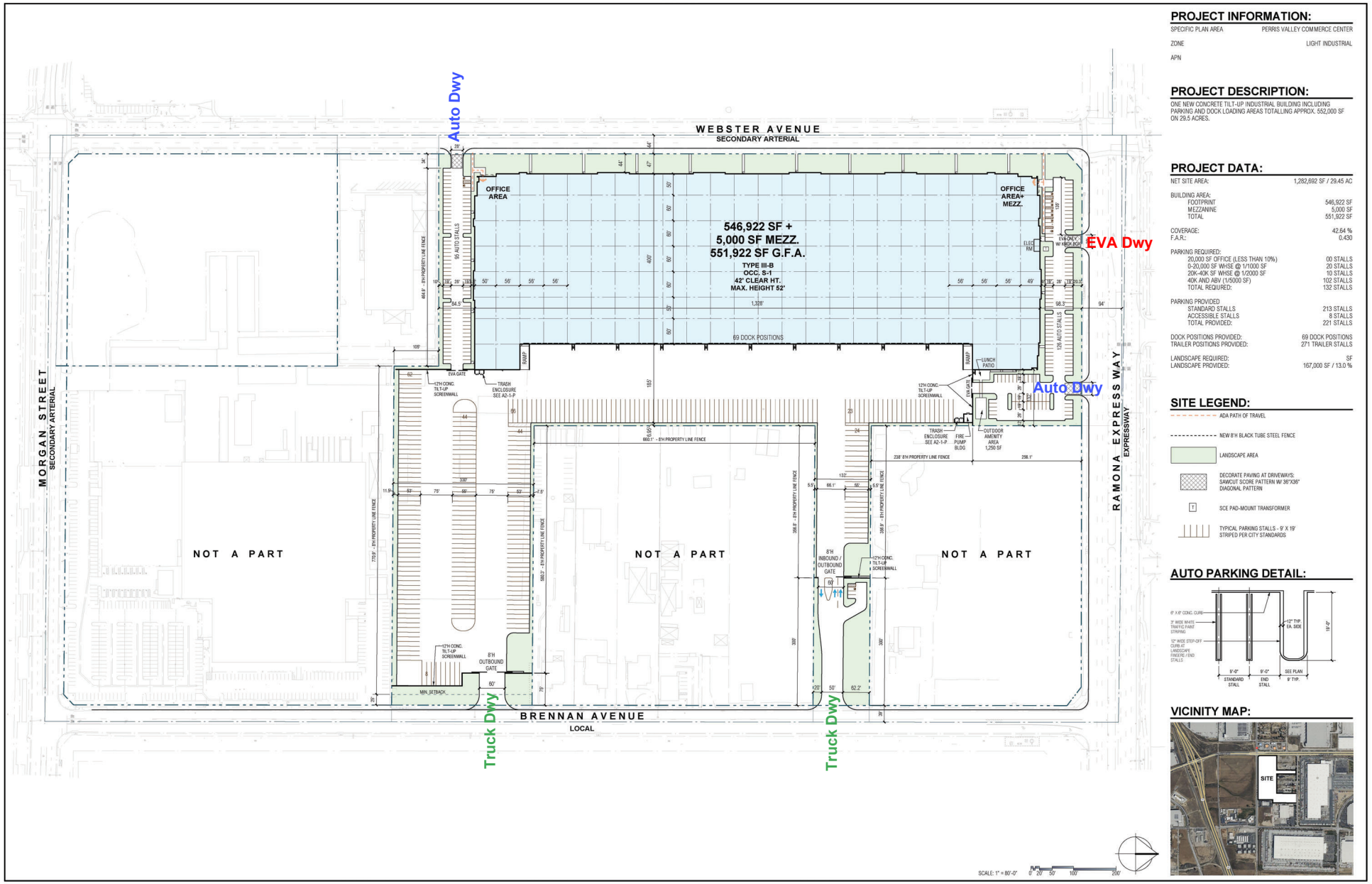
[1] Trip rates from TUMF High-Cube Warehouse Trip Generation Study, WSP, January 29, 2019. In/Out splits from the Institute of Transportation Engineers, Trip Generation manual,11th Edition, 2021. Land Use Code 155 - High-Cube Fulfillment Center Warehouse.

[2] ITE Vehicle Mix for Warehousing

[3] SCAQMD Warehouse Truck Study Fleet Mix (Without Cold Storage).

[4] Passenger Car Equivalent (PCE) factors from County of Riverside Transportation Analysis Guidelines for Level of Service Vehicle Miles Traveled, dated December 2020.

Figure 1: Site Plan



PROJECT INFORMATION:

SPECIFIC PLAN AREA	PERRIS VALLEY COMMERCE CENTER
ZONE	LIGHT INDUSTRIAL
APN	

PROJECT DESCRIPTION:

ONE NEW CONCRETE TILT-UP INDUSTRIAL BUILDING INCLUDING PARKING AND DOCK LOADING AREAS TOTALLING APPROX. 552,000 SF ON 29.5 ACRES.

PROJECT DATA:

NET SITE AREA:	1,282,692 SF / 29.45 AC
BUILDING AREA:	
FOOTPRINT	546,922 SF
MEZZANINE	5,000 SF
TOTAL	551,922 SF
COVERAGE:	42.64 %
F.A.R.:	0.430
PARKING REQUIRED:	
20,000 SF OFFICE (LESS THAN 10%)	00 STALLS
0-20,000 SF WHSE @ 1/1000 SF	20 STALLS
20K-40K SF WHSE @ 1/2000 SF	10 STALLS
40K AND ABV (1/5000 SF)	102 STALLS
TOTAL REQUIRED:	132 STALLS
PARKING PROVIDED	
STANDARD STALLS	213 STALLS
ACCESSIBLE STALLS	8 STALLS
TOTAL PROVIDED:	221 STALLS
DOCK POSITIONS PROVIDED:	69 DOCK POSITIONS
TRAILER POSITIONS PROVIDED:	271 TRAILER STALLS
LANDSCAPE REQUIRED:	SF
LANDSCAPE PROVIDED:	167,000 SF / 13.0 %

SITE LEGEND:

- ADA PATH OF TRAVEL
- NEW 8'H BLACK TUBE STEEL FENCE
- LANDSCAPE AREA
- DECORATE PAVING AT DRIVEWAYS: SAWCUT SCORE PATTERN W/ 36"X36" DIAGONAL PATTERN
- SCE PAD-MOUNT TRANSFORMER
- TYPICAL PARKING STALLS - 9' X 19' STRIPED PER CITY STANDARDS

AUTO PARKING DETAIL:

VICINITY MAP:

PREPARED BY:

RGA
Office of Architectural Design
15231 Alton Parkway, Suite 100
Irvine, CA 92618
T 949-341-0920
FX 949-341-0922

DEVELOPER / OWNER / APPLICANT:
PROLOGIS
3546 CONCOURS ST, SUITE 100
ONTARIO, CA 91764
CONTACT: DJ ARELLANO
576-376-8233
DARELLANO@PROLOGIS.COM

PROLOGIS

RAMONA / WEBSTER AVE

0000 WEBSTER AVENUE, CITY OF PERRIS
SCHEMATIC SITE PLAN

MARK	DATE	DESCRIPTION
	11/21/22	PLANNING SUBMITTAL SET
	10/18/22	SCHEMATIC SITE PLAN

RGA PROJECT NO:	21177.00
CAD FILE NAME:	2177-00-A1-1-P
DRAWN BY:	CS
CHK'D BY:	CS
COPYRIGHT: RGA, OFFICE OF ARCHITECTURAL DESIGN	
SHEET TITLE	

A1-1-P

Figure 2: Project Study Area

Figure 3: Project Automobile Trip Distribution

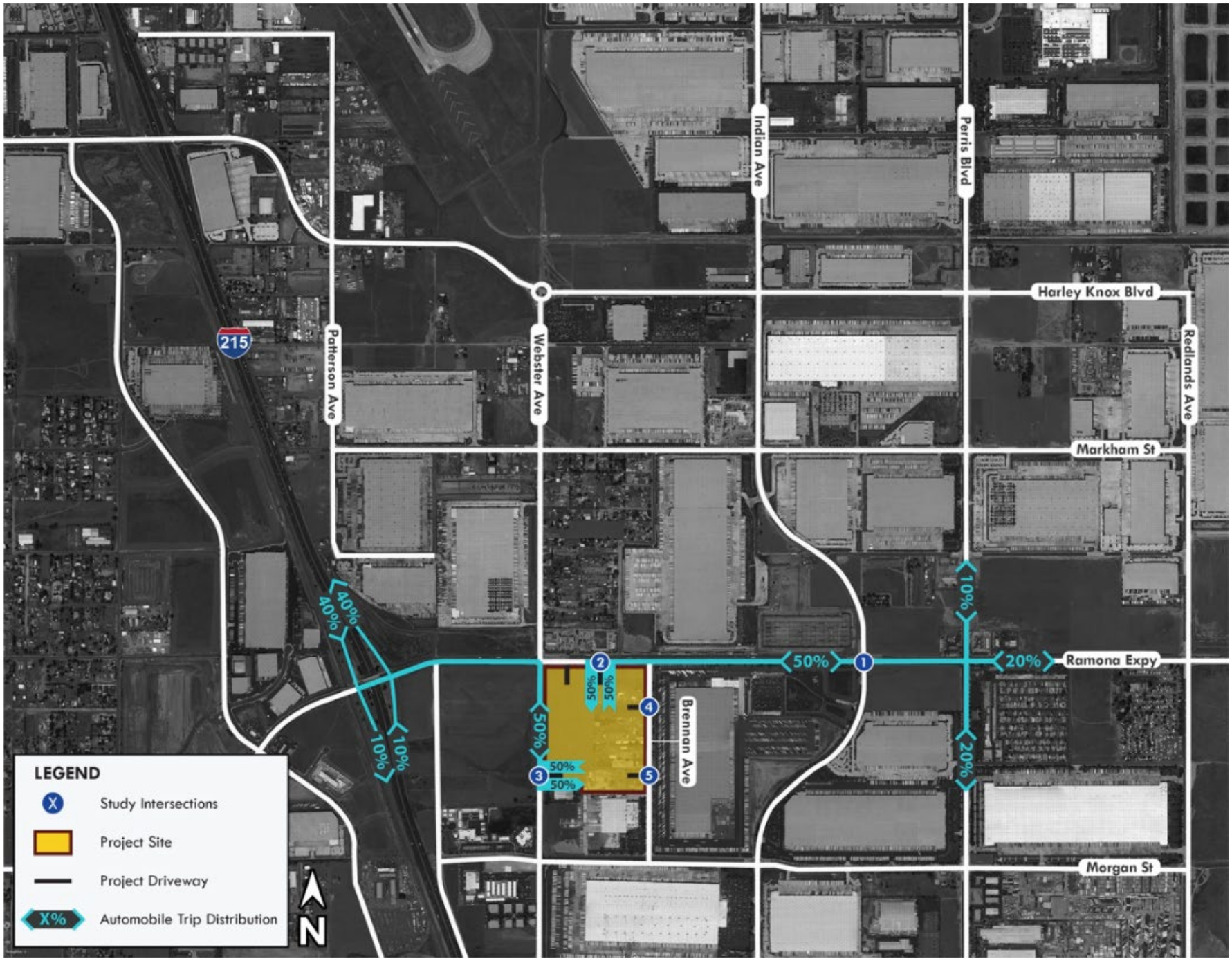


Figure 4: Project Truck Trip Distribution

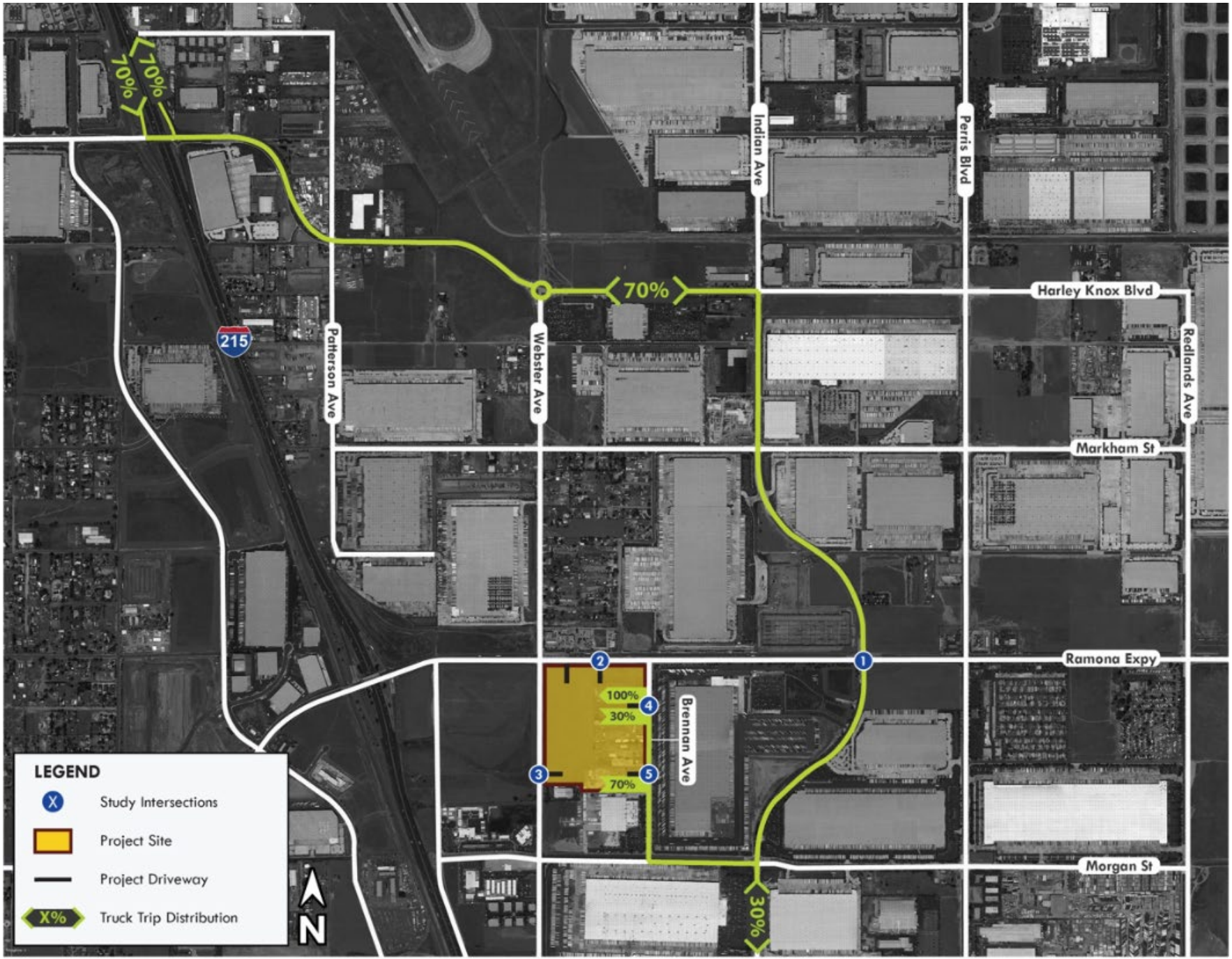


Figure 5: Project PCE AM Trip Assignment

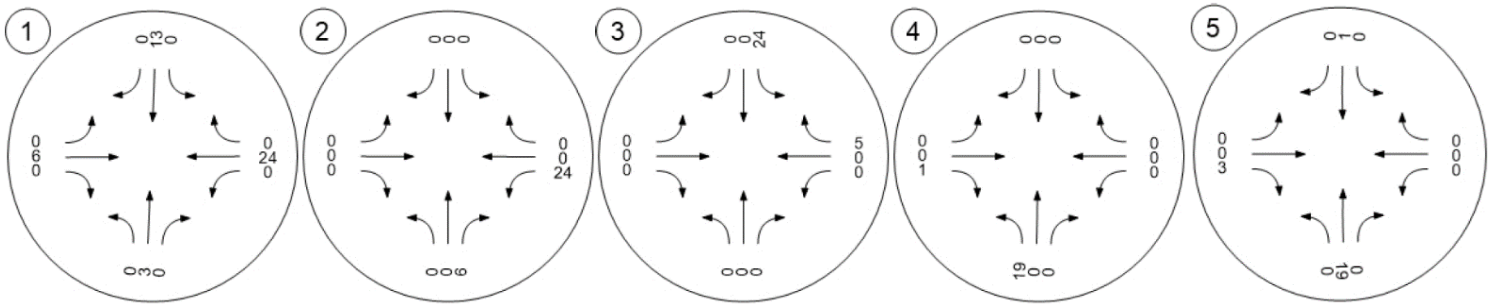
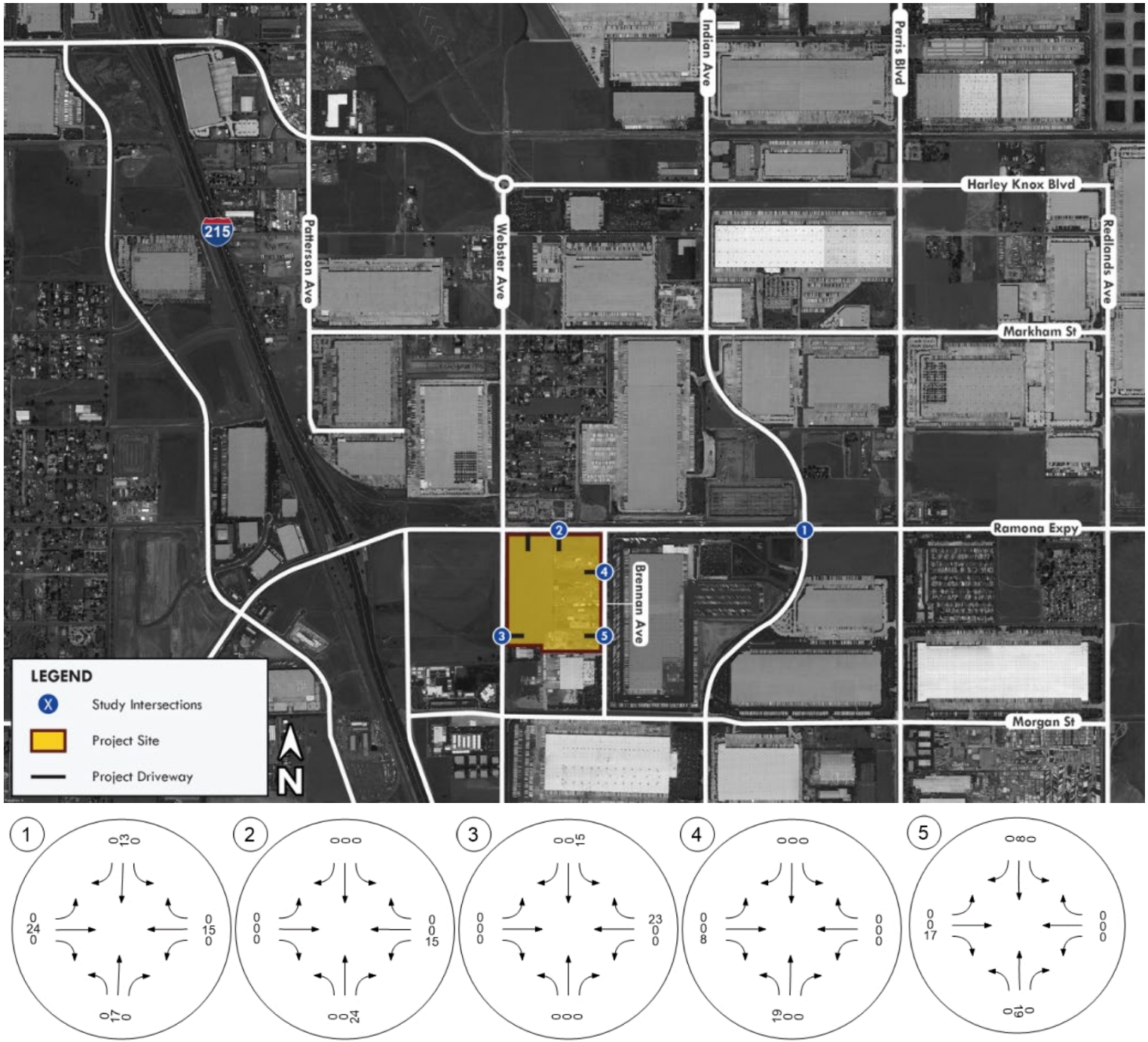


