

TRAFFIC IMPACT STUDY
UPTOWN COMMONS
6600 Atlantic Avenue,
Long Beach

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Prepared For:

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1. INTRODUCTION

A project has been proposed by Frontier Real Estate Investments for a commercial center located at 6600 Atlantic Avenue, within the City of Long Beach. KOA Corporation has been retained to analyze the potential traffic impacts associated with the proposed Project. The scope and methodologies used for this traffic study were developed in consultation with the City of Long Beach.

1.1 PROJECT DESCRIPTION

Proposed Land Uses and Parking

The proposed commercial center (Project) is located at the northeast corner of Atlantic Avenue and Artesia Boulevard. The proposed Project would construct multiple buildings with a total floor area of 11,150 square feet. The land uses and intensity of each use are summarized below:

- Fast-food restaurant with drive-through window: 2,600 square feet
- Fast-food restaurant without drive through window: 3,800 square feet *
- Coffee shop with drive-through window: 2,000 square feet
- Drive-up Bank: 2,750 square feet

** Including two small shipping container restaurants.*

A total of 84 off-street parking stalls would be provided on the Project site. The proposed site is currently vacant.

Site Access

The proposed Project site would have primary access at a main driveway on Artesia Boulevard. Additional access would be provided at the existing alleyway on the north side of the site. The alleyway provides access between Atlantic Avenue and Lime Avenue. An eastbound left-turn lane on Artesia Boulevard is proposed to be constructed to allow ingress access to the site at the southern driveway. A second westbound turn lane would be added at the Atlantic Avenue/Artesia Boulevard intersection, as part of this Project improvement, to ensure adequate storage/queuing capacity is maintained and left-turn volumes do not queue into the westbound through lanes and block through traffic.

The overall improvements to be completed as a Project Design Feature, subject to review and approval of the City of Long Beach, include the following:

- Artesia Boulevard at Main Driveway: Modify existing median on Artesia Boulevard to provide an eastbound left-turn lane with 90 feet of storage and a 60-foot transition; median will be designed to restrict outbound (southbound) left-turn movements from the Project driveway to eastbound Artesia Boulevard
- Artesia Boulevard at Atlantic Avenue: Modify existing median on Artesia Boulevard east of Atlantic Avenue to provide dual westbound left-turn lanes with storage of 215 to 255 feet and a 60-foot transition (overlapping with the driveway turn lane transition). Modify existing traffic signal, and the associated signing and striping layout on Artesia Boulevard, between Atlantic Avenue and Lime Avenue, as necessary per the approval of the City of Long Beach.

The Project is anticipated to be completed and occupied by the end of year 2019. The proposed Project site plan with the proposed Project improvements on Artesia Boulevard, including the new dual left-run lane at the adjacent intersection, is provided on Figure 1A. A detailed view of the Project roadway improvements is provided on Figure 1B.

1.2 PROJECT STUDY AREA

The project study area, as defined through consultation with City staff, includes the following nine study intersections:

1. Atlantic Pl & 70th St¹
2. Long Beach Blvd & Artesia Blvd
3. Atlantic Ave & Artesia Blvd
4. Myrtle Ave & Artesia Blvd
5. Orange Ave & Artesia Blvd
6. Atlantic Ave & Harding St

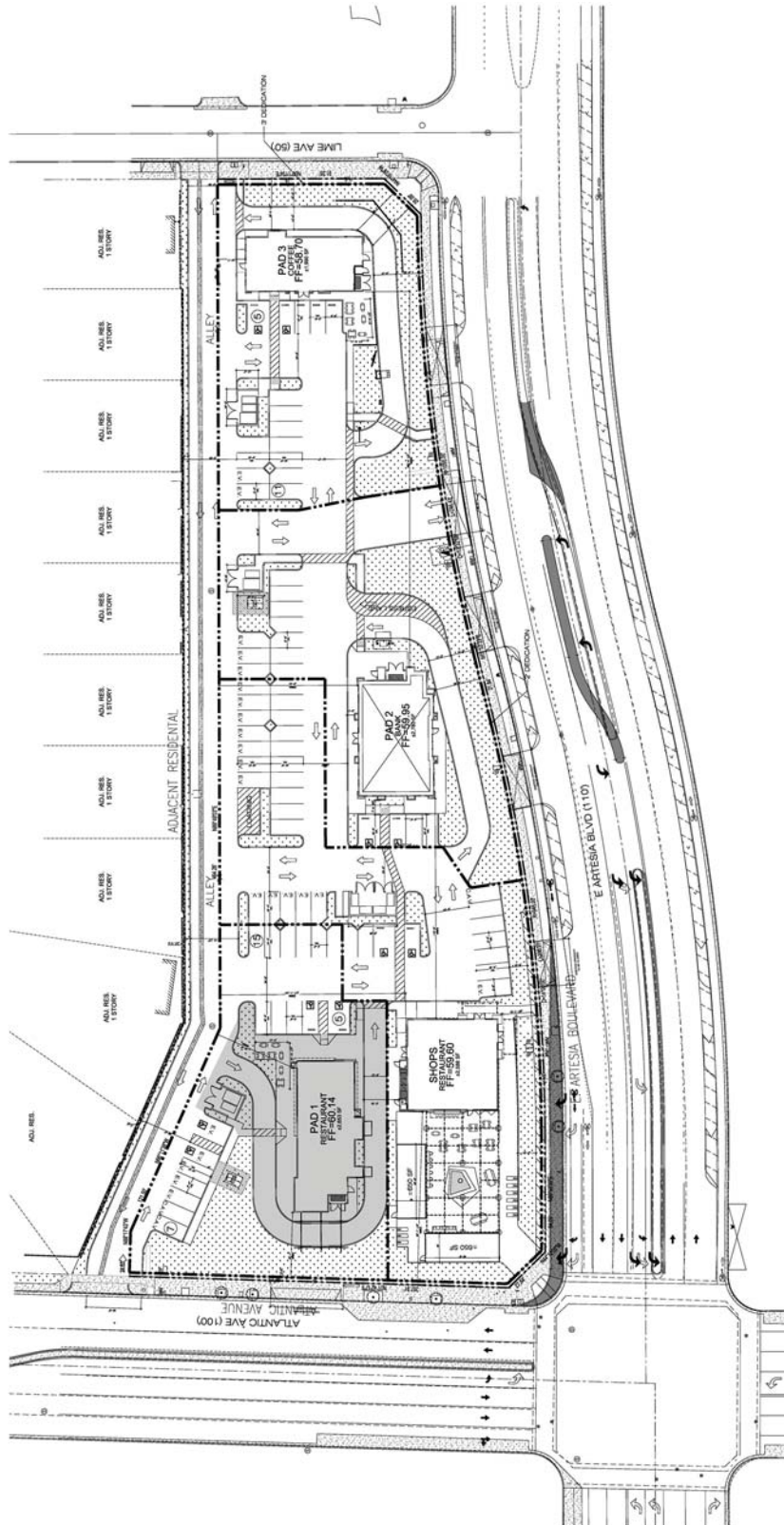
Note: 1 – This intersection is currently controlled by all-way stop sign.

Figure 2 illustrates the location of the study intersections.

FIGURE
1A

UPTOWN COMMONS

Project Site Plan

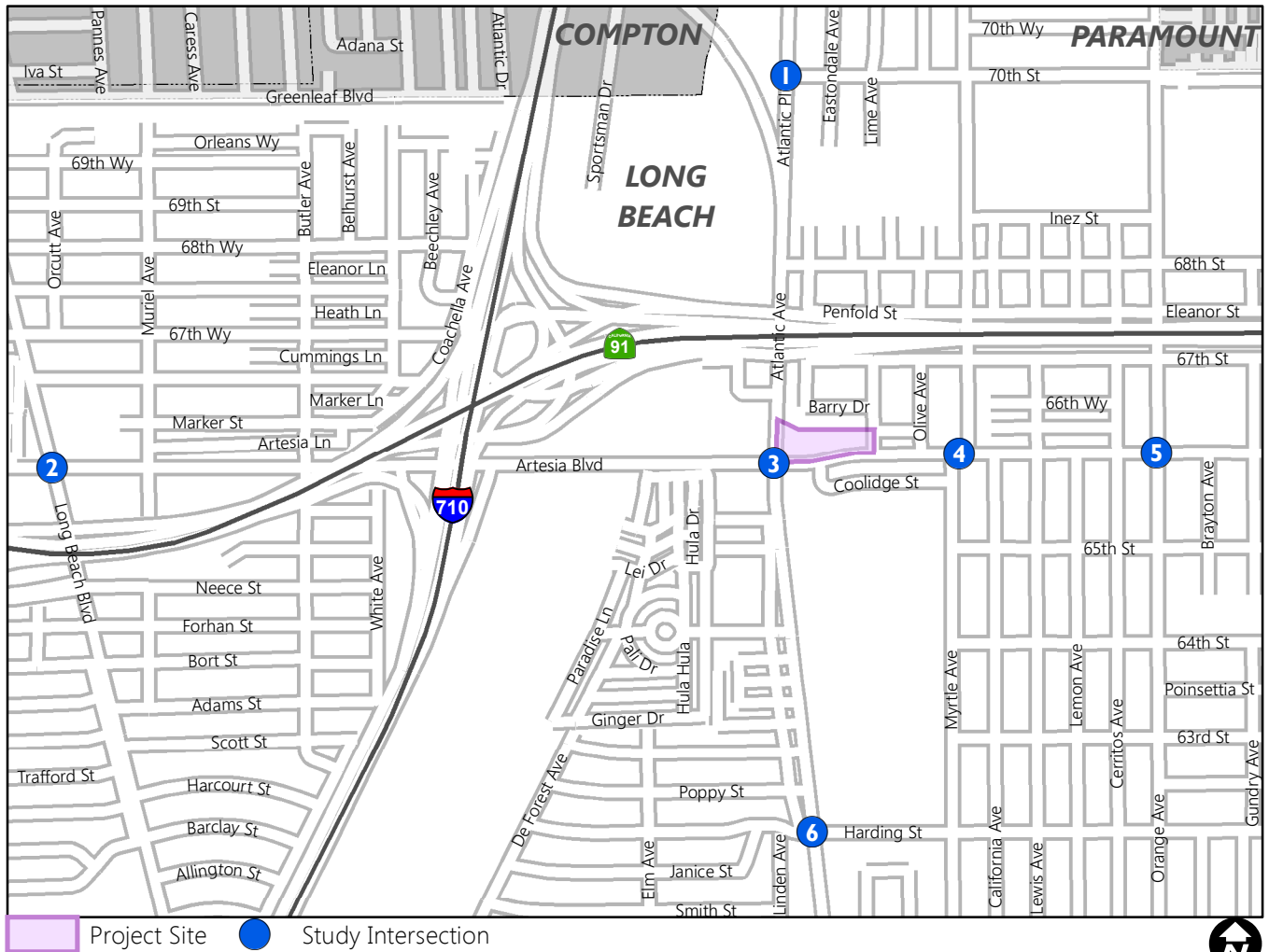


Project Roadway Improvements Detail



FIGURE 2

UPTOWN COMMONS 6600 ATLANTIC AVENUE Study Intersection Locations



1.3 ANALYZED SCENARIOS

Traffic impacts associated with the proposed Project were analyzed at the study intersections for the weekday a.m. and weekday p.m. peak-hour periods. The study included the analysis of the following traffic scenarios:

- Existing
- Existing with-Project
- Future without-Project
- Future with-Project
- Future with-Project, with-Improvements *

** This scenario includes planned roadway improvements adjacent to the Project site, necessary for access to and from the southern driveway on Artesia Boulevard.*

1.4 ANALYSIS METHODOLOGY

KOA discussed City staff as the first step in the traffic analysis, in order to define the study area and other major details. The following text describes the study methodology contained in this report.

Existing Conditions

New traffic counts were conducted at the study intersections. The counts were used to determine existing traffic conditions. Fieldwork within the study area was undertaken to identify the condition of key study area roadways including traffic control and approach lane configuration at each study intersection, and on-street parking restrictions.

The existing level of service (LOS) at each of the study intersections is discussed in Section 2 of this report.

Project Trip Generation and Distribution

Project trip generation was based on trip rates defined by the *Institute of Transportation Engineers (ITE) Trip Generation, 10th Edition*. The detailed methodology utilized for the Project trip generation and distribution calculations is discussed in Section 3 of this report.

Existing with-Project Conditions

Based on the traffic that is projected for the proposed Project and the traffic count totals, an Existing plus-Proposed Project conditions scenario was analyzed per the *Sunnyvale* and *Smart Rail* California Environmental Quality Act (CEQA) court case decisions that determined that project impacts should be analyzed against existing conditions.

The level of service for existing with-Project conditions at the study intersections is discussed in Section 4 of this report.

Future without-Project Conditions

In order to account for traffic growth in the study area, an ambient/background traffic growth rate was applied to the existing traffic counts. In addition, traffic from related/area projects (approved and pending developments) was also added to the study area. The levels of service at the study intersections for future without-Project conditions are discussed in Section 5 of this report.

Future with-Project Conditions

Based on the future without-Project volumes plus traffic from the proposed Project, the future with-Project traffic volume conditions were determined and analyzed. The levels of service for this scenario are discussed in Section 6 of this report.

Level of Service Methodology

For analysis of level of service at signalized intersections, City of Long Beach *traffic impact analysis guidelines* has designated the Intersection Capacity Utilization (ICU) methodology as the desired tool. The concept of roadway level of service under the ICU methodology is calculated as the volume of vehicles at the critical movements that pass through the facility divided by the capacity of that facility.

This volume/capacity ratio value is based upon volumes by lane, signal phasing, and approach lane configuration with a capacity of 1,600 vehicles per lane for all through and turn lanes, and capacity of 2,880 for dual turn lanes. A 10 percent adjustment to the clearance and loss time factor based on the critical phases of the signalized control was included in the traffic analysis.

A facility with LOS A indicates excellent operating conditions with little delay to motorists, whereas LOS F represents congested conditions with excessive vehicle delay. The City considers LOS D as acceptable intersection operations, and LOS E or LOS F considers as operating "at capacity" of a roadway.

For the stop-controlled study intersection, the Highway Capacity Manual (HCM) unsignalized intersection analysis methodology was used to compute LOS values. For this methodology, conditions are based upon intersection delay, defined as the worst-case approach delay experienced by users of the intersection who must stop or yield to free-flow through traffic. This method uses a "gap acceptance" technique to predict driver delay. This methodology is applicable to unsignalized and partially-controlled intersections on major streets where there is potential for crossing difficulty from the minor approaches due to heavy traffic volumes on the major approaches.

Table 1 defines the level of service criteria applied to the study intersections.

Table 1- Level of Service Definitions

Level of Service	Volume-to-Capacity Definition	Signalized Volume to Capacity Ratio	Unsignalized Delay per Vehicle (seconds)
A	Excellent operation. Free-flow speeds prevail. Vehicles are almost unimpeded in their ability to maneuver within the traffic stream.	0.00-0.600	< 10
B	Very good operation. Reasonably free-flow speeds are maintained. The ability to maneuver within traffic is only slightly restricted.	0.601-0.700	> 10 and < 15
C	Good operation. Flow with speeds at or near free-flow speed of the roadway. Freedom to maneuver within the traffic stream is noticeably restricted and lane changes require more care and vigilance on the part of the driver.	0.701-0.800	> 15 and < 25
D	Fair operation. Speeds begin to decline slightly with increasing flows. In this range, density begins to increase somewhat more quickly with increasing flow. Freedom to maneuver within the traffic stream is noticeably limited.	0.801-0.900	> 25 and < 35
E	Poor operation. Operation at capacity with no usable gaps in the traffic stream. Any disruption to the traffic stream has little or no room to dissipate.	0.901-1.000	> 35 and < 50
F	Forced flow. Represents jammed conditions. Backups from locations downstream or on the cross street may restrict or prevent movements of vehicles out of the intersection approach lanes; therefore, volumes carried are not predictable. Potential for stop and go type traffic flow.	Over 1.000	> 50

Source: *Highway Capacity Manual, Special Report 209, Transportation Research Board, Washington D.C., 2000 and Interim Materials on Highway Capacity, NCHRP Circular 2012, 1982*

Significant Traffic Impacts

As defined by the City of Long Beach *Traffic Impact Study Guidelines*, significant impacts of proposed Project traffic causes an intersection to deteriorate from LOS D to LOS E or F, or if the Project traffic causes an increase in volume-to-capacity ratio of 0.02 or greater when the intersection is operating at LOS E or F in the baseline condition.

2. EXISTING CONDITIONS

This section describes the existing conditions within the study area in terms of roadway facilities, transit service and traffic operating conditions. The study intersection lane configuration is provided in Appendix B.

2.1 EXISTING ROADWAY SYSTEM

The key roadways within the study area are described below. The discussion presented here is limited to specific roadways that traverse the study intersections and serve the Project site. Figure 3 illustrates the existing traffic controls and approach lane geometries at the study intersections.

[70th Street](#) is classified as a Neighborhood Connector in the City of Long Beach General Plan. This roadway provides two travel lanes in each direction. On-street parking is generally prohibited on both sides of the roadway. The posted speed limit is 25 miles per hour.

[Atlantic Avenue](#) is classified as a Major Avenue in the City of Long Beach General Plan. This roadway provides two travel lanes in each direction. On-street parking is generally permitted on both sides of the roadway. The posted speed limit is 30 miles per hour. There are bike lines in both the northbound and southbound directions.

[Atlantic Place](#) is classified as a Local Street in the City of Long Beach General Plan. This roadway provides two travel lanes in each direction. On-street parking is generally permitted on both sides of the roadway. The posted speed limit is 30 miles per hour. There are bike lines in both the northbound and southbound directions.

[Artesia Boulevard](#) is classified as a Major Avenue in the City of Long Beach General Plan. This roadway provides two travel lanes in each direction. On-street parking is permitted on both sides of the roadway east of Lime Avenue (to the east of the site) and west of Butler Avenue (between Atlantic and Long Beach Blvds). The posted speed limit is 35 miles per hour. There are protected bike lines in both the eastbound and westbound directions.

[Myrtle Avenue](#) is classified as a local street in the City of Long Beach General Plan. This roadway provides one travel lane in each direction. On-street parking is generally permitted on both sides of the roadway. The posted speed limit is 25 miles per hour. The street is a shared-use bike route.

[Orange Avenue](#) is classified as a Minor Avenue in the City of Long Beach General Plan. This roadway provides one travel lane in each direction. On-street parking is generally permitted on both sides of the roadway. The posted speed limit is 35 miles per hour. There are bike lines in both the northbound and southbound directions.

[Long Beach Boulevard](#) is classified as a Boulevard in the City of Long Beach General Plan. This roadway provides two travel lanes in each direction. On-street parking is generally permitted on both sides of the roadway. The posted speed limit is 35 miles per hour.

[Harding Street](#) is classified as a Neighborhood Connector in the City of Long Beach General Plan. The roadway provides one travel lane in each direction. On-street parking is generally permitted on both sides of the roadway. The posted speed limit is 30 miles per hour. There are bike lines in both the eastbound and westbound directions.

2.2 EXISTING TRANSIT SERVICE

The Project study area is served by bus transit lines operated by the City of Long Beach, the Metropolitan Transit Authority (Metro), and Orange County Transportation Authority (OCTA). Table 2 summarizes the study area public transit services.

Table 2 - Existing Transit Service Summary

Agency	Line	From	To	Via	Peak Frequency
Long Beach Transit	51	Artesia (Blue Line) Station	Downtown Long Beach	Artesia Boulevard, Long Beach Boulevard	12 Minutes
Long Beach Transit	61	Artesia (Blue Line) Station	Downtown Long Beach	Artesia Boulevard, Atlantic Avenue	10 Minutes
Long Beach Transit	71	Garfield-Petrol	Downtown Long Beach	Orange Avenue	40 minutes
Long Beach Transit	72	Garfield-Petrol	Downtown Long Beach	Orange Avenue, Hunsaker Avenue, Atlantic Place, Artesia Boulevard	60 minutes
Metro	130	Torrance/Broadway (Redondo Beach)	Los Cerritos Center	Artesia Boulevard	30 minutes
Metro	260	Altadena	Artesia (Blue Line) Station	Atlantic Blvd, Artesia Blvd	13 minutes
Metro	762	Fair Oaks-Colorado (Downtown Pasadena)	Artesia (Blue Line) Station	Atlantic Blvd, Artesia Blvd	20 minutes
OCTA	721	Fullerton Park-and-Ride	5th and Beaudry (Downtown LA)	SR-91, I-110	40 minutes

The routes of the existing transit service serving the study area are illustrated on Figure 3.

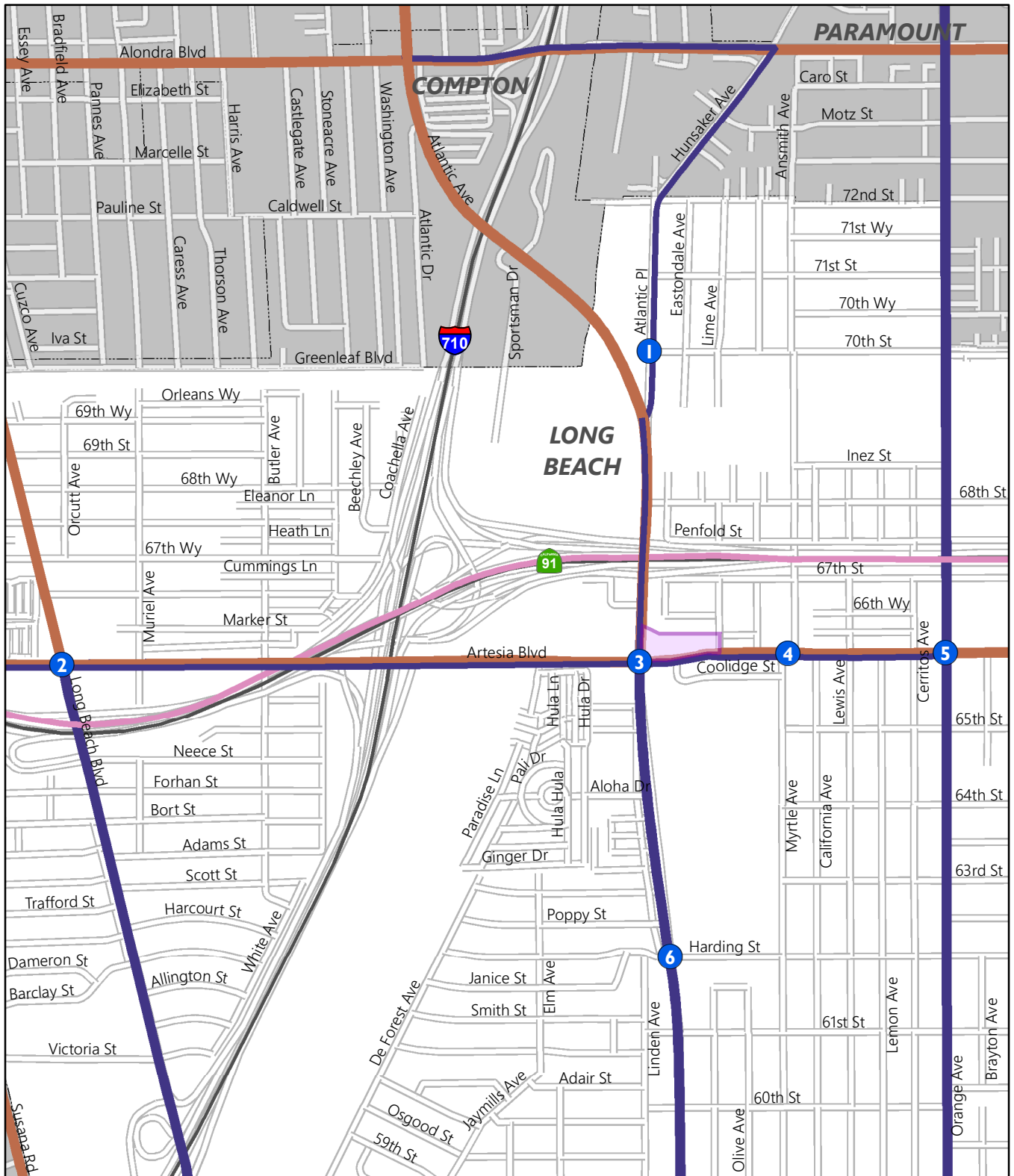
2.3 EXISTING TRAFFIC VOLUMES

Vehicle turning movement counts were collected at the study intersections on Thursday, March 8, 2018 from 7:00 a.m. to 9:00 a.m. and from 4:00 p.m. to 6:00 p.m.

The traffic count data sheets are provided in Appendix A. The existing weekday a.m. peak-hour and p.m. peak-hour traffic turn movement volumes are illustrated in Appendix B of this report.

FIGURE 3

UPTOWN COMMONS 6600 ATLANTIC AVENUE Existing Transit Service



2.4 EXISTING INTERSECTION LEVEL OF SERVICE

Based on the intersection lane configurations and the existing traffic volumes, volume-to-capacity ratios and corresponding levels of service (LOS) were determined for each of the study intersections during the weekday a.m. and p.m. peak hours.

Table 3 summarizes the volume-to-capacity ratios and LOS values for existing traffic conditions.

**Table 3- Intersection Performance –
Existing Conditions**

Study Intersections		AM Peak		PM Peak	
		ICU or Delay	LOS	ICU or Delay	LOS
1	Atlantic Pl & 70th St ¹	9.8	A	8.5	A
2	Long Beach Blvd & Artesia Blvd	0.730	C	0.800	C
3	Atlantic Ave & Artesia Blvd	0.811	D	0.889	D
4	Myrtle Ave & Artesia Blvd	0.634	B	0.620	B
5	Orange Ave & Artesia Blvd	0.813	D	0.826	D
6	Atlantic Ave & Harding St	0.579	A	0.588	A

LOS = Level of Service; Delay = Vehicles delay in seconds.

1. Unsignalized intersection. LOS is calculated by average delay in seconds of approaching vehicles.

As shown in Table 3, all of the study intersections are currently operating at acceptable LOS D or better during the weekday a.m. and p.m. peak hours.

The existing traffic volumes for the weekday a.m. and p.m. peak hour are illustrated in Appendix B of this report. The existing traffic analysis scenario worksheets are provided in Appendix C.

3. PROJECT TRIPS

This section defines the traffic that would be generated by the proposed Project in a three-step process including trip generation, trip distribution and trip assignment.

3.1 PROJECT TRIP GENERATION

The trip generation of the project was calculated using nationally-accepted rates defined by *Trip Generation (10th edition)*, published by the Institute of Transportation Engineers (ITE).

Pass-by trips defined by the same source were included, which are trips that are not generated directly by a project but are mid-point stop between another origin and destination. These trips are removed from the study area analysis, but added back at the adjacent intersection, where they create new turning movements between a project site and the overall through route of the overall trip. Some of the ITE pass-by rates for a.m. peak versus p.m. peak are very similar – in these cases, the lower values was used for both peak periods.

The vehicle trip generation analysis is provided in Table 4. The project would generate a net daily total of 1,751 trips, including 147 trips during the a.m. peak-hour and 164 vehicle trips during the p.m. peak hour.

Table 4 - Project Trip Generation

Land Use	Intensity	Units	Daily Total	AM Peak			PM Peak		
				Total	In	Out	Total	In	Out
Trip Generation Rates									
Fast-Food without Drive-Through Window	-	k.s.f.	346.23	25.10	60%	40%	28.34	50%	50%
Fast-Food with Drive-Through Window	-	k.s.f.	470.95	40.19	51%	49%	32.67	52%	48%
Coffee/Donut Shop with Drive-Through Window	-	k.s.f.	820.38	88.99	51%	49%	43.38	50%	50%
Drive-In Bank	-	k.s.f.	100.03	9.50	58%	42%	20.45	50%	50%
Trip Generation Estimates									
Fast-Food without Drive-Through Window [1]	3.800	k.s.f.	1,316	95	57	38	108	54	54
Fast-Food with Drive-Through Window	2.600	k.s.f.	1,224	104	53	51	85	44	41
Coffee/Donut Shop with Drive-Through Window	2.000	k.s.f.	1,641	178	91	87	87	44	43
Drive-In Bank	2.750	k.s.f.	275	26	15	11	56	28	28
Project Trip Subtotal			4,456	403	216	187	336	170	166
Trip Credits									
Fast-Food without Drive-Through Window, 49%			-645	-47	-28	-19	-53	-26	-27
Fast-Food with Drive-Through Window, 49%			-600	-51	-26	-25	-42	-22	-20
Coffee/Donut Shop with Drive-Through Window, 89%			-1460	-158	-81	-77	-77	-39	-38
Pass-By Subtotal			-2,705	-256	-135	-121	-172	-87	-85
NET TOTAL			1,751	147	81	66	164	83	81

Source: ITE Trip Generation Manual, 10th Edition

[1] Shipping container restaurants with 1,300 square feet of total floor area are categorized as fast-food restaurants without drive-through windows.

Pass-by rates from the ITE Trip Generation Handbook for fast-food restaurants with drive-thru facilities were applied to all project fast food restaurants.

3.2 PROJECT TRIP DISTRIBUTION

Trip distribution is the process of assigning the directions from which traffic will access the Project site. Trip distribution is dependent upon the land use characteristics of the Project, the local roadway network, and the general locations of other land uses to which Project trips would originate or terminate. Appendix B illustrates the trip distribution percentages at the study intersections that were used for the traffic impact analysis. Site-area detail figures within Appendix B illustrate the distribution to the Project site perimeter intersections including the driveways.

3.3 PROJECT TRIP ASSIGNMENT

Based on the trip generation and distribution assumptions described above, Project traffic was assigned to the roadway system. Appendix B illustrates the Project trips for the weekday a.m. and p.m. peak hours.

3.4 PROJECT DESIGN FEATURES

A queuing analysis was conducted to analyze the primary site access on Artesia Boulevard of the proposed Project. The adjacent intersection was examined for potential modification of the westbound turn lane to allow for left-turn ingress to the main Project site driveway, through provision of a new inbound turn lane at that location.