Figure 6: Project PCE PM Trip Assignment



City of Perris
www.cityofperris.org

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. DPR 22-00035

Project Name: Ramona and Webster Perris

Project Location: SEC Webster Avenue at Ramona Expressway

Project Description: 551,922 High Cube Warehouse Building
(Please attach a copy of the project Site Plan)

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

Current Zoning: PVCC SP Light Industrial **Proposed Zoning:** PVCC SP 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

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

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**	
3767	**6.96**	VMT/Capita	Residential:	
	12.02	VMT/Employee	Non-Residential:	**X**

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

Trip Generation Evaluation:

Source of Trip Generation: ITE 11th Edition, SCAQMD

Project Trip Generation: **1,175** **Average Daily Trips (ADT)**

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

Net Project Daily Trips: **1,175** **Average Daily Trips (ADT)** Attachments:

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

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.

Potentially 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.

Mitigation Required

C. Is additional VMT modeling required to evaluate Project impacts?	**YES**		**NO**	**X**

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:	**11.62**	**VMT/Employee**
B. Unmitigated Project TAZ VMT Rate:	**12.02**	**VMT/Employee**
C. Percentage Reduction Required to Achieve the Citywide Average VMT:	**3.33%**	

D. VMT Reduction Mitigation Measures:

Source of VMT Reduction Estimates:	
Project Location Setting	

	VMT Reduction Mitigation Measure:	**Estimated VMT Reduction (%)**
1.	T-18 Provide Pedestrian Network Improvements	4.68%
2.	T-19-A Construct or Improve Bike Facilities	0.22%
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 (%)		**4.90%**

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

E. Mitigated Project TAZ VMT Rate:	**11.43**	**VMT/Employee**

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

Impact Adequately Mitigated

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:	EPD Solutions	**Company:**	Prologis
Contact:	Hashem Basrawi	**Contact:**	Nicole Torstvet
Address:	3333 Michelson Drive, Suite #500, Irvine CA 92614	**Address:**	3546 Concours St, Suite #100, Ontario, CA 91764
Phone:	909 525-0528	**Phone:**	909 673-8727
Email:	hashem@epdsolutions.com	**Email:**	ntorstvet@prologis.com
Date:	03/28/23	**Date:**	03/28/23

Approved by:	
Perris Planning Division **Date**	**Perris City Engineer** **Date**

FW: DPR 22-00035 Ramona and Webster TIA

Abby Pal <abby@epdsolutions.com>
Wed 1/24/2024 1:55 PM
To:Alex Garber <alex@epdsolutions.com>

Best,

Abby Pal

abby@epdsolutions.com
412.636.2713 cell
3333 Michelson Drive, Suite 500
Irvine CA 92612
www.epdsolutions.com

From: Justin Tucker <jt@rkengineer.com>
Sent: Tuesday, June 27, 2023 10:24 AM
To: Abby Pal <abby@epdsolutions.com>
Cc: Nicole Torstvet <ntorstvet@prologis.com>; ksaber@interwestgrp.com; john@trilakeconsultants.com; Armando Madero <amadero@epdsolutions.com>; Meghan Macias <meghan@epdsolutions.com>; Charlie Cisakowski <Charlie@epdsolutions.com>; Rocio Valentin <rocio@epdsolutions.com>; Meaghan Truman <Mtruman@epdsolutions.com>; Bob Kahn <rk@rkengineer.com>; dfenn@interwestgrp.com
Subject: RE: DPR 22-00035 Ramona and Webster TIA

[NON-EPD]
Hi Abby,

Thank you for the clarification, we have no further comments on the trip generation. We are finalizing our review for the rest of the traffic study and should have our comment letter submitted to the City in the next day or two.

Thanks!

Justin Tucker, PE
Principal Engineer

CA Licensed Civil Engineer #92866

RK Engineering Group, Inc.
RK engineering group, inc.
transportation planning / traffic engineering & design
environmental engineering / parking demand
1401 Dove Street, Suite 540

Newport Beach, CA 92660
office 949.474.0810
cell 949.632.2758

www.rkengineer.com

From: Abby Pal <abby@epdsolutions.com>
Sent: Tuesday, June 27, 2023 10:12 AM
To: Justin Tucker <jt@rkengineer.com>
Cc: Nicole Torstvet <ntorstvet@prologis.com>; ksaber@interwestgrp.com; john@trilakeconsultants.com; Armando Madero <amadero@epdsolutions.com>; Meghan Macias <meghan@epdsolutions.com>; Charlie Cisakowski <Charlie@epdsolutions.com>; Rocio Valentin <rocio@epdsolutions.com>; Meaghan Truman <Mtruman@epdsolutions.com>; Bob Kahn <rk@rkengineer.com>; dfenn@interwestgrp.com
Subject: RE: DPR 22-00035 Ramona and Webster TIA

Hi Justin,

Thanks for following up on this. I confirmed with our CEQA and entitlements team that the proposed land use is high-cube warehouse.

Because the project is in the TUMF region, we used the TUMF fulfilment center rates which are the standard rates use in Riverside County TUMF area, but our intention was to use the high-cube warehouse truck splits given the size and the planned use of the proposed development.

We used the cold storage splits in the proposed use as the development will likely have cold storage.

I noticed that the project trip gen table footnote in the TIA states land use 155. Please note this is a typo and we are have to make the correction after receiving first round of comments from RK Engineering. The rates that we used for the truck splits are for land use 154, which is high-cube transload and short term.

Please let me know if you have any further questions, and thanks so much for taking the time to review the trip gen after our call. Really appreciate it. 😊

Best,

Abby Pal
E | P | D SOLUTIONS, INC.

abby@epdsolutions.com
412.636.2713 cell
3333 Michelson Drive, Suite 500
Irvine CA 92612
www.epdsolutions.com

EPD has Moved! As of Monday February 20, 2023, EPD is located at 3333 Michelson Dr. Suite 500 Irvine, CA 92612

From: Justin Tucker <jt@rkengineer.com>
Sent: Thursday, June 22, 2023 2:38 PM
To: Abby Pal <abby@epdsolutions.com>
Cc: Nicole Torstvet <ntorstvet@prologis.com>; ksaber@interwestgrp.com; john@trilakeconsultants.com; Armando Madero <amadero@epdsolutions.com>; Meghan Macias <meghan@epdsolutions.com>; Charlie Cisakowski <Charlie@epdsolutions.com>; Rocio Valentin <rocio@epdsolutions.com>; Meaghan Truman <Mtruman@epdsolutions.com>; Bob Kahn <rk@rkengineer.com>; dfenn@interwestgrp.com
Subject: RE: DPR 22-00035 Ramona and Webster TIA

[NON-EPD]
Hi Abby,

Following up on our call from Tuesday, I took a look at the trip generation as compared to the previous version from the approved scope. It appears the two big changes are as follows:

- Utilization of ITE Land Use 154: High-Cube Transload and Short Term passenger car/truck splits, as opposed to ITE Land Use 150: Warehouse splits.
- Utilization of SCAQMD "with cold storage" truck axle splits, as opposed to SCAQMD "without cold storage" truck axle splits.

Can you please explain the reasoning for these switches and why (for example) ITE Land Use 155: High-Cube Fulfillment Center car/truck splits were not used instead? We just want to make sure we understand the exact nature of the project and ensure the most ideal rates are being used.

Thanks!

Justin Tucker, PE
Principal Engineer

CA Licensed Civil Engineer #92866

RK Engineering Group, Inc.

transportation planning / traffic engineering & design
environmental engineering / parking demand
1401 Dove Street, Suite 540
Newport Beach, CA 92660
office 949.474.0810
cell 949.632.2758

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From: Abby Pal <abby@epdsolutions.com>
Sent: Tuesday, June 20, 2023 9:49 AM
To: Bob Kahn <rk@rkengineer.com>; dfenn@interwestgrp.com; Justin Tucker <jt@rkengineer.com>
Cc: Nicole Torstvet <ntorstvet@prologis.com>; ksaber@interwestgrp.com; john@trilakeconsultants.com; Armando Madero <amadero@epdsolutions.com>; Meghan Macias <meghan@epdsolutions.com>; Charlie Cisakowski <Charlie@epdsolutions.com>; Rocio Valentin <rocio@epdsolutions.com>; Meaghan Truman <Mtruman@epdsolutions.com>
Subject: RE: DPR 22-00035 Ramona and Webster TIA

Hi Bob and Justin,

Following up on this. Could you please confirm the receipt of the TIA and let us know when we can expect the review to be completed for the purposes of scheduling.

Best,

Abby Pal
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abby@epdsolutions.com
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EPD has Moved! As of Monday February 20, 2023, EPD is located at 3333 Michelson Dr. Suite 500 Irvine, CA 92612

From: Abby Pal
Sent: Thursday, June 15, 2023 8:13 AM
To: Bob Kahn <rk@rkengineer.com>; 'dfenn@interwestgrp.com' <dfenn@interwestgrp.com>
Cc: Nicole Torstvet <ntorstvet@prologis.com>; 'ksaber@interwestgrp.com' <ksaber@interwestgrp.com>; 'john@trilakeconsultants.com' <john@trilakeconsultants.com>; Armando Madero <amadero@epdsolutions.com>; Meghan Macias <meghan@epdsolutions.com>; Charlie Cisakowski <Charlie@epdsolutions.com>; Rocio Valentin <rocio@epdsolutions.com>; Meaghan Truman <Mtruman@epdsolutions.com>
Subject: DPR 22-00035 Ramona and Webster TIA

Hi Bob,

Please find attached the TIA for your review.

Please note that we updated the trip generation from what was previously submitted in the Scoping Agreement to include SQAMD cold storage truck splits, and use ITE High Cube Truck Rate (instead of ITE warehouse truck rate used earlier) as the proposed use in High Cube.

Do let us know if you have any questions or comments, and what would be the estimated review time for the TIA.

Happy to hop on the quick call with you if you would like to discuss the trip generation update further.

Best,

Abby Pal
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EPD has Moved! As of Monday February 20, 2023, EPD is located at 3333 Michelson Dr. Suite 500 Irvine, CA 92612

APPENDIX B – TRAFFIC COUNTS

INTERSECTION TURNING MOVEMENT COUNTS

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

DATE:					
Thu, Apr 13, 23	LOCATION:	Perris	PROJECT #:	SC3946	
	NORTH & SOUTH:	Indian	LOCATION #:	1	
	EAST & WEST:	Ramona	CONTROL:	SIGNAL	

NOTES:

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

Add U-Turns to Left Turns

		NORTHBOUND Indian			SOUTHBOUND Indian			EASTBOUND Ramona			WESTBOUND Ramona			
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 1	EL 1	ET 3	ER 0	WL 1	WT 3	WR 1	TOTAL
AM	7:00 AM	12	54	16	7	19	13	20	152	5	7	351	17	671
	7:15 AM	14	54	24	3	18	0	30	205	11	3	405	30	793
	7:30 AM	11	48	25	0	16	6	33	210	20	8	362	29	767
	7:45 AM	17	53	12	12	8	15	36	226	23	9	326	23	758
	8:00 AM	16	39	9	5	18	16	23	224	7	15	334	20	723
	8:15 AM	11	16	4	9	27	9	16	218	12	4	305	4	634
	8:30 AM	19	10	5	3	24	12	16	217	24	10	329	13	681
	8:45 AM	18	14	13	6	16	9	20	163	23	4	265	12	560
	VOLUMES	117	286	107	44	146	80	192	1,614	122	59	2,674	147	5,585
	APPROACH %	17%	60%	23%	19%	55%	27%	9%	87%	4%	2%	93%	5%	
	APP/DEPART	393	/	521	166	/	200	1,619	/	1,532	2,628	/	2,553	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	57	193	69	20	60	37	121	864	60	35	1,425	101	3,040
	APPROACH %	12%	64%	23%	20%	54%	26%	10%	86%	4%	2%	91%	7%	
	PEAK HR FACTOR		0.880			0.753			0.919			0.893		0.958
	APP/DEPART	253	/	349	76	/	102	877	/	827	1,419	/	1,347	0
PM	04:00 PM	37	33	20	17	45	13	23	281	10	23	257	10	766
	4:15 PM	15	38	21	13	40	12	28	316	10	22	293	8	815
	4:30 PM	30	36	26	30	57	25	27	321	11	21	235	14	831
	4:45 PM	20	27	8	16	48	27	21	310	5	26	240	11	757
	5:00 PM	12	23	7	16	54	21	10	337	31	20	301	8	838
	5:15 PM	20	18	10	20	37	10	18	361	30	35	299	2	857
	5:30 PM	17	35	11	13	48	17	15	340	31	34	285	4	850
	5:45 PM	19	17	10	12	34	19	9	373	21	44	252	10	817
	VOLUMES	168	225	112	136	362	143	150	2,635	148	225	2,161	66	6,529
	APPROACH %	33%	39%	28%	23%	57%	20%	4%	92%	4%	9%	88%	3%	
	APP/DEPART	389	/	329	557	/	603	2,682	/	2,715	2,241	/	2,222	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	68	92	37	61	173	67	52	1,409	112	133	1,136	24	3,362
	APPROACH %	34%	41%	25%	21%	61%	18%	3%	92%	5%	10%	88%	2%	
	PEAK HR FACTOR		0.778			0.829			0.964			0.963		0.981
	APP/DEPART	143	/	123	256	/	347	1,450	/	1,428	1,181	/	1,132	0

U-TURNS					
	NB	SB	EB	WB	TTL
	0	0	0	0	
AM	0	0	1	0	1
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	1	1
	0	0	0	0	0
	0	1	0	0	1
	0	1	1	1	3
PM	0	0	0	0	0
	0	0	0	1	1
	0	1	0	0	1
	0	0	0	4	4
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	1	1
	0	1	0	6	7

RTOR				
	NRR	SRR	ERR	WRR
	0	0	0	0
AM	10	0	2	1
	12	0	0	5
	9	5	4	4
	3	4	1	5
	3	7	0	4
	3	1	1	2
	3	4	5	2
	10	3	3	3
	52	24	15	26
	25	9	4	16
PM	5	3	3	2
	8	8	0	2
	9	9	0	3
	2	12	1	3
	5	9	1	1
	5	2	7	1
	4	6	11	0
	4	7	0	2
	42	56	23	14
	18	24	19	4

INTERSECTION TURNING MOVEMENT COUNTS

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

DATE: Thu, Apr 13, 23

LOCATION: Perris
NORTH & SOUTH: Webster
EAST & WEST: Ramona

PROJECT #: SC3946
LOCATION #: 2
CONTROL: SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER

Add U-Turns to Left Turns

		NORTHBOUND Webster			SOUTHBOUND Webster			EASTBOUND Ramona			WESTBOUND Ramona			
	LANES:	NL 1	NT 1	NR 1	SL 1	ST 1	SR 0	EL 1	ET 3	ER 0	WL 1	WT 3	WR 1	TOTAL
AM	7:00 AM	19	47	5	6	9	20	59	173	13	5	346	10	708
	7:15 AM	33	28	6	12	1	20	50	228	18	10	397	6	807
	7:30 AM	28	20	6	17	6	17	50	247	18	5	361	10	783
	7:45 AM	24	23	9	13	2	28	40	259	20	8	318	17	758
	8:00 AM	35	20	8	7	4	26	43	237	23	16	333	12	761
	8:15 AM	23	10	8	8	3	19	33	230	21	12	278	3	645
	8:30 AM	16	9	8	10	4	19	27	233	20	19	339	8	709
	8:45 AM	21	8	4	4	7	17	24	193	11	7	256	3	553
	VOLUMES	197	163	54	75	36	165	324	1,798	142	80	2,624	67	5,722
	APPROACH %	45%	42%	13%	27%	13%	60%	16%	79%	5%	3%	94%	3%	
	APP/DEPART	350	/	503	240	/	200	1,916	/	1,627	2,461	/	2,637	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	119	91	29	48	13	90	182	971	79	38	1,407	44	3,108
	APPROACH %	47%	42%	11%	30%	10%	59%	17%	78%	5%	2%	94%	3%	
	PEAK HR FACTOR		0.895			0.882			0.967			0.903		0.963
	APP/DEPART	197	/	296	128	/	97	1,050	/	882	1,320	/	1,420	0
PM	04:00 PM	31	8	3	10	21	32	33	296	11	6	279	8	738
	4:15 PM	43	6	8	12	8	31	42	322	9	8	269	10	765
	4:30 PM	36	11	7	23	14	52	53	335	17	3	297	4	851
	4:45 PM	28	8	4	17	17	40	32	321	13	7	260	10	756
	5:00 PM	21	6	4	11	8	31	23	350	2	6	291	3	755
	5:15 PM	14	8	4	13	9	37	33	385	21	4	322	10	857
	5:30 PM	15	5	4	19	18	49	33	391	10	4	285	8	839
	5:45 PM	15	9	6	19	11	18	40	376	19	5	267	7	790
	VOLUMES	202	61	40	122	105	289	287	2,775	101	43	2,268	59	6,349
	APPROACH %	66%	25%	9%	24%	21%	55%	9%	89%	2%	2%	95%	3%	
	APP/DEPART	244	/	367	486	/	190	2,867	/	2,701	2,126	/	2,465	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	64	28	18	61	46	135	127	1,501	51	19	1,164	28	3,240
	APPROACH %	59%	31%	10%	25%	20%	55%	7%	90%	2%	2%	96%	2%	
	PEAK HR FACTOR		0.883			0.705			0.959			0.902		0.946
	APP/DEPART	88	/	162	228	/	90	1,536	/	1,461	1,073	/	1,212	0