In order to accommodate the inbound turn lane at the Project driveway, a dual left-turn lane at the adjacent Atlantic Avenue intersection would be implemented as part of the proposed Project. With this consideration, the intersection turn lane length could be shortened without causing undue impact to through movements at the intersection or to Project main driveway operations.

The intersection westbound dual left-turn lanes and the Project main driveway configuration were incorporated into a with-improvements scenario, based on the access analysis summarized in Section 8.

4. EXISTING WITH PROJECT CONDITIONS

This section documents existing traffic conditions at the study intersections with the addition of Project-generated traffic. Traffic volumes for these conditions were derived by adding Project trips to the existing conditions scenario volumes.

Table 5 summarizes the resulting V/C and LOS values at the study intersections for the existing with-Project conditions. The existing with-Project traffic analysis worksheets for this scenario are provided in Appendix D1 of this report.

**Table 5- Intersection Performance –
Existing With-Project**

Study Intersections		AM Peak		PM Peak	
		ICU or Delay	LOS	ICU or Delay	LOS
1	Atlantic Pl & 70th St ¹	9.9	A	8.6	A
2	Long Beach Blvd & Artesia Blvd	0.734	C	0.812	D
3	Atlantic Ave & Artesia Blvd	0.840	D	0.935	E
4	Myrtle Ave & Artesia Blvd	0.644	B	0.631	B
5	Orange Ave & Artesia Blvd	0.824	D	0.832	D
6	Atlantic Ave & Harding St	0.585	A	0.595	A

LOS = Level of Service; Delay = Vehicles delay in seconds.

1. Unsignalized intersection. LOS is calculated by average delay in seconds of approaching vehicles.

As shown in Table 5, five of the six study intersections would continue to operate at LOS D or better during the weekday a.m. and p.m. peak hours. The intersection of Atlantic Avenue/Artesia Boulevard would worsen in operations to LOS E in the p.m. peak hour.

The existing with-Project traffic volumes for the weekday a.m. and p.m. peak hour are provided in Appendix B of this report.

5. FUTURE WITHOUT PROJECT CONDITIONS

This section provides an analysis of future traffic conditions in the study area with area/related project trips and background growth added, but without Project traffic. The proposed Project is anticipated to be completed by 2019, and this defined the future analysis year.

5.1 AMBIENT GROWTH

In order to acknowledge regional population and employment growth outside of the study area, an ambient/background traffic growth rate was applied to the existing traffic counts. An annual growth rate of one percent, a conservative rate higher than that defined for Regional Statistical Area 20 of the 2010 Los Angeles County Congestion Management Program, was used for this analysis.

5.2 AREA PROJECTS

In addition to the application of the ambient traffic growth rate, traffic from related/area projects (approved and pending developments) was also included as part of the year-2019 analysis. Five related projects in the City of Long Beach were identified for inclusion in the traffic impact analysis.

Table 6 defines the trip generation estimates for the related/area projects identified within the local area, and their locations are illustrated on Figure 4.

Table 6 – Area Projects Trip Generation Estimate

ID	Location	Land Use	Intensity	Units	Daily Total	AM Peak Hour			PM Peak Hour		
						In	Out	Total	In	Out	Total
1	4747 Daisy Ave	Condominiums	131	d.u.	713	12	35	47	35	23	58
2	4385 Atlantic Ave	Commercial/Retail	3,000	k.s.f.	113	2	1	3	5	6	11
3	6151-6191 Atlantic Ave	Commercial/Retail	20,250	k.s.f.	764	12	7	19	37	40	77
4	4800 Long Beach Blvd	Condominiums	20	d.u.	109	2	5	7	5	4	9
5	5100 Long Beach Blvd	Condominiums	38	d.u.	207	4	10	14	10	7	17
TOTAL					1,906	32	58	90	92	80	172

Source: ITE Trip Generation Manual, 10th Edition

The related project volumes figures for the weekday a.m. and p.m. peak hours are provided in Appendix B.

5.3 FUTURE WITHOUT PROJECT INTERSECTION LEVEL OF SERVICE

The future without-Project traffic volumes for the weekday a.m. and p.m. peak hour are illustrated on Figure 4.

Table 7 summarizes the V/C and LOS values at the study intersections under this scenario.

**Table 7 - Intersection Performance –
Future without-Project**

Study Intersections		AM Peak		PM Peak	
		ICU or Delay	LOS	ICU or Delay	LOS
1	Atlantic Pl & 70th St ¹	9.8	A	8.5	A
2	Long Beach Blvd & Artesia Blvd	0.738	C	0.810	D
3	Atlantic Ave & Artesia Blvd	0.819	D	0.903	E
4	Myrtle Ave & Artesia Blvd	0.640	B	0.626	B
5	Orange Ave & Artesia Blvd	0.821	D	0.835	D
6	Atlantic Ave & Harding St	0.585	A	0.598	A

LOS = Level of Service; Delay = Vehicles delay in seconds.

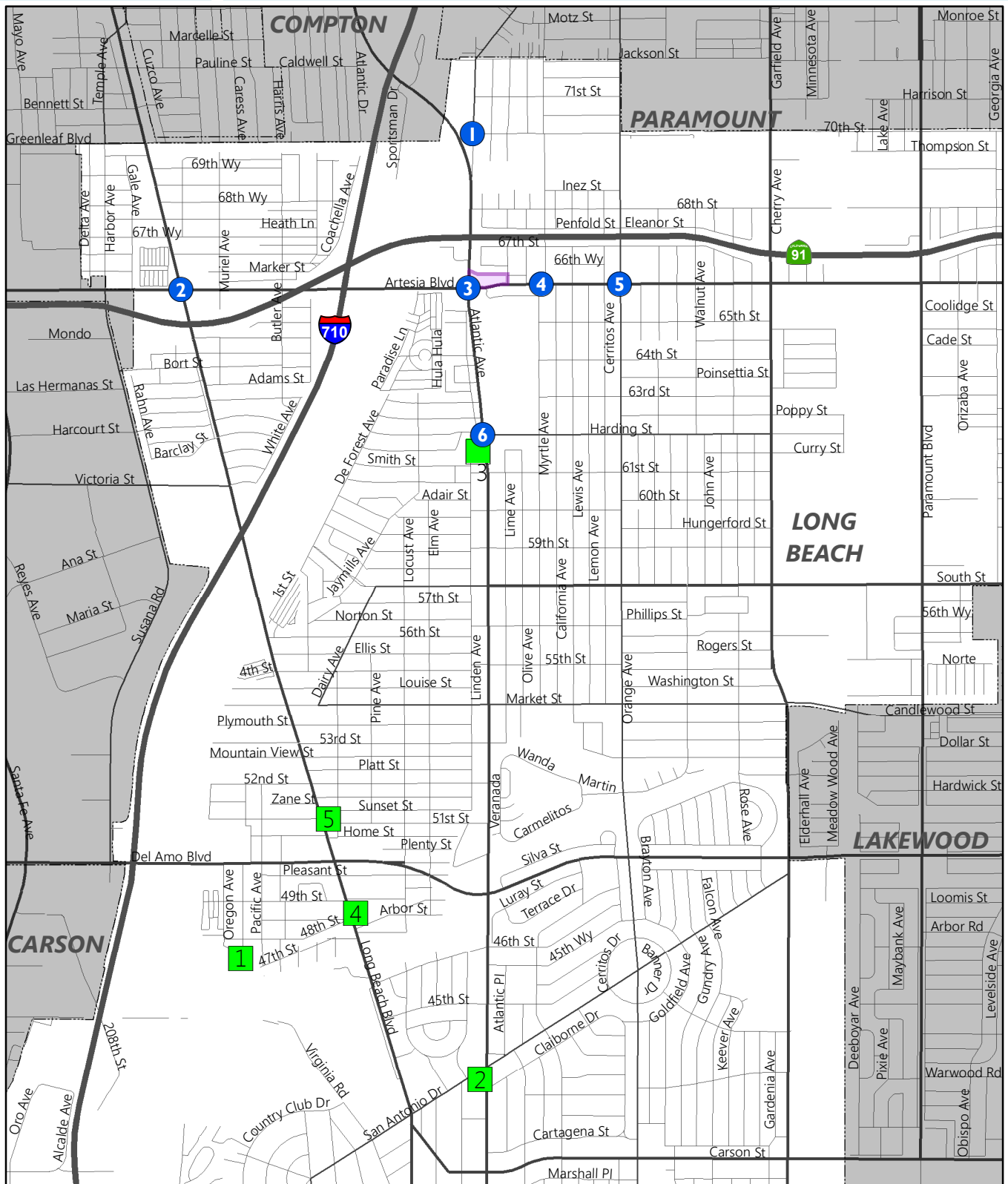
1. Unsignalized intersection

As shown in Table 7, five of the study intersections would continue to operate at LOS D or better during the weekday a.m. and p.m. peak hours. Operations at the intersection of Atlantic Avenue and Artesia Boulevard would worsen to an LOS value of E during the p.m. peak hour.

The future without-Project traffic volumes for the weekday a.m. and p.m. peak hour are provided in Appendix B of this report. The future without-Project traffic analysis worksheets are provided in Appendix E of this report.

FIGURE 4

UPTOWN COMMONS 6600 ATLANTIC AVENUE Locations of Related Projects



Project Site Study Intersection Related Projects



6. FUTURE WITH PROJECT CONDITIONS

This section documents future traffic conditions at the study intersections with the addition of Project-generated traffic. Traffic volumes for these conditions were derived by adding Project trips to the future without-Project scenario volumes.

Table 8 summarizes the resulting V/C and LOS values at the study intersections for future with-Project traffic conditions.

**Table 8 - Intersection Performance –
Future with-Project**

Study Intersections		AM Peak		PM Peak	
		ICU or Delay	LOS	ICU or Delay	LOS
1	Atlantic PI & 70th St ¹	9.9	A	8.6	A
2	Long Beach Blvd & Artesia Blvd	0.741	C	0.822	D
3	Atlantic Ave & Artesia Blvd	0.849	D	0.949	E
4	Myrtle Ave & Artesia Blvd	0.650	B	0.637	B
5	Orange Ave & Artesia Blvd	0.832	D	0.841	D
6	Atlantic Ave & Harding St	0.591	A	0.605	B

LOS = Level of Service; Delay = Vehicles delay in seconds.

1. Unsignalized intersection. LOS is calculated by average delay in seconds of approaching vehicles.

All of the study intersections would operate at LOS D or better during the weekday a.m. and p.m. peak hours. Operations at the intersection of Atlantic Avenue and Artesia Boulevard would worsen within LOS E due to Project traffic.

The future without-Project traffic volumes for the weekday a.m. and p.m. peak hour are provided in Appendix B of this report. The future with-Project traffic analysis worksheets are provided in Appendix F of this report.

7. PROJECT TRAFFIC IMPACTS

7.1 DETERMINATION OF TRAFFIC IMPACTS

Traffic impacts are identified if a proposed development will result in a significant change in traffic conditions at a study intersection. A significant impact is typically identified if Project-related traffic will cause service levels to deteriorate beyond a threshold limit specified by the overseeing agency.

The City of Long Beach significant traffic impact threshold is partially based on the Los Angeles Congestion Management Program (CMP), with a significant impact occurring when the proposed project increases the volume-to-capacity (V/C) ratio by 2 percent ($V/C \geq 0.02$) at LOS E or F.

Potential Project significant impacts are analyzed in this section. In the next report section, impacts are analyzed with proposed Project improvements on Artesia Boulevard.

7.2 PROJECT TRAFFIC IMPACTS – EXISTING PLUS PROJECT

Table 9 provides a summary of the Project impacts under existing conditions. Traffic impacts created by the proposed Project were determined by comparing the existing scenario conditions to the existing with-Project scenario conditions.

**Table 9 - Determination of Project Impacts –
Existing With-Project Conditions**

Study Intersections		Peak Hour	Existing Conditions		Existing with Project		Change in V/C	Sig Impact?
			ICU or Delay	LOS	ICU or Delay	LOS		
1	Atlantic PI & 70th St ¹	AM	9.8	A	9.9	A	0.1	No
		PM	8.5	A	8.6	A	0.1	No
2	Long Beach Blvd & Artesia Blvd	AM	0.730	C	0.734	C	0.004	No
		PM	0.800	C	0.812	D	0.012	No
3	Atlantic Ave & Artesia Blvd	AM	0.811	D	0.840	D	0.029	No
		PM	0.889	D	0.935	E	0.046	Yes
4	Myrtle Ave & Artesia Blvd	AM	0.634	B	0.644	B	0.010	No
		PM	0.620	B	0.631	B	0.011	No
5	Orange Ave & Artesia Blvd	AM	0.813	D	0.824	D	0.011	No
		PM	0.826	D	0.832	D	0.006	No
6	Atlantic Ave & Harding St	AM	0.579	A	0.585	A	0.006	No
		PM	0.588	A	0.595	A	0.007	No

LOS = Level of Service; Delay = Vehicles delay in seconds.

1. Unsignalized intersection

The proposed Project would create a significant impact at the intersection of Atlantic Avenue and Artesia Boulevard. A Project design feature on Artesia Boulevard related to access into and out of the southern site driveway is discussed in the next report section.

7.3 PROJECT TRAFFIC IMPACTS – FUTURE WITH PROJECT

Table 10 provides a summary of the Project impacts under future conditions. Traffic impacts created by the Project were determined by comparing the future without-Project conditions to the future with-Project conditions.

**Table 10 - Determination of Project Impacts –
Future With-Project Conditions**

Study Intersections		Peak Hour	Future Without Project		Future with Project		Change in V/C or Delay	Sig Impact?
			ICU or Delay	LOS	ICU or Delay	LOS		
1	Atlantic Pl & 70th St ¹	AM	9.8	A	9.9	A	0.1	No
		PM	8.5	A	8.6	A	0.1	No
2	Long Beach Blvd & Artesia Blvd	AM	0.738	C	0.741	C	0.003	No
		PM	0.810	D	0.822	D	0.012	No
3	Atlantic Ave & Artesia Blvd	AM	0.819	D	0.849	D	0.030	No
		PM	0.903	E	0.949	E	0.046	Yes
4	Myrtle Ave & Artesia Blvd	AM	0.640	B	0.650	B	0.010	No
		PM	0.626	B	0.637	B	0.011	No
5	Orange Ave & Artesia Blvd	AM	0.821	D	0.832	D	0.011	No
		PM	0.835	D	0.841	D	0.006	No
6	Atlantic Ave & Harding St	AM	0.585	A	0.591	A	0.006	No
		PM	0.598	A	0.605	B	0.007	No

LOS = Level of Service; Delay = Vehicles delay in seconds.

1. Unsignalized intersection

The change in V/C for the p.m. peak hour at the intersection of Atlantic Avenue and Artesia Boulevard would be negative, due to the implementation of the project design feature at that location.

The proposed Project would not create significant traffic impacts at the study intersections under future with-Project conditions, during either the a.m. or p.m. peak hours. Recommended mitigation measures are therefore not recommended for the future analysis time period.

8. FUTURE WITH PROJECT, WITH IMPROVEMENT CONDITIONS

This section documents future traffic conditions at the study intersections with the addition of Project-generated traffic and with proposed access improvements on Artesia Boulevard. The Artesia Boulevard improvements affect the physical configuration of the study intersection of Atlantic Avenue/Artesia Boulevard.

The overall improvements to be completed as a Project Design Feature, subject to review and approval of the City of Long Beach, include the following:

- **Artesia Boulevard at Main Driveway:** Modify existing median on Artesia Boulevard to provide an eastbound left-turn lane with 90 feet of storage and a 60-foot transition; median will be designed to restrict outbound (southbound) left-turn movements from the Project driveway to eastbound Artesia Boulevard
- **Artesia Boulevard at Atlantic Avenue:** Modify existing median on Artesia Boulevard east of Atlantic Avenue to provide dual westbound left-turn lanes with storage of 215 to 255 feet and a 60-foot transition (overlapping with the driveway turn lane transition). Modify existing traffic signal, and the associated signing and striping layout on Artesia Boulevard, between Atlantic Avenue and Lime Avenue, as necessary per the approval of the City of Long Beach.

The effect of these improvements on operations at the intersection of Atlantic Avenue/Artesia Boulevard is analyzed below.

Table 11 summarizes the resulting V/C and LOS values at this study intersection with the proposed improvements for existing with-Project conditions. The significant impact is removed. The change in V/C for the p.m. peak hour would be negative, due to the implementation of the proposed improvements at that location.

**Table 11 - Project Impacts at Atlantic/Artesia Intersection–
Existing With-Project Conditions**

Study Intersections	Peak Hour	Existing		Existing with Project		Change in V/C or Delay	Sig Impact?	Existing with Project + Improvements		Change in V/C or Delay (vs existing)	Sig Impact?
		ICU or Delay	LOS	ICU or Delay	LOS			ICU or Delay	LOS		
3 Atlantic Ave & Artesia Blvd	AM	0.811	D	0.840	D	0.029	No	0.840	D	0.000	No
	PM	0.889	D	0.935	E	0.046	Yes	0.884	D	-0.051	No

Based on the results of both the a.m. and p.m. peak hour analyses, the proposed Project would no longer create a significant traffic impact under existing plus-Project conditions. Mitigation measures are therefore not recommended for the existing analysis time period.

The existing with-Project, with improvements traffic analysis worksheets for this intersection are provided in Appendix G of this report.

Table 12 provides a summary of the Project impacts under future conditions. Traffic impacts created by the Project were determined by comparing the future without-Project conditions to the future with-Project, with-improvements conditions.

**Table 12 - Project Impacts at Atlantic/Artesia Intersection –
Future With-Project Conditions**

Study Intersections		Peak Hour	Future Without Project		Future with Project		Change in V/C or Delay	Sig Impact?	Future with Project + Improvements		Change in V/C or Delay (vs existing)	Sig Impact?
			ICU or Delay	LOS	ICU or Delay	LOS			ICU or Delay	LOS		
3	Atlantic Ave & Artesia Blvd	AM	0.819	D	0.849	D	0.030	No	0.849	D	0.000	No
		PM	0.903	E	0.949	E	0.046	Yes	0.895	D	-0.054	No

As with the existing plus-Project analysis, the change in V/C for the p.m. peak hour at the intersection of Atlantic Avenue and Artesia Boulevard would be negative, due to the implementation of the project design feature at that location.

This study intersection would operate at LOS D or better during the weekday a.m. and p.m. peak hours. Operations at the intersection of Atlantic Avenue and Artesia Boulevard would return to LOS D, due to the implementation of the Project Design Feature.

The proposed Project would not create significant traffic impact at the study intersections under existing plus-Project conditions, during either the a.m. or p.m. peak hours. Recommended mitigation measures are therefore not recommended.

The future with-Project, with improvements traffic analysis worksheets for this intersection are provided in Appendix H of this report.

9. PROJECT ACCESS ANALYSIS

The proposed Project site would have a main driveway access point on Artesia Boulevard and a secondary access point on Atlantic Avenue. The site would also have access points at the northern alleyway. The alleyway provides access to Atlantic Avenue on the west and Lime Avenue on the east.

A queuing analysis was conducted to analyze the primary Project site access on Artesia Boulevard. The analyzed trip distribution and assignment, and the planned driveway design plan, were used as inputs to this analysis, which included an evaluation of driveway operations and queuing as it would relate to the adjacent intersection at Atlantic Avenue.

The adjacent intersection was examined for potential modification of the westbound turn lane (through reduction of its length) to allow for full access to the main Project site driveway. The driveway location would have a new inbound turn lane to provide an eastbound left-turn movement into the site. The proposed main project access driveway location would be on the south frontage of the site, on Artesia Boulevard, approximately 400 feet east of the intersection.

FINDINGS

Reducing the westbound left-turn lane length at the Atlantic Avenue/Artesia Boulevard intersection would allow for a 90-foot turn lane to be provided for an inbound/eastbound left-turn movement into the Project site.

A Synchro analysis was conducted of the main Project driveway and the adjacent intersection, to provide an operations and queuing analysis. Synchro is a traffic timing, operations, queuing, and microsimulation software. The highest calculated queuing at the westbound single-lane left-turn pocket of the adjacent intersection in the post-Project period, based on this analysis and a 255-foot turn lane was 260 feet in the a.m. peak hour and 183 feet in the p.m. peak hour.

The conducted analysis indicates that the existing westbound left-turn lane at the Artesia Boulevard and Atlantic Avenue intersection can be shortened from its current 375-foot length to accommodate the forecast minimum peak 95th percentile queue. But the installation of dual left-turn lanes (adding one lane to the existing configuration at this movement), to be completed as a Project Design Feature, would ensure that vehicular queues that may extend up to or past the eastern limit of a single turn lane would be minimized. As traffic volumes increase in later years, this queuing problem will likely worsen, without improvements.

It is recommended therefore that dual westbound left-turn lanes be installed on Artesia Boulevard at Atlantic Avenue as part the proposed Project main driveway improvements on Artesia Boulevard. Improvements to be completed as a Project Design Feature, subject to review and approval of the City of Long Beach, would include the following:.

- Artesia Boulevard at Main Driveway: Modify existing median on Artesia Boulevard to provide an eastbound left-turn lane with 90 feet of storage and a 60-foot transition; median will be designed to restrict outbound (southbound) left-turn movements from the Project driveway to eastbound Artesia Boulevard
- Artesia Boulevard at Atlantic Avenue: Modify existing median on Artesia Boulevard east of Atlantic Avenue to provide dual westbound left-turn lanes with storage of 215 to 255 feet and a 60-foot transition (overlapping with the driveway turn lane transition). Modify existing traffic signal, and the associated signing and striping layout on Artesia Boulevard, between Atlantic Avenue and Lime Avenue, as necessary per the approval of the City of Long Beach.

An analysis of existing site traffic activity is summarized below. The proposed Project site plan with the proposed access configuration and Project Design Feature on Artesia Boulevard, including the new dual left-run lane at the adjacent intersection, is provided on Figure 1 in the introduction section of this report.

TRAFFIC DATA

The turning movement counts for the adjacent intersection at Atlantic Avenue/Artesia Blvd., and the cumulative/planned project trips, and the Project trip generation and trip distribution, were the same as those used for the primary Project traffic impact analysis calculations. The trip generation was analyzed without pass-by trip reductions, as the project trips turning into and out of the driveway would all be new trips and the reduction would not apply.

The Project is estimated to generate, without pass-by reductions, 403 vehicle trips during the a.m. peak hour (216 inbound vehicles and 187 outbound vehicles) and 336 vehicle trips during the p.m. peak hour (170 inbound vehicles and 166 outbound vehicles).

Vehicle queuing data was captured with the traffic study counts, at the beginning of each green light indication of the westbound left-turn traffic signal phase of the Atlantic Avenue/Artesia Blvd. intersection. This data was used to review existing conditions in the analysis.

SITE ANALYSIS

A queuing and operations analysis of the study intersection was conducted to determine if would be feasible to restripe the roadway to provide full access to the site driveway. The existing eastern end of the existing left-turn lane is approximately 375 feet from the intersection. Calculations were made in the operations analysis to determine the extent of a turn lane length reduction that would be adequate to provide for an inbound eastbound left-turn lane for the project driveway.

In order to accommodate the inbound turn lane at the Project driveway, the conceptual westbound turn lane at the Atlantic Avenue intersection was assumed to be 255 feet in length based on geometry. The highest 95th percentile queue lengths from the Synchro analysis of the intersection and driveway in either the existing plus-Project period or the future with-Project period were 260 feet in the a.m. peak hour and 183 feet in the p.m. peak hour. The a.m. value is higher than the proposed turn lane length.

For this reason, a dual left-turn lane at the adjacent Atlantic Avenue intersection would be implemented as part of the proposed Project. With this consideration, the turn lane length could be reduced to the proposed length without causing undue impacts to the through movements at the intersection or to operations at the Project main driveway. This would provide a maximum 95th average percentile queuing across the dual left turn lanes of 210 feet in the a.m. peak hour and 135 feet in the p.m. peak hour, providing adequate Project access.

The queuing at the eastbound left-turn lane into the site (of a proposed length of 90 feet) would be a maximum 95th percentile of 74 feet in the a.m. peak hour and 73 feet in the p.m. peak hour, less than the designed capacity.

Appendix G provides the existing queuing data collected for the westbound left-turn movement of the Atlantic Avenue/Artesia Blvd. intersection. The existing plus-project period queuing analysis volume inputs are provided in Appendix H1, and the queuing analysis worksheets for that period for one-lane and two-lane westbound left-turn lane configurations are provided in Appendix H2. The same information for the future period is provided in Appendix I1 and Appendix I2.

ACCESS VIA LIME STREET/ARTESIA BLVD INTERSECTION

The intersection of Lime Street/Artesia Blvd. is located at the southeast corner of the Project site. It would provide one point of site access, as it provides access to the alleyway at the north side of the site. It is an unsignalized intersection, with stop-sign control at the Lime Street (minor roadway) approach and no control on Artesia Boulevard.

Vehicles entering the site via Lime Street would make a westbound right-turn movement, or an eastbound left-turn movement after yielding to westbound thru traffic. Vehicles exiting the site would make southbound right-turn movements (yielding to westbound traffic) or southbound left-turn movements (yielding to both westbound and eastbound traffic).

It is anticipated that inbound Project traffic at the Lime Street intersection would be low, less than 5 percent of overall trips, as the main south driveway would provide primary access. Inbound left-turn movements from Artesia Boulevard at this location are estimated to be negligible.

Approximately 40 percent of the Project trips are anticipated to exit the site via Lime Street to access Artesia Boulevard. These trips will experience delay at the Lime Street/Artesia Blvd. intersection. Gaps in the eastbound and westbound traffic provided by the traffic signals to the east and west, however, will allow this traffic to proceed after short delays.

10. CONGESTION MANAGEMENT PROGRAM

This section demonstrates the ways in which this traffic study was prepared to be in conformance with the procedures mandated by the County of Los Angeles Congestion Management Program (CMP). The CMP was created statewide because of Proposition 111 and was implemented locally by the Los Angeles County Metropolitan Transportation Authority (Metro).

9.1 ROADWAY IMPACTS

The CMP for Los Angeles County requires that the traffic impact of individual development projects of potentially regional significance be analyzed. A specific system of arterial roadways plus all freeways comprises the CMP system. Per CMP Transportation Impact Analysis (TIA) Guidelines, a traffic impact analysis is conducted where:

- At CMP arterial monitoring intersections, including freeway on-ramps or off-ramps, where the proposed Project will add 50 or more vehicle trips during either a.m. or p.m. weekday peak hours.
- At CMP mainline freeway-monitoring locations, where the Project will add 150 or more trips, in either direction, during the either the a.m. or p.m. weekday peak hours.

Based on the trip generation defined in Table 4, it is not expected that 50 or more new Project trips per hour would be added to the nearest CMP intersections. Therefore, no further analysis of potential CMP impacts is required.

In addition, the proposed Project is expected to add less than 150 new trips per hour, in either direction, to any freeway segments based on the Project trip generation defined in Table 4. Therefore, no further analysis of CMP freeway monitoring stations is required.

9.2 TRANSIT IMPACTS

As required by the CMP, a review was conducted of potential impacts of the project on transit service. There are eight existing public bus transit lines that would serve the Project site and the immediate area, operated by the City of Long Beach, the Metropolitan Transit Authority (Metro), and Orange County Transportation Authority (OCTA). A CMP transit route (designated for specific monitoring under the CMP program), Metro joint line 260/762, serves the Artesia Boulevard corridor to the west of the site, and the Atlantic Avenue corridor to the north of the site, turning at the intersection adjacent to the Project site and serving nearby stops. Table 2 summarizes the study area public transit services.

The project trip generation, as defined in Section 3, was a net daily total of 1,751 trips, including 147 trips during the a.m. peak-hour and 164 vehicle trips during the p.m. peak hour.

The trip generation was adjusted by values defined by the CMP for estimated transit trips. The CMP defines higher transit mode splits for developments located near or adjacent to a CMP transit center, which is a stop served by designated CMP transit lines. For commercial developments, this higher rate was 15 percent

The following calculations were made, based on the defined CMP methodology:

- Project person trips (1.4 times vehicle trips) would be 2,451 on a daily basis, including 206 trips in the a.m. peak hour and 230 trips in the p.m. peak hour.
- Applying a 15 percent mode split for commercial uses near CMP transit, the Project transit trips would be 368 daily trips, including 31 trips in the a.m. peak hour and 35 trips in the p.m. peak hour.

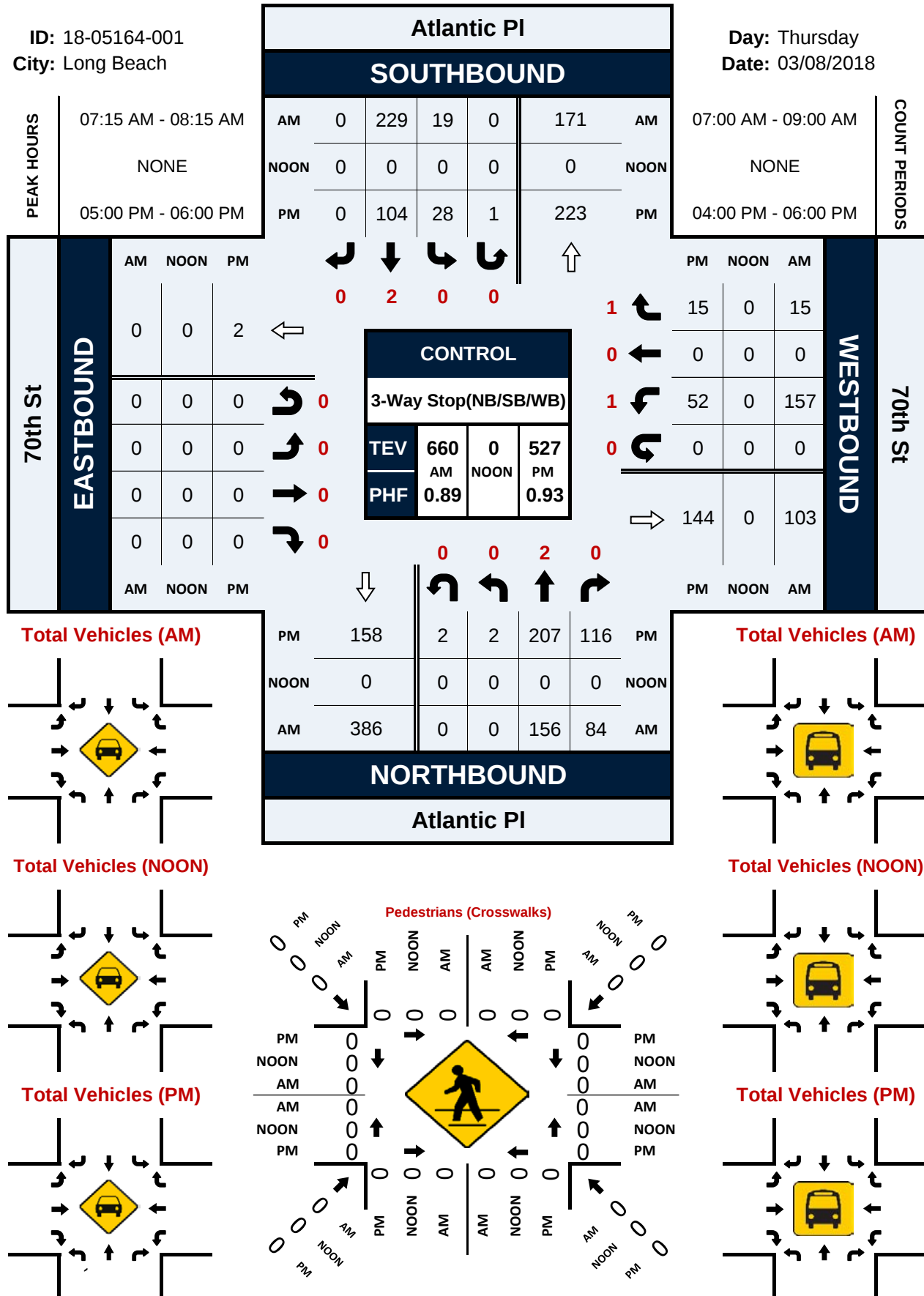
It is anticipated that the existing transit service in the project area – with eight lines provided by three agencies – would be able to accommodate the project generated transit trips. Therefore, given the number of transit trips generated by the project and the existing transit routes in the project vicinity, it is concluded that the existing public transit system would not be significantly impacted by the proposed Project.

11. ANALYSIS SUMMARY AND CONCLUSIONS

The following summarizes the traffic study results, conclusions and recommendations:

- The proposed commercial center located at the northeast corner of Atlantic Avenue and Artesia Boulevard would include 3,800 square feet of fast-food restaurant without drive-through window, 2,600 square feet of fast-food restaurant with drive-through window, 2,000 square feet of coffee shop use, and 2,750 square feet of drive-up bank use.
- A total of 84 parking stalls would be provided on the Project site.
- The proposed site is currently unoccupied.
- The project would generate a net daily total of 1,751 trips, including 147 trips during the a.m. peak-hour and 164 vehicle trips during the p.m. peak hour.
- Based on the applied City of Long Beach significant traffic impact criteria, the proposed Project would not create significant traffic impacts at the analyzed study intersections, under either existing with-Project or future with-Project conditions, with planned Project improvements on Artesia Boulevard. Mitigation measures are therefore not recommended.
- The proposed Project is not anticipated to cause a significant traffic impact on any CMP arterial monitoring intersections, mainline freeway-monitoring locations, or transit routes.
- In order to accommodate an adequate inbound turn lane at the main Project driveway on Artesia Boulevard, a shortened westbound left-turn lane at the adjacent Atlantic Avenue/Artesia Boulevard intersection was assumed to be necessary.
- The conducted queuing analysis for the main Project driveway location and the adjacent Atlantic Avenue intersection indicated that the existing westbound left-turn lane at the Artesia Boulevard and Atlantic Avenue intersection can be shortened from its current 375-foot length to a 255-foot length and roughly accommodate the forecast peak 95th percentile queue. But the installation of dual left-turn lanes (adding one lane for the movement), to be completed as a Project Design Feature, would ensure the vehicular queue that may extend up to or past the eastern limit of a single turn lane would be minimized. As traffic volumes increase in later years, this queuing problem will likely worsen, without the proposed improvements.

APPENDIX A
Traffic Count Data



National Data & Surveying Services

Intersection Turning Movement Count

Location: Atlantic PI & 70th St
City: Long Beach
Control: 3-Way Stop(NB/SB/WB)

Project ID: 18-05164-001
Date: 3/8/2018

Total																			
NS/EW Streets:		Atlantic PI				Atlantic PI				70th St				70th St					
AM		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND					
		0 NL	2 NT	0 NR	0 NU	0 SL	2 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	1 WL	0 WT	1 WR	0 WU	TOTAL	
	7:00 AM	0	13	6	1	4	38	0	0	0	0	1	0	32	0	4	0		99
	7:15 AM	0	34	17	0	2	51	0	0	0	0	0	0	31	0	3	0		138
	7:30 AM	0	54	23	0	5	56	0	0	0	0	0	0	39	0	3	0		180
	7:45 AM	0	43	23	0	8	70	0	0	0	0	0	0	40	0	1	0		185
	8:00 AM	0	25	21	0	4	52	0	0	0	0	0	0	47	0	8	0		157
	8:15 AM	0	19	26	0	2	38	0	0	0	0	0	0	38	0	1	0		124
	8:30 AM	0	16	52	0	5	22	0	0	0	0	0	0	44	0	5	0		144
	8:45 AM	0	19	68	0	2	40	0	1	0	0	0	0	51	0	1	0		182
TOTAL VOLUMES :		NL 0	NT 223	NR 236	NU 1	SL 32	ST 367	SR 0	SU 1	EL 0	ET 0	ER 1	EU 0	WL 322	WT 0	WR 26	WU 0	TOTAL	1209
APPROACH %'s :		0.00%	48.48%	51.30%	0.22%	8.00%	91.75%	0.00%	0.25%	0.00%	0.00%	100.00%	0.00%	92.53%	0.00%	7.47%	0.00%		
PEAK HR :		07:15 AM - 08:15 AM																TOTAL	
PEAK HR VOL :		0	156	84	0	19	229	0	0	0	0	0	0	157	0	15	0	660	
PEAK HR FACTOR :		0.000	0.722	0.913	0.000	0.594	0.818	0.000	0.000	0.000	0.000	0.000	0.000	0.835	0.000	0.469	0.000	0.892	
		0.779				0.795								0.782					
PM		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND					
		0 NL	2 NT	0 NR	0 NU	0 SL	2 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	1 WL	0 WT	1 WR	0 WU	TOTAL	
	4:00 PM	0	47	42	0	8	20	0	1	0	0	0	0	22	0	6	0		146
	4:15 PM	0	49	26	1	3	31	0	0	0	0	0	0	17	0	3	0		130
	4:30 PM	0	52	22	0	4	20	0	0	0	0	0	0	19	0	8	0		125
	4:45 PM	0	53	26	0	5	24	0	0	0	0	1	0	7	0	4	0		120
	5:00 PM	1	53	30	1	5	26	0	0	0	0	0	0	16	0	3	0		135
	5:15 PM	0	50	29	1	10	33	0	1	0	0	0	0	12	0	5	0		141
	5:30 PM	0	56	23	0	8	24	0	0	0	0	0	0	13	0	3	0		127
	5:45 PM	1	48	34	0	5	21	0	0	0	0	0	0	11	0	4	0		124
TOTAL VOLUMES :		NL 2	NT 408	NR 232	NU 3	SL 48	ST 199	SR 0	SU 2	EL 0	ET 0	ER 1	EU 0	WL 117	WT 0	WR 36	WU 0	TOTAL	1048
APPROACH %'s :		0.31%	63.26%	35.97%	0.47%	19.28%	79.92%	0.00%	0.80%	0.00%	0.00%	100.00%	0.00%	76.47%	0.00%	23.53%	0.00%		
PEAK HR :		05:00 PM - 06:00 PM																TOTAL	
PEAK HR VOL :		2	207	116	2	28	104	0	1	0	0	0	0	52	0	15	0	527	
PEAK HR FACTOR :		0.500	0.924	0.853	0.500	0.700	0.788	0.000	0.250	0.000	0.000	0.000	0.000	0.813	0.000	0.750	0.000	0.934	
		0.962				0.756								0.882					

[illegible]

National Data & Surveying ServicesIntersection Turning Movement Count

Location: Long Beach Blvd & Artesia Blvd
City: Long Beach
Control: Signalized

Project ID: 18-05164-005
Date: 3/8/2018

Total																	
NS/EW Streets:	Long Beach Blvd				Long Beach Blvd				Artesia Blvd				Artesia Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	2	2	1	0	1	2	0	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
	53	84	18	0	32	173	23	0	8	36	21	0	86	188	36	1	
	44	94	16	0	45	184	24	0	10	24	19	1	99	208	43	0	
7:00 AM	59	87	25	0	45	178	27	0	5	57	41	0	94	255	48	4	759
7:15 AM	90	73	19	0	39	153	31	0	14	37	33	1	116	267	73	3	811
7:30 AM																	925
7:45 AM																	949
8:00 AM	64	111	17	0	37	158	18	0	13	51	35	1	79	246	39	5	874
8:15 AM	51	111	22	0	32	164	24	0	8	46	26	0	58	212	33	0	787
8:30 AM	44	93	29	0	29	135	33	2	12	44	28	2	58	198	31	1	739
8:45 AM	38	103	34	0	31	126	24	1	10	46	32	1	43	137	34	1	661
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	443	756	180	0	290	1271	204	3	80	341	235	6	633	1711	337	15	6505
PEAK HR :	32.12%	54.82%	13.05%	0.00%	16.40%	71.89%	11.54%	0.17%	12.08%	51.51%	35.50%	0.91%	23.48%	63.46%	12.50%	0.56%	
PEAK HR VOL :	07:15 AM - 08:15 AM																TOTAL
PEAK HR FACTOR :	257	365	77	0	166	673	100	0	42	169	128	3	388	976	203	12	3559
	0.714	0.822	0.770	0.000	0.922	0.914	0.806	0.000	0.750	0.741	0.780	0.750	0.836	0.914	0.695	0.600	0.938
	0.910				0.928				0.830				0.860				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	2	2	1	0	1	2	0	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
	45	183	46	0	41	126	14	0	49	185	94	4	27	58	37	2	
	37	191	44	0	38	147	17	1	41	195	76	7	16	55	37	1	
4:00 PM	40	195	51	0	31	136	10	0	56	208	82	4	19	69	31	1	911
4:15 PM	49	193	53	0	35	132	16	0	51	242	95	3	25	75	25	0	903
4:30 PM																	933
4:45 PM																	994
5:00 PM	51	198	56	0	35	139	12	1	61	245	89	4	15	67	35	3	1011
5:15 PM	48	190	50	0	39	143	19	2	71	270	82	0	22	73	41	0	1050
5:30 PM	53	189	38	0	28	145	16	0	57	218	82	5	23	56	43	1	954
5:45 PM	37	190	71	0	29	144	13	0	52	155	90	3	25	78	50	1	938
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	360	1529	409	0	276	1112	117	4	438	1718	690	30	172	531	299	9	7694
PEAK HR :	15.67%	66.54%	17.80%	0.00%	18.29%	73.69%	7.75%	0.27%	15.23%	59.74%	23.99%	1.04%	17.01%	52.52%	29.57%	0.89%	
PEAK HR VOL :	04:45 PM - 05:45 PM																TOTAL
PEAK HR FACTOR :	201	770	197	0	137	559	63	3	240	975	348	12	85	271	144	4	4009
	0.948	0.972	0.879	0.000	0.878	0.964	0.829	0.375	0.845	0.903	0.916	0.600	0.850	0.903	0.837	0.333	0.955
	0.957				0.938				0.931				0.926				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Atlantic Ave & Artesia Blvd
City: Long Beach
Control: Signalized

Project ID: 18-05164-006
Date: 3/8/2018

Total																	
NS/EW Streets:		Atlantic Ave				Atlantic Ave				Artesia Blvd				Artesia Blvd			
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1	2	1	0	1	3	0	0	2	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	62	198	32	0	27	99	68	0	55	77	41	6	11	217	58	0	951
7:15 AM	64	209	25	1	42	115	100	0	50	91	39	3	15	226	47	0	1027
7:30 AM	64	165	62	0	48	150	102	0	47	140	64	13	15	247	35	5	1157
7:45 AM	56	171	45	1	42	150	133	0	41	117	57	14	16	276	40	2	1161
8:00 AM	55	180	37	2	42	145	83	0	45	84	42	6	19	230	36	2	1008
8:15 AM	61	160	27	1	35	129	77	0	40	83	52	5	30	226	38	3	967
8:30 AM	65	146	20	1	27	148	66	0	62	115	49	11	36	193	55	1	995
8:45 AM	59	165	25	0	35	158	61	0	47	99	33	6	36	175	52	6	957
TOTAL VOLUMES :	NL 486	NT 1394	NR 273	NU 6	SL 298	ST 1094	SR 690	SU 0	EL 387	ET 806	ER 377	EU 64	WL 178	WT 1790	WR 361	WU 19	TOTAL 8223
APPROACH %'s :	22.51%	64.57%	12.64%	0.28%	14.31%	52.55%	33.14%	0.00%	23.68%	49.33%	23.07%	3.92%	7.58%	76.24%	15.37%	0.81%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	239	725	169	4	174	560	418	0	183	432	202	36	65	979	158	9	4353
PEAK HR FACTOR :	0.934	0.867	0.681	0.500	0.906	0.933	0.786	0.000	0.915	0.771	0.789	0.643	0.855	0.887	0.840	0.450	0.937
	0.951				0.886				0.808				0.906				

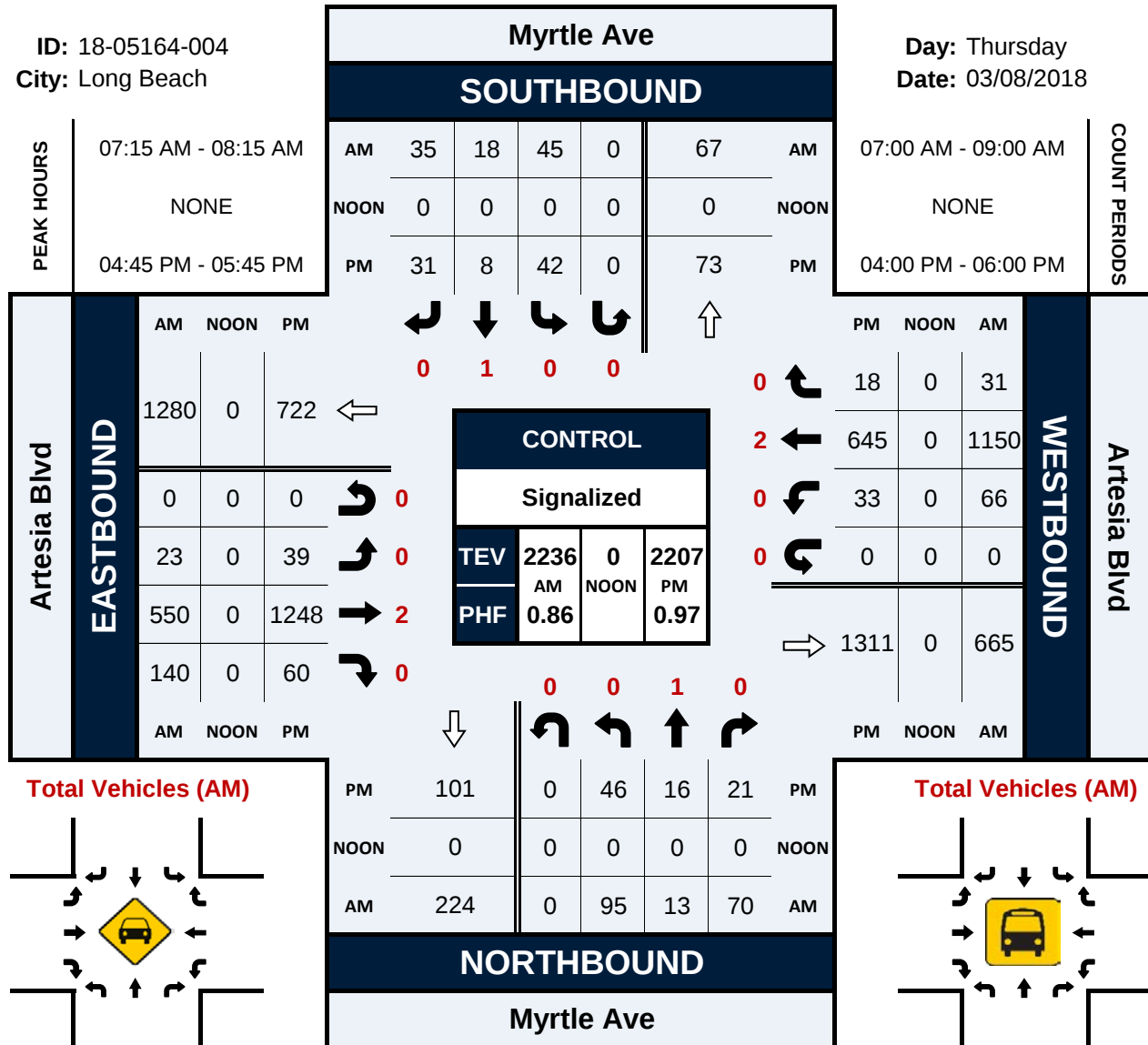
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1	2	1	0	1	3	0	0	2	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	45	147	35	0	77	230	29	0	57	231	62	4	32	113	45	3	1110
4:15 PM	44	160	34	3	67	227	29	0	67	248	57	3	32	88	56	1	1116
4:30 PM	53	176	25	0	80	204	37	0	67	218	58	2	32	102	61	1	1116
4:45 PM	43	171	42	0	74	238	29	0	68	233	49	5	26	98	64	4	1144
5:00 PM	48	169	35	0	70	263	27	0	64	229	54	5	31	98	62	2	1157
5:15 PM	59	193	41	1	64	221	35	0	67	220	55	1	36	99	44	1	1137
5:30 PM	50	186	33	0	82	228	28	0	63	231	55	4	35	94	74	4	1167
5:45 PM	56	163	28	1	77	231	24	0	52	258	48	1	24	108	51	0	1122
TOTAL VOLUMES :	NL 398	NT 1365	NR 273	NU 5	SL 591	ST 1842	SR 238	SU 0	EL 505	ET 1868	ER 438	EU 25	WL 248	WT 800	WR 457	WU 16	TOTAL 9069
APPROACH %'s :	19.50%	66.88%	13.38%	0.24%	22.13%	68.96%	8.91%	0.00%	17.81%	65.87%	15.44%	0.88%	16.31%	52.60%	30.05%	1.05%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	200	719	151	1	290	950	119	0	262	913	213	15	128	389	244	11	4605
PEAK HR FACTOR :	0.847	0.931	0.899	0.250	0.884	0.903	0.850	0.000	0.963	0.980	0.968	0.750	0.889	0.982	0.824	0.688	0.987
	0.911				0.944				0.988				0.932				

Myrtle Ave & Artesia Blvd

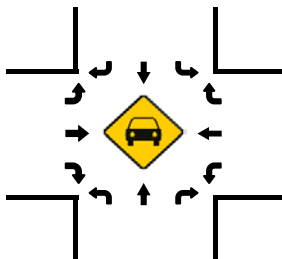
Peak Hour Turning Movement Count

ID: 18-05164-004
City: Long Beach

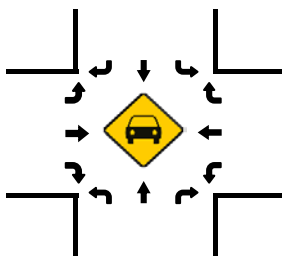
Day: Thursday
Date: 03/08/2018



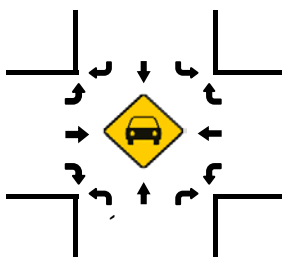
Total Vehicles (AM)



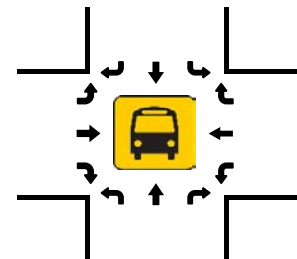
Total Vehicles (NOON)



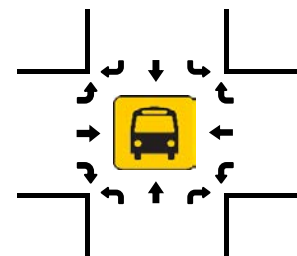
Total Vehicles (PM)



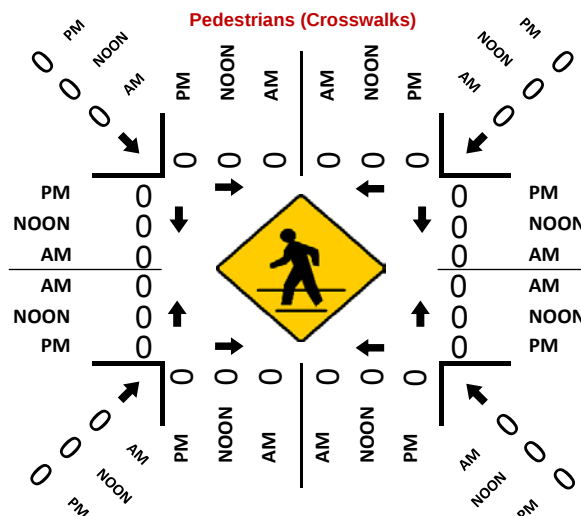
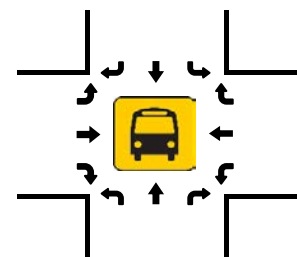
Total Vehicles (AM)



Total Vehicles (NOON)



Total Vehicles (PM)



National Data & Surveying ServicesIntersection Turning Movement Count

Location: Myrtle Ave & Artesia Blvd
City: Long Beach
Control: Signalized
Project ID: 18-05164-004
Date: 3/8/2018

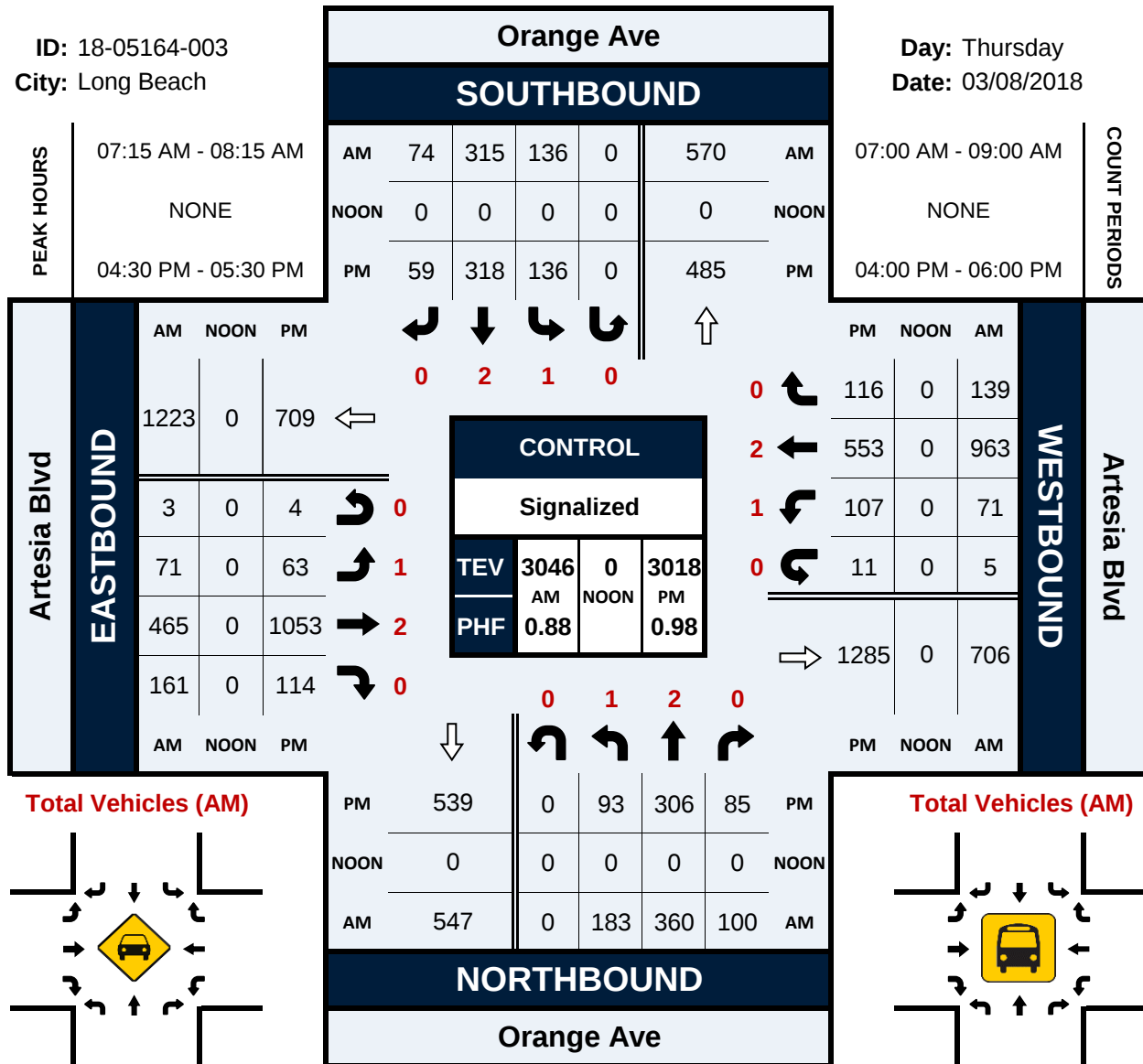
Total																	
NS/EW Streets:		Myrtle Ave				Myrtle Ave				Artesia Blvd				Artesia Blvd			
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0	1	0	0	0	1	0	0	0	2	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	16	3	5	0	6	1	5	0	2	104	17	0	9	264	5	0	437
7:15 AM	21	2	13	0	4	4	5	0	2	111	26	0	14	277	7	0	486
7:30 AM	24	0	29	0	16	6	10	0	3	157	55	0	33	308	8	0	649
7:45 AM	33	6	24	0	17	7	7	0	6	149	44	0	13	279	5	0	590
8:00 AM	17	5	4	0	8	1	13	0	12	133	15	0	6	286	11	0	511
8:15 AM	6	4	6	0	7	1	11	0	10	117	9	0	7	240	13	0	431
8:30 AM	16	5	5	0	11	3	11	0	18	104	14	0	4	248	15	0	454
8:45 AM	11	7	2	0	15	1	25	0	23	116	16	0	3	227	7	0	453
TOTAL VOLUMES :	NL 144	NT 32	NR 88	NU 0	SL 84	ST 24	SR 87	SU 0	EL 76	ET 991	ER 196	EU 0	WL 89	WT 2129	WR 71	WU 0	TOTAL 4011
APPROACH %'s :	54.55%	12.12%	33.33%	0.00%	43.08%	12.31%	44.62%	0.00%	6.02%	78.46%	15.52%	0.00%	3.89%	93.01%	3.10%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	95	13	70	0	45	18	35	0	23	550	140	0	66	1150	31	0	2236
PEAK HR FACTOR :	0.720	0.542	0.603	0.000	0.662	0.643	0.673	0.000	0.479	0.876	0.636	0.000	0.500	0.933	0.705	0.000	0.861
	0.706				0.766				0.829				0.893				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0	1	0	0	0	1	0	0	0	2	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	14	3	4	0	9	1	11	0	11	295	19	0	13	144	11	0	535
4:15 PM	20	0	4	0	6	1	8	0	16	319	9	0	4	146	5	0	538
4:30 PM	13	2	2	0	11	0	12	0	11	296	15	0	6	156	11	0	535
4:45 PM	17	4	7	0	15	0	5	0	8	322	10	0	10	165	4	0	567
5:00 PM	11	5	4	0	7	2	16	0	4	302	18	0	7	160	2	0	538
5:15 PM	9	6	5	0	8	4	3	0	13	301	14	0	8	157	7	0	535
5:30 PM	9	1	5	0	12	2	7	0	14	323	18	0	8	163	5	0	567
5:45 PM	9	3	9	0	18	3	5	0	8	324	11	0	7	156	3	0	556
TOTAL VOLUMES :	NL 102	NT 24	NR 40	NU 0	SL 86	ST 13	SR 67	SU 0	EL 85	ET 2482	ER 114	EU 0	WL 63	WT 1247	WR 48	WU 0	TOTAL 4371
APPROACH %'s :	61.45%	14.46%	24.10%	0.00%	51.81%	7.83%	40.36%	0.00%	3.17%	92.58%	4.25%	0.00%	4.64%	91.83%	3.53%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	46	16	21	0	42	8	31	0	39	1248	60	0	33	645	18	0	2207
PEAK HR FACTOR :	0.676	0.667	0.750	0.000	0.700	0.500	0.484	0.000	0.696	0.966	0.833	0.000	0.825	0.977	0.643	0.000	0.973
	0.741				0.810				0.949				0.972				

Orange Ave & Artesia Blvd

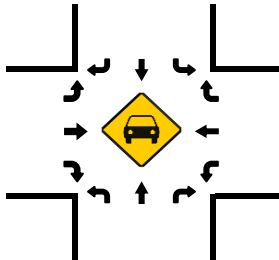
Peak Hour Turning Movement Count

ID: 18-05164-003
City: Long Beach

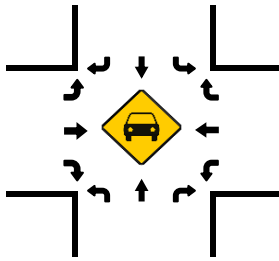
Day: Thursday
Date: 03/08/2018



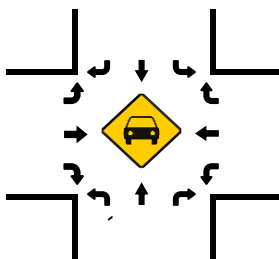
Total Vehicles (AM)