U-TURNS					RTOR			
NB	SB	EB	WB	TTL	NRR	SRR	ERR	WRR
0	0	0	0		0	0	0	0
0	0	2	0	2	2	10	3	3
0	0	1	0	1	5	14	6	0
0	0	1	0	1	3	11	1	2
0	0	1	2	3	3	14	3	2
0	0	2	0	2	3	16	4	1
0	0	2	0	2	5	11	3	0
0	0	2	3	5	3	11	6	1
0	0	0	2	2	1	8	1	0
0	0	11	7	17	25	92	27	9
					10	47	12	5
0	0	1	3	4	1	13	2	4
0	0	1	2	3	2	12	0	3
0	0	0	3	3	1	24	0	0
0	0	1	1	2	0	16	0	3
0	0	1	2	3	0	19	0	3
0	0	1	1	2	0	20	0	1
0	0	4	3	7	0	22	0	1
0	0	2	2	4	2	6	3	2
0	0	11	17	28	6	132	5	17
					2	67	3	7

INTERSECTION TURNING MOVEMENT COUNTS

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

DATE:	LOCATION:	Perris	PROJECT #:	SC3946
Thu, Apr 13, 23	NORTH & SOUTH:	Brennan	LOCATION #:	3
	EAST & WEST:	Ramona	CONTROL:	STOP N

NOTES:

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

Add U-Turns to Left Turns

		NORTHBOUND Brennan			SOUTHBOUND Brennan			EASTBOUND Ramona			WESTBOUND Ramona			
	LANES:	NL X	NT X	NR 1	SL X	ST X	SR X	EL X	ET 3	ER 0	WL X	WT 4	WR X	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	188	0	0	386	0	573
	7:15 AM	0	0	0	0	0	0	0	247	0	0	418	0	665
	7:30 AM	0	0	1	0	0	0	0	265	2	0	389	0	656
	7:45 AM	0	0	1	0	0	0	0	278	2	0	370	0	651
	8:00 AM	0	0	1	0	0	0	0	251	3	0	338	0	593
	8:15 AM	0	0	1	0	0	0	0	240	1	0	317	0	559
	8:30 AM	0	0	1	0	0	0	0	248	0	0	375	0	623
	8:45 AM	0	0	0	0	0	0	0	201	4	0	272	0	476
	VOLUMES	0	0	5	0	0	0	0	1,916	12	0	2,863	0	4,795
	APPROACH %	0%	0%	100%	0%	0%	0%	0%	99%	1%	0%	100%	0%	
	APP/DEPART	5	/	0	0	/	11	1,619	/	1,613	2,547	/	2,547	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	0	0	3	0	0	0	0	1,040	7	0	1,515	0	2,565
	APPROACH %	0%	0%	100%	0%	0%	0%	0%	99%	1%	0%	100%	0%	
	PEAK HR FACTOR		0.750			0.000			0.935			0.906		0.964
	APP/DEPART	3	/	0	0	/	7	880	/	876	1,345	/	1,345	0
PM	04:00 PM	0	0	0	0	0	0	0	311	1	0	303	0	615
	4:15 PM	0	0	1	0	0	0	0	342	1	0	322	0	666
	4:30 PM	0	0	2	0	0	0	0	362	3	0	281	0	648
	4:45 PM	0	0	2	0	0	0	0	343	0	0	294	0	638
	5:00 PM	0	0	1	0	0	0	0	367	0	0	318	0	686
	5:15 PM	0	0	0	0	0	0	0	400	2	0	328	0	730
	5:30 PM	0	0	2	0	0	0	0	408	4	0	329	0	743
	5:45 PM	0	0	1	0	0	0	0	397	3	0	292	0	693
	VOLUMES	0	0	9	0	0	0	0	2,929	14	0	2,466	0	5,418
	APPROACH %	0%	0%	100%	0%	0%	0%	0%	100%	0%	0%	100%	0%	
	APP/DEPART	8	/	0	0	/	10	2,689	/	2,687	2,216	/	2,216	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	0	0	4	0	0	0	0	1,572	9	0	1,267	0	2,851
	APPROACH %	0%	0%	100%	0%	0%	0%	0%	100%	0%	0%	100%	0%	
	PEAK HR FACTOR		0.583			0.000			0.959			0.962		0.960
	APP/DEPART	3	/	0	0	/	5	1,455	/	1,453	1,128	/	1,128	0

U-TURNS					
	NB	SB	EB	WB	TTL
	0	0	0	0	
AM 7:00 AM	0	0	0	0	0
AM 7:15 AM	0	0	0	0	0
AM 7:30 AM	0	0	0	0	0
AM 7:45 AM	0	0	0	0	0
AM 8:00 AM	0	0	0	0	0
AM 8:15 AM	0	0	0	0	0
AM 8:30 AM	0	0	0	0	0
AM 8:45 AM	0	0	0	0	0
AM VOLUMES	0	0	0	0	0
PM 04:00 PM	0	0	0	0	0
PM 4:15 PM	0	0	0	0	0
PM 4:30 PM	0	0	0	0	0
PM 4:45 PM	0	0	0	0	0
PM 5:00 PM	0	0	0	0	0
PM 5:15 PM	0	0	0	0	0
PM 5:30 PM	0	0	0	0	0
PM 5:45 PM	0	0	0	0	0
PM VOLUMES	0	0	0	0	0

RTOR				
	NRR X	SRR X	ERR X	WRR X
AM 7:00 AM	0	0	0	0
AM 7:15 AM	0	0	0	0
AM 7:30 AM	0	0	0	0
AM 7:45 AM	0	0	0	0
AM 8:00 AM	0	0	0	0
AM 8:15 AM	0	0	0	0
AM 8:30 AM	0	0	0	0
AM 8:45 AM	0	0	0	0
AM VOLUMES	0	0	0	0
PM 04:00 PM	0	0	0	0
PM 4:15 PM	0	0	0	0
PM 4:30 PM	0	0	0	0
PM 4:45 PM	0	0	0	0
PM 5:00 PM	0	0	0	0
PM 5:15 PM	0	0	0	0
PM 5:30 PM	0	0	0	0
PM 5:45 PM	0	0	0	0
PM VOLUMES	0	0	0	0

INTERSECTION TURNING MOVEMENT COUNTS

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

DATE:	LOCATION:	Perris	PROJECT #:	SC3946
Thu, Apr 13, 23	NORTH & SOUTH:	Brennan	LOCATION #:	4
	EAST & WEST:	Dwy	CONTROL:	STOP E

NOTES:

AM
PM
MD
OTHER
OTHER

▲ N
◄ W
E ►
S ▼

Add U-Turns to Left Turns

		NORTHBOUND Brennan			SOUTHBOUND Brennan			EASTBOUND Dwy			WESTBOUND Dwy			
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	LANES:	0	1	X	X	1	0	0	X	0	X	X	X	
AM	7:00 AM	0	0	0	0	7	0	0	0	0	0	0	0	7
	7:15 AM	0	0	0	0	3	0	0	0	0	0	0	0	3
	7:30 AM	1	4	0	0	4	0	0	0	0	0	0	0	9
	7:45 AM	0	0	0	0	1	1	0	0	0	0	0	0	2
	8:00 AM	0	1	0	0	2	0	0	0	0	0	0	0	3
	8:15 AM	0	4	0	0	3	0	0	0	0	0	0	0	7
	8:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	2
	8:45 AM	0	1	0	0	3	0	0	0	0	0	0	0	4
	VOLUMES	1	11	0	0	23	1	0	0	0	0	0	0	36
	APPROACH %	13%	88%	0%	0%	94%	6%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	8	/	7	18	/	17	0	/	0	0	/	2	0
	BEGIN PEAK HR		7:30 AM											
	VOLUMES	1	9	0	0	10	1	0	0	0	0	0	0	21
	APPROACH %	17%	83%	0%	0%	90%	10%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.500			0.656			0.000			0.000		0.788
	APP/DEPART	6	/	5	10	/	9	0	/	0	0	/	2	0
PM	04:00 PM	0	0	0	0	3	0	0	0	0	0	0	0	3
	4:15 PM	0	0	0	0	3	0	0	0	0	0	0	0	3
	4:30 PM	0	0	0	0	7	0	0	0	0	0	0	0	7
	4:45 PM	0	4	0	0	3	0	1	0	0	0	0	0	8
	5:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
	5:15 PM	0	1	0	0	2	0	0	0	0	0	0	0	3
	5:30 PM	0	2	0	0	4	0	0	0	0	0	0	0	6
	5:45 PM	1	1	0	0	0	0	0	0	0	0	0	0	2
	VOLUMES	1	8	0	0	23	0	1	0	0	0	0	0	33
	APPROACH %	13%	88%	0%	0%	100%	0%	100%	0%	0%	0%	0%	0%	
	APP/DEPART	8	/	8	19	/	19	1	/	0	0	/	1	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	0	4	0	0	16	0	1	0	0	0	0	0	21
	APPROACH %	0%	100%	0%	0%	100%	0%	100%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.250			0.571			0.250			0.000		0.683
	APP/DEPART	3	/	4	14	/	14	1	/	0	0	/	0	0

	U-TURNS					RTOR			
	NB	SB	EB	WB	TTL	NRR	SRR	ERR	WRR
LANES	0	0	0	0		X	X	X	X
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
VOLUMES	0	0	0	0	0	0	0	0	0
PEAK HR VOLUMES						0	0	0	0
04:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
VOLUMES	0	0	0	0	0	0	0	0	0
PEAK HR VOLUMES						0	0	0	0

INTERSECTION TURNING MOVEMENT COUNTS

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

DATE:	LOCATION:	Perris	PROJECT #:	SC3946
Thu, Apr 13, 23	NORTH & SOUTH:	Webster	LOCATION #:	5
	EAST & WEST:	Morgan	CONTROL:	SIGNAL

NOTES:

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

Add U-Turns to Left Turns

		NORTHBOUND (Webster)			SOUTHBOUND (Webster)			EASTBOUND (Morgan)			WESTBOUND (Morgan)			
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 1	SR 1	EL 1	ET 1	ER 0	WL 1	WT 0.5	WR 0.5	TOTAL
AM	7:00 AM	0	15	0	6	11	2	35	4	1	1	5	26	105
	7:15 AM	0	18	0	12	13	0	31	2	2	5	7	23	113
	7:30 AM	0	16	0	6	16	4	19	3	5	5	6	17	96
	7:45 AM	5	10	0	7	16	18	19	18	4	4	15	8	121
	8:00 AM	2	23	4	16	15	10	17	10	3	1	16	27	143
	8:15 AM	5	14	0	7	13	19	23	24	4	4	22	6	139
	8:30 AM	4	3	0	7	13	15	20	24	2	4	26	6	124
	8:45 AM	1	9	0	2	10	9	10	11	2	4	12	9	79
	VOLUMES	17	107	4	62	105	76	173	96	23	28	108	121	918
	APPROACH %	16%	80%	4%	22%	40%	38%	60%	32%	8%	13%	48%	39%	
	APP/DEPART	106	/	337	193	/	128	284	/	136	209	/	191	0
	BEGIN PEAK HR		7:45 AM											
	VOLUMES	16	50	4	36	56	61	78	76	13	13	78	46	526
	APPROACH %	29%	64%	7%	20%	32%	47%	48%	44%	8%	11%	63%	27%	
	PEAK HR FACTOR		0.599			0.944			0.824			0.784		0.922
	APP/DEPART	55	/	144	127	/	67	160	/	100	120	/	151	0
PM	04:00 PM	1	26	1	10	15	14	1	6	1	5	1	15	96
	4:15 PM	0	15	3	7	12	6	8	7	0	0	6	28	90
	4:30 PM	0	27	8	12	13	8	8	6	0	0	6	18	105
	4:45 PM	0	12	2	8	11	13	3	6	3	4	2	27	91
	5:00 PM	0	13	5	9	4	7	5	1	0	6	1	15	66
	5:15 PM	0	9	2	12	11	5	6	1	0	0	2	8	56
	5:30 PM	0	10	0	12	15	7	3	1	1	2	1	11	63
	5:45 PM	0	8	0	5	20	5	6	5	1	0	3	14	66
	VOLUMES	1	120	21	75	100	65	39	33	6	17	22	136	631
	APPROACH %	1%	83%	16%	27%	41%	32%	53%	39%	8%	9%	15%	76%	
	APP/DEPART	124	/	234	197	/	97	66	/	100	127	/	83	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	1	80	14	37	50	41	20	25	4	9	15	88	381
	APPROACH %	1%	82%	16%	26%	37%	36%	49%	44%	7%	10%	17%	74%	
	PEAK HR FACTOR		0.671			0.817			0.808			0.816		0.907
	APP/DEPART	79	/	147	107	/	51	41	/	59	84	/	54	0

U-TURNS					RTOR			
NB	SB	EB	WB	TTL	NRR	SRR	ERR	WRR
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	1	0	6
0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	1	3
0	0	0	0	0	0	4	0	2
0	0	0	0	0	2	7	1	6
0	0	0	0	0	0	4	0	2
0	0	0	0	0	0	2	0	4
0	0	0	0	0	0	7	0	1
0	0	0	0	0	2	25	2	25
					2	17	1	12
0	0	0	0	0	1	2	0	6
0	0	0	0	0	1	0	0	7
0	0	0	0	0	2	1	0	5
0	0	0	0	0	0	2	0	6
0	0	0	0	0	1	1	0	3
0	0	0	0	0	0	2	0	0
0	0	0	0	0	0	0	1	1
0	0	0	0	0	0	1	0	1
0	0	0	0	0	5	9	1	29
					4	5	0	24

INTERSECTION TURNING MOVEMENT COUNTS

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

DATE: Thu, Apr 13, 23

LOCATION: Perris
NORTH & SOUTH: Brennan
EAST & WEST: Morgan

PROJECT #: SC3946
LOCATION #: 6
CONTROL: STOP S

NOTES:

AM
PM
MD
OTHER
OTHER

▲ N
◄ W
E ►
S ▼

Add U-Turns to Left Turns

		NORTHBOUND Brennan			SOUTHBOUND Brennan			EASTBOUND Morgan			WESTBOUND Morgan			
	LANES:	NL X	NT X	NR X	SL 1	ST X	SR 1	EL 1	ET 2	ER X	WL X	WT 2	WR 0	TOTAL
AM	7:00 AM	0	0	0	5	0	2	0	10	0	0	32	0	49
	7:15 AM	0	0	0	0	0	3	0	14	0	0	33	0	50
	7:30 AM	0	0	0	1	0	2	1	8	0	0	28	5	45
	7:45 AM	0	0	0	1	0	1	0	22	0	0	26	0	50
	8:00 AM	0	0	0	2	0	0	0	27	0	0	41	1	71
	8:15 AM	0	0	0	3	0	0	3	27	0	0	32	1	66
	8:30 AM	0	0	0	0	0	1	0	33	0	0	37	1	72
	8:45 AM	0	0	0	3	0	0	0	13	0	0	23	1	39
	VOLUMES	0	0	0	14	0	9	4	153	0	0	251	9	440
	APPROACH %	0%	0%	0%	65%	0%	35%	2%	98%	0%	0%	97%	3%	
	APP/DEPART	0	/	9	17	/	0	132	/	141	211	/	210	0
	BEGIN PEAK HR		7:45 AM											
	VOLUMES	0	0	0	6	0	2	3	109	0	0	136	3	258
	APPROACH %	0%	0%	0%	71%	0%	29%	1%	99%	0%	0%	98%	2%	
	PEAK HR FACTOR		0.000			0.750			0.845			0.834		0.894
	APP/DEPART	0	/	4	7	/	0	96	/	100	123	/	122	0
PM	04:00 PM	0	0	0	2	0	1	0	18	0	0	20	0	41
	4:15 PM	0	0	0	2	0	1	0	16	0	0	29	0	47
	4:30 PM	0	0	0	4	0	4	0	24	0	0	18	0	50
	4:45 PM	0	0	0	0	0	3	2	15	0	0	32	2	54
	5:00 PM	0	0	0	1	0	0	0	16	0	0	18	0	35
	5:15 PM	0	0	0	2	0	0	1	14	0	0	15	0	32
	5:30 PM	0	0	0	3	0	1	0	14	0	0	17	2	37
	5:45 PM	0	0	0	0	0	0	1	9	0	0	15	2	27
	VOLUMES	0	0	0	14	0	10	4	126	0	0	163	6	322
	APPROACH %	0%	0%	0%	50%	0%	50%	4%	96%	0%	0%	96%	4%	
	APP/DEPART	0	/	9	20	/	0	101	/	107	121	/	126	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	0	0	0	8	0	9	2	73	0	0	98	2	191
	APPROACH %	0%	0%	0%	40%	0%	60%	3%	97%	0%	0%	99%	1%	
	PEAK HR FACTOR		0.000			0.531			0.776			0.743		0.893
	APP/DEPART	0	/	3	15	/	0	58	/	62	72	/	80	0

U-TURNS					
	NB	SB	EB	WB	TTL
	0	0	0	0	
AM	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
PM	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0

RTOR				
	NRR X	SRR X	ERR X	WRR X
AM	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
PM	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0

Vistro File: C:\...\Ramona-Webster Existing Year.vistro
Report File: C:\...\Existing AM.pdf

Scenario 1 Existing Traffic Conditions AM
6/14/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Indian Ave/Ramona Expy	Signalized	HCM 7th Edition	WB Left	0.533	32.2	C
2	Ramona Expy/Project Dwy 1	Two-way stop	HCM 7th Edition	WB Thru	0.016	0.0	A
3	Webster Ave/Project Dwy 2	Two-way stop	HCM 7th Edition	NB Thru	0.003	0.0	A
4	Brennan Ave/Project Dwy 3	Two-way stop	HCM 7th Edition	SB Thru	0.000	0.0	A
5	Brennan Ave/Project Dwy 4	Two-way stop	HCM 7th Edition	SB Thru	0.000	0.0	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Indian Ave/Ramona Expy

Control Type:	Signalized	Delay (sec / veh):	32.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.533

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	210.00	100.00	100.00	205.00	100.00	230.00	200.00	100.00	100.00	290.00	100.00	260.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	57	193	69	20	60	37	121	864	60	35	1425	101
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	57	193	69	20	60	37	121	864	60	35	1425	101
Peak Hour Factor	0.8800	0.8800	0.8800	0.7530	0.7530	0.7530	0.9190	0.9190	0.9190	0.8930	0.8930	0.8930
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	55	20	7	20	12	33	235	16	10	399	28
Total Analysis Volume [veh/h]	65	219	78	27	80	49	132	940	65	39	1596	113
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	110
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	39	0	10	36	0	14	32	0	29	47	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	30	0	0	27	0	0	23	0	0	23	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
l2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	40	40	3	37	37	10	48	48	4	41	41
g / C, Green / Cycle	0.05	0.36	0.36	0.03	0.34	0.34	0.09	0.43	0.43	0.03	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.04	0.09	0.09	0.02	0.02	0.03	0.08	0.20	0.20	0.02	0.34	0.08
s, saturation flow rate [veh/h]	1629	1710	1561	1629	3256	1454	1629	3256	1654	1629	4658	1454
c, Capacity [veh/h]	82	621	567	42	1103	492	149	1411	717	52	1743	544
d1, Uniform Delay [s]	51.68	24.51	24.60	53.07	24.67	24.90	49.45	22.21	22.22	52.81	32.77	23.36
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.50	0.94	1.08	14.69	0.13	0.40	15.85	0.25	0.49	18.62	2.28	0.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.25	0.25	0.64	0.07	0.10	0.89	0.47	0.47	0.74	0.92	0.21
d, Delay for Lane Group [s/veh]	67.19	25.46	25.68	67.77	24.80	25.30	65.31	22.46	22.71	71.43	35.05	23.55
Lane Group LOS	E	C	C	E	C	C	E	C	C	E	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.09	2.87	2.74	0.90	0.71	0.91	4.10	5.70	5.85	1.30	12.76	1.90
50th-Percentile Queue Length [ft/ln]	52.32	71.70	68.42	22.48	17.80	22.78	102.49	142.53	146.30	32.54	318.94	47.60
95th-Percentile Queue Length [veh/ln]	3.77	5.16	4.93	1.62	1.28	1.64	7.38	9.62	9.82	2.34	18.62	3.43
95th-Percentile Queue Length [ft/ln]	94.17	129.06	123.16	40.46	32.03	41.01	184.49	240.43	245.48	58.57	465.38	85.69

Movement, Approach, & Intersection Results

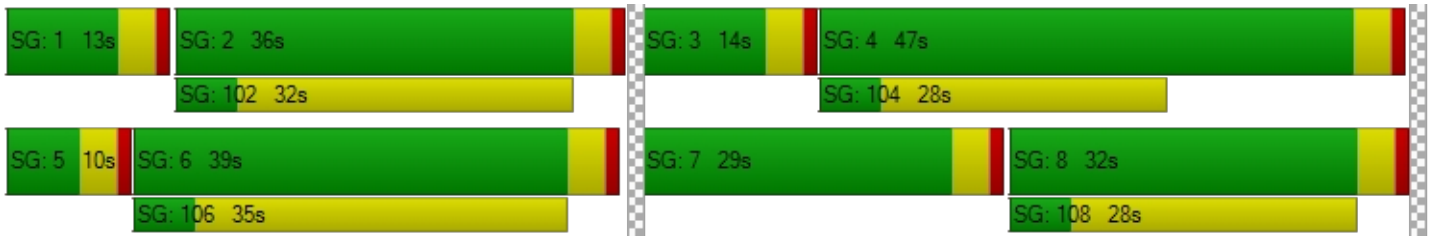
d_M, Delay for Movement [s/veh]	67.19	25.52	25.68	67.77	24.80	25.30	65.31	22.53	22.71	71.43	35.05	23.55
Movement LOS	E	C	C	E	C	C	E	C	C	E	D	C
d_A, Approach Delay [s/veh]	33.04			32.39			27.51			35.12		
Approach LOS	C			C			C			D		
d_I, Intersection Delay [s/veh]	32.23											
Intersection LOS	C											
Intersection V/C	0.533											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	46.38	46.38	46.38	46.38
l_p,int, Pedestrian LOS Score for Intersectio	2.453	2.598	3.266	3.304
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	636	582	509	782
d_b, Bicycle Delay [s]	25.58	27.67	30.58	20.42
l_b,int, Bicycle LOS Score for Intersection	1.858	1.688	2.185	2.521
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Ramona Expy/Project Dwy 1

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.016

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	0	1048	0	0	1489
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	2.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	1048	0	0	1489
Peak Hour Factor	1.0000	0.9500	0.9670	0.9670	1.0000	0.9030
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	271	0	0	412
Total Analysis Volume [veh/h]	0	0	1084	0	0	1649
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.00	0.00	0.02
d_M, Delay for Movement [s/veh]	0.00	13.59	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	13.59		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 3: Webster Ave/Project Dwy 2

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.003

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	1	0	1	0	0
Exit Pocket Length [ft]	0.00	100.00	0.00	100.00	0.00	0.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	239	0	0	130	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	239	0	0	130	0	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	63	0	0	34	0	0
Total Analysis Volume [veh/h]	252	0	0	137	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	7.72	0.00	10.51	8.97
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		9.74	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 4: Brennan Ave/Project Dwy 3

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	3	7	1	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	2.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	3	7	1	0	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.6560	1.0000	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	2	0	0	0
Total Analysis Volume [veh/h]	0	3	7	2	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.21	0.00	0.00	0.00	0.00	8.33
Movement LOS	A	A	A			A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		8.33	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 5: Brennan Ave/Project Dwy 4

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	9	10	1	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	2.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	9	10	1	0	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9440	0.8240	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	3	0	0	0
Total Analysis Volume [veh/h]	0	9	11	1	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.22	0.00	0.00	0.00	0.00	8.35
Movement LOS	A	A	A			A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		8.35	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Vistro File: C:\...\Ramona-Webster Existing Year.vistro
Report File: C:\...\Existing AM.pdf
Scenario 1 Existing Traffic Conditions AM
6/14/2023

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Indian Ave/Ramona Expy	57	193	69	20	60	37	121	864	60	35	1425	101	3042

ID	Intersection Name	Northbound	Eastbound		Westbound	Total Volume
		Right	Thru	Right	Thru	
2	Ramona Expy/Project Dwy 1	0	1048	0	1489	2537

ID	Intersection Name	Northbound		Southbound		Westbound		Total Volume
		Thru	Right	Left	Thru	Left	Right	
3	Webster Ave/Project Dwy 2	239	0	0	130	0	0	369

ID	Intersection Name	Northbound		Southbound	Eastbound	Total Volume
		Left	Thru	Thru	Right	
4	Brennan Ave/Project Dwy 3	0	3	7	0	10

ID	Intersection Name	Northbound		Southbound	Eastbound	Total Volume
		Left	Thru	Thru	Right	
5	Brennan Ave/Project Dwy 4	0	9	10	0	19

Vistro File: C:\...\Ramona-Webster Existing Year.vistro
Report File: C:\...\Existing PM.pdf

Scenario 2 Existing Traffic Conditions PM
6/14/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Indian Ave/Ramona Expy	Signalized	HCM 7th Edition	EB Left	0.524	36.7	D
2	Ramona Expy/Project Dwy 1	Two-way stop	HCM 7th Edition	EB Thru	0.016	0.0	A
3	Webster Ave/Project Dwy 2	Two-way stop	HCM 7th Edition	SB Thru	0.001	0.0	A
4	Brennan Ave/Project Dwy 3	Two-way stop	HCM 7th Edition	SB Thru	0.000	0.0	A
5	Brennan Ave/Project Dwy 4	Two-way stop	HCM 7th Edition	NB Thru	0.000	0.0	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Indian Ave/Ramona Expy

Control Type:	Signalized	Delay (sec / veh):	36.7
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.524

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	210.00	100.00	100.00	205.00	100.00	230.00	200.00	100.00	100.00	290.00	100.00	260.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	68	92	37	61	173	67	52	1409	112	133	1136	24
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	68	92	37	61	173	67	52	1409	112	133	1136	24
Peak Hour Factor	0.7780	0.7780	0.7780	0.8290	0.8290	0.8290	0.9640	0.9640	0.9640	0.9630	0.9630	0.9630
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	30	12	18	52	20	13	365	29	35	295	6
Total Analysis Volume [veh/h]	87	118	48	74	209	81	54	1462	116	138	1180	25
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	105
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	39	0	10	36	0	24	42	0	14	32	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	30	0	0	27	0	0	23	0	0	23	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
l2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	105	105	105	105	105	105	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	37	37	6	36	36	4	36	36	10	42	42
g / C, Green / Cycle	0.07	0.35	0.35	0.06	0.34	0.34	0.04	0.35	0.35	0.10	0.40	0.40
(v / s)_i Volume / Saturation Flow Rate	0.05	0.05	0.05	0.05	0.06	0.06	0.03	0.32	0.32	0.08	0.25	0.02
s, saturation flow rate [veh/h]	1629	1710	1548	1629	3256	1454	1629	3256	1646	1629	4658	1454
c, Capacity [veh/h]	109	598	542	93	1108	495	69	1124	568	156	1857	579
d1, Uniform Delay [s]	48.34	23.36	23.43	48.93	24.43	24.22	49.85	33.21	33.22	46.95	25.44	19.33
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.38	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.60	0.50	0.58	14.17	0.38	0.71	17.66	4.19	20.09	15.10	0.36	0.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.14	0.15	0.80	0.19	0.16	0.79	0.93	0.93	0.89	0.64	0.04
d, Delay for Lane Group [s/veh]	60.94	23.86	24.01	63.10	24.81	24.93	67.51	37.40	53.31	62.05	25.81	19.36
Lane Group LOS	E	C	C	E	C	C	E	D	D	E	C	B
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.58	1.48	1.43	2.24	1.84	1.46	1.69	12.46	15.13	4.06	7.29	0.35
50th-Percentile Queue Length [ft/ln]	64.42	37.01	35.66	56.01	45.91	36.59	42.15	311.61	378.15	101.50	182.33	8.85
95th-Percentile Queue Length [veh/ln]	4.64	2.66	2.57	4.03	3.31	2.63	3.03	18.25	21.50	7.31	11.72	0.64
95th-Percentile Queue Length [ft/ln]	115.96	66.61	64.18	100.81	82.63	65.87	75.87	456.36	537.61	182.71	293.06	15.93

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	60.94	23.90	24.01	63.10	24.81	24.93	67.51	41.91	53.31	62.05	25.81	19.36
Movement LOS	E	C	C	E	C	C	E	D	D	E	C	B
d_A, Approach Delay [s/veh]	36.66			32.62			43.57			29.41		
Approach LOS	D			C			D			C		
d_I, Intersection Delay [s/veh]	36.68											
Intersection LOS	D											
Intersection V/C	0.524											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	43.90	43.90	43.90	43.90
l_p,int, Pedestrian LOS Score for Intersectio	2.495	2.583	3.295	3.329
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	666	609	724	533
d_b, Bicycle Delay [s]	23.35	25.39	21.39	28.25
l_b,int, Bicycle LOS Score for Intersection	1.768	1.860	2.457	2.298
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Ramona Expy/Project Dwy 1

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.016

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	0	1580	0	0	1211
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	2.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	1580	0	0	1211
Peak Hour Factor	1.0000	0.9500	0.9590	0.9590	0.9590	0.9020
Other Adjustment Factor	1.0000	0.9500	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	412	0	0	336
Total Analysis Volume [veh/h]	0	0	1648	0	0	1343
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.02	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	18.10	0.00	0.00	0.00	0.00
Movement LOS		C	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	18.10		0.00		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 3: Webster Ave/Project Dwy 2

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	1	0	1	0	0
Exit Pocket Length [ft]	0.00	100.00	0.00	100.00	0.00	0.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	110	0	0	116	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	110	0	0	116	0	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	0	0	31	0	0
Total Analysis Volume [veh/h]	116	0	0	122	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	7.42	0.00	9.49	8.59
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		9.04	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 4: Brennan Ave/Project Dwy 3

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	4	9	14	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	2.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	4	9	14	1	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.5710	0.2500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	2	6	1	0
Total Analysis Volume [veh/h]	0	4	9	25	4	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.22	0.00	0.00	0.00	0.00	8.34
Movement LOS	A	A	A			A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		8.34	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 5: Brennan Ave/Project Dwy 4

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	26	15	14	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	2.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	26	15	14	1	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.5710	0.2500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	7	4	6	1	0
Total Analysis Volume [veh/h]	0	27	16	25	4	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.23	0.00	0.00	0.00	0.00	8.37
Movement LOS	A	A	A			A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		8.37	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Vistro File: C:\...\Ramona-Webster Existing Year.vistro
Report File: C:\...\Existing PM.pdf
Scenario 2 Existing Traffic Conditions PM
6/14/2023

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Indian Ave/Ramona Expy	68	92	37	61	173	67	52	1409	112	133	1136	24	3364

ID	Intersection Name	Northbound	Eastbound		Westbound	Total Volume
		Right	Thru	Right	Thru	
2	Ramona Expy/Project Dwy 1	0	1580	0	1211	2791

ID	Intersection Name	Northbound		Southbound		Westbound		Total Volume
		Thru	Right	Left	Thru	Left	Right	
3	Webster Ave/Project Dwy 2	110	0	0	116	0	0	226

ID	Intersection Name	Northbound		Southbound	Eastbound	Total Volume
		Left	Thru	Thru	Right	
4	Brennan Ave/Project Dwy 3	0	4	9	0	13

ID	Intersection Name	Northbound		Southbound	Eastbound	Total Volume
		Left	Thru	Thru	Right	
5	Brennan Ave/Project Dwy 4	0	26	15	0	41

Vistro File: C:\...\Ramona-Webster Existing Year.vistro
Report File: C:\...\Existing Plus Project AM.pdf

Scenario 3 Existing Traffic Conditions With Project AM
6/14/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Indian Ave/Ramona Expy	Signalized	HCM 7th Edition	WB Left	0.537	31.8	C
2	Ramona Expy/Project Dwy 1	Two-way stop	HCM 7th Edition	NB Right	0.012	13.8	B
3	Webster Ave/Project Dwy 2	Two-way stop	HCM 7th Edition	WB Right	0.006	9.0	A
4	Brennan Ave/Project Dwy 3	Two-way stop	HCM 7th Edition	EB Right	0.001	8.3	A
5	Brennan Ave/Project Dwy 4	Two-way stop	HCM 7th Edition	EB Right	0.005	8.4	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Indian Ave/Ramona Expy

Control Type:	Signalized	Delay (sec / veh):	31.8
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.537

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	210.00	100.00	100.00	205.00	100.00	230.00	200.00	100.00	100.00	290.00	100.00	260.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	57	193	69	20	60	37	121	864	60	35	1425	101
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	5	0	0	25	0	0	3	2	0	12	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	65	198	69	20	85	37	121	867	62	35	1437	101
Peak Hour Factor	0.8800	0.8800	0.8800	0.7530	0.7530	0.7530	0.9190	0.9190	0.9190	0.8930	0.8930	0.8930
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	56	20	7	28	12	33	236	17	10	402	28
Total Analysis Volume [veh/h]	74	225	78	27	113	49	132	943	67	39	1609	113
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	110
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	39	0	9	36	0	15	51	0	11	47	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	30	0	0	27	0	0	23	0	0	23	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
l2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	39	39	3	36	36	11	49	49	4	42	42
g / C, Green / Cycle	0.06	0.35	0.35	0.03	0.32	0.32	0.10	0.44	0.44	0.03	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.05	0.09	0.09	0.02	0.03	0.03	0.08	0.21	0.21	0.02	0.35	0.08
s, saturation flow rate [veh/h]	1629	1710	1564	1629	3256	1454	1629	3256	1653	1629	4658	1454
c, Capacity [veh/h]	93	606	554	42	1052	470	157	1440	731	52	1759	549
d1, Uniform Delay [s]	51.26	25.25	25.33	53.07	26.11	26.08	48.87	21.56	21.57	52.81	32.55	23.10
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.19	1.03	1.17	14.69	0.21	0.45	11.17	0.23	0.46	18.62	2.23	0.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.26	0.27	0.64	0.11	0.10	0.84	0.47	0.47	0.74	0.91	0.21
d, Delay for Lane Group [s/veh]	65.44	26.27	26.50	67.77	26.31	26.53	60.04	21.79	22.03	71.43	34.78	23.29
Lane Group LOS	E	C	C	E	C	C	E	C	C	E	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.34	2.99	2.85	0.90	1.05	0.94	3.91	5.62	5.77	1.30	12.82	1.89
50th-Percentile Queue Length [ft/ln]	58.55	74.63	71.16	22.48	26.15	23.46	97.76	140.61	144.18	32.54	320.54	47.27
95th-Percentile Queue Length [veh/ln]	4.22	5.37	5.12	1.62	1.88	1.69	7.04	9.51	9.71	2.34	18.69	3.40
95th-Percentile Queue Length [ft/ln]	105.39	134.33	128.09	40.46	47.07	42.22	175.96	237.84	242.64	58.57	467.35	85.09