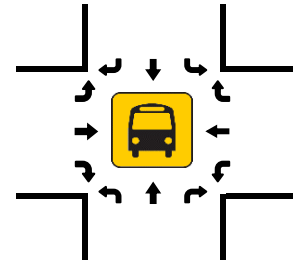
Total Vehicles (NOON)



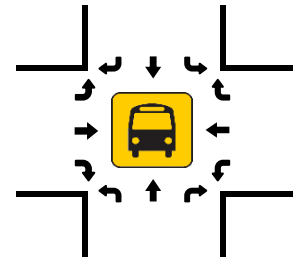
Total Vehicles (PM)



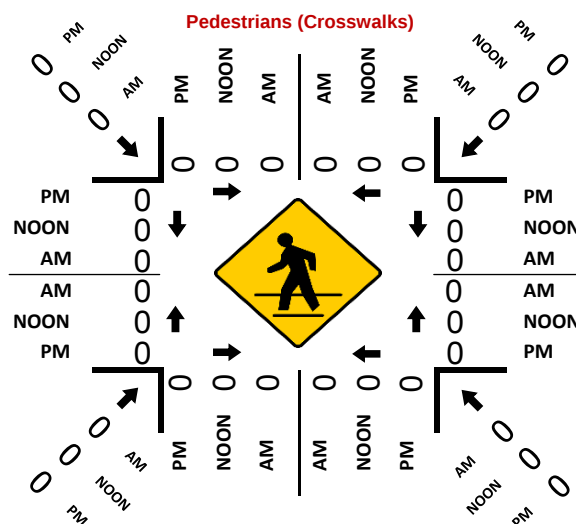
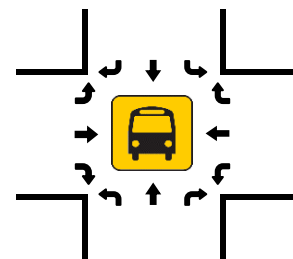
Total Vehicles (AM)



Total Vehicles (NOON)



Total Vehicles (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Orange Ave & Artesia Blvd
City: Long Beach
Control: Signalized

Project ID: 18-05164-003
Date: 3/8/2018

Total																	
NS/EW Streets:		Orange Ave				Orange Ave				Artesia Blvd				Artesia Blvd			
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	44	53	16	0	24	45	16	0	11	92	21	0	6	207	17	0	552
7:15 AM	42	73	30	0	23	58	14	0	19	85	30	1	18	223	22	2	640
7:30 AM	50	82	22	0	38	84	20	0	12	141	51	0	29	262	25	1	817
7:45 AM	51	98	23	0	38	107	20	0	23	128	54	1	18	257	44	0	862
8:00 AM	40	107	25	0	37	66	20	0	17	111	26	1	6	221	48	2	727
8:15 AM	34	55	14	0	40	74	20	0	16	104	16	1	11	188	47	2	622
8:30 AM	34	62	12	0	40	79	36	0	10	99	17	0	20	201	47	1	658
8:45 AM	27	59	17	0	43	68	40	0	13	99	18	0	16	157	46	1	604
TOTAL VOLUMES :	NL 322	NT 589	NR 159	NU 0	SL 283	ST 581	SR 186	SU 0	EL 121	ET 859	ER 233	EU 4	WL 124	WT 1716	WR 296	WU 9	TOTAL 5482
APPROACH %'s :	30.09%	55.05%	14.86%	0.00%	26.95%	55.33%	17.71%	0.00%	9.94%	70.58%	19.15%	0.33%	5.78%	80.00%	13.80%	0.42%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	183	360	100	0	136	315	74	0	71	465	161	3	71	963	139	5	3046
PEAK HR FACTOR :	0.897	0.841	0.833	0.000	0.895	0.736	0.925	0.000	0.772	0.824	0.745	0.750	0.612	0.919	0.724	0.625	0.883
	0.935				0.795				0.850				0.923				

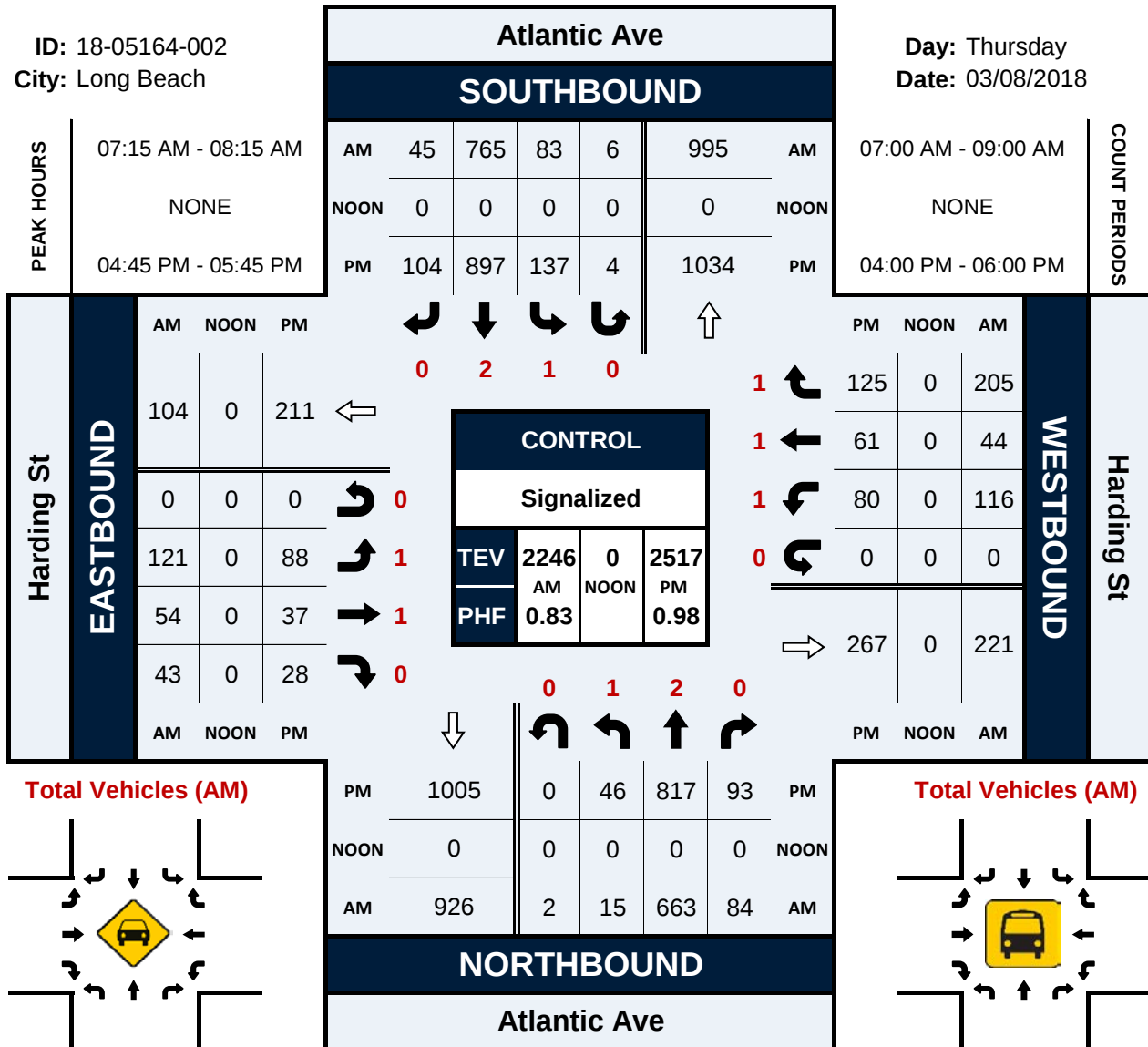
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	21	70	24	0	41	88	27	0	23	259	26	0	25	129	28	2	763
4:15 PM	25	74	20	0	31	70	14	0	14	268	25	0	35	121	27	1	725
4:30 PM	28	68	28	0	35	82	16	0	16	265	28	2	24	130	29	2	753
4:45 PM	22	68	21	0	33	83	14	0	18	272	28	1	25	150	24	3	762
5:00 PM	21	89	22	0	38	77	19	0	14	263	28	1	26	139	33	1	771
5:15 PM	22	81	14	0	30	76	10	0	15	253	30	0	32	134	30	5	732
5:30 PM	39	60	19	0	26	94	15	0	20	260	22	0	27	126	25	4	737
5:45 PM	34	85	12	0	31	75	17	0	11	288	28	0	35	135	22	2	775
TOTAL VOLUMES :	NL 212	NT 595	NR 160	NU 0	SL 265	ST 645	SR 132	SU 0	EL 131	ET 2128	ER 215	EU 4	WL 229	WT 1064	WR 218	WU 20	TOTAL 6018
APPROACH %'s :	21.92%	61.53%	16.55%	0.00%	25.43%	61.90%	12.67%	0.00%	5.29%	85.88%	8.68%	0.16%	14.96%	69.50%	14.24%	1.31%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	93	306	85	0	136	318	59	0	63	1053	114	4	107	553	116	11	3018
PEAK HR FACTOR :	0.830	0.860	0.759	0.000	0.895	0.958	0.776	0.000	0.875	0.968	0.950	0.500	0.836	0.922	0.879	0.550	0.979
	0.917				0.957				0.967				0.974				

Atlantic Ave & Harding St

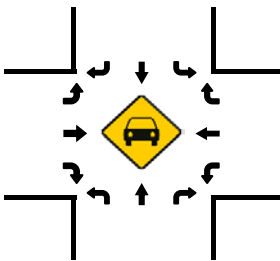
Peak Hour Turning Movement Count

ID: 18-05164-002
City: Long Beach

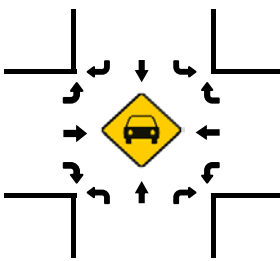
Day: Thursday
Date: 03/08/2018



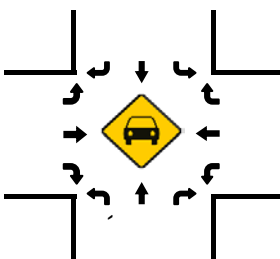
Total Vehicles (AM)



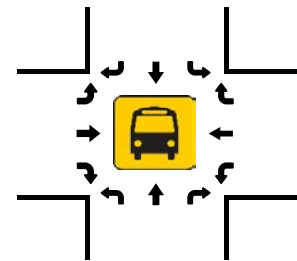
Total Vehicles (NOON)



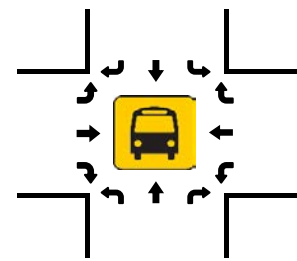
Total Vehicles (PM)



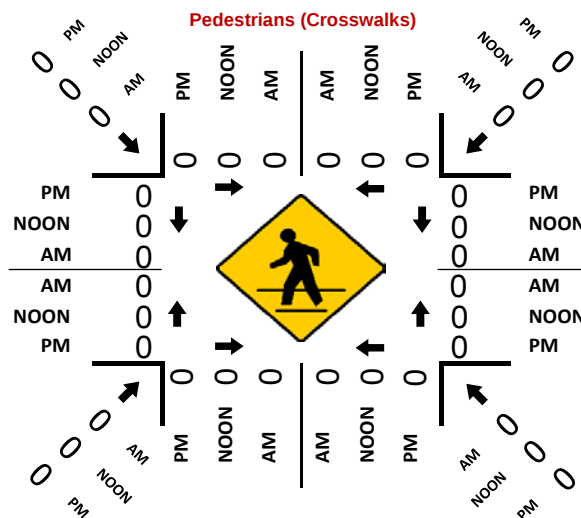
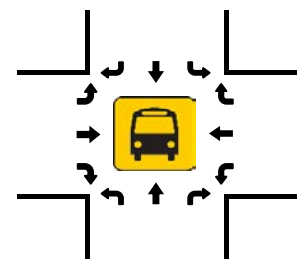
Total Vehicles (AM)



Total Vehicles (NOON)



Total Vehicles (PM)



National Data & Surveying ServicesIntersection Turning Movement Count

Location: Atlantic Ave & Harding St
City: Long Beach
Control: Signalized
Project ID: 18-05164-002
Date: 3/8/2018

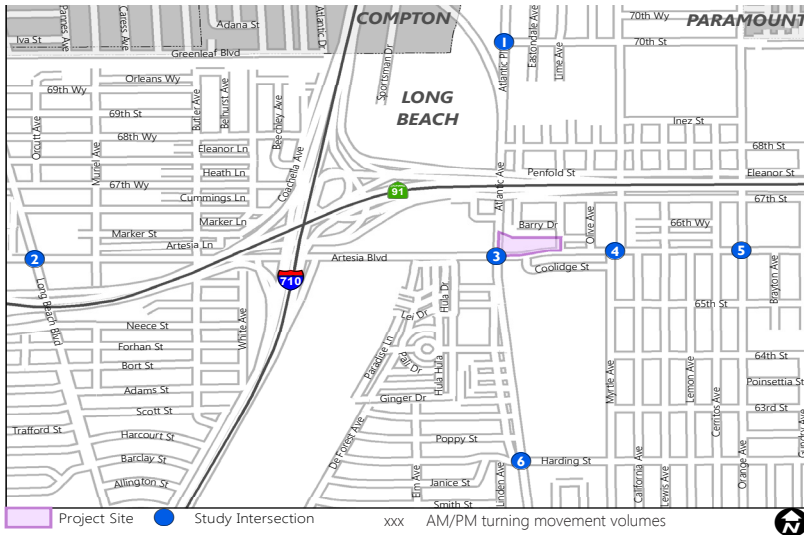
Total																	
NS/EW Streets:		Atlantic Ave				Atlantic Ave				Harding St				Harding St			
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1	2	0	0	1	2	0	0	1	1	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	1	159	9	0	10	137	8	0	41	12	10	0	11	6	43	0	447
7:15 AM	2	174	15	0	15	149	8	2	36	6	10	0	19	1	43	0	480
7:30 AM	7	196	35	0	26	227	15	1	31	24	19	0	33	12	52	0	678
7:45 AM	4	143	20	2	31	210	10	0	31	19	6	0	38	19	54	0	587
8:00 AM	2	150	14	0	11	179	12	3	23	5	8	0	26	12	56	0	501
8:15 AM	3	117	6	0	13	160	10	0	29	6	9	1	10	15	30	0	409
8:30 AM	2	119	8	0	16	164	7	3	23	8	4	0	17	7	24	0	402
8:45 AM	2	141	9	0	21	151	6	3	17	5	4	0	20	12	39	0	430
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	23	1199	116	2	143	1377	76	12	231	85	70	1	174	84	341	0	3934
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	15	663	84	2	83	765	45	6	121	54	43	0	116	44	205	0	2246
PEAK HR FACTOR :	0.536	0.846	0.600	0.250	0.669	0.843	0.750	0.500	0.840	0.563	0.566	0.000	0.763	0.579	0.915	0.000	0.828
	0.803				0.836				0.736				0.822				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1	2	0	0	1	2	0	0	1	1	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	6	192	21	0	37	214	20	3	20	15	8	0	13	18	23	0	590
4:15 PM	10	205	29	0	48	242	17	0	31	11	9	0	7	22	29	0	660
4:30 PM	6	184	25	0	48	220	18	2	19	9	6	0	11	14	26	0	588
4:45 PM	14	197	30	0	31	217	21	0	28	15	10	0	14	16	30	0	623
5:00 PM	7	190	14	0	32	236	29	1	23	9	4	0	27	10	25	0	607
5:15 PM	14	219	21	0	38	215	24	0	23	6	6	0	22	19	37	0	644
5:30 PM	11	211	28	0	36	229	30	3	14	7	8	0	17	16	33	0	643
5:45 PM	11	197	27	0	31	222	19	1	24	17	6	0	12	22	26	0	615
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	79	1595	195	0	301	1795	178	10	182	89	57	0	123	137	229	0	4970
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	46	817	93	0	137	897	104	4	88	37	28	0	80	61	125	0	2517
PEAK HR FACTOR :	0.821	0.933	0.775	0.000	0.901	0.950	0.867	0.333	0.786	0.617	0.700	0.000	0.741	0.803	0.845	0.000	0.977
	0.941				0.958				0.722				0.853				

APPENDIX B

Figures

B

Existing - AM/PM Peak Hour Traffic Volumes



1	Atlantic Place at 70th Street
229 / 104 19 / 29 15 / 15 157 / 52 156 / 207 84 / 116	All-way Stop

2	Long Beach Boulevard at Artesia Boulevard
100 / 63 673 / 559 166 / 140 203 / 144 976 / 271 388 / 89	Signal
45 / 252 169 / 975 128 / 348 257 / 201 365 / 770 77 / 197	

3	Atlantic Avenue at Artesia Boulevard
418 / 119 560 / 950 174 / 290 158 / 244 979 / 389 74 / 139	Signal
219 / 277 432 / 913 202 / 213 243 / 201 725 / 719 169 / 151	

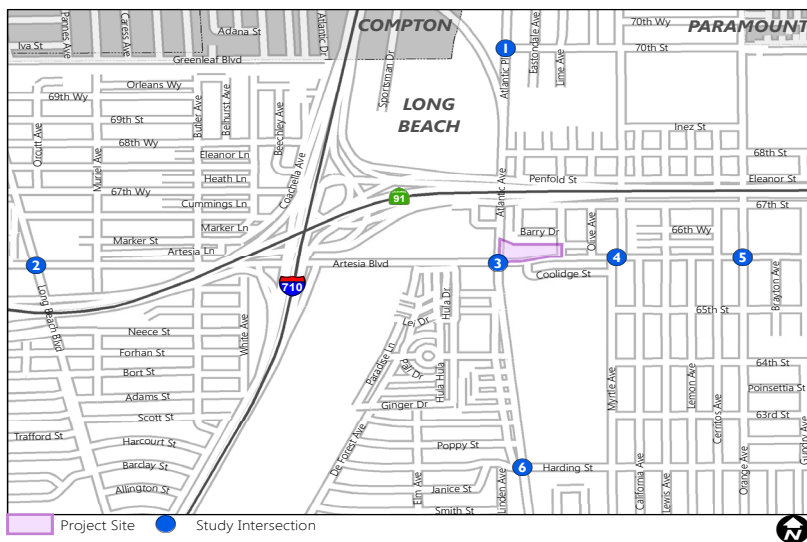
4	Myrtle Avenue at Artesia Boulevard
35 / 31 18 / 8 45 / 42 31 / 18 1150 / 645 66 / 33	Signal
23 / 39 550 / 1248 140 / 60 95 / 46 13 / 16 70 / 21	

5	Orange Avenue at Artesia Boulevard
74 / 59 315 / 318 136 / 136 139 / 116 963 / 553 76 / 118	Signal
74 / 67 465 / 1053 161 / 114 183 / 93 360 / 306 100 / 85	

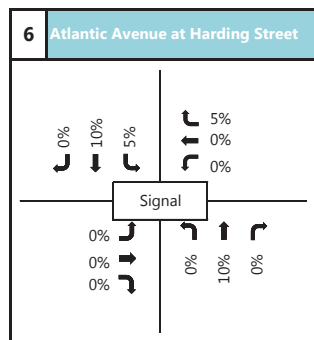
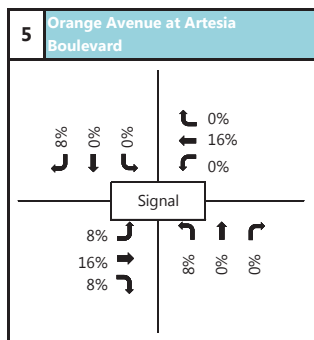
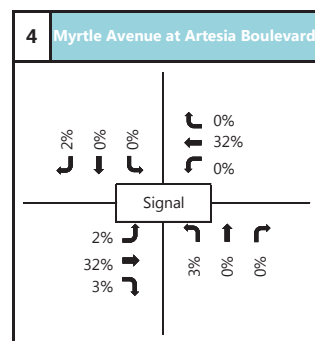
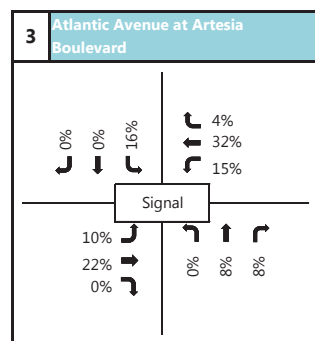
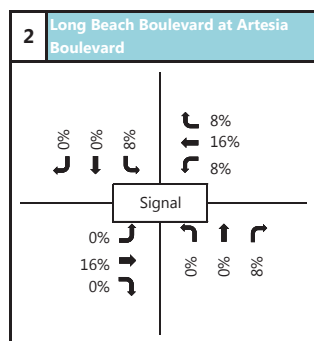
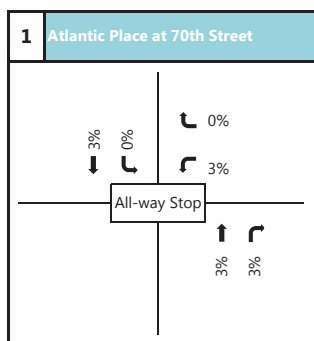
6	Atlantic Avenue at Harding Street
45 / 104 765 / 897 89 / 141 205 / 125 44 / 61 116 / 80	Signal
121 / 88 54 / 37 43 / 28 17 / 46 663 / 817 84 / 93	

APPENDIX B

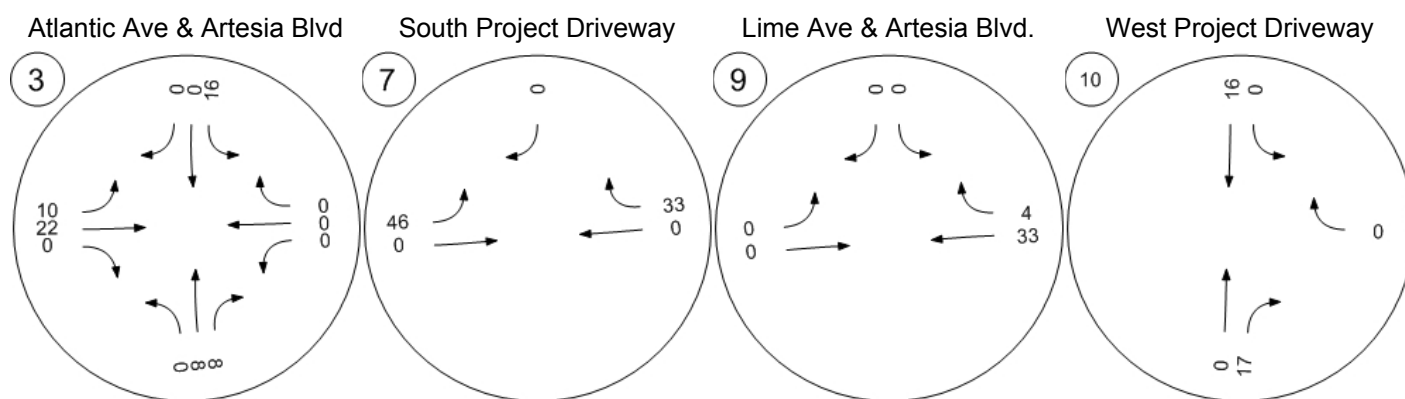
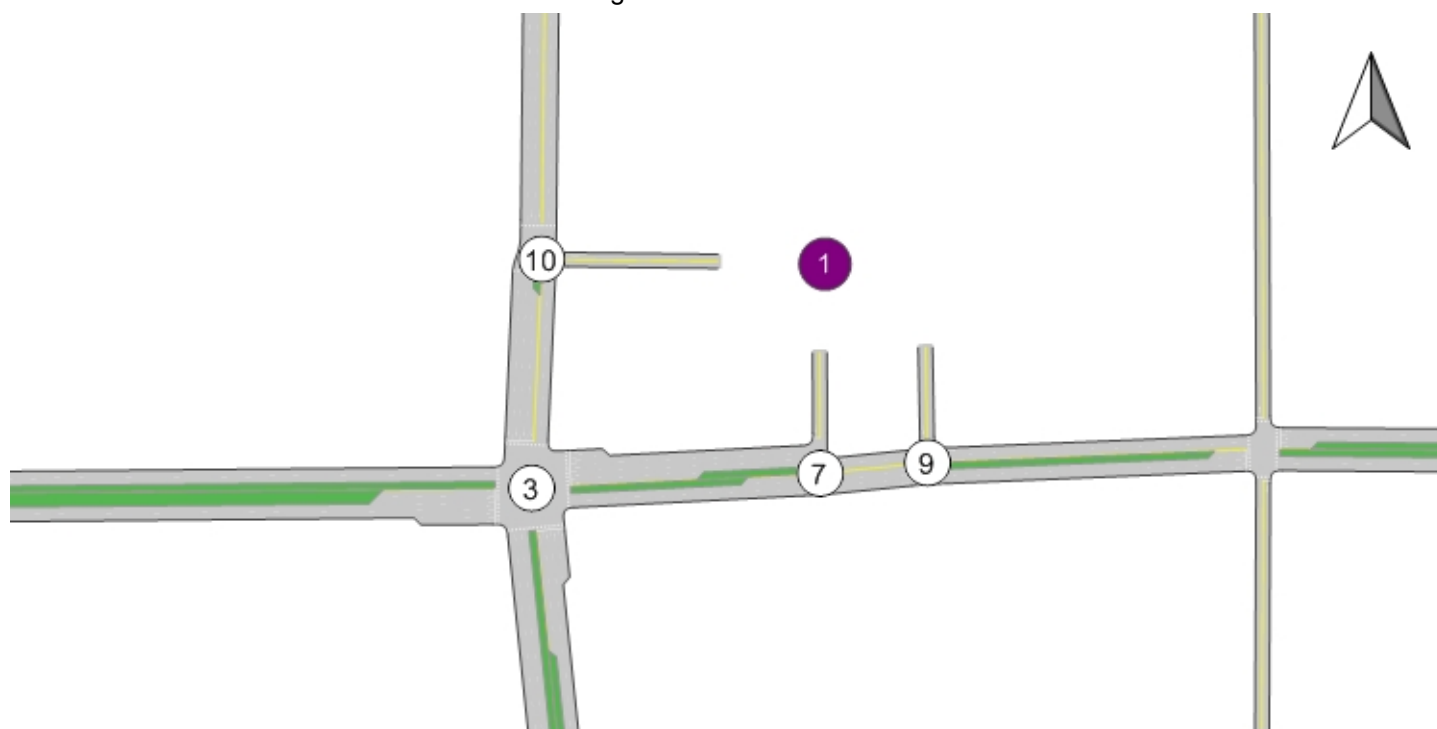
UPTOWN COMMONS Project Trip Distribution



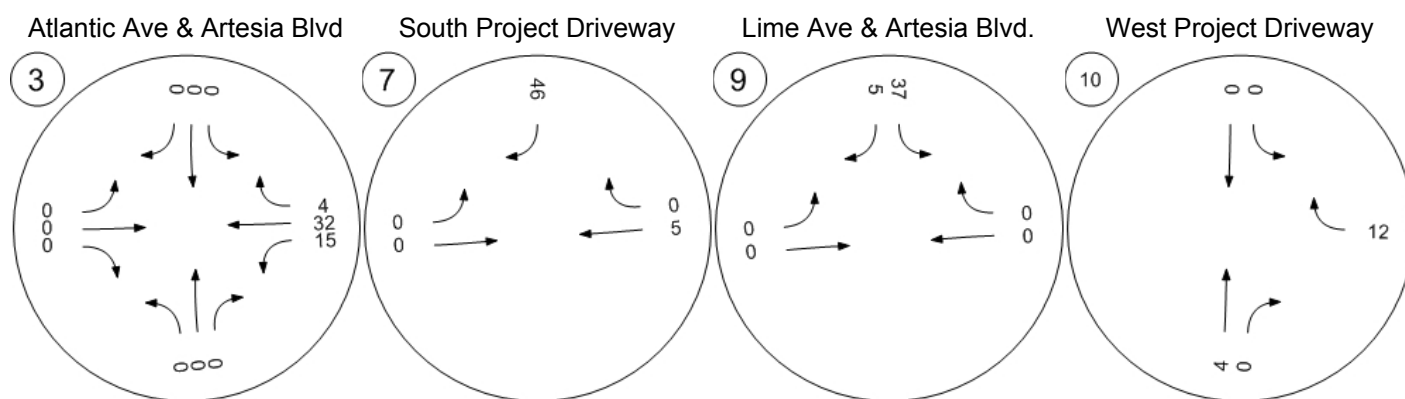
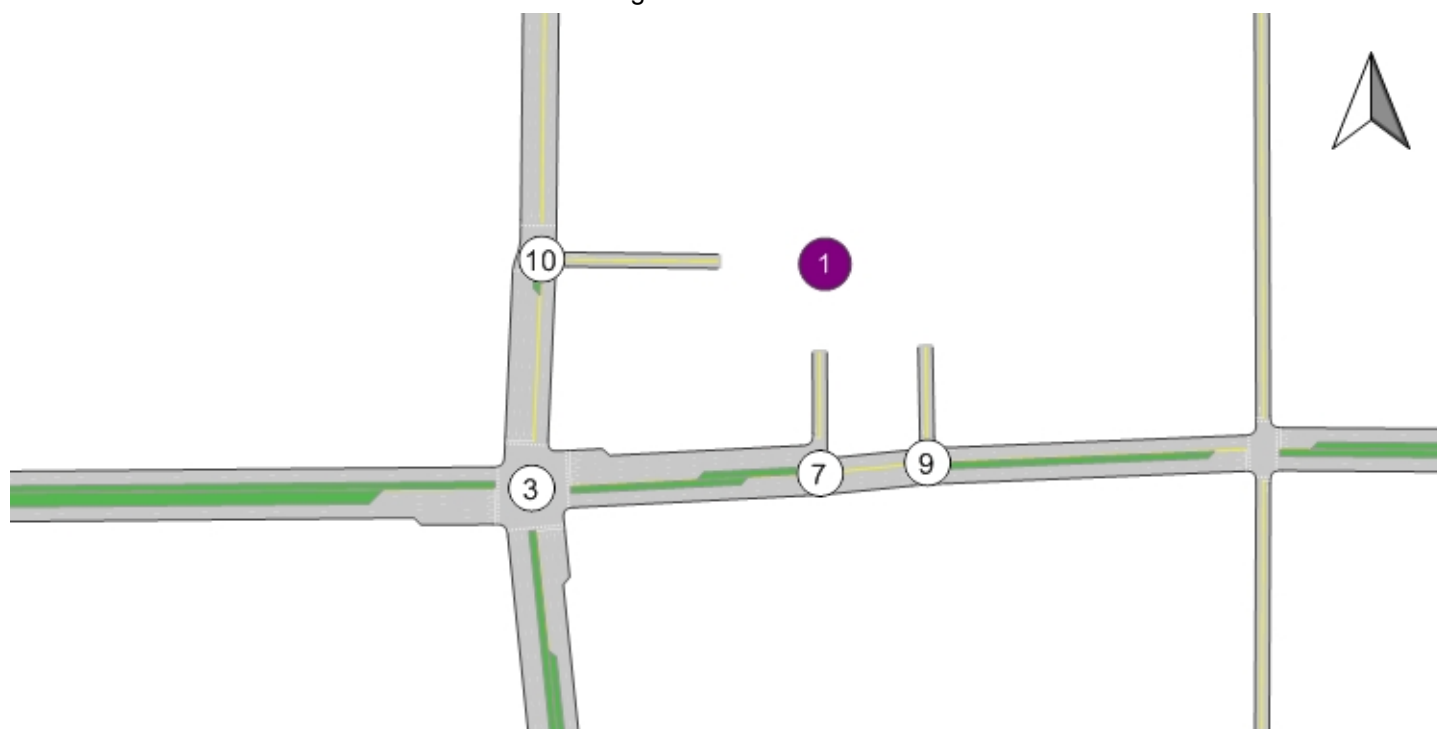
XX% Project Trip Distribution