Movement, Approach, & Intersection Results

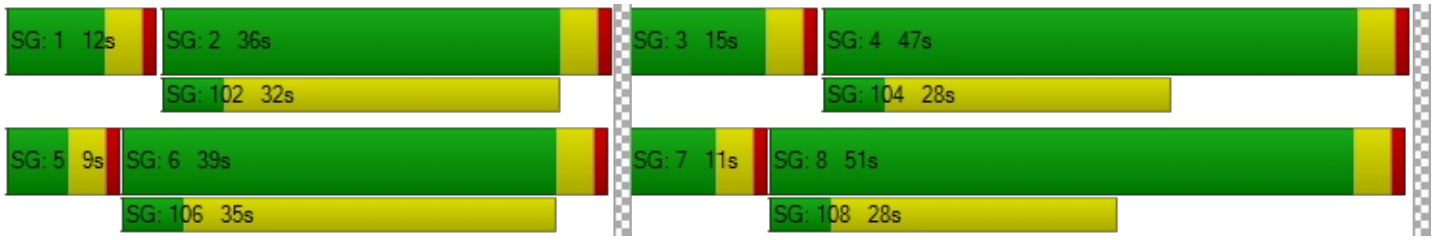
d_M, Delay for Movement [s/veh]	65.44	26.34	26.50	67.77	26.31	26.53	60.04	21.86	22.03	71.43	34.78	23.29
Movement LOS	E	C	C	E	C	C	E	C	C	E	C	C
d_A, Approach Delay [s/veh]	34.05			32.29			26.28			34.86		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	31.81											
Intersection LOS	C											
Intersection V/C	0.537											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	46.38	46.38	46.38	46.38
l_p,int, Pedestrian LOS Score for Intersectio	2.466	2.607	3.272	3.307
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	636	582	854	782
d_b, Bicycle Delay [s]	25.58	27.67	18.05	20.42
l_b,int, Bicycle LOS Score for Intersection	1.871	1.716	2.188	2.528
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Ramona Expy/Project Dwy 1

Control Type:	Two-way stop	Delay (sec / veh):	13.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.012

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	0	1048	0	0	1489
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	2.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	5	0	20	0	20
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	5	1048	20	0	1509
Peak Hour Factor	1.0000	0.9500	0.9670	0.9670	1.0000	0.9030
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	271	5	0	418
Total Analysis Volume [veh/h]	0	5	1084	21	0	1671
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.00	0.02
d_M, Delay for Movement [s/veh]	0.00	13.83	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.04	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.92	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	13.83		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.02					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 3: Webster Ave/Project Dwy 2

Control Type:	Two-way stop	Delay (sec / veh):	9.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.006

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	1	0	1	0	0
Exit Pocket Length [ft]	0.00	100.00	0.00	100.00	0.00	0.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	239	0	0	130	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	20	0	0	5
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	239	0	20	130	0	5
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	63	0	5	34	0	1
Total Analysis Volume [veh/h]	252	0	21	137	0	5
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.02	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	0.00	7.74	0.00	10.97	8.99
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.04	0.02	0.02	0.02
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.89	0.44	0.42	0.42
d_A, Approach Delay [s/veh]	0.00		1.03		8.99	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.50					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 4: Brennan Ave/Project Dwy 3

Control Type:	Two-way stop	Delay (sec / veh):	8.3
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	3	7	1	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	2.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	31	0	0	0	0	1
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	31	3	7	1	0	1
Peak Hour Factor	0.9500	0.9500	0.9500	0.6560	1.0000	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	1	2	0	0	0
Total Analysis Volume [veh/h]	33	3	7	2	0	1
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.25	0.00	0.00	0.00	0.00	8.33
Movement LOS	A	A	A			A
95th-Percentile Queue Length [veh/ln]	0.06	0.06	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.42	1.42	0.00	0.00	0.00	0.07
d_A, Approach Delay [s/veh]	6.65		0.00		8.33	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	5.63					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 5: Brennan Ave/Project Dwy 4

Control Type:	Two-way stop	Delay (sec / veh):	8.4
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	9	10	1	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	2.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	31	1	0	0	5
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	40	11	1	0	5
Peak Hour Factor	0.9500	0.9500	0.9500	0.9440	0.8240	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	11	3	0	0	1
Total Analysis Volume [veh/h]	0	42	12	1	0	5
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.22	0.00	0.00	0.00	0.00	8.37
Movement LOS	A	A	A			A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.01
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.35
d_A, Approach Delay [s/veh]	0.00		0.00		8.37	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.71					
Intersection LOS	A					

Vistro File: C:\...\Ramona-Webster Existing Year.vistro
Report File: C:\...\Existing Plus Project AM.pdf

Scenario 3 Existing Traffic Conditions With Project AM
6/14/2023

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Indian Ave/Ramona Expy	65	198	69	20	85	37	121	867	62	35	1437	101	3097

ID	Intersection Name	Northbound	Eastbound		Westbound	Total Volume
		Right	Thru	Right	Thru	
2	Ramona Expy/Project Dwy 1	5	1048	20	1509	2582

ID	Intersection Name	Northbound		Southbound		Westbound		Total Volume
		Thru	Right	Left	Thru	Left	Right	
3	Webster Ave/Project Dwy 2	239	0	20	130	0	5	394

ID	Intersection Name	Northbound		Southbound	Eastbound	Total Volume
		Left	Thru	Thru	Right	
4	Brennan Ave/Project Dwy 3	31	3	7	1	42

ID	Intersection Name	Northbound		Southbound	Eastbound	Total Volume
		Left	Thru	Thru	Right	
5	Brennan Ave/Project Dwy 4	0	40	11	5	56

Vistro File: C:\...\Ramona-Webster Existing Year.vistro
Report File: C:\...\Existing Plus Project PM.pdf

Scenario 4 Existing Traffic Conditions With Project PM
6/14/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Indian Ave/Ramona Expy	Signalized	HCM 7th Edition	EB Left	0.533	36.7	D
2	Ramona Expy/Project Dwy 1	Two-way stop	HCM 7th Edition	NB Right	0.096	19.7	C
3	Webster Ave/Project Dwy 2	Two-way stop	HCM 7th Edition	WB Right	0.027	8.7	A
4	Brennan Ave/Project Dwy 3	Two-way stop	HCM 7th Edition	EB Right	0.003	8.3	A
5	Brennan Ave/Project Dwy 4	Two-way stop	HCM 7th Edition	EB Right	0.011	8.4	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Indian Ave/Ramona Expy

Control Type:	Signalized	Delay (sec / veh):	36.7
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.533

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	210.00	100.00	100.00	205.00	100.00	230.00	200.00	100.00	100.00	290.00	100.00	260.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	68	92	37	61	173	67	52	1409	112	133	1136	24
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	11	0	0	8	0	0	15	10	0	10	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	68	103	37	61	181	67	52	1424	122	133	1146	24
Peak Hour Factor	0.7780	0.7780	0.7780	0.8290	0.8290	0.8290	0.9640	0.9640	0.9640	0.9630	0.9630	0.9630
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	33	12	18	55	20	13	369	32	35	298	6
Total Analysis Volume [veh/h]	87	132	48	74	218	81	54	1477	127	138	1190	25
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	105
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	39	0	10	36	0	24	42	0	14	32	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	30	0	0	27	0	0	23	0	0	23	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
l2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	105	105	105	105	105	105	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	36	36	6	35	35	4	37	37	10	42	42
g / C, Green / Cycle	0.07	0.35	0.35	0.06	0.34	0.34	0.04	0.35	0.35	0.10	0.40	0.40
(v / s)_i Volume / Saturation Flow Rate	0.05	0.05	0.06	0.05	0.07	0.06	0.03	0.33	0.33	0.08	0.26	0.02
s, saturation flow rate [veh/h]	1629	1710	1560	1629	3256	1454	1629	3256	1642	1629	4658	1454
c, Capacity [veh/h]	108	591	539	93	1095	489	68	1138	574	155	1878	586
d1, Uniform Delay [s]	48.35	23.75	23.82	48.94	24.80	24.51	49.86	33.03	33.04	46.95	25.13	19.04
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.39	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.83	0.56	0.65	14.46	0.41	0.73	18.16	4.38	21.02	15.26	0.36	0.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.16	0.16	0.80	0.20	0.17	0.79	0.94	0.94	0.89	0.63	0.04
d, Delay for Lane Group [s/veh]	61.18	24.31	24.47	63.40	25.21	25.24	68.02	37.41	54.06	62.22	25.49	19.07
Lane Group LOS	E	C	C	E	C	C	E	D	D	E	C	B
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.58	1.62	1.57	2.25	1.94	1.47	1.69	12.71	15.49	4.07	7.31	0.35
50th-Percentile Queue Length [ft/ln]	64.56	40.59	39.16	56.15	48.38	36.86	42.34	317.82	387.16	101.65	182.76	8.77
95th-Percentile Queue Length [veh/ln]	4.65	2.92	2.82	4.04	3.48	2.65	3.05	18.56	21.94	7.32	11.74	0.63
95th-Percentile Queue Length [ft/ln]	116.20	73.06	70.48	101.07	87.08	66.35	76.20	464.00	548.51	182.97	293.62	15.79

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	61.18	24.36	24.47	63.40	25.21	25.24	68.02	42.04	54.06	62.22	25.49	19.07
Movement LOS	E	C	C	E	C	C	E	D	D	E	C	B
d_A, Approach Delay [s/veh]	36.37			32.79			43.81			29.11		
Approach LOS	D			C			D			C		
d_I, Intersection Delay [s/veh]	36.69											
Intersection LOS	D											
Intersection V/C	0.533											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	43.89	43.89	43.89	43.89
l_p,int, Pedestrian LOS Score for Intersectio	2.504	2.588	3.303	3.334
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	609	724	533
d_b, Bicycle Delay [s]	23.34	25.38	21.38	28.24
l_b,int, Bicycle LOS Score for Intersection	1.780	1.867	2.472	2.304
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Ramona Expy/Project Dwy 1

Control Type:	Two-way stop	Delay (sec / veh):	19.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.096

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	0	1580	0	0	1211
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	2.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	25	0	17	0	10
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	25	1580	17	0	1221
Peak Hour Factor	1.0000	0.9500	0.9590	0.9590	0.9590	0.9020
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	7	412	4	0	338
Total Analysis Volume [veh/h]	0	26	1648	18	0	1354
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.10	0.02	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	19.69	0.00	0.00	0.00	0.00
Movement LOS		C	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.32	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	7.88	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	19.69		0.00		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.17					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 3: Webster Ave/Project Dwy 2

Control Type:	Two-way stop	Delay (sec / veh):	8.7
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.027

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	1	0	1	0	0
Exit Pocket Length [ft]	0.00	100.00	0.00	100.00	0.00	0.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	110	0	0	116	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	7	0	16	0	0	26
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	117	0	16	116	0	26
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	0	4	31	0	7
Total Analysis Volume [veh/h]	123	0	17	122	0	27
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.00	0.00	0.03
d_M, Delay for Movement [s/veh]	0.00	0.00	7.46	0.00	9.92	8.71
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.03	0.01	0.08	0.08
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.71	0.36	2.09	2.09
d_A, Approach Delay [s/veh]	0.00		0.91		8.71	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.25					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 4: Brennan Ave/Project Dwy 3

Control Type:	Two-way stop	Delay (sec / veh):	8.3
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.003

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	4	9	14	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	2.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	10	0	0	0	0	3
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	4	9	14	1	3
Peak Hour Factor	0.9500	0.9500	0.9500	0.5710	0.2500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	1	2	6	1	1
Total Analysis Volume [veh/h]	11	4	9	25	4	3
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.23	0.00	0.00	0.00	0.00	8.35
Movement LOS	A	A	A			A
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.00	0.00	0.00	0.01
95th-Percentile Queue Length [ft/ln]	0.46	0.46	0.00	0.00	0.00	0.21
d_A, Approach Delay [s/veh]	5.30		0.00		8.35	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	3.87					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 5: Brennan Ave/Project Dwy 4

Control Type:	Two-way stop	Delay (sec / veh):	8.4
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.011

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	26	15	14	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	2.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	10	3	0	0	11
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	36	18	14	1	11
Peak Hour Factor	0.9500	0.9500	0.9500	0.5710	0.2500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	9	5	6	1	3
Total Analysis Volume [veh/h]	0	38	19	25	4	12
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	7.24	0.00	0.00	0.00	0.00	8.42
Movement LOS	A	A	A			A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.03
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.85
d_A, Approach Delay [s/veh]	0.00		0.00		8.42	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.46					
Intersection LOS	A					

Vistro File: C:\...\Ramona-Webster Existing Year.vistro
Report File: C:\...\Existing Plus Project PM.pdf

Scenario 4 Existing Traffic Conditions With Project PM
6/14/2023

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Indian Ave/Ramona Expy	68	103	37	61	181	67	52	1424	122	133	1146	24	3418

ID	Intersection Name	Northbound	Eastbound		Westbound	Total Volume
		Right	Thru	Right	Thru	
2	Ramona Expy/Project Dwy 1	25	1580	17	1221	2843

ID	Intersection Name	Northbound		Southbound		Westbound		Total Volume
		Thru	Right	Left	Thru	Left	Right	
3	Webster Ave/Project Dwy 2	117	0	16	116	0	26	275

ID	Intersection Name	Northbound		Southbound	Eastbound	Total Volume
		Left	Thru	Thru	Right	
4	Brennan Ave/Project Dwy 3	10	4	9	3	26

ID	Intersection Name	Northbound		Southbound	Eastbound	Total Volume
		Left	Thru	Thru	Right	
5	Brennan Ave/Project Dwy 4	0	36	18	11	65

Vistro File: C:\...\Ramona-Webster Existing Year.vistro
Report File: C:\...\Opening Year AM.pdf

Scenario 5 Opening Year AM
6/14/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Indian Ave/Ramona Expy	Signalized	HCM 7th Edition	WB Left	0.602	33.6	C
2	Ramona Expy/Project Dwy 1	Two-way stop	HCM 7th Edition	WB Thru	0.018	0.0	A
3	Webster Ave/Project Dwy 2	Two-way stop	HCM 7th Edition	NB Thru	0.003	0.0	A
4	Brennan Ave/Project Dwy 3	Two-way stop	HCM 7th Edition	SB Thru	0.000	0.0	A
5	Brennan Ave/Project Dwy 4	Two-way stop	HCM 7th Edition	SB Thru	0.000	0.0	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Indian Ave/Ramona Expy

Control Type:	Signalized	Delay (sec / veh):	33.6
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.602

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	210.00	100.00	100.00	205.00	100.00	230.00	200.00	100.00	100.00	290.00	100.00	260.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	57	193	69	20	60	37	121	864	60	35	1425	101
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	5	26	32	1	0	0	0	12	8	0	10
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	64	210	99	53	65	39	128	916	76	45	1511	117
Peak Hour Factor	0.8800	0.8800	0.8800	0.7530	0.7530	0.7530	0.9190	0.9190	0.9190	0.8930	0.8930	0.8930
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	60	28	18	22	13	35	249	21	13	423	33
Total Analysis Volume [veh/h]	73	239	113	70	86	52	139	997	83	50	1692	131
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	115
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	39	0	10	36	0	15	32	0	34	51	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	30	0	0	27	0	0	23	0	0	23	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
l2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	115	115	115	115	115	115	115	115	115	115	115	115
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	36	36	6	36	36	11	52	52	4	46	46
g / C, Green / Cycle	0.06	0.32	0.32	0.05	0.31	0.31	0.10	0.45	0.45	0.04	0.40	0.40
(v / s)_i Volume / Saturation Flow Rate	0.04	0.11	0.11	0.04	0.03	0.04	0.09	0.22	0.22	0.03	0.36	0.09
s, saturation flow rate [veh/h]	1629	1710	1530	1629	3256	1454	1629	3256	1644	1629	4658	1454
c, Capacity [veh/h]	92	543	486	86	1022	456	156	1471	742	64	1839	574
d1, Uniform Delay [s]	53.64	30.00	30.12	53.95	27.82	28.09	51.40	22.18	22.18	54.79	33.07	23.15
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.40	1.67	1.97	16.90	0.16	0.51	15.33	0.25	0.50	18.72	2.28	0.20
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.34	0.35	0.82	0.08	0.11	0.89	0.49	0.49	0.79	0.92	0.23
d, Delay for Lane Group [s/veh]	68.04	31.67	32.09	70.85	27.98	28.59	66.73	22.43	22.68	73.52	35.36	23.35
Lane Group LOS	E	C	C	E	C	C	E	C	C	E	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.42	4.04	3.78	2.37	0.84	1.07	4.48	6.35	6.47	1.72	14.13	2.27
50th-Percentile Queue Length [ft/ln]	60.41	100.88	94.53	59.31	21.11	26.68	111.98	158.85	161.87	42.99	353.31	56.65
95th-Percentile Queue Length [veh/ln]	4.35	7.26	6.81	4.27	1.52	1.92	7.95	10.49	10.65	3.10	20.30	4.08
95th-Percentile Queue Length [ft/ln]	108.73	181.59	170.16	106.75	38.00	48.03	198.76	262.20	266.20	77.38	507.44	101.97

Movement, Approach, & Intersection Results

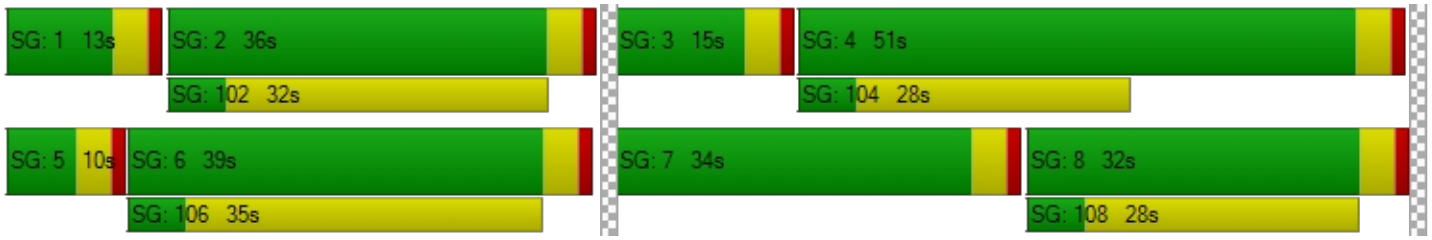
d_M, Delay for Movement [s/veh]	68.04	31.77	32.09	70.85	27.98	28.59	66.73	22.50	22.68	73.52	35.36	23.35
Movement LOS	E	C	C	E	C	C	E	C	C	E	D	C
d_A, Approach Delay [s/veh]	38.09			42.56			27.55			35.53		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	33.61											
Intersection LOS	C											
Intersection V/C	0.602											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	48.86	48.86	48.86	48.86
l_p,int, Pedestrian LOS Score for Intersectio	2.481	2.621	3.312	3.359
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	609	556	487	817
d_b, Bicycle Delay [s]	27.84	29.96	32.92	20.11
l_b,int, Bicycle LOS Score for Intersection	1.910	1.731	2.230	2.590
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Ramona Expy/Project Dwy 1