Traffic Volume - Site Inbound Distribution Percentages



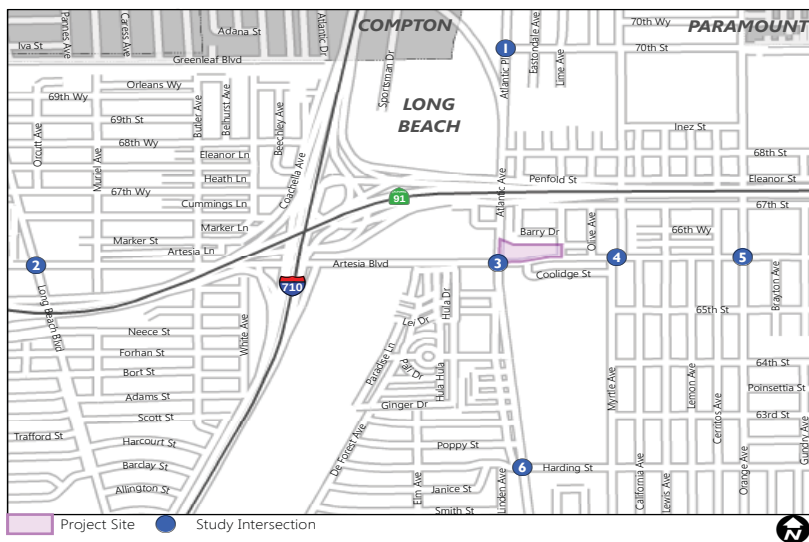
Traffic Volume - Site Distribution Outbound Percentages



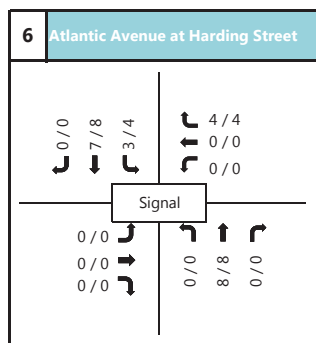
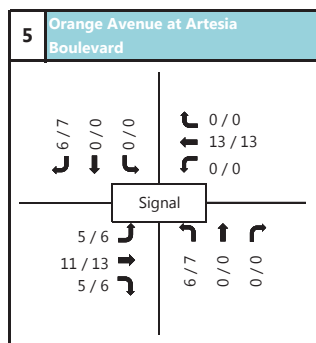
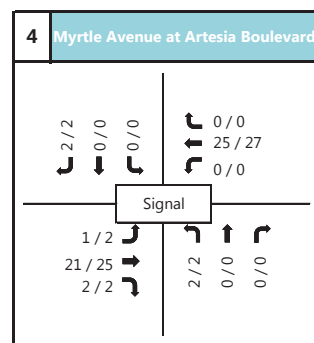
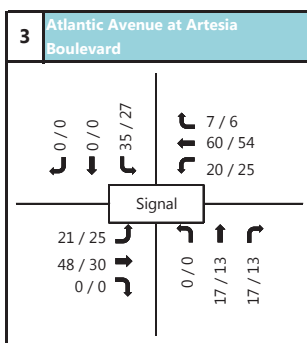
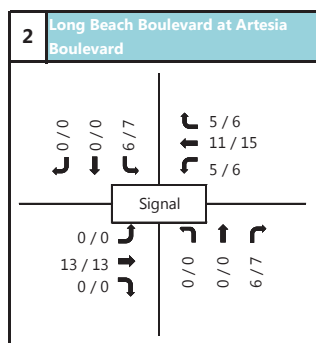
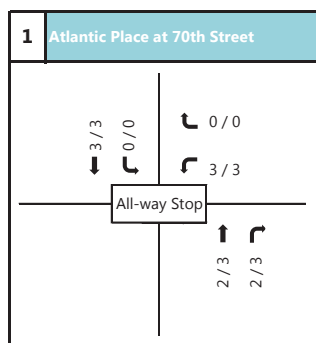
APPENDIX B

UPTOWN COMMONS

Project Trip Assignment - AM/PM Peak Hour



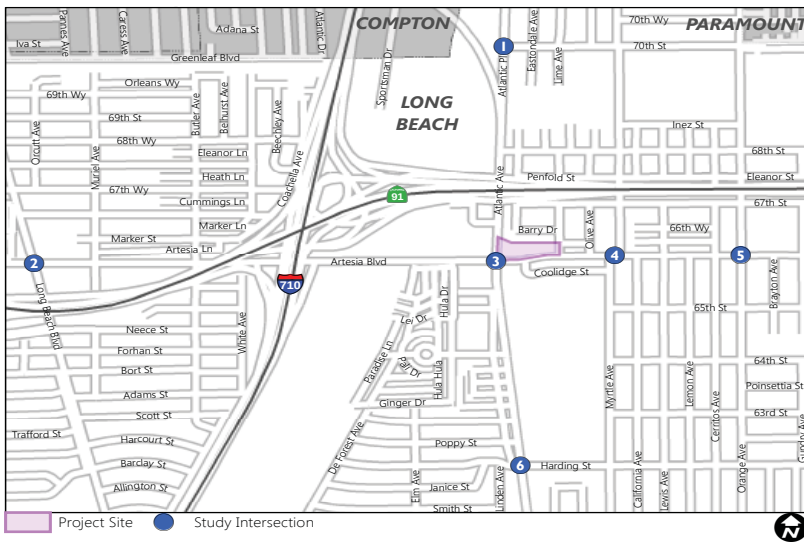
xxx AM/PM turning movement volumes



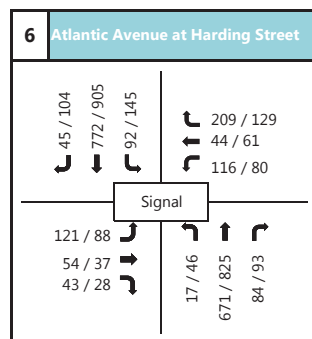
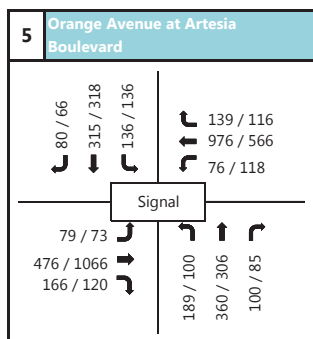
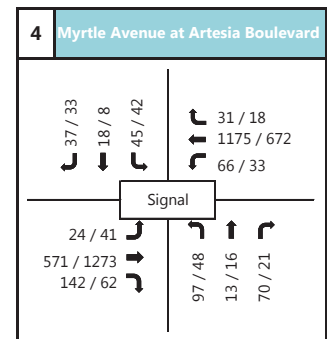
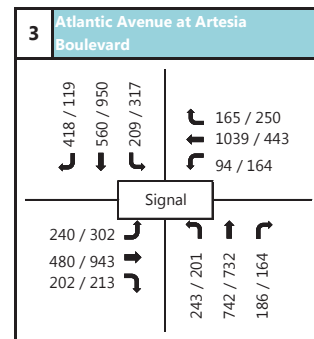
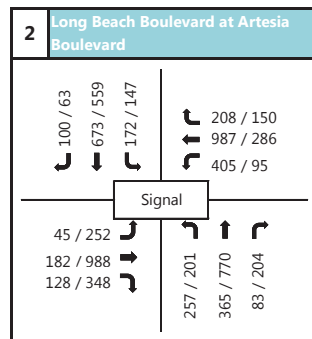
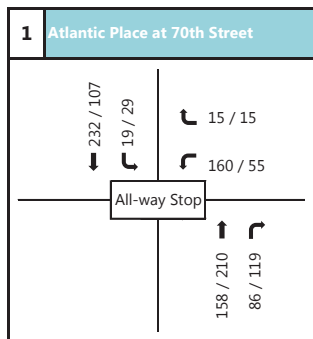
APPENDIX B

UPTOWN COMMONS

Existing with Project - AM/PM Peak Hour Traffic Volumes



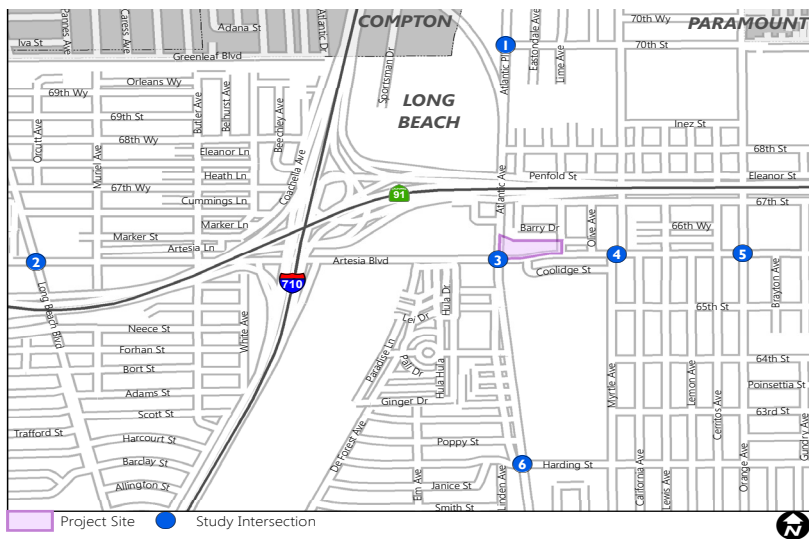
xxx AM/PM turning movement volumes



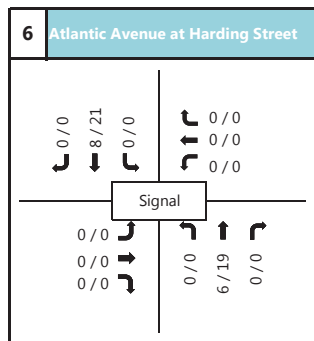
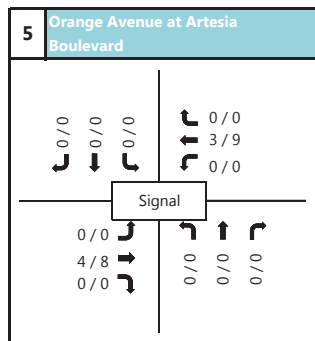
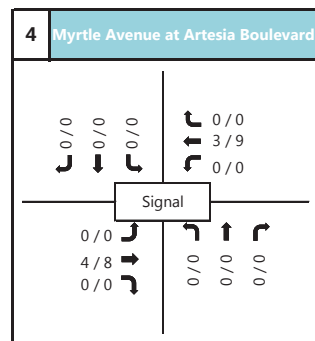
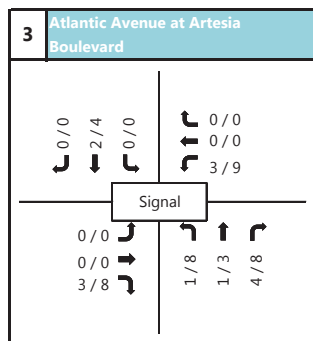
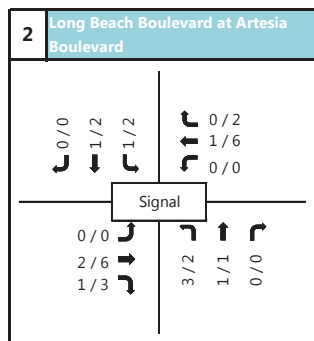
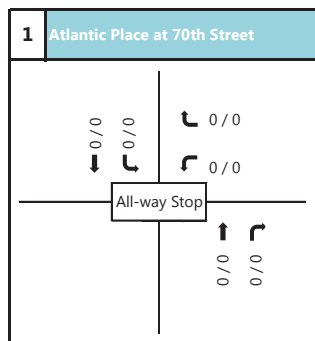
APPENDIX B

UPTOWN COMMONS

Related Project Trip Assignment - AM/PM Peak Hour



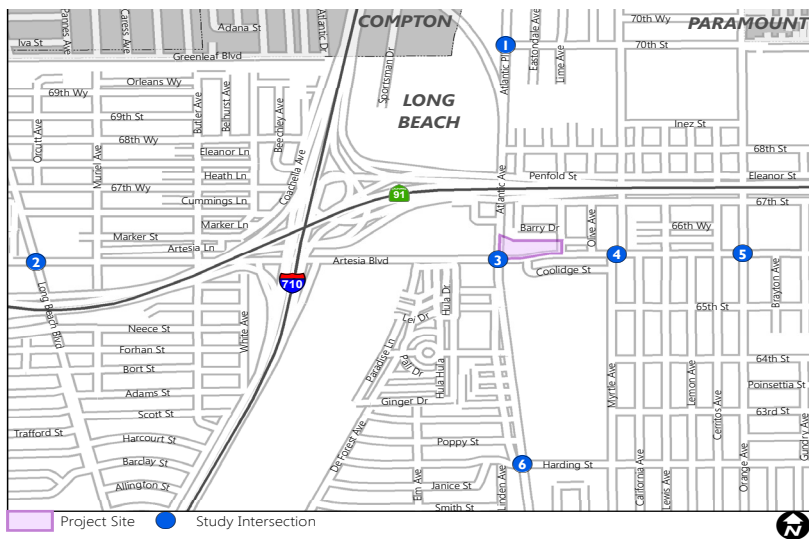
xxx AM/PM turning movement volumes



APPENDIX B

UPTOWN COMMONS

Future without Project - AM/PM Peak Hour Traffic Volumes



xxx AM/PM turning movement volumes

1	Atlantic Place at 70th Street
231 / 105 19 / 29 15 / 15 159 / 53 All-way Stop 158 / 209 85 / 117	

2	Long Beach Boulevard at Artesia Boulevard
101 / 64 681 / 567 169 / 143 205 / 147 987 / 280 404 / 90 Signal 45 / 255 173 / 991 130 / 354 263 / 205 370 / 779 78 / 199	

3	Atlantic Avenue at Artesia Boulevard
422 / 120 568 / 964 176 / 293 160 / 246 989 / 393 78 / 149 Signal 221 / 280 436 / 922 207 / 223 246 / 211 733 / 729 175 / 161	

4	Myrtle Avenue at Artesia Boulevard
35 / 31 18 / 8 45 / 42 Signal 23 / 39 560 / 1268 141 / 61 31 / 18 1165 / 660 67 / 33 96 / 46 13 / 16 71 / 21	

5	Orange Avenue at Artesia Boulevard
75 / 60 318 / 321 137 / 137 140 / 117 976 / 568 77 / 119 Signal 75 / 68 474 / 1072 163 / 115 185 / 94 364 / 309 101 / 86	

6	Atlantic Avenue at Harding Street
45 / 105 781 / 927 90 / 142 207 / 126 44 / 62 117 / 81 Signal 122 / 89 55 / 37 43 / 28 17 / 46 676 / 844 85 / 94	

APPENDIX B

UPTOWN COMMONS

Future with Project - AM/PM Peak Hour Traffic Volumes



xxx AM/PM turning movement volumes

1	Atlantic Place at 70th Street
234 / 108 19 / 29 15 / 15 162 / 56 All-way Stop 160 / 212 87 / 120	

2	Long Beach Boulevard at Artesia Boulevard
101 / 64 681 / 567 175 / 150	210 / 153 998 / 295 409 / 96
Signal	
45 / 255 186 / 1004 130 / 354	263 / 205 370 / 779 84 / 206

3	Atlantic Avenue at Artesia Boulevard
422 / 120 568 / 964 211 / 320	167 / 252 1049 / 447 106 / 174
Signal	
250 / 305 476 / 952 207 / 223	246 / 211 750 / 742 192 / 174

4	Myrtle Avenue at Artesia Boulevard
37 / 33 18 / 8 45 / 42 31 / 18 1190 / 687 67 / 33	Signal 24 / 41 581 / 1293 143 / 63 98 / 48 13 / 16 71 / 21

5	Orange Avenue at Artesia Boulevard
81 / 67 318 / 321 137 / 137 140 / 117 989 / 581 77 / 119	
	Signal
80 / 74 485 / 1085 168 / 121 191 / 101 364 / 309 101 / 86	

6	Atlantic Avenue at Harding Street
45 / 105 788 / 935 93 / 146 211 / 130 44 / 62 117 / 81	Signal 122 / 89 55 / 37 43 / 28 17 / 46 684 / 852 85 / 94

APPENDIX C

Existing LOS Worksheets

Atlantic & Artesia Commercial Center TIS

Vistro File: J:\...\Atlant_Artesia Comm v4 wProj
DistribUpdates.vistro

Scenario 1 Existing AM

Report File: J:\...\Exist AM.pdf

9/18/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Atlantic Pl & 70th St	All-way stop	HCM 6th Edition	WB Left	0.274	9.8	A
2	Long Beach Blvd & Artesia Blvd	Signalized	ICU 1	WB Thru	0.730	-	C
3	Atlantic Ave & Artesia Blvd	Signalized	ICU 1	WB Thru	0.811	-	D
4	Myrtle Ave & Artesia Blvd	Signalized	ICU 1	WB Thru	0.634	-	B
5	Orange Ave & Artesia Blvd	Signalized	ICU 1	WB Thru	0.813	-	D
6	Atlantic Ave & Harding St	Signalized	ICU 1	SB Thru	0.579	-	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: Atlantic PI & 70th St

Control Type: All-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 9.8
 Level Of Service: A
 Volume to Capacity (v/c): 0.274

Intersection Setup

Name	Atlantic PI		Atlantic PI		70th St	
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 Pocket	0	1	0	0	1	0
Pocket Length [ft]	100.00	50.00	100.00	100.00	85.00	100.00
Speed [mph]	30.00		30.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	Atlantic PI		Atlantic PI		70th St	
Base Volume Input [veh/h]	156	84	19	229	157	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
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]	156	84	19	229	157	15
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	39	21	5	57	39	4
Total Analysis Volume [veh/h]	156	84	19	229	157	15
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	631	631	719	627	636	572	705
Degree of Utilization, x	0.12	0.12	0.12	0.20	0.20	0.27	0.02

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.42	0.42	0.39	0.73	0.72	1.11	0.07
95th-Percentile Queue Length [ft]	10.52	10.52	9.86	18.26	17.97	27.76	1.63
Approach Delay [s/veh]	8.91			9.79		11.05	
Approach LOS	A			A		B	
Intersection Delay [s/veh]	9.80						
Intersection LOS	A						

Intersection Level Of Service Report

Intersection 2: Long Beach Blvd & Artesia Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.730

Intersection Setup

Name	Long Beach Blvd			Long Beach Blvd			Artesia Blvd			Artesia Blvd		
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 Pocket	2	0	0	1	0	0	1	0	1	1	0	1
Pocket Length [ft]	251.00	100.00	100.00	258.00	100.00	100.00	184.00	100.00	180.00	185.00	100.00	180.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Long Beach Blvd			Long Beach Blvd			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	257	365	77	166	673	100	45	169	128	388	976	203
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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
Total Hourly Volume [veh/h]	257	365	77	166	673	100	45	169	128	388	976	203
Peak Hour 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
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]	64	91	19	42	168	25	11	42	32	97	244	51
Total Analysis Volume [veh/h]	257	365	77	166	673	100	45	169	128	388	976	203
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Overla	Permis	Permis	Permis
Signal group	1	6	0	5	2	0	0	4	1	0	8	0
Auxiliary Signal Groups									1,4			
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.11	0.05	0.10	0.24	0.24	0.03	0.05	0.00	0.24	0.31	0.13
Intersection LOS	C											
Intersection V/C	0.730											

Intersection Level Of Service Report

Intersection 3: Atlantic Ave & Artesia Blvd

Control Type: Signalized
 Analysis Method: ICU 1
 Analysis Period: 15 minutes

Delay (sec / veh): -
 Level Of Service: D
 Volume to Capacity (v/c): 0.811

Intersection Setup

Name	Atlantic Ave			Atlantic Ave			Artesia Blvd			Artesia Blvd		
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 Pocket	1	0	1	1	0	0	2	0	1	1	0	1
Pocket Length [ft]	200.00	100.00	83.00	243.00	100.00	100.00	185.00	100.00	124.00	210.00	100.00	56.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Atlantic Ave			Atlantic Ave			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	243	725	169	174	560	418	219	432	202	74	979	158
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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
Total Hourly Volume [veh/h]	243	725	169	174	560	418	219	432	202	74	979	158
Peak Hour 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
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]	61	181	42	44	140	105	55	108	51	19	245	40
Total Analysis Volume [veh/h]	243	725	169	174	560	418	219	432	202	74	979	158
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.15	0.23	0.11	0.11	0.20	0.20	0.07	0.14	0.13	0.05	0.31	0.10
Intersection LOS	D											
Intersection V/C	0.811											

Intersection Level Of Service Report

Intersection 4: Myrtle Ave & Artesia Blvd

Control Type: Signalized
 Analysis Method: ICU 1
 Analysis Period: 15 minutes

Delay (sec / veh): -
 Level Of Service: B
 Volume to Capacity (v/c): 0.634

Intersection Setup

Name	Myrtle Ave			Myrtle Ave			Artesia Blvd			Artesia Blvd		
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 Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	50.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Myrtle Ave			Myrtle Ave			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	95	13	70	45	18	35	23	550	140	66	1150	31
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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
Total Hourly Volume [veh/h]	95	13	70	45	18	35	23	550	140	66	1150	31
Peak Hour 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
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]	24	3	18	11	5	9	6	138	35	17	288	8
Total Analysis Volume [veh/h]	95	13	70	45	18	35	23	550	140	66	1150	31
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal group	0	4	0	0	8	0	0	2	0	0	6	0	
Auxiliary Signal Groups													
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.11	0.11	0.03	0.06	0.06	0.01	0.22	0.22	0.04	0.37	0.37	
Intersection LOS	B												
Intersection V/C	0.634												

Intersection Level Of Service Report

Intersection 5: Orange Ave & Artesia Blvd

Control Type: Signalized
 Analysis Method: ICU 1
 Analysis Period: 15 minutes

Delay (sec / veh): -
 Level Of Service: D
 Volume to Capacity (v/c): 0.813

Intersection Setup

Name	Orange Ave			Orange Ave			Artesia Blvd			Artesia Blvd		
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 Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	115.00	100.00	100.00	180.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Orange Ave			Orange Ave			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	183	360	100	136	315	74	74	465	161	76	963	139
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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
Total Hourly Volume [veh/h]	183	360	100	136	315	74	74	465	161	76	963	139
Peak Hour 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
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]	46	90	25	34	79	19	19	116	40	19	241	35
Total Analysis Volume [veh/h]	183	360	100	136	315	74	74	465	161	76	963	139
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal group	7	4	0	3	8	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.23	0.06	0.09	0.20	0.05	0.05	0.20	0.20	0.05	0.34	0.34
Intersection LOS	D											
Intersection V/C	0.813											

Intersection Level Of Service Report

Intersection 6: Atlantic Ave & Harding St

Control Type: Signalized
 Analysis Method: ICU 1
 Analysis Period: 15 minutes

Delay (sec / veh): -
 Level Of Service: A
 Volume to Capacity (v/c): 0.579

Intersection Setup

Name	Atlantic Ave			Atlantic Ave			Harding St			Harding St		
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 Pocket	1	0	1	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	98.00	100.00	100.00	139.00	100.00	100.00	53.00	100.00	100.00	60.00	100.00	60.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Atlantic Ave			Atlantic Ave			Harding St			Harding St		
Base Volume Input [veh/h]	17	663	84	89	765	45	121	54	43	116	44	205
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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
Total Hourly Volume [veh/h]	17	663	84	89	765	45	121	54	43	116	44	205
Peak Hour 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
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]	4	166	21	22	191	11	30	14	11	29	11	51
Total Analysis Volume [veh/h]	17	663	84	89	765	45	121	54	43	116	44	205
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal group	0	2	0	0	6	0	0	4	0	0	8	0	
Auxiliary Signal Groups													
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.21	0.05	0.06	0.25	0.25	0.08	0.06	0.06	0.07	0.03	0.13	
Intersection LOS	A												
Intersection V/C	0.579												

Atlantic & Artesia Commercial Center TIS

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Scenario 1 Existing AM

DistribUpdates.vistro

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9/18/2018

Turning Movement Volume: Detail

ID	Intersection Name	Volume Type	Northbound		Southbound		Westbound		Total Volume
			Thru	Right	Left	Thru	Left	Right	
1	Atlantic PI & 70th St	Final Base	156	84	19	229	157	15	660
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		Future Total	156	84	19	229	157	15	660

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Long Beach Blvd & Artesia Blvd	Final Base	257	365	77	166	673	100	45	169	128	388	976	203	3547
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	257	365	77	166	673	100	45	169	128	388	976	203	3547

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Atlantic Ave & Artesia Blvd	Final Base	243	725	169	174	560	418	219	432	202	74	979	158	4353
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	243	725	169	174	560	418	219	432	202	74	979	158	4353

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Myrtle Ave & Artesia Blvd	Final Base	95	13	70	45	18	35	23	550	140	66	1150	31	2236
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	95	13	70	45	18	35	23	550	140	66	1150	31	2236

Version 6.00-01

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Orange Ave & Artesia Blvd	Final Base	183	360	100	136	315	74	74	465	161	76	963	139	3046
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	183	360	100	136	315	74	74	465	161	76	963	139	3046

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
6	Atlantic Ave & Harding St	Final Base	17	663	84	89	765	45	121	54	43	116	44	205	2246
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	17	663	84	89	765	45	121	54	43	116	44	205	2246

Atlantic & Artesia Commercial Center TIS

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Scenario 2 Existing PM

Report File: J:\...\Exist PM.pdf

9/18/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Atlantic Pl & 70th St	All-way stop	HCM 6th Edition	WB Left	0.145	8.5	A
2	Long Beach Blvd & Artesia Blvd	Signalized	ICU 1	EB Thru	0.800	-	C
3	Atlantic Ave & Artesia Blvd	Signalized	ICU 1	EB Thru	0.889	-	D
4	Myrtle Ave & Artesia Blvd	Signalized	ICU 1	EB Thru	0.620	-	B
5	Orange Ave & Artesia Blvd	Signalized	ICU 1	EB Right	0.826	-	D
6	Atlantic Ave & Harding St	Signalized	ICU 1	SB Thru	0.588	-	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: Atlantic PI & 70th St

Control Type: All-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 8.5
 Level Of Service: A
 Volume to Capacity (v/c): 0.145

Intersection Setup

Name	Atlantic PI		Atlantic PI		70th St	
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 Pocket	0	1	0	0	1	0
Pocket Length [ft]	100.00	50.00	100.00	100.00	85.00	100.00
Speed [mph]	30.00		30.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	Atlantic PI		Atlantic PI		70th St	
Base Volume Input [veh/h]	207	116	29	104	52	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
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]	207	116	29	104	52	15
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	52	29	7	26	13	4
Total Analysis Volume [veh/h]	207	116	29	104	52	15
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	712	712	827	649	675	591	734
Degree of Utilization, x	0.15	0.15	0.14	0.10	0.10	0.09	0.02

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.51	0.51	0.49	0.34	0.33	0.29	0.06
95th-Percentile Queue Length [ft]	12.67	12.67	12.17	8.54	8.17	7.20	1.56
Approach Delay [s/veh]	8.31			8.75		9.00	
Approach LOS	A			A		A	
Intersection Delay [s/veh]	8.51						
Intersection LOS	A						

Intersection Level Of Service Report

Intersection 2: Long Beach Blvd & Artesia Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.800

Intersection Setup

Name	Long Beach Blvd			Long Beach Blvd			Artesia Blvd			Artesia Blvd		
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 Pocket	2	0	0	1	0	0	1	0	1	1	0	1
Pocket Length [ft]	251.00	100.00	100.00	258.00	100.00	100.00	184.00	100.00	180.00	185.00	100.00	180.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Long Beach Blvd			Long Beach Blvd			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	201	770	197	140	559	63	252	975	348	89	271	144
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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
Total Hourly Volume [veh/h]	201	770	197	140	559	63	252	975	348	89	271	144
Peak Hour 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
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]	50	193	49	35	140	16	63	244	87	22	68	36
Total Analysis Volume [veh/h]	201	770	197	140	559	63	252	975	348	89	271	144
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Overla	Permis	Permis	Permis
Signal group	1	6	0	5	2	0	0	4	1	0	8	0
Auxiliary Signal Groups									1,4			
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.24	0.12	0.09	0.19	0.19	0.16	0.30	0.15	0.06	0.08	0.09
Intersection LOS	C											
Intersection V/C	0.800											

Intersection Level Of Service Report

Intersection 3: Atlantic Ave & Artesia Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.889

Intersection Setup

Name	Atlantic Ave			Atlantic Ave			Artesia Blvd			Artesia Blvd		
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 Pocket	1	0	1	1	0	0	2	0	1	1	0	1
Pocket Length [ft]	200.00	100.00	83.00	243.00	100.00	100.00	185.00	100.00	124.00	210.00	100.00	56.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Atlantic Ave			Atlantic Ave			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	201	719	151	290	950	119	277	913	213	139	389	244
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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
Total Hourly Volume [veh/h]	201	719	151	290	950	119	277	913	213	139	389	244
Peak Hour 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
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]	50	180	38	73	238	30	69	228	53	35	97	61
Total Analysis Volume [veh/h]	201	719	151	290	950	119	277	913	213	139	389	244
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.13	0.22	0.09	0.18	0.22	0.22	0.09	0.29	0.13	0.09	0.12	0.15
Intersection LOS	D											
Intersection V/C	0.889											

Intersection Level Of Service Report

Intersection 4: Myrtle Ave & Artesia Blvd

Control Type: Signalized
 Analysis Method: ICU 1
 Analysis Period: 15 minutes

Delay (sec / veh): -
 Level Of Service: B
 Volume to Capacity (v/c): 0.620

Intersection Setup

Name	Myrtle Ave			Myrtle Ave			Artesia Blvd			Artesia Blvd		
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 Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	50.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Myrtle Ave			Myrtle Ave			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	46	16	21	42	8	31	39	1248	60	33	645	18
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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
Total Hourly Volume [veh/h]	46	16	21	42	8	31	39	1248	60	33	645	18
Peak Hour 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
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]	12	4	5	11	2	8	10	312	15	8	161	5
Total Analysis Volume [veh/h]	46	16	21	42	8	31	39	1248	60	33	645	18
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal group	0	4	0	0	8	0	0	2	0	0	6	0	
Auxiliary Signal Groups													
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.05	0.05	0.03	0.05	0.05	0.02	0.41	0.41	0.02	0.21	0.21	
Intersection LOS	B												
Intersection V/C	0.620												

Intersection Level Of Service Report

Intersection 5: Orange Ave & Artesia Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.826

Intersection Setup

Name	Orange Ave			Orange Ave			Artesia Blvd			Artesia Blvd		
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 Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	115.00	100.00	100.00	180.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Orange Ave			Orange Ave			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	93	306	85	136	318	59	67	1053	114	118	553	116
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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
Total Hourly Volume [veh/h]	93	306	85	136	318	59	67	1053	114	118	553	116
Peak Hour 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
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]	23	77	21	34	80	15	17	263	29	30	138	29
Total Analysis Volume [veh/h]	93	306	85	136	318	59	67	1053	114	118	553	116
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal group	7	4	0	3	8	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.19	0.05	0.09	0.20	0.04	0.04	0.36	0.36	0.07	0.21	0.21
Intersection LOS	D											
Intersection V/C	0.826											

Intersection Level Of Service Report

Intersection 6: Atlantic Ave & Harding St

Control Type: Signalized
 Analysis Method: ICU 1
 Analysis Period: 15 minutes

Delay (sec / veh): -
 Level Of Service: A
 Volume to Capacity (v/c): 0.588

Intersection Setup

Name	Atlantic Ave			Atlantic Ave			Harding St			Harding St		
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 Pocket	1	0	1	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	98.00	100.00	100.00	139.00	100.00	100.00	53.00	100.00	100.00	60.00	100.00	60.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Atlantic Ave			Atlantic Ave			Harding St			Harding St		
Base Volume Input [veh/h]	46	817	93	141	897	104	88	37	28	80	61	125
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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
Total Hourly Volume [veh/h]	46	817	93	141	897	104	88	37	28	80	61	125
Peak Hour 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
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]	12	204	23	35	224	26	22	9	7	20	15	31
Total Analysis Volume [veh/h]	46	817	93	141	897	104	88	37	28	80	61	125
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal group	0	2	0	0	6	0	0	4	0	0	8	0	
Auxiliary Signal Groups													
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.26	0.06	0.09	0.31	0.31	0.06	0.04	0.04	0.05	0.04	0.08	
Intersection LOS	A												
Intersection V/C	0.588												

Atlantic & Artesia Commercial Center TIS

Vistro File: J:\...\Atlant_Artesia Comm v4 wProj

Scenario 2 Existing PM

DistribUpdates.vistro

Report File: J:\...\Exist PM.pdf

9/18/2018

Turning Movement Volume: Detail

ID	Intersection Name	Volume Type	Northbound		Southbound		Westbound		Total Volume
			Thru	Right	Left	Thru	Left	Right	
1	Atlantic PI & 70th St	Final Base	207	116	29	104	52	15	523
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		Future Total	207	116	29	104	52	15	523

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Long Beach Blvd & Artesia Blvd	Final Base	201	770	197	140	559	63	252	975	348	89	271	144	4009
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	201	770	197	140	559	63	252	975	348	89	271	144	4009

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Atlantic Ave & Artesia Blvd	Final Base	201	719	151	290	950	119	277	913	213	139	389	244	4605
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	201	719	151	290	950	119	277	913	213	139	389	244	4605

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Myrtle Ave & Artesia Blvd	Final Base	46	16	21	42	8	31	39	1248	60	33	645	18	2207
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	46	16	21	42	8	31	39	1248	60	33	645	18	2207

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Orange Ave & Artesia Blvd	Final Base	93	306	85	136	318	59	67	1053	114	118	553	116	3018
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	93	306	85	136	318	59	67	1053	114	118	553	116	3018

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
6	Atlantic Ave & Harding St	Final Base	46	817	93	141	897	104	88	37	28	80	61	125	2517
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	46	817	93	141	897	104	88	37	28	80	61	125	2517

APPENDIX D1
Existing with-Project LOS Worksheets

Atlantic & Artesia Commercial Center TIS

Vistro File: J:\...\Atlant_Artesia Comm v5 wProj

Scenario 3 Exist+Proj AM

RestExpand.vistro

Report File: J:\...\Vols - Existingwith Project AM v5.pdf

10/17/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Atlantic Pl & 70th St	All-way stop	HCM 6th Edition	WB Left	0.280	9.9	A
2	Long Beach Blvd & Artesia Blvd	Signalized	ICU 1	WB Thru	0.734	-	C
3	Atlantic Ave & Artesia Blvd	Signalized	ICU 1	WB Thru	0.840	-	D
4	Myrtle Ave & Artesia Blvd	Signalized	ICU 1	WB Thru	0.644	-	B
5	Orange Ave & Artesia Blvd	Signalized	ICU 1	WB Thru	0.824	-	D
6	Atlantic Ave & Harding St	Signalized	ICU 1	SB Thru	0.585	-	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: Atlantic PI & 70th StControl Type: All-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutesDelay (sec / veh): 9.9
Level Of Service: A
Volume to Capacity (v/c): 0.280**Intersection Setup**

Name	Atlantic PI		Atlantic PI		70th St	
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 Pocket	0	1	0	0	1	0
Pocket Length [ft]	100.00	50.00	100.00	100.00	85.00	100.00
Speed [mph]	30.00		30.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	Atlantic PI		Atlantic PI		70th St	
Base Volume Input [veh/h]	156	84	19	229	157	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	2	0	3	3	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]	158	86	19	232	160	15
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	40	22	5	58	40	4
Total Analysis Volume [veh/h]	158	86	19	232	160	15
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	628	628	717	625	634	570	702
Degree of Utilization, x	0.13	0.13	0.12	0.20	0.20	0.28	0.02

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.43	0.43	0.41	0.74	0.73	1.14	0.07
95th-Percentile Queue Length [ft]	10.72	10.72	10.18	18.62	18.32	28.59	1.64
Approach Delay [s/veh]	8.95			9.84		11.15	
Approach LOS	A			A		B	
Intersection Delay [s/veh]	9.86						
Intersection LOS	A						

Intersection Level Of Service Report
Intersection 2: Long Beach Blvd & Artesia BlvdControl Type: Signalized
Analysis Method: ICU 1
Analysis Period: 15 minutesDelay (sec / veh): -
Level Of Service: C
Volume to Capacity (v/c): 0.734**Intersection Setup**

Name	Long Beach Blvd			Long Beach Blvd			Artesia Blvd			Artesia Blvd		
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 Pocket	2	0	0	1	0	0	1	0	1	1	0	1
Pocket Length [ft]	251.00	100.00	100.00	258.00	100.00	100.00	184.00	100.00	180.00	185.00	100.00	180.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Long Beach Blvd			Long Beach Blvd			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	257	365	77	166	673	100	45	169	128	400	976	203
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	6	6	0	0	0	13	0	5	11	5
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
Total Hourly Volume [veh/h]	257	365	83	172	673	100	45	182	128	405	987	208
Peak Hour 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
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]	64	91	21	43	168	25	11	46	32	101	247	52
Total Analysis Volume [veh/h]	257	365	83	172	673	100	45	182	128	405	987	208
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Overla	Permis	Permis	Permis
Signal group	1	6	0	5	2	0	0	4	1	0	8	0
Auxiliary Signal Groups									1,4			
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.11	0.05	0.11	0.24	0.24	0.03	0.06	0.00	0.25	0.31	0.13
Intersection LOS	C											
Intersection V/C	0.734											

Intersection Level Of Service Report
Intersection 3: Atlantic Ave & Artesia BlvdControl Type: Signalized
Analysis Method: ICU 1
Analysis Period: 15 minutesDelay (sec / veh): -
Level Of Service: D
Volume to Capacity (v/c): 0.840**Intersection Setup**

Name	Atlantic Ave			Atlantic Ave			Artesia Blvd			Artesia Blvd		
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 Pocket	1	0	1	1	0	0	2	0	1	1	0	1
Pocket Length [ft]	200.00	100.00	83.00	243.00	100.00	100.00	185.00	100.00	124.00	210.00	100.00	56.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Atlantic Ave			Atlantic Ave			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	243	725	169	174	560	418	219	432	202	74	979	158
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	6	6	13	0	0	7	18	0	10	21	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	11	11	22	0	0	14	30	0	10	39	5
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
Total Hourly Volume [veh/h]	243	742	186	209	560	418	240	480	202	94	1039	165
Peak Hour 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
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]	61	186	47	52	140	105	60	120	51	24	260	41
Total Analysis Volume [veh/h]	243	742	186	209	560	418	240	480	202	94	1039	165
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.15	0.23	0.12	0.13	0.20	0.20	0.08	0.15	0.13	0.06	0.32	0.10
Intersection LOS	D											
Intersection V/C	0.840											

Intersection Level Of Service Report
Intersection 4: Myrtle Ave & Artesia BlvdControl Type: Signalized
Analysis Method: ICU 1
Analysis Period: 15 minutesDelay (sec / veh): -
Level Of Service: B
Volume to Capacity (v/c): 0.644**Intersection Setup**

Name	Myrtle Ave			Myrtle Ave			Artesia Blvd			Artesia Blvd		
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 Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	50.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Myrtle Ave			Myrtle Ave			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	95	13	70	45	18	35	23	550	140	66	1150	31
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	0	0	0	0	2	1	21	2	0	25	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
Total Hourly Volume [veh/h]	97	13	70	45	18	37	24	571	142	66	1175	31
Peak Hour 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
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]	24	3	18	11	5	9	6	143	36	17	294	8
Total Analysis Volume [veh/h]	97	13	70	45	18	37	24	571	142	66	1175	31
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal group	0	4	0	0	8	0	0	2	0	0	6	0	
Auxiliary Signal Groups													
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.11	0.11	0.03	0.06	0.06	0.02	0.22	0.22	0.04	0.38	0.38	
Intersection LOS	B												
Intersection V/C	0.644												

Intersection Level Of Service Report
Intersection 5: Orange Ave & Artesia BlvdControl Type: Signalized
Analysis Method: ICU 1
Analysis Period: 15 minutesDelay (sec / veh): -
Level Of Service: D
Volume to Capacity (v/c): 0.824**Intersection Setup**

Name	Orange Ave			Orange Ave			Artesia Blvd			Artesia Blvd		
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 Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	115.00	100.00	100.00	180.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Orange Ave			Orange Ave			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	183	360	100	136	315	74	74	465	161	76	963	139
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	6	0	0	0	0	6	5	11	5	0	13	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
Total Hourly Volume [veh/h]	189	360	100	136	315	80	79	476	166	76	976	139
Peak Hour 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
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]	47	90	25	34	79	20	20	119	42	19	244	35
Total Analysis Volume [veh/h]	189	360	100	136	315	80	79	476	166	76	976	139
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal group	7	4	0	3	8	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.12	0.23	0.06	0.09	0.20	0.05	0.05	0.20	0.20	0.05	0.35	0.35
Intersection LOS	D											
Intersection V/C	0.824											

Intersection Level Of Service Report
Intersection 6: Atlantic Ave & Harding StControl Type: Signalized
Analysis Method: ICU 1
Analysis Period: 15 minutesDelay (sec / veh): -
Level Of Service: A
Volume to Capacity (v/c): 0.585**Intersection Setup**

Name	Atlantic Ave			Atlantic Ave			Harding St			Harding St		
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 Pocket	1	0	1	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	98.00	100.00	100.00	139.00	100.00	100.00	53.00	100.00	100.00	60.00	100.00	60.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Atlantic Ave			Atlantic Ave			Harding St			Harding St		
Base Volume Input [veh/h]	17	663	84	89	765	45	121	54	43	116	44	205
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	8	0	3	7	0	0	0	0	0	0	4
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
Total Hourly Volume [veh/h]	17	671	84	92	772	45	121	54	43	116	44	209
Peak Hour 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
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]	4	168	21	23	193	11	30	14	11	29	11	52
Total Analysis Volume [veh/h]	17	671	84	92	772	45	121	54	43	116	44	209
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.21	0.05	0.06	0.26	0.26	0.08	0.06	0.06	0.07	0.03	0.13
Intersection LOS	A											
Intersection V/C	0.585											

Atlantic & Artesia Commercial Center TIS

Vistro File: J:\...\Atlant_Artesia Comm v5 wProj
RestExpand.vistro

Scenario 3 Exist+Proj AM

Report File: J:\...\Vols - Existingwith Project AM v5.pdf

10/17/2018

Trip Generation summary**Added Trips**

Zone ID: Name	Land Use variables	Code	Ind. Var.	Rate	Quantity	% In	% Out	Trips In	Trips Out	Total Trips	% of Total Trips
1: Zone				1.000	0.000	50.00	50.00	81	66	147	100.00
Added Trips Total								81	66	147	100.00

Atlantic & Artesia Commercial Center TIS

Vistro File: J:\...\Atlant_Artesia Comm v5 wProj
RestExpand.vistro

Scenario 4 Exist+Proj PM

Report File: J:\...\Vols - Exist wProj PM v5.pdf

10/17/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Atlantic Pl & 70th St	All-way stop	HCM 6th Edition	WB Left	0.148	8.6	A
2	Long Beach Blvd & Artesia Blvd	Signalized	ICU 1	EB Thru	0.812	-	D
3	Atlantic Ave & Artesia Blvd	Signalized	ICU 1	EB Thru	0.935	-	E
4	Myrtle Ave & Artesia Blvd	Signalized	ICU 1	EB Thru	0.631	-	B
5	Orange Ave & Artesia Blvd	Signalized	ICU 1	EB Thru	0.832	-	D
6	Atlantic Ave & Harding St	Signalized	ICU 1	SB Thru	0.595	-	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: Atlantic PI & 70th St

Control Type: All-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 8.6
 Level Of Service: A
 Volume to Capacity (v/c): 0.148

Intersection Setup

Name	Atlantic PI		Atlantic PI		70th St	
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 Pocket	0	1	0	0	1	0
Pocket Length [ft]	100.00	50.00	100.00	100.00	85.00	100.00
Speed [mph]	30.00		30.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	Atlantic PI		Atlantic PI		70th St	
Base Volume Input [veh/h]	207	116	29	104	52	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	3	0	3	3	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]	210	119	29	107	55	15
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	53	30	7	27	14	4
Total Analysis Volume [veh/h]	210	119	29	107	55	15
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	710	710	823	646	671	589	731
Degree of Utilization, x	0.15	0.15	0.14	0.11	0.10	0.09	0.02

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.52	0.52	0.50	0.35	0.34	0.31	0.06
95th-Percentile Queue Length [ft]	12.94	12.94	12.60	8.78	8.41	7.69	1.57
Approach Delay [s/veh]	8.35			8.80		9.07	
Approach LOS	A			A		A	
Intersection Delay [s/veh]	8.56						
Intersection LOS	A						

Intersection Level Of Service Report
Intersection 2: Long Beach Blvd & Artesia Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.812

Intersection Setup

Name	Long Beach Blvd			Long Beach Blvd			Artesia Blvd			Artesia Blvd		
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 Pocket	2	0	0	1	0	0	1	0	1	1	0	1
Pocket Length [ft]	251.00	100.00	100.00	258.00	100.00	100.00	184.00	100.00	180.00	185.00	100.00	180.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Long Beach Blvd			Long Beach Blvd			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	201	770	197	140	559	63	252	975	348	89	271	144
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	7	7	0	0	0	13	0	6	15	6
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
Total Hourly Volume [veh/h]	201	770	204	147	559	63	252	988	348	95	286	150
Peak Hour 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
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]	50	193	51	37	140	16	63	247	87	24	72	38
Total Analysis Volume [veh/h]	201	770	204	147	559	63	252	988	348	95	286	150
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Overla	Permis	Permis	Permis
Signal group	1	6	0	5	2	0	0	4	1	0	8	0
Auxiliary Signal Groups									1,4			
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.24	0.13	0.09	0.19	0.19	0.16	0.31	0.15	0.06	0.09	0.09
Intersection LOS	D											
Intersection V/C	0.812											

Intersection Level Of Service Report

Intersection 3: Atlantic Ave & Artesia Blvd

Control Type: Signalized
 Analysis Method: ICU 1
 Analysis Period: 15 minutes

Delay (sec / veh): -
 Level Of Service: E
 Volume to Capacity (v/c): 0.935

Intersection Setup

Name	Atlantic Ave			Atlantic Ave			Artesia Blvd			Artesia Blvd		
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 Pocket	1	0	1	1	0	0	2	0	1	1	0	1
Pocket Length [ft]	200.00	100.00	83.00	243.00	100.00	100.00	185.00	100.00	124.00	210.00	100.00	56.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Atlantic Ave			Atlantic Ave			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	201	719	151	290	950	119	277	913	213	139	389	244
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	6	6	13	0	0	16	11	0	12	27	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	7	7	14	0	0	9	19	0	13	27	3
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
Total Hourly Volume [veh/h]	201	732	164	317	950	119	302	943	213	164	443	250
Peak Hour 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
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]	50	183	41	79	238	30	76	236	53	41	111	63
Total Analysis Volume [veh/h]	201	732	164	317	950	119	302	943	213	164	443	250
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.13	0.23	0.10	0.20	0.22	0.22	0.09	0.29	0.13	0.10	0.14	0.16
Intersection LOS	E											
Intersection V/C	0.935											

Intersection Level Of Service Report

Intersection 4: Myrtle Ave & Artesia Blvd

Control Type: Signalized
 Analysis Method: ICU 1
 Analysis Period: 15 minutes

Delay (sec / veh): -
 Level Of Service: B
 Volume to Capacity (v/c): 0.631

Intersection Setup

Name	Myrtle Ave			Myrtle Ave			Artesia Blvd			Artesia Blvd		
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 Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	50.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Myrtle Ave			Myrtle Ave			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	46	16	21	42	8	31	39	1248	60	33	645	18
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	0	0	0	0	2	2	25	2	0	27	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
Total Hourly Volume [veh/h]	48	16	21	42	8	33	41	1273	62	33	672	18
Peak Hour 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
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]	12	4	5	11	2	8	10	318	16	8	168	5
Total Analysis Volume [veh/h]	48	16	21	42	8	33	41	1273	62	33	672	18
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal group	0	4	0	0	8	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.05	0.05	0.03	0.05	0.05	0.03	0.42	0.42	0.02	0.22	0.22
Intersection LOS	B											
Intersection V/C	0.631											

Intersection Level Of Service Report

Intersection 5: Orange Ave & Artesia Blvd

Control Type: Signalized
 Analysis Method: ICU 1
 Analysis Period: 15 minutes

Delay (sec / veh): -
 Level Of Service: D
 Volume to Capacity (v/c): 0.832

Intersection Setup

Name	Orange Ave			Orange Ave			Artesia Blvd			Artesia Blvd		
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 Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	115.00	100.00	100.00	180.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Orange Ave			Orange Ave			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	93	306	85	136	318	59	67	1053	114	118	553	116
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	7	0	0	0	0	7	6	13	6	0	13	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
Total Hourly Volume [veh/h]	100	306	85	136	318	66	73	1066	120	118	566	116
Peak Hour 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
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]	25	77	21	34	80	17	18	267	30	30	142	29
Total Analysis Volume [veh/h]	100	306	85	136	318	66	73	1066	120	118	566	116
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal group	7	4	0	3	8	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.19	0.05	0.09	0.20	0.04	0.05	0.37	0.37	0.07	0.21	0.21
Intersection LOS	D											
Intersection V/C	0.832											

Intersection Level Of Service Report

Intersection 6: Atlantic Ave & Harding St

Control Type: Signalized
 Analysis Method: ICU 1
 Analysis Period: 15 minutes

Delay (sec / veh): -
 Level Of Service: A
 Volume to Capacity (v/c): 0.595

Intersection Setup

Name	Atlantic Ave			Atlantic Ave			Harding St			Harding St		
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 Pocket	1	0	1	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	98.00	100.00	100.00	139.00	100.00	100.00	53.00	100.00	100.00	60.00	100.00	60.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Atlantic Ave			Atlantic Ave			Harding St			Harding St		
Base Volume Input [veh/h]	46	817	93	141	897	104	88	37	28	80	61	125
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	8	0	4	8	0	0	0	0	0	0	4
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
Total Hourly Volume [veh/h]	46	825	93	145	905	104	88	37	28	80	61	129
Peak Hour 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
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]	12	206	23	36	226	26	22	9	7	20	15	32
Total Analysis Volume [veh/h]	46	825	93	145	905	104	88	37	28	80	61	129
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.26	0.06	0.09	0.32	0.32	0.06	0.04	0.04	0.05	0.04	0.08
Intersection LOS	A											
Intersection V/C	0.595											

Atlantic & Artesia Commercial Center TIS

Vistro File: J:\...\Atlant_Artesia Comm v5 wProj
RestExpand.vistro

Scenario 4 Exist+Proj PM

Report File: J:\...\Vols - Exist wProj PM v5.pdf

10/17/2018

Trip Generation summary**Added Trips**

Zone ID: Name	Land Use variables	Code	Ind. Var.	Rate	Quantity	% In	% Out	Trips In	Trips Out	Total Trips	% of Total Trips
1: Zone				1.000	0.000	50.00	50.00	83	81	164	100.00
Added Trips Total								83	81	164	100.00

APPENDIX D2
Existing With-Project with-Improvements LOS Worksheets

Atlantic & Artesia Commercial Center TIS

Vistro File: J:\...\Atlant_Artesia Comm v5 wProj

Scenario 16 Mitig - Fut wProj AM

RestExpand.vistro

Report File: J:\...\Vols - Fut wProj AM +Mitig v5.pdf

10/17/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
3	Atlantic Ave & Artesia Blvd	Signalized	ICU 1	WB Thru	0.849	-	D

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 3: Atlantic Ave & Artesia Blvd

Control Type: Signalized
 Analysis Method: ICU 1
 Analysis Period: 15 minutes

Delay (sec / veh): -
 Level Of Service: D
 Volume to Capacity (v/c): 0.849

Intersection Setup

Name	Atlantic Ave			Atlantic Ave			Artesia Blvd			Artesia Blvd		
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 Pocket	1	0	1	1	0	0	2	0	1	1	0	1
Pocket Length [ft]	200.00	100.00	83.00	243.00	100.00	100.00	185.00	100.00	124.00	210.00	100.00	56.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Atlantic Ave			Atlantic Ave			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	243	725	169	174	560	418	219	432	202	74	979	158
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	7	10	13	2	0	15	10	3	13	21	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	11	11	22	0	0	14	30	0	18	39	5
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
Total Hourly Volume [veh/h]	246	750	192	211	568	422	250	476	207	106	1049	167
Peak Hour 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
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]	62	188	48	53	142	106	63	119	52	27	262	42
Total Analysis Volume [veh/h]	246	750	192	211	568	422	250	476	207	106	1049	167
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.15	0.23	0.12	0.13	0.21	0.21	0.08	0.15	0.13	0.03	0.33	0.10
Intersection LOS	D											
Intersection V/C	0.849											

Atlantic & Artesia Commercial Center TIS

Vistro File: J:\...\Atlant_Artesia Comm v5 wProj
RestExpand.vistro

Scenario 15 Mitig - Exist+Proj PM

Report File: J:\...\Vols - Exist wProj PM +Mitig v5.pdf

10/17/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
3	Atlantic Ave & Artesia Blvd	Signalized	ICU 1	EB Thru	0.884	-	D

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 3: Atlantic Ave & Artesia Blvd

Control Type: Signalized
 Analysis Method: ICU 1
 Analysis Period: 15 minutes

Delay (sec / veh): -
 Level Of Service: D
 Volume to Capacity (v/c): 0.884

Intersection Setup

Name	Atlantic Ave			Atlantic Ave			Artesia Blvd			Artesia Blvd		
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 Pocket	1	0	1	1	0	0	2	0	1	1	0	1
Pocket Length [ft]	200.00	100.00	83.00	243.00	100.00	100.00	185.00	100.00	124.00	210.00	100.00	56.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Atlantic Ave			Atlantic Ave			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	201	719	151	290	950	119	277	913	213	139	389	244
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	6	6	13	0	0	16	11	0	12	27	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	7	7	14	0	0	9	19	0	13	27	3
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
Total Hourly Volume [veh/h]	201	732	164	317	950	119	302	943	213	164	443	250
Peak Hour 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
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]	50	183	41	79	238	30	76	236	53	41	111	63
Total Analysis Volume [veh/h]	201	732	164	317	950	119	302	943	213	164	443	250
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.13	0.23	0.10	0.20	0.22	0.22	0.09	0.29	0.13	0.05	0.14	0.16
Intersection LOS	D											
Intersection V/C	0.884											

APPENDIX E
Future without-Project LOS Worksheets

Atlantic & Artesia Commercial Center TIS

Vistro File: J:\...\Atlant_Artesia Comm v4 wProj
DistribUpdates.vistro

Scenario 5 Fut pre-Proj AM

Report File: J:\...\Fut Pre-Proj AM.pdf

9/18/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Atlantic Pl & 70th St	All-way stop	HCM 6th Edition	WB Left	0.278	9.8	A
2	Long Beach Blvd & Artesia Blvd	Signalized	ICU 1	WB Thru	0.738	-	C
3	Atlantic Ave & Artesia Blvd	Signalized	ICU 1	WB Thru	0.819	-	D
4	Myrtle Ave & Artesia Blvd	Signalized	ICU 1	WB Right	0.640	-	B
5	Orange Ave & Artesia Blvd	Signalized	ICU 1	WB Thru	0.821	-	D
6	Atlantic Ave & Harding St	Signalized	ICU 1	SB Thru	0.585	-	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: Atlantic PI & 70th St

Control Type: All-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 9.8
 Level Of Service: A
 Volume to Capacity (v/c): 0.278

Intersection Setup

Name	Atlantic PI		Atlantic PI		70th St	
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 Pocket	0	1	0	0	1	0
Pocket Length [ft]	100.00	50.00	100.00	100.00	85.00	100.00
Speed [mph]	30.00		30.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	Atlantic PI		Atlantic PI		70th St	
Base Volume Input [veh/h]	156	84	19	229	157	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01
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]	158	85	19	231	159	15
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	40	21	5	58	40	4
Total Analysis Volume [veh/h]	158	85	19	231	159	15
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	629	629	717	625	634	571	703
Degree of Utilization, x	0.13	0.13	0.12	0.20	0.20	0.28	0.02

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.43	0.43	0.40	0.74	0.73	1.13	0.07
95th-Percentile Queue Length [ft]	10.70	10.70	10.03	18.50	18.21	28.32	1.63
Approach Delay [s/veh]	8.94			9.82		11.12	
Approach LOS	A			A		B	
Intersection Delay [s/veh]	9.84						
Intersection LOS	A						

Intersection Level Of Service Report

Intersection 2: Long Beach Blvd & Artesia Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.738

Intersection Setup

Name	Long Beach Blvd			Long Beach Blvd			Artesia Blvd			Artesia Blvd		
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 Pocket	2	0	0	1	0	0	1	0	1	1	0	1
Pocket Length [ft]	251.00	100.00	100.00	258.00	100.00	100.00	184.00	100.00	180.00	185.00	100.00	180.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Long Beach Blvd			Long Beach Blvd			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	257	365	77	166	673	100	45	169	128	400	976	203
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	1	0	1	1	0	0	2	1	0	1	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
Total Hourly Volume [veh/h]	263	370	78	169	681	101	45	173	130	404	987	205
Peak Hour 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
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]	66	93	20	42	170	25	11	43	33	101	247	51
Total Analysis Volume [veh/h]	263	370	78	169	681	101	45	173	130	404	987	205
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Overla	Permis	Permis	Permis
Signal group	1	6	0	5	2	0	0	4	1	0	8	0
Auxiliary Signal Groups									1,4			
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.12	0.05	0.11	0.24	0.24	0.03	0.05	0.00	0.25	0.31	0.13
Intersection LOS	C											
Intersection V/C	0.738											