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.018

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	0	1048	0	0	1489
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	2.00	0.00
Growth Factor	1.0000	1.0600	1.0600	1.0600	1.0000	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	12	0	0	4
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	1123	0	0	1582
Peak Hour Factor	1.0000	0.9500	0.9670	0.9670	1.0000	0.9030
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	290	0	0	438
Total Analysis Volume [veh/h]	0	0	1161	0	0	1752
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.00	0.00	0.02
d_M, Delay for Movement [s/veh]	0.00	14.10	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	14.10		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 3: Webster Ave/Project Dwy 2

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.003

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	1	0	1	0	0
Exit Pocket Length [ft]	0.00	100.00	0.00	100.00	0.00	0.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	239	0	0	130	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	253	0	0	138	0	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	0	0	36	0	0
Total Analysis Volume [veh/h]	266	0	0	145	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	7.75	0.00	10.65	9.01
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		9.83	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 4: Brennan Ave/Project Dwy 3

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	3	7	1	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	2.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0000	1.0000	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	3	7	1	0	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.6560	1.0000	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	2	0	0	0
Total Analysis Volume [veh/h]	0	3	7	2	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.21	0.00	0.00	0.00	0.00	8.33
Movement LOS	A	A	A			A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		8.33	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 5: Brennan Ave/Project Dwy 4

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	9	10	1	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	2.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0000	1.0000	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	10	11	1	0	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9440	0.8240	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	3	3	0	0	0
Total Analysis Volume [veh/h]	0	11	12	1	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.22	0.00	0.00	0.00	0.00	8.35
Movement LOS	A	A	A			A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		8.35	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Vistro File: C:\...\Ramona-Webster Existing Year.vistro
Report File: C:\...\Opening Year AM.pdf

Scenario 5 Opening Year AM
6/14/2023

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Indian Ave/Ramona Expy	64	210	99	53	65	39	128	916	76	45	1511	117	3323

ID	Intersection Name	Northbound	Eastbound		Westbound	Total Volume
		Right	Thru	Right	Thru	
2	Ramona Expy/Project Dwy 1	0	1123	0	1582	2705

ID	Intersection Name	Northbound		Southbound		Westbound		Total Volume
		Thru	Right	Left	Thru	Left	Right	
3	Webster Ave/Project Dwy 2	253	0	0	138	0	0	391

ID	Intersection Name	Northbound		Southbound	Eastbound	Total Volume
		Left	Thru	Thru	Right	
4	Brennan Ave/Project Dwy 3	0	3	7	0	10

ID	Intersection Name	Northbound		Southbound	Eastbound	Total Volume
		Left	Thru	Thru	Right	
5	Brennan Ave/Project Dwy 4	0	10	11	0	21

Vistro File: C:\...\Ramona-Webster Existing Year.vistro
Report File: C:\...\Opening Year PM.pdf

Scenario 6 Opening Year PM
6/14/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Indian Ave/Ramona Expy	Signalized	HCM 7th Edition	EB Left	0.589	40.2	D
2	Ramona Expy/Project Dwy 1	Two-way stop	HCM 7th Edition	EB Thru	0.018	0.0	A
3	Webster Ave/Project Dwy 2	Two-way stop	HCM 7th Edition	SB Thru	0.001	0.0	A
4	Brennan Ave/Project Dwy 3	Two-way stop	HCM 7th Edition	SB Thru	0.000	0.0	A
5	Brennan Ave/Project Dwy 4	Two-way stop	HCM 7th Edition	NB Thru	0.000	0.0	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Indian Ave/Ramona Expy

Control Type:	Signalized	Delay (sec / veh):	40.2
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.589

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	210.00	100.00	100.00	205.00	100.00	230.00	200.00	100.00	100.00	290.00	100.00	260.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	68	92	37	61	173	67	52	1409	112	133	1136	24
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	13	3	11	14	5	0	0	0	5	30	0	36
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	85	101	50	79	188	71	55	1494	124	171	1204	61
Peak Hour Factor	0.7780	0.7780	0.7780	0.8290	0.8290	0.8290	0.9640	0.9640	0.9640	0.9630	0.9630	0.9630
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	32	16	24	57	21	14	387	32	44	313	16
Total Analysis Volume [veh/h]	109	130	64	95	227	86	57	1550	129	178	1250	63
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	39	0	13	36	0	36	50	0	18	32	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	30	0	0	27	0	0	23	0	0	23	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
l2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	37	37	9	36	36	5	44	44	14	53	53
g / C, Green / Cycle	0.08	0.31	0.31	0.07	0.30	0.30	0.04	0.37	0.37	0.12	0.44	0.44
(v / s)_i Volume / Saturation Flow Rate	0.07	0.06	0.06	0.06	0.07	0.06	0.04	0.34	0.34	0.11	0.27	0.04
s, saturation flow rate [veh/h]	1629	1710	1527	1629	3256	1454	1629	3256	1644	1629	4658	1454
c, Capacity [veh/h]	132	534	477	116	986	440	73	1191	601	190	2041	637
d1, Uniform Delay [s]	54.32	30.12	30.22	54.96	31.34	30.99	56.76	36.71	36.74	52.55	25.90	19.81
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.39	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.14	0.77	0.92	12.90	0.54	0.99	16.57	4.19	20.32	18.14	0.30	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.19	0.20	0.82	0.23	0.20	0.78	0.94	0.94	0.93	0.61	0.10
d, Delay for Lane Group [s/veh]	66.46	30.90	31.15	67.86	31.89	31.98	73.33	40.90	57.06	70.69	26.20	19.88
Lane Group LOS	E	C	C	E	C	C	E	D	E	E	C	B
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.63	2.19	2.09	3.20	2.50	1.94	1.99	15.39	18.27	6.09	8.55	0.99
50th-Percentile Queue Length [ft/ln]	90.86	54.87	52.13	80.09	62.59	48.52	49.81	384.78	456.65	152.14	213.84	24.86
95th-Percentile Queue Length [veh/ln]	6.54	3.95	3.75	5.77	4.51	3.49	3.59	21.83	25.28	10.13	13.35	1.79
95th-Percentile Queue Length [ft/ln]	163.55	98.76	93.84	144.17	112.67	87.34	89.65	545.63	631.88	253.28	333.75	44.75

Movement, Approach, & Intersection Results

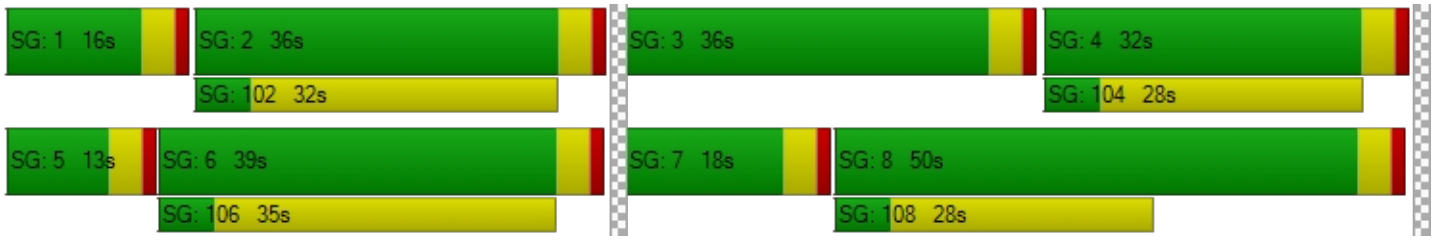
d_M, Delay for Movement [s/veh]	66.46	30.95	31.15	67.86	31.89	31.98	73.33	45.43	57.06	70.69	26.20	19.88
Movement LOS	E	C	C	E	C	C	E	D	E	E	C	B
d_A, Approach Delay [s/veh]	43.77			40.28			47.21			31.24		
Approach LOS	D			D			D			C		
d_I, Intersection Delay [s/veh]	40.18											
Intersection LOS	D											
Intersection V/C	0.589											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.35	51.35	51.35	51.35
l_p,int, Pedestrian LOS Score for Intersectio	2.533	2.611	3.348	3.391
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	583	533	767	467
d_b, Bicycle Delay [s]	30.11	32.27	22.82	35.27
l_b,int, Bicycle LOS Score for Intersection	1.810	1.896	2.514	2.380
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Ramona Expy/Project Dwy 1

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.018

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	0	1580	0	0	1211
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	2.00	0.00
Growth Factor	1.0000	1.0600	1.0600	1.0600	1.0000	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	5	0	0	13
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	1680	0	0	1297
Peak Hour Factor	1.0000	0.9500	0.9590	0.9590	0.9590	0.9020
Other Adjustment Factor	1.0000	0.9500	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	438	0	0	359
Total Analysis Volume [veh/h]	0	0	1752	0	0	1438
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.02	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	19.17	0.00	0.00	0.00	0.00
Movement LOS		C	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	19.17		0.00		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 3: Webster Ave/Project Dwy 2

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	1	0	1	0	0
Exit Pocket Length [ft]	0.00	100.00	0.00	100.00	0.00	0.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	110	0	0	116	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	117	0	0	123	0	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	0	0	32	0	0
Total Analysis Volume [veh/h]	123	0	0	129	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	7.44	0.00	9.56	8.61
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		9.08	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 4: Brennan Ave/Project Dwy 3

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	4	9	14	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	2.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0000	1.0000	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	4	10	14	1	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.5710	0.2500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	3	6	1	0
Total Analysis Volume [veh/h]	0	4	11	25	4	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.22	0.00	0.00	0.00	0.00	8.35
Movement LOS	A	A	A			A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		8.35	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 5: Brennan Ave/Project Dwy 4

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	26	15	14	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	2.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0000	1.0000	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	28	16	14	1	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.5710	0.2500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	7	4	6	1	0
Total Analysis Volume [veh/h]	0	29	17	25	4	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.23	0.00	0.00	0.00	0.00	8.37
Movement LOS	A	A	A			A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		8.37	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Vistro File: C:\...\Ramona-Webster Existing Year.vistro
Report File: C:\...\Opening Year PM.pdf

Scenario 6 Opening Year PM
6/14/2023

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Indian Ave/Ramona Expy	85	101	50	79	188	71	55	1494	124	171	1204	61	3683

ID	Intersection Name	Northbound	Eastbound		Westbound	Total Volume
		Right	Thru	Right	Thru	
2	Ramona Expy/Project Dwy 1	0	1680	0	1297	2977

ID	Intersection Name	Northbound		Southbound		Westbound		Total Volume
		Thru	Right	Left	Thru	Left	Right	
3	Webster Ave/Project Dwy 2	117	0	0	123	0	0	240

ID	Intersection Name	Northbound		Southbound	Eastbound	Total Volume
		Left	Thru	Thru	Right	
4	Brennan Ave/Project Dwy 3	0	4	10	0	14

ID	Intersection Name	Northbound		Southbound	Eastbound	Total Volume
		Left	Thru	Thru	Right	
5	Brennan Ave/Project Dwy 4	0	28	16	0	44

Vistro File: C:\...\Ramona-Webster Existing Year.vistro
Report File: C:\...\Opening Year Plus Project AM.pdf

Scenario 7 Opening Year With Project AM
6/14/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Indian Ave/Ramona Expy	Signalized	HCM 7th Edition	WB Left	0.606	33.7	C
2	Ramona Expy/Project Dwy 1	Two-way stop	HCM 7th Edition	NB Right	0.013	14.4	B
3	Webster Ave/Project Dwy 2	Two-way stop	HCM 7th Edition	WB Right	0.006	9.0	A
4	Brennan Ave/Project Dwy 3	Two-way stop	HCM 7th Edition	EB Right	0.001	8.3	A
5	Brennan Ave/Project Dwy 4	Two-way stop	HCM 7th Edition	EB Right	0.005	8.4	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Indian Ave/Ramona Expy

Control Type:	Signalized	Delay (sec / veh):	33.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.606

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	210.00	100.00	100.00	205.00	100.00	230.00	200.00	100.00	100.00	290.00	100.00	260.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	57	193	69	20	60	37	121	864	60	35	1425	101
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	12	10	26	32	26	0	0	3	14	8	12	10
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	72	215	99	53	90	39	128	919	78	45	1523	117
Peak Hour Factor	0.8800	0.8800	0.8800	0.7530	0.7530	0.7530	0.9190	0.9190	0.9190	0.8930	0.8930	0.8930
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	61	28	18	30	13	35	250	21	13	426	33
Total Analysis Volume [veh/h]	82	244	113	70	120	52	139	1000	85	50	1705	131
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	115
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	39	0	10	36	0	15	32	0	34	51	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	30	0	0	27	0	0	23	0	0	23	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	115	115	115	115	115	115	115	115	115	115	115	115
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	36	36	6	35	35	11	52	52	4	46	46
g / C, Green / Cycle	0.06	0.32	0.32	0.05	0.31	0.31	0.10	0.45	0.45	0.04	0.40	0.40
(v / s)_i Volume / Saturation Flow Rate	0.05	0.11	0.11	0.04	0.04	0.04	0.09	0.22	0.22	0.03	0.37	0.09
s, saturation flow rate [veh/h]	1629	1710	1532	1629	3256	1454	1629	3256	1642	1629	4658	1454
c, Capacity [veh/h]	102	541	484	86	996	445	156	1475	744	64	1846	576
d1, Uniform Delay [s]	53.21	30.18	30.30	53.95	28.77	28.74	51.40	22.09	22.10	54.79	33.07	23.04
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.46	1.73	2.02	16.90	0.25	0.54	15.33	0.25	0.50	18.72	2.38	0.20
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.34	0.35	0.82	0.12	0.12	0.89	0.49	0.49	0.79	0.92	0.23
d, Delay for Lane Group [s/veh]	66.67	31.91	32.32	70.85	29.02	29.27	66.73	22.34	22.60	73.52	35.45	23.24
Lane Group LOS	E	C	C	E	C	C	E	C	C	E	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.68	4.11	3.85	2.37	1.21	1.08	4.48	6.37	6.49	1.72	14.27	2.26
50th-Percentile Queue Length [ft/ln]	67.00	102.85	96.28	59.31	30.22	27.07	111.98	159.30	162.20	42.99	356.87	56.48
95th-Percentile Queue Length [veh/ln]	4.82	7.41	6.93	4.27	2.18	1.95	7.95	10.51	10.67	3.10	20.47	4.07
95th-Percentile Queue Length [ft/ln]	120.60	185.14	173.31	106.75	54.39	48.73	198.76	262.79	266.63	77.38	511.78	101.66

Movement, Approach, & Intersection Results

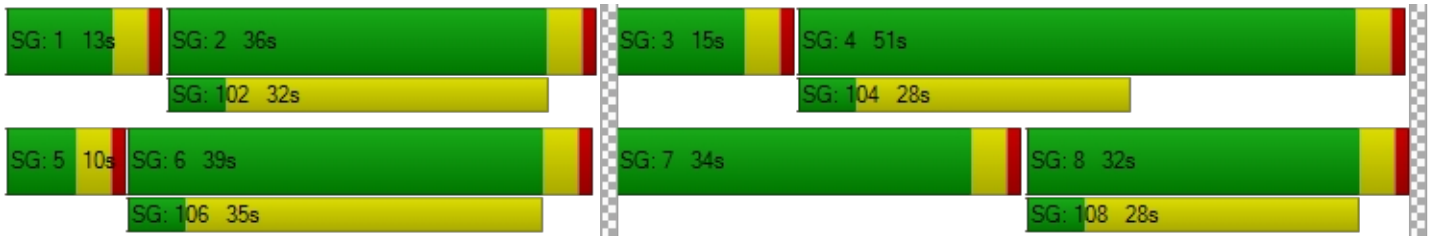
d_M, Delay for Movement [s/veh]	66.67	32.01	32.32	70.85	29.02	29.27	66.73	22.42	22.60	73.52	35.45	23.24
Movement LOS	E	C	C	E	C	C	E	C	C	E	D	C
d_A, Approach Delay [s/veh]	38.56			41.17			27.46			35.61		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	33.67											
Intersection LOS	C											
Intersection V/C	0.606											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	48.86	48.86	48.86	48.86
l_p,int, Pedestrian LOS Score for Intersectio	2.494	2.630	3.318	3.362
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	609	556	487	817
d_b, Bicycle Delay [s]	27.84	29.96	32.92	20.11
l_b,int, Bicycle LOS Score for Intersection	1.922	1.759	2.233	2.597
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	



Intersection Level Of Service Report
Intersection 2: Ramona Expy/Project Dwy 1

Control Type:	Two-way stop	Delay (sec / veh):	14.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.013

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	0	1048	0	0	1489
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	2.00	0.00
Growth Factor	1.0000	1.0600	1.0600	1.0600	1.0000	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	5	12	20	0	24
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	5	1123	20	0	1602
Peak Hour Factor	1.0000	0.9500	0.9670	0.9670	1.0000	0.9030
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	290	5	0	444
Total Analysis Volume [veh/h]	0	5	1161	21	0	1774
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.00	0.02
d_M, Delay for Movement [s/veh]	0.00	14.36	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.04	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.97	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	14.36		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.02					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 3: Webster Ave/Project Dwy 2

Control Type:	Two-way stop	Delay (sec / veh):	9.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.006

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	1	0	1	0	0
Exit Pocket Length [ft]	0.00	100.00	0.00	100.00	0.00	0.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	239	0	0	130	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	20	0	0	5
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	253	0	20	138	0	5
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	0	5	36	0	1
Total Analysis Volume [veh/h]	266	0	21	145	0	5
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.02	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	0.00	7.77	0.00	11.13	9.03
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.04	0.02	0.02	0.02
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.89	0.44	0.42	0.42
d_A, Approach Delay [s/veh]	0.00		0.98		9.03	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.48					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 4: Brennan Ave/Project Dwy 3

Control Type:	Two-way stop	Delay (sec / veh):	8.3
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	3	7	1	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	2.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0000	1.0000	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	31	0	0	0	0	1
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	31	3	7	1	0	1
Peak Hour Factor	0.9500	0.9500	0.9500	0.6560	1.0000	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	1	2	0	0	0
Total Analysis Volume [veh/h]	33	3	7	2	0	1
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.25	0.00	0.00	0.00	0.00	8.33
Movement LOS	A	A	A			A
95th-Percentile Queue Length [veh/ln]	0.06	0.06	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.42	1.42	0.00	0.00	0.00	0.07
d_A, Approach Delay [s/veh]	6.65		0.00		8.33	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	5.63					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 5: Brennan Ave/Project Dwy 4