Intersection Level Of Service Report

Intersection 3: Atlantic Ave & Artesia Blvd

Control Type: Signalized
 Analysis Method: ICU 1
 Analysis Period: 15 minutes

Delay (sec / veh): -
 Level Of Service: D
 Volume to Capacity (v/c): 0.819

Intersection Setup

Name	Atlantic Ave			Atlantic Ave			Artesia Blvd			Artesia Blvd		
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 Pocket	1	0	1	1	0	0	2	0	1	1	0	1
Pocket Length [ft]	200.00	100.00	83.00	243.00	100.00	100.00	185.00	100.00	124.00	210.00	100.00	56.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Atlantic Ave			Atlantic Ave			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	243	725	169	174	560	418	219	432	202	74	979	158
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	1	4	0	2	0	0	0	3	3	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
Total Hourly Volume [veh/h]	246	733	175	176	568	422	221	436	207	78	989	160
Peak Hour 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
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]	62	183	44	44	142	106	55	109	52	20	247	40
Total Analysis Volume [veh/h]	246	733	175	176	568	422	221	436	207	78	989	160
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.15	0.23	0.11	0.11	0.21	0.21	0.07	0.14	0.13	0.05	0.31	0.10
Intersection LOS	D											
Intersection V/C	0.819											

Intersection Level Of Service Report

Intersection 4: Myrtle Ave & Artesia Blvd

Control Type: Signalized
 Analysis Method: ICU 1
 Analysis Period: 15 minutes

Delay (sec / veh): -
 Level Of Service: B
 Volume to Capacity (v/c): 0.640

Intersection Setup

Name	Myrtle Ave			Myrtle Ave			Artesia Blvd			Artesia Blvd		
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 Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	50.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Myrtle Ave			Myrtle Ave			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	95	13	70	45	18	35	23	550	140	66	1150	31
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
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	4	0	0	3	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
Total Hourly Volume [veh/h]	96	13	71	45	18	35	23	560	141	67	1165	31
Peak Hour 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
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]	24	3	18	11	5	9	6	140	35	17	291	8
Total Analysis Volume [veh/h]	96	13	71	45	18	35	23	560	141	67	1165	31
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal group	0	4	0	0	8	0	0	2	0	0	6	0	
Auxiliary Signal Groups													
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.11	0.11	0.03	0.06	0.06	0.01	0.22	0.22	0.04	0.37	0.37	
Intersection LOS	B												
Intersection V/C	0.640												

Intersection Level Of Service Report

Intersection 5: Orange Ave & Artesia Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.821

Intersection Setup

Name	Orange Ave			Orange Ave			Artesia Blvd			Artesia Blvd		
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 Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	115.00	100.00	100.00	180.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Orange Ave			Orange Ave			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	183	360	100	136	315	74	74	465	161	76	963	139
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
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	4	0	0	3	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
Total Hourly Volume [veh/h]	185	364	101	137	318	75	75	474	163	77	976	140
Peak Hour 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
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]	46	91	25	34	80	19	19	119	41	19	244	35
Total Analysis Volume [veh/h]	185	364	101	137	318	75	75	474	163	77	976	140
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal group	7	4	0	3	8	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.12	0.23	0.06	0.09	0.20	0.05	0.05	0.20	0.20	0.05	0.35	0.35
Intersection LOS	D											
Intersection V/C	0.821											

Intersection Level Of Service Report

Intersection 6: Atlantic Ave & Harding St

Control Type: Signalized
 Analysis Method: ICU 1
 Analysis Period: 15 minutes

Delay (sec / veh): -
 Level Of Service: A
 Volume to Capacity (v/c): 0.585

Intersection Setup

Name	Atlantic Ave			Atlantic Ave			Harding St			Harding St		
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 Pocket	1	0	1	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	98.00	100.00	100.00	139.00	100.00	100.00	53.00	100.00	100.00	60.00	100.00	60.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Atlantic Ave			Atlantic Ave			Harding St			Harding St		
Base Volume Input [veh/h]	17	663	84	89	765	45	121	54	43	116	44	205
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	6	0	0	8	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
Total Hourly Volume [veh/h]	17	676	85	90	781	45	122	55	43	117	44	207
Peak Hour 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
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]	4	169	21	23	195	11	31	14	11	29	11	52
Total Analysis Volume [veh/h]	17	676	85	90	781	45	122	55	43	117	44	207
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal group	0	2	0	0	6	0	0	4	0	0	8	0	
Auxiliary Signal Groups													
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.21	0.05	0.06	0.26	0.26	0.08	0.06	0.06	0.07	0.03	0.13	
Intersection LOS	A												
Intersection V/C	0.585												

Atlantic & Artesia Commercial Center TIS

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Scenario 5 Fut pre-Proj AM

DistribUpdates.vistro

Report File: J:\...\Fut Pre-Proj AM.pdf

9/18/2018

Turning Movement Volume: Detail

ID	Intersection Name	Volume Type	Northbound		Southbound		Westbound		Total Volume
			Thru	Right	Left	Thru	Left	Right	
1	Atlantic PI & 70th St	Final Base	156	84	19	229	157	15	660
		Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		Future Total	158	85	19	231	159	15	667

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Long Beach Blvd & Artesia Blvd	Final Base	257	365	77	166	673	100	45	169	128	400	976	203	3559
		Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	3	1	0	1	1	0	0	2	1	0	1	0	10
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	263	370	78	169	681	101	45	173	130	404	987	205	3606

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Atlantic Ave & Artesia Blvd	Final Base	243	725	169	174	560	418	219	432	202	74	979	158	4353
		Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	1	1	4	0	2	0	0	0	3	3	0	0	14
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	246	733	175	176	568	422	221	436	207	78	989	160	4411

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Myrtle Ave & Artesia Blvd	Final Base	95	13	70	45	18	35	23	550	140	66	1150	31	2236
		Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	4	0	0	3	0	7
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	96	13	71	45	18	35	23	560	141	67	1165	31	2265

Version 6.00-01

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Orange Ave & Artesia Blvd	Final Base	183	360	100	136	315	74	74	465	161	76	963	139	3046
		Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	4	0	0	3	0	7
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	185	364	101	137	318	75	75	474	163	77	976	140	3085

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
6	Atlantic Ave & Harding St	Final Base	17	663	84	89	765	45	121	54	43	116	44	205	2246
		Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	6	0	0	8	0	0	0	0	0	0	0	14
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	17	676	85	90	781	45	122	55	43	117	44	207	2282

Atlantic & Artesia Commercial Center TIS

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Scenario 6 Fut pre-Proj PM

DistribUpdates.vistro

Report File: J:\...\Fut Pre-Proj PM.pdf

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Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Atlantic Pl & 70th St	All-way stop	HCM 6th Edition	WB Left	0.147	8.5	A
2	Long Beach Blvd & Artesia Blvd	Signalized	ICU 1	EB Thru	0.810	-	D
3	Atlantic Ave & Artesia Blvd	Signalized	ICU 1	EB Thru	0.903	-	E
4	Myrtle Ave & Artesia Blvd	Signalized	ICU 1	EB Thru	0.626	-	B
5	Orange Ave & Artesia Blvd	Signalized	ICU 1	EB Thru	0.835	-	D
6	Atlantic Ave & Harding St	Signalized	ICU 1	SB Right	0.598	-	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: Atlantic PI & 70th St

Control Type: All-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 8.5
 Level Of Service: A
 Volume to Capacity (v/c): 0.147

Intersection Setup

Name	Atlantic PI		Atlantic PI		70th St	
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 Pocket	0	1	0	0	1	0
Pocket Length [ft]	100.00	50.00	100.00	100.00	85.00	100.00
Speed [mph]	30.00		30.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	Atlantic PI		Atlantic PI		70th St	
Base Volume Input [veh/h]	207	116	29	104	52	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01
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]	209	117	29	105	53	15
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	52	29	7	26	13	4
Total Analysis Volume [veh/h]	209	117	29	105	53	15
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	711	711	826	648	673	591	733
Degree of Utilization, x	0.15	0.15	0.14	0.10	0.10	0.09	0.02

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.51	0.51	0.49	0.34	0.33	0.29	0.06
95th-Percentile Queue Length [ft]	12.83	12.83	12.31	8.62	8.25	7.37	1.57
Approach Delay [s/veh]	8.32			8.77		9.03	
Approach LOS	A			A		A	
Intersection Delay [s/veh]	8.53						
Intersection LOS	A						

Intersection Level Of Service Report

Intersection 2: Long Beach Blvd & Artesia Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.810

Intersection Setup

Name	Long Beach Blvd			Long Beach Blvd			Artesia Blvd			Artesia Blvd		
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 Pocket	2	0	0	1	0	0	1	0	1	1	0	1
Pocket Length [ft]	251.00	100.00	100.00	258.00	100.00	100.00	184.00	100.00	180.00	185.00	100.00	180.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Long Beach Blvd			Long Beach Blvd			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	201	770	197	140	559	63	252	975	348	89	271	144
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	1	0	2	2	0	0	6	3	0	6	2
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
Total Hourly Volume [veh/h]	205	779	199	143	567	64	255	991	354	90	280	147
Peak Hour 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
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]	51	195	50	36	142	16	64	248	89	23	70	37
Total Analysis Volume [veh/h]	205	779	199	143	567	64	255	991	354	90	280	147
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Overla	Permis	Permis	Permis
Signal group	1	6	0	5	2	0	0	4	1	0	8	0
Auxiliary Signal Groups									1,4			
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.24	0.12	0.09	0.20	0.20	0.16	0.31	0.16	0.06	0.09	0.09
Intersection LOS	D											
Intersection V/C	0.810											

Intersection Level Of Service Report

Intersection 3: Atlantic Ave & Artesia Blvd

Control Type: Signalized
 Analysis Method: ICU 1
 Analysis Period: 15 minutes

Delay (sec / veh): -
 Level Of Service: E
 Volume to Capacity (v/c): 0.903

Intersection Setup

Name	Atlantic Ave			Atlantic Ave			Artesia Blvd			Artesia Blvd		
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 Pocket	1	0	1	1	0	0	2	0	1	1	0	1
Pocket Length [ft]	200.00	100.00	83.00	243.00	100.00	100.00	185.00	100.00	124.00	210.00	100.00	56.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Atlantic Ave			Atlantic Ave			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	201	719	151	290	950	119	277	913	213	139	389	244
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	3	8	0	4	0	0	0	8	9	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
Total Hourly Volume [veh/h]	211	729	161	293	964	120	280	922	223	149	393	246
Peak Hour 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
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]	53	182	40	73	241	30	70	231	56	37	98	62
Total Analysis Volume [veh/h]	211	729	161	293	964	120	280	922	223	149	393	246
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.13	0.23	0.10	0.18	0.23	0.23	0.09	0.29	0.14	0.09	0.12	0.15
Intersection LOS	E											
Intersection V/C	0.903											

Intersection Level Of Service Report

Intersection 4: Myrtle Ave & Artesia Blvd

Control Type: Signalized
 Analysis Method: ICU 1
 Analysis Period: 15 minutes

Delay (sec / veh): -
 Level Of Service: B
 Volume to Capacity (v/c): 0.626

Intersection Setup

Name	Myrtle Ave			Myrtle Ave			Artesia Blvd			Artesia Blvd		
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 Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	50.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Myrtle Ave			Myrtle Ave			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	46	16	21	42	8	31	39	1248	60	33	645	18
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
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	8	0	0	9	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
Total Hourly Volume [veh/h]	46	16	21	42	8	31	39	1268	61	33	660	18
Peak Hour 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
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]	12	4	5	11	2	8	10	317	15	8	165	5
Total Analysis Volume [veh/h]	46	16	21	42	8	31	39	1268	61	33	660	18
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal group	0	4	0	0	8	0	0	2	0	0	6	0	
Auxiliary Signal Groups													
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.05	0.05	0.03	0.05	0.05	0.02	0.42	0.42	0.02	0.21	0.21	
Intersection LOS	B												
Intersection V/C	0.626												

Intersection Level Of Service Report

Intersection 5: Orange Ave & Artesia Blvd

Control Type: Signalized
 Analysis Method: ICU 1
 Analysis Period: 15 minutes

Delay (sec / veh): -
 Level Of Service: D
 Volume to Capacity (v/c): 0.835

Intersection Setup

Name	Orange Ave			Orange Ave			Artesia Blvd			Artesia Blvd		
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 Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	115.00	100.00	100.00	180.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Orange Ave			Orange Ave			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	93	306	85	136	318	59	67	1053	114	118	553	116
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
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	8	0	0	9	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
Total Hourly Volume [veh/h]	94	309	86	137	321	60	68	1072	115	119	568	117
Peak Hour 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
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]	24	77	22	34	80	15	17	268	29	30	142	29
Total Analysis Volume [veh/h]	94	309	86	137	321	60	68	1072	115	119	568	117
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal group	7	4	0	3	8	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.19	0.05	0.09	0.20	0.04	0.04	0.37	0.37	0.07	0.21	0.21
Intersection LOS	D											
Intersection V/C	0.835											

Intersection Level Of Service Report

Intersection 6: Atlantic Ave & Harding St

Control Type: Signalized
 Analysis Method: ICU 1
 Analysis Period: 15 minutes

Delay (sec / veh): -
 Level Of Service: A
 Volume to Capacity (v/c): 0.598

Intersection Setup

Name	Atlantic Ave			Atlantic Ave			Harding St			Harding St		
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 Pocket	1	0	1	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	98.00	100.00	100.00	139.00	100.00	100.00	53.00	100.00	100.00	60.00	100.00	60.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Atlantic Ave			Atlantic Ave			Harding St			Harding St		
Base Volume Input [veh/h]	46	817	93	141	897	104	88	37	28	80	61	125
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	19	0	0	21	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
Total Hourly Volume [veh/h]	46	844	94	142	927	105	89	37	28	81	62	126
Peak Hour 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
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]	12	211	24	36	232	26	22	9	7	20	16	32
Total Analysis Volume [veh/h]	46	844	94	142	927	105	89	37	28	81	62	126
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.26	0.06	0.09	0.32	0.32	0.06	0.04	0.04	0.05	0.04	0.08
Intersection LOS	A											
Intersection V/C	0.598											

Atlantic & Artesia Commercial Center TIS

Vistro File: J:\...\Atlant_Artesia Comm v4 wProj

Scenario 6 Fut pre-Proj PM

DistribUpdates.vistro

Report File: J:\...\Fut Pre-Proj PM.pdf

9/18/2018

Turning Movement Volume: Detail

ID	Intersection Name	Volume Type	Northbound		Southbound		Westbound		Total Volume
			Thru	Right	Left	Thru	Left	Right	
1	Atlantic PI & 70th St	Final Base	207	116	29	104	52	15	523
		Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		Future Total	209	117	29	105	53	15	528

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Long Beach Blvd & Artesia Blvd	Final Base	201	770	197	140	559	63	252	975	348	89	271	144	4009
		Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	2	1	0	2	2	0	0	6	3	0	6	2	24
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	205	779	199	143	567	64	255	991	354	90	280	147	4074

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Atlantic Ave & Artesia Blvd	Final Base	201	719	151	290	950	119	277	913	213	139	389	244	4605
		Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	8	3	8	0	4	0	0	0	8	9	0	0	40
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	211	729	161	293	964	120	280	922	223	149	393	246	4691

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Myrtle Ave & Artesia Blvd	Final Base	46	16	21	42	8	31	39	1248	60	33	645	18	2207
		Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	8	0	0	9	0	17
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	46	16	21	42	8	31	39	1268	61	33	660	18	2243

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Orange Ave & Artesia Blvd	Final Base	93	306	85	136	318	59	67	1053	114	118	553	116	3018
		Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	8	0	0	9	0	17
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	94	309	86	137	321	60	68	1072	115	119	568	117	3066

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
6	Atlantic Ave & Harding St	Final Base	46	817	93	141	897	104	88	37	28	80	61	125	2517
		Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	19	0	0	21	0	0	0	0	0	0	0	40
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	46	844	94	142	927	105	89	37	28	81	62	126	2581

APPENDIX F1
Future with-Project LOS Worksheets

Atlantic & Artesia Commercial Center TIS

Vistro File: J:\...\Atlant_Artesia Comm v5 wProj
RestExpand.vistro

Scenario 7 Fut wProj AM

Report File: J:\...\Vols - Fut wProj AM v5.pdf

10/17/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Atlantic Pl & 70th St	All-way stop	HCM 6th Edition	WB Left	0.285	9.9	A
2	Long Beach Blvd & Artesia Blvd	Signalized	ICU 1	WB Thru	0.741	-	C
3	Atlantic Ave & Artesia Blvd	Signalized	ICU 1	WB Thru	0.849	-	D
4	Myrtle Ave & Artesia Blvd	Signalized	ICU 1	WB Thru	0.650	-	B
5	Orange Ave & Artesia Blvd	Signalized	ICU 1	WB Thru	0.832	-	D
6	Atlantic Ave & Harding St	Signalized	ICU 1	SB Thru	0.591	-	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: Atlantic PI & 70th St**

Control Type: All-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 9.9
 Level Of Service: A
 Volume to Capacity (v/c): 0.285

Intersection Setup

Name	Atlantic PI		Atlantic PI		70th St	
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 Pocket	0	1	0	0	1	0
Pocket Length [ft]	100.00	50.00	100.00	100.00	85.00	100.00
Speed [mph]	30.00		30.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	Atlantic PI		Atlantic PI		70th St	
Base Volume Input [veh/h]	156	84	19	229	157	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	2	0	3	3	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]	160	87	19	234	162	15
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	40	22	5	59	41	4
Total Analysis Volume [veh/h]	160	87	19	234	162	15
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	626	626	715	623	632	570	700
Degree of Utilization, x	0.13	0.13	0.12	0.20	0.20	0.28	0.02

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.44	0.44	0.41	0.75	0.74	1.17	0.07
95th-Percentile Queue Length [ft]	10.90	10.90	10.34	18.87	18.56	29.17	1.64
Approach Delay [s/veh]	8.98			9.88		11.22	
Approach LOS	A			A		B	
Intersection Delay [s/veh]	9.90						
Intersection LOS	A						

Intersection Level Of Service Report
Intersection 2: Long Beach Blvd & Artesia BlvdControl Type: Signalized
Analysis Method: ICU 1
Analysis Period: 15 minutesDelay (sec / veh): -
Level Of Service: C
Volume to Capacity (v/c): 0.741**Intersection Setup**

Name	Long Beach Blvd			Long Beach Blvd			Artesia Blvd			Artesia Blvd		
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 Pocket	2	0	0	1	0	0	1	0	1	1	0	1
Pocket Length [ft]	251.00	100.00	100.00	258.00	100.00	100.00	184.00	100.00	180.00	185.00	100.00	180.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Long Beach Blvd			Long Beach Blvd			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	257	365	77	166	673	100	45	169	128	400	976	203
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	1	6	7	1	0	0	15	1	5	12	5
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
Total Hourly Volume [veh/h]	263	370	84	175	681	101	45	186	130	409	998	210
Peak Hour 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
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]	66	93	21	44	170	25	11	47	33	102	250	53
Total Analysis Volume [veh/h]	263	370	84	175	681	101	45	186	130	409	998	210
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Overla	Permis	Permis	Permis
Signal group	1	6	0	5	2	0	0	4	1	0	8	0
Auxiliary Signal Groups									1,4			
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.12	0.05	0.11	0.24	0.24	0.03	0.06	0.00	0.26	0.31	0.13
Intersection LOS	C											
Intersection V/C	0.741											

Intersection Level Of Service Report

Intersection 3: Atlantic Ave & Artesia Blvd

Control Type: Signalized
 Analysis Method: ICU 1
 Analysis Period: 15 minutes

Delay (sec / veh): -
 Level Of Service: D
 Volume to Capacity (v/c): 0.849

Intersection Setup

Name	Atlantic Ave			Atlantic Ave			Artesia Blvd			Artesia Blvd		
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 Pocket	1	0	1	1	0	0	2	0	1	1	0	1
Pocket Length [ft]	200.00	100.00	83.00	243.00	100.00	100.00	185.00	100.00	124.00	210.00	100.00	56.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Atlantic Ave			Atlantic Ave			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	243	725	169	174	560	418	219	432	202	74	979	158
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	7	10	13	2	0	15	10	3	13	21	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	11	11	22	0	0	14	30	0	18	39	5
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
Total Hourly Volume [veh/h]	246	750	192	211	568	422	250	476	207	106	1049	167
Peak Hour 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
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]	62	188	48	53	142	106	63	119	52	27	262	42
Total Analysis Volume [veh/h]	246	750	192	211	568	422	250	476	207	106	1049	167
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.15	0.23	0.12	0.13	0.21	0.21	0.08	0.15	0.13	0.07	0.33	0.10
Intersection LOS	D											
Intersection V/C	0.849											

Intersection Level Of Service Report
Intersection 4: Myrtle Ave & Artesia BlvdControl Type: Signalized
Analysis Method: ICU 1
Analysis Period: 15 minutesDelay (sec / veh): -
Level Of Service: B
Volume to Capacity (v/c): 0.650**Intersection Setup**

Name	Myrtle Ave			Myrtle Ave			Artesia Blvd			Artesia Blvd		
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 Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	50.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Myrtle Ave			Myrtle Ave			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	95	13	70	45	18	35	23	550	140	66	1150	31
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	0	0	0	0	2	1	25	2	0	28	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
Total Hourly Volume [veh/h]	98	13	71	45	18	37	24	581	143	67	1190	31
Peak Hour 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
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]	25	3	18	11	5	9	6	145	36	17	298	8
Total Analysis Volume [veh/h]	98	13	71	45	18	37	24	581	143	67	1190	31
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal group	0	4	0	0	8	0	0	2	0	0	6	0	
Auxiliary Signal Groups													
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.11	0.11	0.03	0.06	0.06	0.02	0.23	0.23	0.04	0.38	0.38	
Intersection LOS	B												
Intersection V/C	0.650												

Intersection Level Of Service Report

Intersection 5: Orange Ave & Artesia Blvd

Control Type: Signalized
 Analysis Method: ICU 1
 Analysis Period: 15 minutes

Delay (sec / veh): -
 Level Of Service: D
 Volume to Capacity (v/c): 0.832

Intersection Setup

Name	Orange Ave			Orange Ave			Artesia Blvd			Artesia Blvd		
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 Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	115.00	100.00	100.00	180.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Orange Ave			Orange Ave			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	183	360	100	136	315	74	74	465	161	76	963	139
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	6	0	0	0	0	6	5	15	5	0	16	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
Total Hourly Volume [veh/h]	191	364	101	137	318	81	80	485	168	77	989	140
Peak Hour 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
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]	48	91	25	34	80	20	20	121	42	19	247	35
Total Analysis Volume [veh/h]	191	364	101	137	318	81	80	485	168	77	989	140
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal group	7	4	0	3	8	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.12	0.23	0.06	0.09	0.20	0.05	0.05	0.20	0.20	0.05	0.35	0.35
Intersection LOS	D											
Intersection V/C	0.832											

Intersection Level Of Service Report

Intersection 6: Atlantic Ave & Harding St

Control Type: Signalized
 Analysis Method: ICU 1
 Analysis Period: 15 minutes

Delay (sec / veh): -
 Level Of Service: A
 Volume to Capacity (v/c): 0.591

Intersection Setup

Name	Atlantic Ave			Atlantic Ave			Harding St			Harding St		
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 Pocket	1	0	1	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	98.00	100.00	100.00	139.00	100.00	100.00	53.00	100.00	100.00	60.00	100.00	60.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Atlantic Ave			Atlantic Ave			Harding St			Harding St		
Base Volume Input [veh/h]	17	663	84	89	765	45	121	54	43	116	44	205
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	14	0	3	15	0	0	0	0	0	0	4
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
Total Hourly Volume [veh/h]	17	684	85	93	788	45	122	55	43	117	44	211
Peak Hour 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
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]	4	171	21	23	197	11	31	14	11	29	11	53
Total Analysis Volume [veh/h]	17	684	85	93	788	45	122	55	43	117	44	211
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.21	0.05	0.06	0.26	0.26	0.08	0.06	0.06	0.07	0.03	0.13
Intersection LOS	A											
Intersection V/C	0.591											

Atlantic & Artesia Commercial Center TIS

Vistro File: J:\...\Atlant_Artesia Comm v5 wProj
RestExpand.vistro

Scenario 7 Fut wProj AM

Report File: J:\...\Vols - Fut wProj AM v5.pdf

10/17/2018

Trip Generation summary**Added Trips**

Zone ID: Name	Land Use variables	Code	Ind. Var.	Rate	Quantity	% In	% Out	Trips In	Trips Out	Total Trips	% of Total Trips
1: Zone				1.000	0.000	50.00	50.00	81	66	147	68.06
14: Zone				1.000	0.000	50.00	50.00	12	7	19	8.80
15: Zone				1.000	0.000	50.00	50.00	14	36	50	23.15
Added Trips Total								107	109	216	100.00

Atlantic & Artesia Commercial Center TIS

Vistro File: J:\...\Atlant_Artesia Comm v5 wProj

Scenario 8 Fut wProj PM

RestExpand.vistro

Report File: J:\...\Vols - Fut wProj PM v5.pdf

10/17/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Atlantic Pl & 70th St	All-way stop	HCM 6th Edition	WB Left	0.150	8.6	A
2	Long Beach Blvd & Artesia Blvd	Signalized	ICU 1	EB Thru	0.822	-	D
3	Atlantic Ave & Artesia Blvd	Signalized	ICU 1	EB Thru	0.949	-	E
4	Myrtle Ave & Artesia Blvd	Signalized	ICU 1	EB Thru	0.637	-	B
5	Orange Ave & Artesia Blvd	Signalized	ICU 1	EB Thru	0.841	-	D
6	Atlantic Ave & Harding St	Signalized	ICU 1	SB Thru	0.605	-	B

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: Atlantic PI & 70th St**

Control Type: All-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 8.6
 Level Of Service: A
 Volume to Capacity (v/c): 0.150

Intersection Setup

Name	Atlantic PI		Atlantic PI		70th St	
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 Pocket	0	1	0	0	1	0
Pocket Length [ft]	100.00	50.00	100.00	100.00	85.00	100.00
Speed [mph]	30.00		30.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	Atlantic PI		Atlantic PI		70th St	
Base Volume Input [veh/h]	207	116	29	104	52	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	3	0	3	3	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]	212	120	29	108	56	15
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	53	30	7	27	14	4
Total Analysis Volume [veh/h]	212	120	29	108	56	15
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	709	709	823	645	670	588	730
Degree of Utilization, x	0.15	0.15	0.15	0.11	0.10	0.10	0.02

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.52	0.52	0.51	0.35	0.34	0.31	0.06
95th-Percentile Queue Length [ft]	13.10	13.10	12.74	8.87	8.50	7.86	1.57
Approach Delay [s/veh]	8.37			8.81		9.10	
Approach LOS	A			A		A	
Intersection Delay [s/veh]	8.58						
Intersection LOS	A						

Intersection Level Of Service Report

Intersection 2: Long Beach Blvd & Artesia Blvd

Control Type: Signalized
 Analysis Method: ICU 1
 Analysis Period: 15 minutes

Delay (sec / veh): -
 Level Of Service: D
 Volume to Capacity (v/c): 0.822

Intersection Setup

Name	Long Beach Blvd			Long Beach Blvd			Artesia Blvd			Artesia Blvd		
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 Pocket	2	0	0	1	0	0	1	0	1	1	0	1
Pocket Length [ft]	251.00	100.00	100.00	258.00	100.00	100.00	184.00	100.00	180.00	185.00	100.00	180.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Long Beach Blvd			Long Beach Blvd			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	201	770	197	140	559	63	252	975	348	89	271	144
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	1	7	9	2	0	0	19	3	6	21	8
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
Total Hourly Volume [veh/h]	205	779	206	150	567	64	255	1004	354	96	295	153
Peak Hour 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
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]	51	195	52	38	142	16	64	251	89	24	74	38
Total Analysis Volume [veh/h]	205	779	206	150	567	64	255	1004	354	96	295	153
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Overla	Permis	Permis	Permis
Signal group	1	6	0	5	2	0	0	4	1	0	8	0
Auxiliary Signal Groups									1,4			
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.24	0.13	0.09	0.20	0.20	0.16	0.31	0.16	0.06	0.09	0.10
Intersection LOS	D											
Intersection V/C	0.822											

Intersection Level Of Service Report

Intersection 3: Atlantic Ave & Artesia Blvd

Control Type: Signalized
 Analysis Method: ICU 1
 Analysis Period: 15 minutes

Delay (sec / veh): -
 Level Of Service: E
 Volume to Capacity (v/c): 0.949

Intersection Setup

Name	Atlantic Ave			Atlantic Ave			Artesia Blvd			Artesia Blvd		
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 Pocket	1	0	1	1	0	0	2	0	1	1	0	1
Pocket Length [ft]	200.00	100.00	83.00	243.00	100.00	100.00	185.00	100.00	124.00	210.00	100.00	56.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Atlantic Ave			Atlantic Ave			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	201	719	151	290	950	119	277	913	213	139	389	244
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	9	14	13	4	0	16	11	8	21	27	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	7	7	14	0	0	9	19	0	13	27	3
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
Total Hourly Volume [veh/h]	211	742	174	320	964	120	305	952	223	174	447	252
Peak Hour 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
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]	53	186	44	80	241	30	76	238	56	44	112	63
Total Analysis Volume [veh/h]	211	742	174	320	964	120	305	952	223	174	447	252
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.13	0.23	0.11	0.20	0.23	0.23	0.10	0.30	0.14	0.11	0.14	0.16
Intersection LOS	E											
Intersection V/C	0.949											