Control Type:	Two-way stop	Delay (sec / veh):	8.4
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	9	10	1	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	2.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0000	1.0000	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	31	1	0	0	5
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	41	12	1	0	5
Peak Hour Factor	0.9500	0.9500	0.9500	0.9440	0.8240	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	11	3	0	0	1
Total Analysis Volume [veh/h]	0	43	13	1	0	5
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.22	0.00	0.00	0.00	0.00	8.37
Movement LOS	A	A	A			A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.01
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.35
d_A, Approach Delay [s/veh]	0.00		0.00		8.37	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.69					
Intersection LOS	A					

Vistro File: C:\...\Ramona-Webster Existing Year.vistro
Report File: C:\...\Opening Year Plus Project AM.pdf

Scenario 7 Opening Year With Project AM
6/14/2023

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Indian Ave/Ramona Expy	72	215	99	53	90	39	128	919	78	45	1523	117	3378

ID	Intersection Name	Northbound	Eastbound		Westbound	Total Volume
		Right	Thru	Right	Thru	
2	Ramona Expy/Project Dwy 1	5	1123	20	1602	2750

ID	Intersection Name	Northbound		Southbound		Westbound		Total Volume
		Thru	Right	Left	Thru	Left	Right	
3	Webster Ave/Project Dwy 2	253	0	20	138	0	5	416

ID	Intersection Name	Northbound		Southbound	Eastbound	Total Volume
		Left	Thru	Thru	Right	
4	Brennan Ave/Project Dwy 3	31	3	7	1	42

ID	Intersection Name	Northbound		Southbound	Eastbound	Total Volume
		Left	Thru	Thru	Right	
5	Brennan Ave/Project Dwy 4	0	41	12	5	58

Vistro File: C:\...\Ramona-Webster Existing Year.vistro
Report File: C:\...\Opening Year Plus Project PM.pdf

Scenario 8 Opening Year With Project PM
6/14/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Indian Ave/Ramona Expy	Signalized	HCM 7th Edition	EB Left	0.597	40.3	D
2	Ramona Expy/Project Dwy 1	Two-way stop	HCM 7th Edition	NB Right	0.104	21.0	C
3	Webster Ave/Project Dwy 2	Two-way stop	HCM 7th Edition	WB Right	0.027	8.7	A
4	Brennan Ave/Project Dwy 3	Two-way stop	HCM 7th Edition	EB Right	0.003	8.4	A
5	Brennan Ave/Project Dwy 4	Two-way stop	HCM 7th Edition	EB Right	0.011	8.4	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Indian Ave/Ramona Expy

Control Type:	Signalized	Delay (sec / veh):	40.3
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.597

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	210.00	100.00	100.00	205.00	100.00	230.00	200.00	100.00	100.00	290.00	100.00	260.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	68	92	37	61	173	67	52	1409	112	133	1136	24
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	13	14	11	14	13	0	0	15	15	30	10	36
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	85	112	50	79	196	71	55	1509	134	171	1214	61
Peak Hour Factor	0.7780	0.7780	0.7780	0.8290	0.8290	0.8290	0.9640	0.9640	0.9640	0.9630	0.9630	0.9630
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	36	16	24	59	21	14	391	35	44	315	16
Total Analysis Volume [veh/h]	109	144	64	95	236	86	57	1565	139	178	1261	63
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	39	0	13	36	0	36	50	0	18	32	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	30	0	0	27	0	0	23	0	0	23	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	37	37	9	36	36	5	44	44	14	53	53
g / C, Green / Cycle	0.08	0.31	0.31	0.07	0.30	0.30	0.04	0.37	0.37	0.12	0.44	0.44
(v / s)_i Volume / Saturation Flow Rate	0.07	0.06	0.07	0.06	0.07	0.06	0.04	0.35	0.35	0.11	0.27	0.04
s, saturation flow rate [veh/h]	1629	1710	1538	1629	3256	1454	1629	3256	1640	1629	4658	1454
c, Capacity [veh/h]	132	528	475	116	975	435	73	1203	606	190	2057	642
d1, Uniform Delay [s]	54.32	30.57	30.66	54.96	31.76	31.31	56.76	36.60	36.64	52.55	25.66	19.56
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.40	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.14	0.86	1.02	12.90	0.59	1.02	16.57	4.47	21.52	18.14	0.30	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.20	0.21	0.82	0.24	0.20	0.78	0.94	0.94	0.93	0.61	0.10
d, Delay for Lane Group [s/veh]	66.46	31.43	31.68	67.86	32.34	32.32	73.33	41.08	58.15	70.69	25.96	19.63
Lane Group LOS	E	C	C	E	C	C	E	D	E	E	C	B
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.63	2.38	2.26	3.20	2.63	1.95	1.99	15.69	18.71	6.09	8.59	0.99
50th-Percentile Queue Length [ft/ln]	90.86	59.46	56.58	80.09	65.70	48.85	49.81	392.29	467.79	152.14	214.65	24.66
95th-Percentile Queue Length [veh/ln]	6.54	4.28	4.07	5.77	4.73	3.52	3.59	22.19	25.81	10.13	13.39	1.78
95th-Percentile Queue Length [ft/ln]	163.55	107.03	101.85	144.17	118.27	87.92	89.65	554.70	645.14	253.28	334.79	44.38

Movement, Approach, & Intersection Results

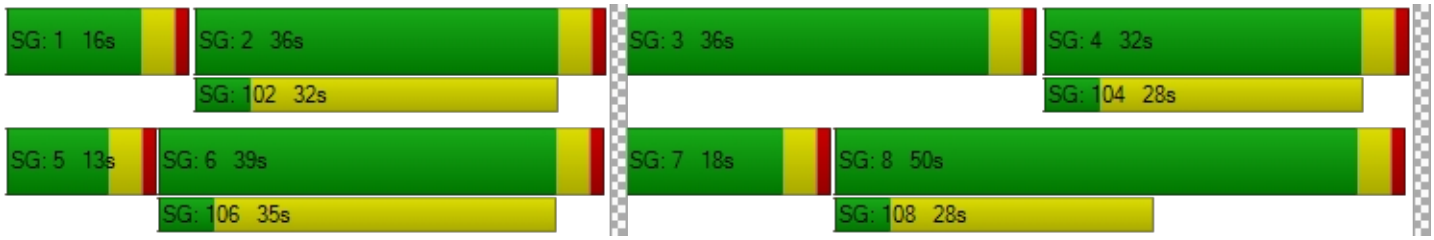
d_M, Delay for Movement [s/veh]	66.46	31.49	31.68	67.86	32.34	32.32	73.33	45.79	58.15	70.69	25.96	19.63
Movement LOS	E	C	C	E	C	C	E	D	E	E	C	B
d_A, Approach Delay [s/veh]	43.56			40.43			47.66			30.99		
Approach LOS	D			D			D			C		
d_I, Intersection Delay [s/veh]	40.32											
Intersection LOS	D											
Intersection V/C	0.597											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.35	51.35	51.35	51.35
l_p,int, Pedestrian LOS Score for Intersectio	2.541	2.616	3.356	3.396
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	583	533	767	467
d_b, Bicycle Delay [s]	30.11	32.27	22.82	35.27
l_b,int, Bicycle LOS Score for Intersection	1.821	1.904	2.528	2.386
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Ramona Expy/Project Dwy 1

Control Type:	Two-way stop	Delay (sec / veh):	21.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.104

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	0	1580	0	0	1211
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	2.00	0.00
Growth Factor	1.0000	1.0600	1.0600	1.0600	1.0000	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	25	5	17	0	23
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	25	1680	17	0	1307
Peak Hour Factor	1.0000	0.9500	0.9590	0.9590	0.9590	0.9020
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	7	438	4	0	362
Total Analysis Volume [veh/h]	0	26	1752	18	0	1449
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane						
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.10	0.02	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	21.03	0.00	0.00	0.00	0.00
Movement LOS		C	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.34	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	8.58	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	21.03		0.00		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.17					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 3: Webster Ave/Project Dwy 2

Control Type:	Two-way stop	Delay (sec / veh):	8.7
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.027

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	1	0	1	0	0
Exit Pocket Length [ft]	0.00	100.00	0.00	100.00	0.00	0.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	110	0	0	116	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	7	0	16	0	0	26
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	124	0	16	123	0	26
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	0	4	32	0	7
Total Analysis Volume [veh/h]	131	0	17	129	0	27
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.00	0.00	0.03
d_M, Delay for Movement [s/veh]	0.00	0.00	7.47	0.00	10.00	8.73
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.03	0.01	0.08	0.08
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.71	0.36	2.10	2.10
d_A, Approach Delay [s/veh]	0.00		0.87		8.73	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.19					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 4: Brennan Ave/Project Dwy 3

Control Type:	Two-way stop	Delay (sec / veh):	8.4
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.003

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	4	9	14	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	2.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0000	1.0000	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	10	0	0	0	0	3
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	4	10	14	1	3
Peak Hour Factor	0.9500	0.9500	0.9500	0.5710	0.2500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	1	3	6	1	1
Total Analysis Volume [veh/h]	11	4	11	25	4	3
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.23	0.00	0.00	0.00	0.00	8.36
Movement LOS	A	A	A			A
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.00	0.00	0.00	0.01
95th-Percentile Queue Length [ft/ln]	0.46	0.46	0.00	0.00	0.00	0.21
d_A, Approach Delay [s/veh]	5.30		0.00		8.36	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	3.61					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 5: Brennan Ave/Project Dwy 4

Control Type:	Two-way stop	Delay (sec / veh):	8.4
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.011

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	26	15	14	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	2.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0000	1.0000	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	10	3	0	0	11
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	38	19	14	1	11
Peak Hour Factor	0.9500	0.9500	0.9500	0.5710	0.2500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	10	5	6	1	3
Total Analysis Volume [veh/h]	0	40	20	25	4	12
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	7.24	0.00	0.00	0.00	0.00	8.42
Movement LOS	A	A	A			A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.03
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.86
d_A, Approach Delay [s/veh]	0.00		0.00		8.42	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.40					
Intersection LOS	A					

Vistro File: C:\...\Ramona-Webster Existing Year.vistro
Report File: C:\...\Opening Year Plus Project PM.pdf

Scenario 8 Opening Year With Project PM
6/14/2023

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Indian Ave/Ramona Expy	85	112	50	79	196	71	55	1509	134	171	1214	61	3737

ID	Intersection Name	Northbound	Eastbound		Westbound	Total Volume
		Right	Thru	Right	Thru	
2	Ramona Expy/Project Dwy 1	25	1680	17	1307	3029

ID	Intersection Name	Northbound		Southbound		Westbound		Total Volume
		Thru	Right	Left	Thru	Left	Right	
3	Webster Ave/Project Dwy 2	124	0	16	123	0	26	289

ID	Intersection Name	Northbound		Southbound	Eastbound	Total Volume
		Left	Thru	Thru	Right	
4	Brennan Ave/Project Dwy 3	10	4	10	3	27

ID	Intersection Name	Northbound		Southbound	Eastbound	Total Volume
		Left	Thru	Thru	Right	
5	Brennan Ave/Project Dwy 4	0	38	19	11	68

APPENDIX D – CAPCOA VMT REDUCTION CALCULATIONS

Mitigation Measure (Number corresponds to the CAPCOA Handbook)	Max Reduction in Overall VMT (%)[1]	Max Reduction in Commute VMT (%)	Formula	Comments	Calculated Reduction in Commute VMT (%)	Calculated Reduction in VMT (%)[1]
Trip Reduction Programs (maximum reduction of 45% commute VMT)						
T-6 Implement Commute Trip Reduction Program (Mandatory)	15.6%	26.0%	A = B * C, where B = Percent of employees eligible for program, C = Percent reduction in commute VMT from eligible employees	The project would implement a mandatory CTR program to encourage employees carpooling, taking transit, walking and biking to work. Calculation assumes that 25 percent of employees are eligible.	-6.50%	-3.90%
				Total VMT Reduction from Individual Trip Reduction Programs (T-6)[2]	-6.50%	-3.90%
Neighborhood Design						
T-18 Provide Pedestrian Network Improvement	6.4%		A = ((C/B)-1) * D, where B = Existing sidewalk length in study area, C = Sidewalk length in study area with measure, and D = Elasticity of household VMT with respect to the ratio of sidewalks-to-streets (-0.05 constant).	The project would construct sidewalks along the project frontage on Ramona Expressway and Webster Avenue.	0.22%	0.22%
T-19-A Construct or Improve Bike Facility	0.8%		A = -B * F/I * (C+D) * E * G/H, where B = Percent of plan/community VMT on parallel roadway, C = Active transportation adjustment factor, D = Credits for key destinations near project, E = Growth factor adjustment for facility type, F = Annual days of use of new facility, G = Existing regional average one-way bicycle trip length, H = Existing regional average one-way vehicle trip length, I = Days per year (365 constant)	The project would construct a Class II bike lanes along the project frontage on Webster Avenue.	0.22%	0.22%
				Total VMT Reduction from Neighborhood Designs[2]	0.44%	**0.44%**
				Total VMT Reduction from All Subsectors[2]	-6.03%	**-3.45%**

[1] Per CAPCOA overall VMT reduction is approximately 60% of commute VMT reduction.

[2] Per CAPCOA total VMT reduction for multiple strategies within same subsector is calculated using the equation: 1-(1-A)*(1-B)*(1-C)... where A, B, C are equal to individual mitigation strategy reduction percentages.

T-6. Implement Commute Trip Reduction Program (Mandatory Implementation and Monitoring)

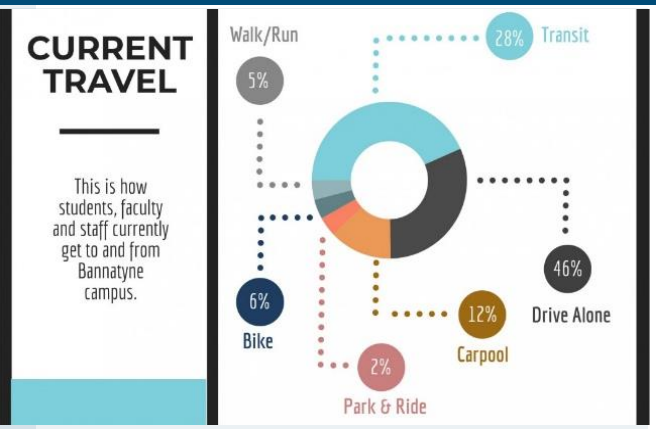


Photo Credit: University of Manitoba, 2018

GHG Mitigation Potential

Up to 26.0% of GHG emissions from project/site employee commute VMT

Co-Benefits (icon key on pg. 34)

Climate Resilience

Commute trip reduction programs could result in less traffic, potentially reducing congestion or delays on major roads during peak AM and PM traffic periods. When this reduction occurs during extreme weather events, it better allows emergency responders to access a hazard site. Lower transportation costs would also increase community resilience by freeing up resources for other purposes.

Health and Equity Considerations

Design of CTR programs needs to consider existing mobility options in diverse communities and ensure equitable access and benefit to all employees.

Measure Description

This measure will implement a mandatory CTR program with employers. CTR programs discourage single-occupancy vehicle trips and encourage alternative modes of transportation such as carpooling, taking transit, walking, and biking, thereby reducing VMT and GHG emissions.

Subsector

Trip Reduction Programs

Locational Context

Urban, suburban

Scale of Application

Project/Site

Implementation Requirements

The mandatory CTR program must include all other elements (i.e., Measures T-7 through T-11) described for the voluntary program (Measure T-5) plus include mandatory trip reduction requirements (including penalties for non-compliance) and regular monitoring and reporting to ensure the calculated VMT reduction matches the observed VMT reduction.

Cost Considerations

Employer costs may include recurring, direct costs for transit subsidies, capital and maintenance costs for alternative transportation infrastructure, and labor costs for staff to manage the program. If the local municipality has a mandatory VMT reduction ordinance, additional employer costs could include non-compliance penalties if the municipality fines CTR programs that do not meet a VMT goal. Municipal costs may include the labor costs for government staff to track the efficacy of the program, which may be outweighed by revenue generated from fines collected from non-compliant businesses.

Expanded Mitigation Options

This program typically serves as a complement to the more effective workplace CTR measures, such as pricing workplace parking (Measure T-12) or implementing employee parking "cash-out" (Measure T-13).

GHG Reduction Formula

$A = B \times C \times D$

GHG Calculation Variables

ID	Variable	Value	Unit	Source
Output				
A	Percent reduction in GHG emissions from project/site employee commute VMT	0–26.0	%	calculated
User Inputs				
B	Percent of employees eligible for program	0–100	%	user input
Constants, Assumptions, and Available Defaults				
C	Percent reduction in vehicle mode share of employee commute trips	-26	%	Nelson\Nygaard Consulting Associates 2015
D	Adjustment from vehicle mode share to commute VMT	1	unitless	assumed

Further explanation of key variables:

- (B) – This refers to the percent of employees that would be able to participate in the program. This will usually be 100 percent. Employees who might not be able to participate could include those who work nighttime hours when transit and rideshare services are not available or employees who are required to drive to work as part of their job duties. This input does not refer to the percent of employees who participate in the program.
- (C) – A multiyear study of mode share on Genentech's South San Francisco campuses tracked the long-run change in employee commute mode share with implementation of mandatory CTR. Between 2006 and 2014, employee vehicle mode share (includes single-occupied vehicles and carpools) decreased from approximately 90 percent to 64 percent, which is a 26 percent reduction (Nelson\Nygaard Consulting Associates 2015).
- (D) – The adjustment factor from vehicle mode share to commute VMT is 1. This assumes that all vehicle trips will average out to typical trip length. Thus, it can be assumed that a percentage reduction in vehicle trips will equal the same percentage reduction in VMT.

GHG Calculation Caps or Maximums

Measure Maximum

(A_{max}) The maximum GHG reduction from this measure is 26 percent. This maximum scenario is presented in the below example quantification.

Subsector Maximum

($\sum A_{max_{T\text{-}5 \text{ through } T\text{-}13}} \leq 45\%$) This measure is in the Trip Reduction Programs subsector. This subcategory includes Measures T-5 through T-13. The employee commute VMT reduction from the combined implementation of all measures within this subsector is capped at 45 percent.

Mutually Exclusive Measures

If this measure is selected, the user may not also take credit for Measure T-5, which represents the same implementation activities as Measure T-5, except that the CTR program would be mandatory. Users should select either Measure T-5 or T-6.

If this measure is selected, the user may not also take credit for Measures T-7 through T-11. Measure T-6 accounts for the combined GHG reductions achieved by each of these individual measures. To combine the GHG reductions from T-6 with any of these measures would be considered double counting. However, the user may take credit for Measure T-12 and T-13 within the larger CTR subcategory, so long as the combined VMT reduction does not exceed 45 percent, as noted above.