Intersection Level Of Service Report

Intersection 4: Myrtle Ave & Artesia Blvd

Control Type: Signalized
 Analysis Method: ICU 1
 Analysis Period: 15 minutes

Delay (sec / veh): -
 Level Of Service: B
 Volume to Capacity (v/c): 0.637

Intersection Setup

Name	Myrtle Ave			Myrtle Ave			Artesia Blvd			Artesia Blvd		
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 Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	50.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Myrtle Ave			Myrtle Ave			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	46	16	21	42	8	31	39	1248	60	33	645	18
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	0	0	0	0	2	2	33	2	0	36	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
Total Hourly Volume [veh/h]	48	16	21	42	8	33	41	1293	63	33	687	18
Peak Hour 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
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]	12	4	5	11	2	8	10	323	16	8	172	5
Total Analysis Volume [veh/h]	48	16	21	42	8	33	41	1293	63	33	687	18
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal group	0	4	0	0	8	0	0	2	0	0	6	0	
Auxiliary Signal Groups													
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.05	0.05	0.03	0.05	0.05	0.03	0.42	0.42	0.02	0.22	0.22	
Intersection LOS	B												
Intersection V/C	0.637												

Intersection Level Of Service Report

Intersection 5: Orange Ave & Artesia Blvd

Control Type: Signalized
 Analysis Method: ICU 1
 Analysis Period: 15 minutes

Delay (sec / veh): -
 Level Of Service: D
 Volume to Capacity (v/c): 0.841

Intersection Setup

Name	Orange Ave			Orange Ave			Artesia Blvd			Artesia Blvd		
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 Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	115.00	100.00	100.00	180.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Orange Ave			Orange Ave			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	93	306	85	136	318	59	67	1053	114	118	553	116
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	7	0	0	0	0	7	6	21	6	0	22	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
Total Hourly Volume [veh/h]	101	309	86	137	321	67	74	1085	121	119	581	117
Peak Hour 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
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]	25	77	22	34	80	17	19	271	30	30	145	29
Total Analysis Volume [veh/h]	101	309	86	137	321	67	74	1085	121	119	581	117
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal group	7	4	0	3	8	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.19	0.05	0.09	0.20	0.04	0.05	0.38	0.38	0.07	0.22	0.22
Intersection LOS	D											
Intersection V/C	0.841											

Intersection Level Of Service Report

Intersection 6: Atlantic Ave & Harding St

Control Type: Signalized
 Analysis Method: ICU 1
 Analysis Period: 15 minutes

Delay (sec / veh): -
 Level Of Service: B
 Volume to Capacity (v/c): 0.605

Intersection Setup

Name	Atlantic Ave			Atlantic Ave			Harding St			Harding St		
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 Pocket	1	0	1	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	98.00	100.00	100.00	139.00	100.00	100.00	53.00	100.00	100.00	60.00	100.00	60.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Atlantic Ave			Atlantic Ave			Harding St			Harding St		
Base Volume Input [veh/h]	46	817	93	141	897	104	88	37	28	80	61	125
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	27	0	4	29	0	0	0	0	0	0	4
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
Total Hourly Volume [veh/h]	46	852	94	146	935	105	89	37	28	81	62	130
Peak Hour 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
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]	12	213	24	37	234	26	22	9	7	20	16	33
Total Analysis Volume [veh/h]	46	852	94	146	935	105	89	37	28	81	62	130
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.27	0.06	0.09	0.33	0.33	0.06	0.04	0.04	0.05	0.04	0.08
Intersection LOS	B											
Intersection V/C	0.605											

Atlantic & Artesia Commercial Center TIS

Vistro File: J:\...\Atlant_Artesia Comm v5 wProj
RestExpand.vistro

Scenario 8 Fut wProj PM

Report File: J:\...\Vols - Fut wProj PM v5.pdf

10/17/2018

Trip Generation summary**Added Trips**

Zone ID: Name	Land Use variables	Code	Ind. Var.	Rate	Quantity	% In	% Out	Trips In	Trips Out	Total Trips	% of Total Trips
1: Zone				1.000	0.000	50.00	50.00	83	81	164	52.90
14: Zone				1.000	0.000	50.00	50.00	37	40	77	24.84
15: Zone				1.000	0.000	50.00	50.00	40	29	69	22.26
Added Trips Total								160	150	310	100.00

APPENDIX F2
Future With-Project with-Improvements LOS Worksheets

Atlantic & Artesia Commercial Center TIS

Vistro File: J:\...\Atlant_Artesia Comm v5 wProj

Scenario 16 Mitig - Fut wProj AM

RestExpand.vistro

Report File: J:\...\Vols - Fut wProj AM +Mitig v5.pdf

10/17/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
3	Atlantic Ave & Artesia Blvd	Signalized	ICU 1	WB Thru	0.849	-	D

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 3: Atlantic Ave & Artesia Blvd

Control Type: Signalized
 Analysis Method: ICU 1
 Analysis Period: 15 minutes

Delay (sec / veh): -
 Level Of Service: D
 Volume to Capacity (v/c): 0.849

Intersection Setup

Name	Atlantic Ave			Atlantic Ave			Artesia Blvd			Artesia Blvd		
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 Pocket	1	0	1	1	0	0	2	0	1	1	0	1
Pocket Length [ft]	200.00	100.00	83.00	243.00	100.00	100.00	185.00	100.00	124.00	210.00	100.00	56.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Atlantic Ave			Atlantic Ave			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	243	725	169	174	560	418	219	432	202	74	979	158
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	7	10	13	2	0	15	10	3	13	21	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	11	11	22	0	0	14	30	0	18	39	5
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
Total Hourly Volume [veh/h]	246	750	192	211	568	422	250	476	207	106	1049	167
Peak Hour 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
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]	62	188	48	53	142	106	63	119	52	27	262	42
Total Analysis Volume [veh/h]	246	750	192	211	568	422	250	476	207	106	1049	167
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.15	0.23	0.12	0.13	0.21	0.21	0.08	0.15	0.13	0.03	0.33	0.10
Intersection LOS	D											
Intersection V/C	0.849											

Atlantic & Artesia Commercial Center TIS

Vistro File: J:\...\Atlant_Artesia Comm v5 wProj
RestExpand.vistro

Scenario 17 Mitig - Fut wProj PM

Report File: J:\...\Vols - Fut wProj PM +Mitig v5.pdf

10/17/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
3	Atlantic Ave & Artesia Blvd	Signalized	ICU 1	EB Thru	0.895	-	D

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 3: Atlantic Ave & Artesia Blvd

Control Type: Signalized
 Analysis Method: ICU 1
 Analysis Period: 15 minutes

Delay (sec / veh): -
 Level Of Service: D
 Volume to Capacity (v/c): 0.895

Intersection Setup

Name	Atlantic Ave			Atlantic Ave			Artesia Blvd			Artesia Blvd		
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 Pocket	1	0	1	1	0	0	2	0	1	1	0	1
Pocket Length [ft]	200.00	100.00	83.00	243.00	100.00	100.00	185.00	100.00	124.00	210.00	100.00	56.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Atlantic Ave			Atlantic Ave			Artesia Blvd			Artesia Blvd		
Base Volume Input [veh/h]	201	719	151	290	950	119	277	913	213	139	389	244
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	9	14	13	4	0	16	11	8	21	27	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	7	7	14	0	0	9	19	0	13	27	3
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
Total Hourly Volume [veh/h]	211	742	174	320	964	120	305	952	223	174	447	252
Peak Hour 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
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]	53	186	44	80	241	30	76	238	56	44	112	63
Total Analysis Volume [veh/h]	211	742	174	320	964	120	305	952	223	174	447	252
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	90
Lost time [s]	10.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.13	0.23	0.11	0.20	0.23	0.23	0.10	0.30	0.14	0.05	0.14	0.16
Intersection LOS	D											
Intersection V/C	0.895											

APPENDIX G
Existing Queuing Data, Atlantic/Artesia Intersection

Queue / Delay Study

Project: Atlantic Ave & E Artesia Blvd
City: Long Beach

Day: 09/14/2016

Cycle	Time	Number of Vehicles in Queue	
		Westbound Left	
		BOG	EOY
1	7:00	-	-
2	7:05	1	-
3		2	-
4	7:10	-	-
5	7:15	2	-
6	7:20	3	-
7		3	-
8	7:25	4	-
9		1	-
10	7:30	2	-
11		2	-
12	7:35	1	-
13		1	-
14	7:40	1	-
15		3	-
16	7:45	1	-
17		2	-
18		3	-
19	7:50	1	-
20		2	-
21		1	-
22	7:55	2	-
23		3	-
24		2	-
25	8:00	2	-
26		2	-
27	8:05	3	1
28		3	-
29		3	-
30	8:10	2	-
31		4	-
32	8:15	1	-
33	8:20	6	-
34		1	-
35		1	-
36	8:25	2	-
37		5	-
38	8:30	2	-
39		2	-
40	8:35	3	-
41		2	-
42		2	-
43	8:40	1	-
44		2	-
45	8:45	2	-
46		3	-
47		5	-
48	8:50	3	-
49		1	-
50		2	-
51	8:55	1	-
52		3	-
53		4	-

Queue / Delay Study

Project: Atlantic Ave & E Artesia Blvd
City: Long Beach

Date: 09/14/2016

Cycle	Time	Number of Vehicles in Queue	
		Westbound Left	
		BOG	EOY
1	16:00	7	3
2		8	2
3		6	2
4	16:05	5	-
5		2	-
6	16:10	5	-
7		4	-
8		-	-
9	16:15	-	-
10		3	-
11		3	-
12	16:20	1	-
13		2	-
14		1	-
15	16:25	6	2
16		4	-
17	16:30	7	2
18		4	-
19		3	-
20	16:35	1	-
21		5	-
22		5	-
23	16:40	3	-
24		1	-
25	16:45	6	2
26		7	1
27		4	-
28	16:50	1	-
29		3	-
30		4	-
31	16:55	4	-
32		-	-
33		4	1
34	17:00	2	-
35		4	-
36	17:05	1	-
37		9	2
38		4	-
39	17:10	1	-
40		4	-
41		2	-
42	17:15	4	-
43		5	-
44		3	-
45	17:20	3	-
46		5	-
47	17:25	4	1
48		1	-
49		1	-
50	17:30	2	-
51		1	-
52	17:35	11	4
53		5	-
54	17:40	4	-
55		5	-
56		5	-
57	17:45	-	-
58		3	-
59		6	1
60	17:50	5	-
61		5	2
62		7	1
63	17:55	10	4
64		9	3
65		4	-

Prepared by National Data & Surveying Services

Queue/Delay Study

Location: Atlantic Ave & Artesia Blvd
City: Long Beach

Day: Thursday
Date: 10/13/2016

Cycle	Time	Number of Vehicles in Queue Westbound Left	
		BOG	EOY
1	16:00	3	-
2		5	-
3		4	-
4	16:05	2	-
5		4	-
6	16:10	5	-
7		6	-
8		4	-
9	16:15	5	-
10		4	-
11		4	-
12	16:20	4	-
13		1	-
14		4	-
15	16:25	4	-
16		2	-
17	16:30	4	-
18		5	-
19	16:35	4	-
20		5	-
21		2	-
22	16:40	1	-
23		4	-
24		4	-
25	16:45	6	-
26		5	-
27	16:50	4	3
28		8	2
29		10	5
30	16:55	6	1
31		5	-
32		3	-
33	17:00	9	2
34		3	-
35		4	-
36	17:05	3	-
37		3	-
38	17:10	6	-
39		2	-
40		3	-
41	17:15	4	-
42		2	-
43		4	-
44	17:20	4	-
45		3	-
46	17:25	2	-
47		4	-
48		4	-
49	17:30	2	-
50		2	-
51		3	-
52	17:35	2	-
53		2	-
54	17:40	2	-
55		1	-
56		1	-
57	17:45	3	-
58		7	1
60	17:50	2	-
61		3	-
62		3	-
63	17:55	4	-
64		5	-
65		4	-

* BOG = Vehicles counted at beginning of green
* EOY = Vehicles counted at end of yellow.

APPENDIX H1
Queuing Analysis – Volume Inputs, Existing Conditions

Volume
1: Artesia Blvd & Driveway

Exist +Proj AM
10/19/2018

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	100	775	1213	71	0	85
Future Volume (vph)	100	775	1213	71	0	85
Ideal Flow (vphpl)	1700	1800	1800	1800	1700	1800
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	90			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Link Speed (mph)		30	30		30	
Link Distance (ft)		448	251		103	
Travel Time (s)		10.2	5.7		2.3	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Intersection Summary						

Area Type: Other

Volume
2: Atlantic Avenue & Artesia Blvd

Exist +Proj AM
10/19/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 			 			  	
Traffic Volume (vph)	240	480	202	94	1039	165	243	742	186	209	560	418
Future Volume (vph)	240	480	202	94	1039	165	243	742	186	209	560	418
Ideal Flow (vphpl)	1600	1800	1800	1600	1800	1800	1700	1800	1800	1700	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	130		0	230		0	200		0	250		0
Storage Lanes	2		1	2		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		534			448			268			321	
Travel Time (s)		12.1			10.2			6.1			7.3	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Intersection Summary												
Area Type:	Other											

Volume
1: Artesia Blvd & Driveway

Exist +Proj - PM Peak
10/19/2018

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		 	 			
Traffic Volume (vph)	62	1362	780	56	0	77
Future Volume (vph)	62	1362	780	56	0	77
Ideal Flow (vphpl)	1700	1800	1800	1800	1700	1800
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	90			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Link Speed (mph)		30	30		30	
Link Distance (ft)		443	251		103	
Travel Time (s)		10.1	5.7		2.3	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						

Intersection Summary

Area Type: Other

Volume
2: Atlantic Avenue & Artesia Blvd

Exist +Proj - PM Peak

10/19/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 			  	
Traffic Volume (vph)	302	943	213	164	443	250	201	732	164	317	950	119
Future Volume (vph)	302	943	213	164	443	250	201	732	164	317	950	119
Ideal Flow (vphpl)	1600	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%		0%			0%			0%			
Storage Length (ft)	130	0		254	0		200	0		250	0	
Storage Lanes	2	1		1	1		1	1		1	0	
Taper Length (ft)	25			25			25			25		
Right Turn on Red	Yes		Yes			Yes			Yes			
Link Speed (mph)	30		30			30			30			
Link Distance (ft)	534		443			339			372			
Travel Time (s)	12.1		10.1			7.7			8.5			
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)	0%		0%			0%			0%			
Shared Lane Traffic (%)												
Intersection Summary												
Area Type:	Other											

APPENDIX H2

Queuing Analysis – Output, Existing Conditions

Intersection: 1: Artesia Blvd & Driveway

Movement	EB	WB	WB	SB
Directions Served	L	T	TR	R
Maximum Queue (ft)	89	167	22	56
Average Queue (ft)	64	65	4	42
95th Queue (ft)	93	171	18	61
Link Distance (ft)		219	219	41
Upstream Blk Time (%)				6
Queuing Penalty (veh)				0
Storage Bay Dist (ft)	90			
Storage Blk Time (%)	11			
Queuing Penalty (veh)	42			

Intersection: 2: Atlantic Avenue & Artesia Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	T	T
Maximum Queue (ft)	142	154	290	275	74	279	369	362	99	201	217	216
Average Queue (ft)	86	141	199	147	44	123	347	297	48	194	213	203
95th Queue (ft)	175	170	347	279	73	260	386	415	91	215	222	225
Link Distance (ft)			474	474	474		353	353	353		201	201
Upstream Blk Time (%)							10	3		12	24	7
Queuing Penalty (veh)							44	12		0	0	0
Storage Bay Dist (ft)	130	130				254				200		
Storage Blk Time (%)	2	25	20				31			12	24	
Queuing Penalty (veh)	4	59	47				29			44	59	

Intersection: 2: Atlantic Avenue & Artesia Blvd

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	TR
Maximum Queue (ft)	36	201	264	191	240
Average Queue (ft)	20	145	211	160	209
95th Queue (ft)	41	213	269	199	259
Link Distance (ft)	201		248	248	248
Upstream Blk Time (%)			2		1
Queuing Penalty (veh)			0		0
Storage Bay Dist (ft)		250			
Storage Blk Time (%)			2		
Queuing Penalty (veh)			5		

Network Summary

Network wide Queuing Penalty: 345

Intersection: 1: Artesia Blvd & Driveway

Movement	EB	WB	WB	SB
Directions Served	L	T	TR	R
Maximum Queue (ft)	71	235	235	76
Average Queue (ft)	45	208	128	56
95th Queue (ft)	74	283	259	79
Link Distance (ft)		220	220	36
Upstream Blk Time (%)		15	1	33
Queuing Penalty (veh)		0	0	0
Storage Bay Dist (ft)	90			
Storage Blk Time (%)	0			
Queuing Penalty (veh)	0			

Intersection: 2: Atlantic Avenue & Artesia Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	T	R	L	T
Maximum Queue (ft)	142	154	268	215	53	102	254	368	380	92	201	232
Average Queue (ft)	110	140	194	111	43	31	184	355	347	71	189	219
95th Queue (ft)	189	160	296	209	61	93	327	369	404	99	213	230
Link Distance (ft)			474	474	474			353	353	353		201
Upstream Blk Time (%)								26	17		3	23
Queuing Penalty (veh)								111	74		0	0
Storage Bay Dist (ft)	130	130				230	230				200	
Storage Blk Time (%)	2	24	15				0	58			3	23
Queuing Penalty (veh)	4	57	36				0	55			11	57

Intersection: 2: Atlantic Avenue & Artesia Blvd

Movement	NB	NB	SB	SB	SB	SB
Directions Served	T	R	L	T	T	TR
Maximum Queue (ft)	230	76	221	258	223	263
Average Queue (ft)	197	44	154	224	177	258
95th Queue (ft)	242	81	249	253	222	273
Link Distance (ft)	201	201		248	248	248
Upstream Blk Time (%)	8			1		11
Queuing Penalty (veh)	0			0		0
Storage Bay Dist (ft)			250			
Storage Blk Time (%)				1		
Queuing Penalty (veh)				3		

Network Summary

Network wide Queuing Penalty: 407

Intersection: 1: Artesia Blvd & Driveway

Movement	EB	SB
Directions Served	L	R
Maximum Queue (ft)	50	76
Average Queue (ft)	34	36
95th Queue (ft)	47	77
Link Distance (ft)		41
Upstream Blk Time (%)		2
Queuing Penalty (veh)		0
Storage Bay Dist (ft)	90	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Atlantic Avenue & Artesia Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	T	T
Maximum Queue (ft)	142	154	491	471	97	184	238	199	172	225	290	290
Average Queue (ft)	141	154	491	406	71	134	162	133	105	169	268	238
95th Queue (ft)	143	154	491	461	100	183	254	201	174	283	316	330
Link Distance (ft)			476	476	476		351	351	351		274	274
Upstream Blk Time (%)			28	0							9	4
Queuing Penalty (veh)			0	0							0	0
Storage Bay Dist (ft)	130	130				254				200		
Storage Blk Time (%)	3	49	36				0				18	
Queuing Penalty (veh)	12	232	109				0				36	

Intersection: 2: Atlantic Avenue & Artesia Blvd

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	TR
Maximum Queue (ft)	121	275	333	301	116
Average Queue (ft)	62	274	320	190	83
95th Queue (ft)	132	275	331	354	116
Link Distance (ft)	274		302	302	302
Upstream Blk Time (%)			54	1	
Queuing Penalty (veh)			0	0	
Storage Bay Dist (ft)		250			
Storage Blk Time (%)		70	0		
Queuing Penalty (veh)		220	1		

Network Summary

Network wide Queuing Penalty: 610

Queuing and Blocking Report
Exist +Project - PM Peak - 2 Lanes

Exist +Proj PM - 2 Lanes
10/19/2018

Intersection: 1: Artesia Blvd & Driveway

Movement	EB	SB
Directions Served	L	R
Maximum Queue (ft)	55	28
Average Queue (ft)	33	27
95th Queue (ft)	65	28
Link Distance (ft)		35
Upstream Blk Time (%)		3
Queuing Penalty (veh)		0
Storage Bay Dist (ft)	90	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Atlantic Avenue & Artesia Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	T	R	L	T
Maximum Queue (ft)	142	155	491	446	54	102	137	201	165	118	224	290
Average Queue (ft)	136	154	473	401	43	47	100	156	128	74	206	289
95th Queue (ft)	147	155	532	466	78	124	146	201	169	119	266	290
Link Distance (ft)			476	476	476			351	351	351		274
Upstream Blk Time (%)			26									15
Queuing Penalty (veh)			0									0
Storage Bay Dist (ft)	130	130				230	230				200	
Storage Blk Time (%)	3	48	33								15	25
Queuing Penalty (veh)	13	226	101								56	49

Intersection: 2: Atlantic Avenue & Artesia Blvd

Movement	NB	NB	SB	SB	SB	SB
Directions Served	T	R	L	T	T	TR
Maximum Queue (ft)	290	79	274	316	301	209
Average Queue (ft)	275	54	274	315	181	139
95th Queue (ft)	298	99	275	317	327	237
Link Distance (ft)	274	274		301	301	301
Upstream Blk Time (%)	8			57	0	
Queuing Penalty (veh)	0			0	0	
Storage Bay Dist (ft)			250			
Storage Blk Time (%)			69	1		
Queuing Penalty (veh)			217	3		

Network Summary

Network wide Queuing Penalty: 666

APPENDIX I1

Queuing Analysis – Volume Inputs, Future Conditions

Volume
1: Artesia Blvd & Driveway

Fut wProj AM 1Lane
10/19/2018

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	100	779	1237	71	0	85
Future Volume (vph)	100	779	1237	71	0	85
Ideal Flow (vphpl)	1700	1800	1800	1800	1700	1800
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	90			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Link Speed (mph)		30	30		30	
Link Distance (ft)		448	251		103	
Travel Time (s)		10.2	5.7		2.3	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						

Intersection Summary

Area Type: Other

Volume
2: Atlantic Avenue & Artesia Blvd

Fut wProj AM 1Lane

10/19/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 			  	
Traffic Volume (vph)	250	476	207	106	1049	167	246	750	192	211	568	422
Future Volume (vph)	250	476	207	106	1049	167	246	750	192	211	568	422
Ideal Flow (vphpl)	1600	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	130		0	254		0	200		0	250		0
Storage Lanes	2		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		534			448			268			321	
Travel Time (s)		12.1			10.2			6.1			7.3	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Intersection Summary												
Area Type:	Other											

Volume
1: Artesia Blvd & Driveway

Fut wProj PM
10/19/2018

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		 	 			
Traffic Volume (vph)	62	1384	817	56	0	77
Future Volume (vph)	62	1384	817	56	0	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	90			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Link Speed (mph)		30	30		30	
Link Distance (ft)		443	251		103	
Travel Time (s)		10.1	5.7		2.3	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						

Intersection Summary

Area Type: Other

Volume
2: Atlantic Avenue & Artesia Blvd

Fut wProj PM
10/19/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	305	952	223	174	447	252	211	742	174	320	964	120
Future Volume (vph)	305	952	223	174	447	252	211	742	174	320	964	120
Ideal Flow (vphpl)	1600	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%				0%				0%		0%	
Storage Length (ft)	130			0	254			0	200			0
Storage Lanes	2			1	1			1	1			0
Taper Length (ft)	25			25				25				25
Right Turn on Red			Yes				Yes				Yes	
Link Speed (mph)	30				30				30			
Link Distance (ft)	534				443				339			
Travel Time (s)	12.1				10.1				7.7			
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)	0%				0%				0%			
Shared Lane Traffic (%)												
Intersection Summary												
Area Type:	Other											

APPENDIX I2

Queuing Analysis – Output, Future Conditions

Intersection: 1: Artesia Blvd & Driveway

Movement	EB	WB	SB
Directions Served	L	T	R
Maximum Queue (ft)	91	78	49
Average Queue (ft)	43	26	32
95th Queue (ft)	83	81	46
Link Distance (ft)		219	41
Upstream Blk Time (%)			2
Queuing Penalty (veh)			0
Storage Bay Dist (ft)	90		
Storage Blk Time (%)	1		
Queuing Penalty (veh)	3		

Intersection: 2: Atlantic Avenue & Artesia Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	T	T
Maximum Queue (ft)	140	154	272	180	78	278	360	359	96	200	216	216
Average Queue (ft)	121	145	221	127	58	116	307	300	54	190	216	211
95th Queue (ft)	149	160	319	194	96	255	382	368	111	224	217	224
Link Distance (ft)			474	474	474		353	353	353		201	201
Upstream Blk Time (%)							3	1		6	37	19
Queuing Penalty (veh)							15	6		0	0	0
Storage Bay Dist (ft)	130	130				254				200		
Storage Blk Time (%)	3	20	23				17			6	38	
Queuing Penalty (veh)	6	49	58				18			23	92	

Intersection: 2: Atlantic Avenue & Artesia Blvd

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	TR
Maximum Queue (ft)	80	264	262	198	276
Average Queue (ft)	47	212	234	141	173
95th Queue (ft)	92	318	304	193	296
Link Distance (ft)	201		248	248	248
Upstream Blk Time (%)		29	22		3
Queuing Penalty (veh)		0	0		0
Storage Bay Dist (ft)		250			
Storage Blk Time (%)		29	22		
Queuing Penalty (veh)		56	47		

Network Summary

Network wide Queuing Penalty: 374

Queuing and Blocking Report
Future w/Proj - AM Peak - 2 Lanes

10/19/2018

Intersection: 1: Artesia Blvd & Driveway

Movement	EB	WB	WB	SB
Directions Served	L	T	TR	R
Maximum Queue (ft)	50	194	176	51
Average Queue (ft)	29	72	40	34
95th Queue (ft)	55	220	153	49
Link Distance (ft)		220	220	36
Upstream Blk Time (%)				4
Queuing Penalty (veh)				0
Storage Bay Dist (ft)	90			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Atlantic Avenue & Artesia Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	T	R	L	T
Maximum Queue (ft)	142	154	309	227	54	28	254	356	367	116	201	216
Average Queue (ft)	113	152	238	127	48	14	165	297	301	70	195	216
95th Queue (ft)	195	157	338	240	63	34	322	390	401	122	214	217
Link Distance (ft)			474	474	474			353	353	353		201
Upstream Blk Time (%)								4	2		5	43
Queuing Penalty (veh)								19	10		0	0
Storage Bay Dist (ft)	130	130				230	230				200	
Storage Blk Time (%)	3	36	7				0	32			5	43
Queuing Penalty (veh)	8	85	19				1	33			20	106

Intersection: 2: Atlantic Avenue & Artesia Blvd

Movement	NB	NB	SB	SB	SB	SB
Directions Served	T	R	L	T	T	TR
Maximum Queue (ft)	216	101	263	263	137	223
Average Queue (ft)	216	61	246	223	80	124
95th Queue (ft)	216	97	280	301	133	250
Link Distance (ft)	201	201		248	248	248
Upstream Blk Time (%)	32		43	36		
Queuing Penalty (veh)	0		0	0		
Storage Bay Dist (ft)			250			
Storage Blk Time (%)			43	36		
Queuing Penalty (veh)			81	77		

Network Summary

Network wide Queuing Penalty: 457

Intersection: 1: Artesia Blvd & Driveway

Movement	EB	SB
Directions Served	L	R
Maximum Queue (ft)	55	56
Average Queue (ft)	35	28
95th Queue (ft)	51	57
Link Distance (ft)		41
Upstream Blk Time (%)		6
Queuing Penalty (veh)		0
Storage Bay Dist (ft)	90	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Atlantic Avenue & Artesia Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	T	T
Maximum Queue (ft)	141	154	515	491	119	142	206	181	171	224	290	290
Average Queue (ft)	119	154	499	439	67	112	147	111	101	223	290	264
95th Queue (ft)	176	155	517	518	121	150	241	217	161	225	290	312
Link Distance (ft)			476	476	476		351	351	351		274	274
Upstream Blk Time (%)			37	3							43	5
Queuing Penalty (veh)			0	0							0	0
Storage Bay Dist (ft)	130	130				254				200		
Storage Blk Time (%)	7	30	46							71	1	
Queuing Penalty (veh)	32	143	140							265	2	

Intersection: 2: Atlantic Avenue & Artesia Blvd

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	TR
Maximum Queue (ft)	144	275	336	280	240
Average Queue (ft)	96	273	288	242	182
95th Queue (ft)	157	276	386	292	260
Link Distance (ft)	274		302	302	302
Upstream Blk Time (%)			34		
Queuing Penalty (veh)			0		
Storage Bay Dist (ft)		250			
Storage Blk Time (%)		46	1		
Queuing Penalty (veh)		147	2		

Network Summary

Network wide Queuing Penalty: 731

Intersection: 1: Artesia Blvd & Driveway

Movement	EB	SB
Directions Served	L	R
Maximum Queue (ft)	76	49
Average Queue (ft)	44	36
95th Queue (ft)	73	53
Link Distance (ft)		35
Upstream Blk Time (%)		8
Queuing Penalty (veh)		0
Storage Bay Dist (ft)	90	
Storage Blk Time (%)	0	
Queuing Penalty (veh)	1	

Intersection: 2: Atlantic Avenue & Artesia Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	T	R	L	T
Maximum Queue (ft)	142	154	539	491	471	104	138	228	214	138	224	290
Average Queue (ft)	141	154	492	428	132	34	93	190	168	119	220	282
95th Queue (ft)	144	154	543	504	413	100	136	240	220	136	229	302
Link Distance (ft)			476	476	476			351	351	351		274
Upstream Blk Time (%)			28	5	2							15
Queuing Penalty (veh)			0	0	0							0
Storage Bay Dist (ft)	130	130				230	230				200	
Storage Blk Time (%)	3	52	30					2			13	25
Queuing Penalty (veh)	14	249	90					3			50	53

Intersection: 2: Atlantic Avenue & Artesia Blvd

Movement	NB	NB	SB	SB	SB	SB
Directions Served	T	R	L	T	T	TR
Maximum Queue (ft)	290	142	275	331	309	173
Average Queue (ft)	247	71	273	319	192	100
95th Queue (ft)	313	145	277	329	368	202
Link Distance (ft)	274	274		301	301	301
Upstream Blk Time (%)	4			47	1	
Queuing Penalty (veh)	0			0	0	
Storage Bay Dist (ft)			250			
Storage Blk Time (%)			75	1		
Queuing Penalty (veh)			242	3		

Network Summary

Network wide Queuing Penalty: 704