Example GHG Reduction Quantification

The user reduces employee commute VMT by requiring that the employer of the proposed project offer a mandatory CTR program to their employees. In this example, the percent of employees eligible (B) is 100 percent, which would reduce GHG emissions from employee commute VMT by 26 percent.

$$A = 100\% \times -26\% \times 1 = -26\%$$

Quantified Co-Benefits

Improved Local Air Quality

The percent reduction in GHG emissions (A) would be the same as the percent reduction in NO_X, CO, NO_2, SO_2, and PM. Reductions in ROG emissions can be calculated by multiplying the percent reduction in GHG emissions (A) by an adjustment factor of 87 percent. See *Adjusting VMT Reductions to Emission Reductions* above for further discussion.

Energy and Fuel Savings

The percent reduction in vehicle fuel consumption would be the same as the percent reduction in GHG emissions (A).

VMT Reductions

The percent reduction in VMT would be the same as the percent reduction in GHG emissions (A).

Sources

- Nelson/Nygaard Consulting Associates. 2015. *Genentech–South San Francisco Campus TDM and Parking Report*. June. Available: http://ci-ssf-ca.granicus.com/MetaViewer.php?view_id=2&clip_id=859&meta_id=62028. Accessed: January 2021.

A =		-6.500%	
A	GHG/VMT Reduction		
B		25%	Percent of employees eligible for program
C		-26%	Percent reduction in vehicle mode share of employee commute trips
D		1	Adjustment from vehicle mode shares to commute VMT

T-18. Provide Pedestrian Network Improvement

GHG Mitigation Potential

Up to 6.4% of GHG emissions from vehicle travel in the plan/community

Co-Benefits (icon key on pg. 34)

Climate Resilience

Improving pedestrian networks increases accessibility of outdoor spaces, which can provide health benefits and thus improve community resilience. This can also improve connectivity between residents and resources that may be needed in an extreme weather event.

Health and Equity Considerations

Ensure that the improvements also include accessibility features to allow for people of all abilities to use the network safely and conveniently. Ensure that sidewalks connect to nearby community assets, such as schools, retail, and healthcare.

Measure Description

This measure will increase the sidewalk coverage to improve pedestrian access. Providing sidewalks and an enhanced pedestrian network encourages people to walk instead of drive. This mode shift results in a reduction in VMT and GHG emissions.

Subsector

Neighborhood Design

Locational Context

Urban, suburban, rural

Scale of Application

Plan/Community

Implementation Requirements

The GHG reduction of this measure is based on the VMT reduction associated with expansion of sidewalk coverage expansion, which includes not only building of new sidewalks but also improving degraded or substandard sidewalk (e.g., damaged from street tree roots). However, pedestrian network enhancements with non-quantifiable GHG reductions are encouraged to be implemented, as discussed under *Expanded Mitigation Options*.

Cost Considerations

Depending on the improvement, capital and infrastructure costs may be high. However, improvements to the pedestrian network will increase pedestrian activity, which can increase businesses patronage and provide a local economic benefit. The local municipality may achieve cost savings through a reduction of cars on the road leading to lower infrastructure and roadway maintenance costs.

Expanded Mitigation Options

When improving sidewalks, a best practice is to ensure they are contiguous and link externally with existing and planned pedestrian facilities. Barriers to pedestrian access and interconnectivity, such as walls, landscaping buffers, slopes, and unprotected crossings should be minimized. Other best practice features could include high-visibility crosswalks, pedestrian hybrid beacons, and other pedestrian signals, mid-block crossing walks, pedestrian refuge islands, speed tables, bulb-outs (curb extensions), curb ramps, signage, pavement markings, pedestrian-only connections and districts, landscaping, and other improvements to pedestrian safety (see Measure T-35, *Provide Traffic Calming Measures*).

GHG Reduction Formula

$$A = \left(\frac{C}{B} - 1\right) \times D$$

GHG Calculation Variables

ID	Variable	Value	Unit	Source
Output				
A	Percent reduction in GHG emissions from household vehicle travel in plan/community	0–6.4	%	calculated
User Inputs				
B	Existing sidewalk length in study area	[ ]	miles	user input
C	Sidewalk length in study area with measure	[ ]	miles	user input
Constants, Assumptions, and Available Defaults				
D	Elasticity of household VMT with respect to the ratio of sidewalks-to-streets	-0.05	unitless	Frank et al. 2011

Further explanation of key variables:

- (B and C) – Sidewalk length should be measured on both sides of the street. For example, if one 0.5-mile-long street has full sidewalk coverage, the sidewalk length would be 1.0 mile. If there is only sidewalk on one side of the street, the sidewalk length would be 0.5 mile. The recommended study area is 0.6 mile around the pedestrian network improvement. This represents a 6- to 10-minute walking time.
- (D) – A study found that a 0.05 percent decrease in household vehicle travel occurs for every 1 percent increase in the sidewalk-to-street ratio (Frank et al. 2011; Handy et al. 2014).

GHG Calculation Caps or Maximums

Measure Maximum

(A_{max}) The percent reduction in GHG emissions (A) is capped at 3.4 percent, which is based on the following assumptions:

- 35.2 percent of vehicle trips are short trips (2 mile or less, average of 1.29 miles) and thus could easily shift to walking (FHWA 2019).
- 64.8 percent of vehicle trips are longer trips that are unlikely to shift to walking (2 miles or more, average of 10.93 miles) (FHWA 2019).
- So $A_{max} = \frac{35.2\% \times 1.29 \text{ miles}}{64.8\% \times 10.93 \text{ miles}} = 6.4\%$

Subsector Maximum

($\sum A_{max_{T\text{-}18 \text{ through } T\text{-}22\text{-}C}} \leq 10\%$) This measure is in the Neighborhood Design subsector. This subcategory includes Measures T-18 through T-22-C. The VMT reduction from the combined implementation of all measures within this subsector is capped at 10 percent.

Example GHG Reduction Quantification

The user reduces household VMT by improving the pedestrian network in the study area. In this example, the existing sidewalk length (B) is 9 miles, and the sidewalk length with the measure (C) would be 10 miles. With these conditions, the user would reduce GHG emissions from household VMT within the study area by 0.6 percent.

$$A = \left(\frac{10 \text{ miles}}{9 \text{ miles}} - 1\right) \times -0.05 = -0.6\%$$

Quantified Co-Benefits

Improved Local Air Quality

The percent reduction in GHG emissions (A) would be the same as the percent reduction in NO_X, CO, NO_2, SO_2, and PM. Reductions in ROG emissions can be calculated by multiplying the percent reduction in GHG emissions (A) by an adjustment factor of 87 percent. See *Adjusting VMT Reductions to Emission Reductions* above for further discussion.

Energy and Fuel Savings

The percent reduction in vehicle fuel consumption would be the same as the percent reduction in GHG emissions (A).

VMT Reductions

The percent reduction in household VMT would be the same as the percent reduction in GHG emissions (A).

Improved Public Health

Users are directed to the Integrated Transport and Health Impact Model (ITHIM) (CARB et al. 2020). The ITHIM can quantify the annual change in health outcomes associated with active transportation, including deaths, years of life lost, years of living with disability, and incidence of community and individual disease.

Sources

- California Air Resources Board (CARB), California Department of Public Health (CDPH), and Nicholas Linesch Legacy Fund. 2020. Integrated Transport and Health Impact Model. Available: https://skylab.cdph.ca.gov/HealthyMobilityOptionTool-ITHIM/#Home. Accessed: September 17, 2021.
- Federal Highway Administration (FHWA). 2019. *2017 National Household Travel Survey Popular Vehicle Trip Statistics*. Available: https://nhts.ornl.gov/vehicle-trips. Accessed: January 2021.

- Frank, L., M. Greenwald, S. Kavage, and A. Devlin. 2011. *An Assessment of Urban Form and Pedestrian and Transit Improvements as an Integrated GHG Reduction Strategy*. WSDOT Research Report WA-RD 765.1, Washington State Department of Transportation. April. Available: www.wsdot.wa.gov/research/reports/fullreports/765.1.pdf. Accessed: January 2021.
- Handy, S., S. Glan-Claudia, and M. Boarnet. 2014. *Impacts of Pedestrian Strategies on Passenger Vehicle Use and Greenhouse Gas Emissions: Policy Brief*. September. Available: https://ww2.arb.ca.gov/sites/default/files/2020-06/Impacts_of_Pedestrian_Strategies_on_Passenger_Vehicle_Use_and_Greenhouse_Gas_Emissions_Policy_Brief.pdf. Accessed: January 2021.

A =		-0.222%	
A	GHG/VMT Reduction		
B		9.01	Existing sidewalk length in study area (miles) (0.6 mile radius)
C		9.41	Sidewalk length in study area with measure (0.6 mile radius)
D		-0.05	Elasticity of household VMT with respect to the ratio of sidewalks-to-streets

T-19-A. Construct or Improve Bike Facility

GHG Mitigation Potential

Up to 0.8% of GHG emissions from vehicles parallel roadways

Co-Benefits (icon key on pg. 34)

Climate Resilience

Constructing and improving bike facilities can incentivize more bicycle use and decrease vehicle use, which have health benefits and can thus improve community resilience. This can also improve connectivity between residents and resources that may be needed in an extreme weather event.

Health and Equity Considerations

Prioritize low-income and underserved areas and communities with lower rates of vehicle ownership or fewer transit options. Make sure that the bicycle facility connects to a larger existing bikeway network that accesses destinations visited by low-income or underserved communities.

Measure Description

This measure will construct or improve a single bicycle lane facility (only Class I, II, or IV) that connects to a larger existing bikeway network. Providing bicycle infrastructure helps to improve biking conditions within an area. This encourages a mode shift on the roadway parallel to the bicycle facility from vehicles to bicycles, displacing VMT and thus reducing GHG emissions. When constructing or improving a bicycle facility, a best practice is to consider local or state bike lane width standards. A variation of this measure is provided as T-19-B, *Construct or Improve Bike Boulevard*.

Subsector

Neighborhood Design

Locational Context

Urban, suburban

Scale of Application

Plan/Community. This measure reduces VMT on the roadway segment parallel to the bicycle facility (i.e., the corridor). An adjustment factor is included in the formula to scale the VMT reduction from the corridor level to the plan/community level.

Implementation Requirements

The bicycle lane facility must be either Class I, II, or IV. Class I bike paths are physically separated from motor vehicle traffic. Class IV bikeways are protected on-street bikeways, also called cycle tracks. Class II bike lanes are striped bicycle lanes that provide exclusive use to bicycles on a roadway.

Cost Considerations

Capital and infrastructure costs for new bike facilities may be high. The local municipality may achieve cost savings through a reduction of cars on the road leading to lower infrastructure and roadway maintenance costs.

Expanded Mitigation Options

Implement alongside Measures T-22-A, T-22-B, and/or T-22-C to ensure that micromobility users can ride safely along bicycle lane facilities and not have to ride along pedestrian infrastructure, which is a risk to pedestrian safety.

GHG Reduction Formula

$$A = -B \times \frac{\frac{F}{I} \times (C + D) \times E \times G}{H}$$

GHG Calculation Variables

ID	Variable	Value	Unit	Source
Output				
A	Percent reduction in GHG emissions from displaced vehicles on roadway parallel to bicycle facility	0–0.8	%	calculated
User Inputs				
B	Percent of plan/community VMT on parallel roadway	0–100	%	user input
C	Active transportation adjustment factor	Table T-19.1	unitless	CARB 2020
D	Credits for key destinations near project	Table T-19.2	unitless	CARB 2020
E	Growth factor adjustment for facility type	Table T-19.3	unitless	CARB 2020
Constants, Assumptions, and Available Defaults				
F	Annual days of use of new facility	Table T-19.4	days per year	NOAA 2017
G	Existing regional average one-way bicycle trip length	Table T-10.1	miles per trip	FHWA 2017
H	Existing regional average one-way vehicle trip length	Table T-10.1	miles per trip	FHWA 2017
I	Days per year	365	days per year	standard

Further explanation of key variables:

- (B) – The percent of total plan/community VMT within the roadway parallel to the bike facility should represent the expected total VMT generated by all land use in that area, including office, residences, retail, schools, and other uses. The most appropriate source for this data is from a local travel demand forecasting model. An alternate method uses VMT per worker or VMT per resident as calculated for SB 743 compliance and screening purposes multiplied by the population in the area.
- (C, D, and E) – The active transportation adjustment factor, key destination credit, and growth factor adjustment should be looked up by the user in Tables T-19.1 through T-19.3 in Appendix C. The active transport adjustment factor is based on the existing annual average daily traffic (AADT) of the facility, length of the proposed bike facility, and the city population. The key destination credit is based on the number of key destinations within 0.5-mile of the facility. The growth factor is based on the type of proposed bicycle facility.
- (F) – The annual days of use for the new facility should be looked up by users in Table T-19.4 based on the county in which the project is located. The days of use is based on the number of days per year where there is no rainfall (i.e., <=0.1 inches) (NOAA 2017).

- (G and H) – Ideally, the user will calculate bicycle and vehicle trip lengths for the corridor at a scale no larger than the surrounding census tract. Potential data sources include the U.S. Census, California Household Travel Survey (preferred), or local survey efforts. If the user is not able to provide a project-specific value using one of these data sources, they have the option to input regional average one-way bicycle and vehicle trip lengths for one of the six most populated CBSAs in California provided in Table T-10.1 in Appendix C (FHWA 2017).

GHG Calculation Caps or Maximums

Measure Maximum

(A_{max}) For projects that use CBSA data from Table T-10.1 in Appendix C, the maximum percent reduction in GHG emissions (A) is 0.8 percent. This is based on a neighborhood project the size of a large corridor (B = 100%) within the CBSA of Sacramento-Roseville-Arden-Arcade that uses the highest values for (C, D, and E) in Tables T-19.1 through T-19.3 and annual use days for Sacramento County (F) in Table T-19.4. This maximum scenario is presented in the below example quantification.

(C_{max}) The active transportation adjustment factor (C) was determined for roadways with AADT ranging from 1 to 30,000 (CARB 2020). Roadways with AADT greater than 30,000 are generally not appropriate for bicycle facilities. Care should be taken by the user in interpreting the results from this equation for a project roadway with AADT greater than 30,000.

Subsector Maximum

($\sum A_{max_{T\text{-}18 \text{ through } T\text{-}22\text{-}C}} \leq 10\%$) This measure is in the Neighborhood Design subsector. This subcategory includes Measures T-18 through T-22-C. The VMT reduction from the combined implementation of all measures within this subsector is capped at 10 percent.

Example GHG Reduction Quantification

The user reduces VMT by constructing a bicycle facility that displaces vehicle trips with bicycle trips. In this example, the following assumptions are made to obtain inputs from Tables T-19.1 through T-19.3 in Appendix C:

- Percent of plan/community VMT on parallel roadway (B) = 100%. The project would establish a bike corridor the whole length of a central commercial thoroughfare. It is assumed this main street makes up the entire neighborhood.
- Active transportation adjustment factor (C) = 0.0207. Existing AADT on the roadway parallel to the proposed bicycle facility is 10,000, the facility length is 2.5 miles, and the project site is in a university town with a population of 200,000.
- Key destination credit (D) = 0.003. There are 10 key destinations within 0.25 mile of the project site.
- Growth factor adjustment (E) = 1.54. The bike facility would be a new Class IV bikeway.

The project is within the Sacramento-Roseville-Arden-Arcade CBSA and the user does not have project-specific values for average bicycle and vehicle trip lengths. Accordingly, the inputs of 2.9 miles and 10.9 miles, respectively (G and H), from Table T-10.1 in Appendix C are assumed. The user would displace GHG emissions from project study area VMT by 0.8 percent.

$$A = \textbf{-100\%} \times \left(\frac{\frac{307 \text{ days}}{365 \text{ days}} \times (\textbf{0.0207} + \textbf{0.003}) \times \textbf{1.54} \times 2.9 \text{ miles}}{10.9 \text{ miles}} \right) = -0.8\%$$

Quantified Co-Benefits

Improved Local Air Quality

The percent reduction in GHG emissions (A) would be the same as the percent reduction in NO_X, CO, NO_2, SO_2, and PM. Reductions in ROG emissions can be calculated by multiplying the percent reduction in GHG emissions (A) by an adjustment factor of 87 percent. See *Adjusting VMT Reductions to Emission Reductions* above for further discussion.

Energy and Fuel Savings

The percent reduction in vehicle fuel consumption would be the same as the percent reduction in GHG emissions (A).

VMT Reductions

The percent reduction in VMT would be the same as the percent reduction in GHG emissions (A).

Improved Public Health

Users are directed to the ITHIM (CARB et al. 2020). The ITHIM can quantify the annual change in health outcomes associated with active transportation, including deaths, years of life lost, years of living with disability, and incidence of community and individual disease.

Sources

- California Air Resources Board (CARB). 2020. *Quantification Methodology for the Strategic Growth Council's Affordable Housing and Sustainable Communities Program*. September. Available: https://ww2.arb.ca.gov/sites/default/files/classic/cc/capandtrade/auctionproceeds/draft_sgc_ahsc_qm_091620.pdf. Accessed: January 2021.
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- Federal Highway Administration (FHWA). 2017. *National Household Travel Survey–2017 Table Designer*. Travel Day PT by TRPTRANS by HH_CBSA. Available: https://nhts.ornl.gov/. Accessed: January 2021.

- National Oceanic and Atmospheric Administration (NOAA). 2021. *Global Historical Climatology Network–Daily (GHCN-Daily), Version 3*. 2015-2019 Average of Days Per Year with Precipitation >0.1 Inches. Available: https://www.ncei.noaa.gov/access/search/data-search/daily-summaries?bbox=38.922,-120.071,38.338,-119.547&place=County:1276&dataTypes=PRCP&startDate=2015-01-01T00:00:00&endDate=2019-01-01T23:59:59. Accessed: May 2021.

A = -0.215%

A	GHG/VMT Reduction	
B	100%	% of plan/community VMT on parallel roadway
C	0.0104	Active transportation adjustment factor (Table T-19.1)
D	0.002	Credits for key destinations near project (Table T-19.2)
E	1	Growth factor adjustment for facility type (Table T-19.3)
F	337	Annual days of use of new facility (Table T-19.4)
G	2.2	Existing regional average one-way bicycle trip length (Table T-10.1)
H	11.7	Existing regional average one-way vehicle trip length (Table T-10.1)
I	365	Days per year