

ATLANTIC AVENUE ROAD DIET PROJECT

Traffic Analysis Methodology Report

Prepared for:

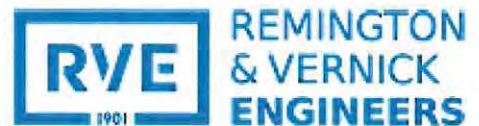
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Appendix B – Multimodal Counts

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Appendix D – Future Year 2025 Performance Measures

Appendix E – Future Year 2045 Performance Measures

Appendix F – Sample Plans of Pavement Marking Plans at Key Intersections

1.0 INTRODUCTION

1.1 PROJECT PURPOSE

To improve network mobility, the City of Margate has retained Remington & Vernick Engineers (RVE) for engineering services for the Atlantic Avenue Road Diet Project. The purpose of this project is to enhance multimodal transportation for all roadway users by working within the existing footprint of the roadway, to enhance safety and reduce speeding along Atlantic Avenue. This Road Diet Project includes the investigation of the feasibility of converting the existing four-lane roadway to a three-lane roadway with a center median, center turn lane and left turn lanes. This report summarizes the traffic analysis completed for a road diet concept.

2.0 TRAFFIC ANALYSIS

2.1 TRAFFIC ANALYSIS OBJECTIVE

The objective of this Traffic Analysis Methodology Report (TAMR) is to outline the project limits, assumptions, and methodologies that will be employed for the investigation of a Road Diet for the Atlantic Avenue corridor. This TAMR will evaluate existing traffic volumes and traffic operations for Existing Conditions and will evaluate forecasted traffic volumes for Future Years as a three-lane roadway with bike lanes and pedestrian facilities.

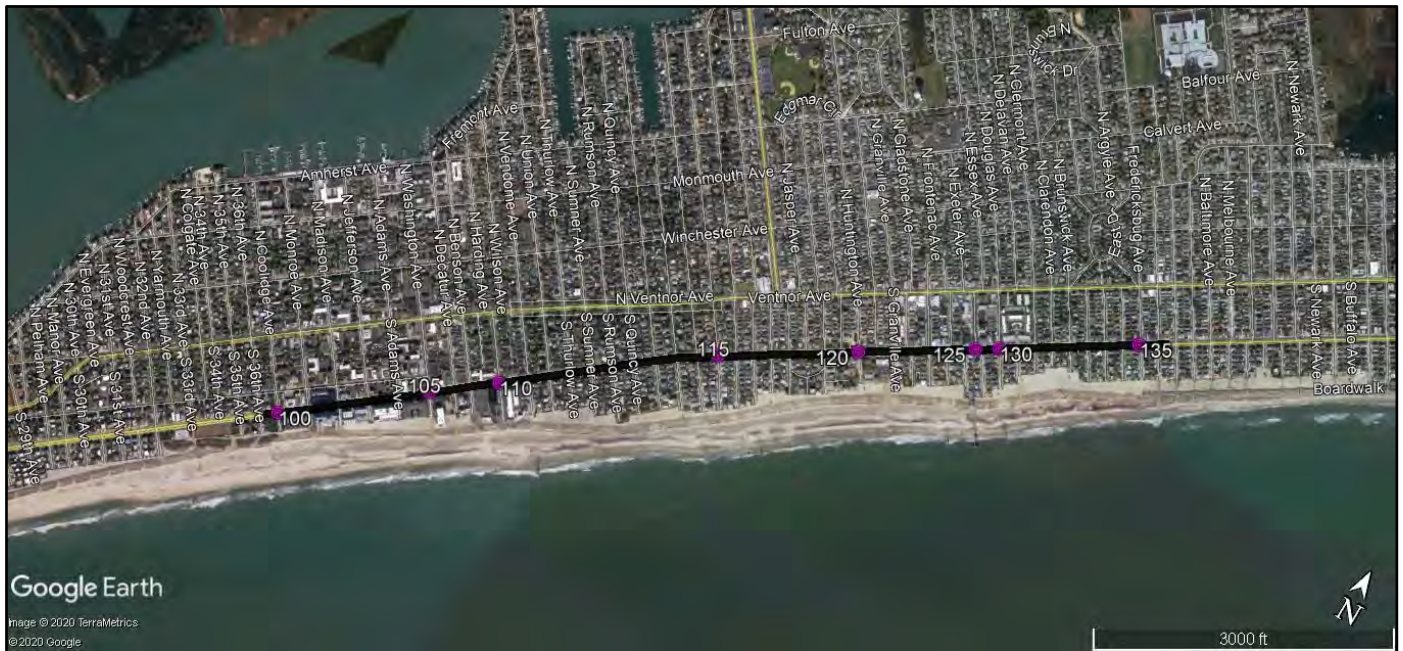
2.2 TRAFFIC ANALYSIS ASSUMPTIONS

2.2.1 Project Location & Study Area

This project is in the City of Margate, Atlantic County, New Jersey. The study area for this project includes all Atlantic Avenue within the City's Right-of-Way (ROW). For purposes of this report and analysis, the traffic analysis is comprised of eight key signalized intersection that span approximately 1.71 miles of roadway. The eight-key signalized intersection are listed below. The intersection numbers correspond with the numbered circles shown on **Exhibit 1**.

- 100 – Atlantic Avenue at Coolidge Avenue
- 105 – Atlantic Avenue at Washington Avenue
- 110 – Atlantic Avenue at Cedar Grove Avenue
- 115 – Atlantic Avenue at Mansfield Avenue
- 120 – Atlantic Avenue at Huntington Avenue
- 125 – Atlantic Avenue at Essex Avenue
- 130 – Atlantic Avenue at Douglass Avenue
- 135 – Atlantic Avenue at Fredericksburg Avenue

Exhibit 1 - Project Location & Key Study Intersections



2.2.1 Analysis Years, Scenarios, & Periods

The existing year for the traffic analysis in this study will be Base Year 2020, while the future years will be Future Year 2025 (assumed Opening Year) and Future Year 2045 (assumed Design Year).

Three scenarios will be investigated, existing four-lane operations, and two future year operations as a three-lane roadway with bike lanes and pedestrian facilities. In the future year scenarios, the difference is the bike lanes will be adjacent to the through traffic, and in the other scenario the bike lanes will be projected from traffic (adjacent to the sidewalk and parking). For illustrative purposes, these scenarios are shown below in **Exhibit 2, 3, & 4**.

Peak periods will include daily, AM peak, and PM peak traffic conditions as well as weekend Saturday (SAT) peak traffic conditions for the analysis years listed above. The data collected will be adjusted as necessary to reflect any seasonal variations in traffic.

Exhibit 2 – Existing Roadway Cross-Section

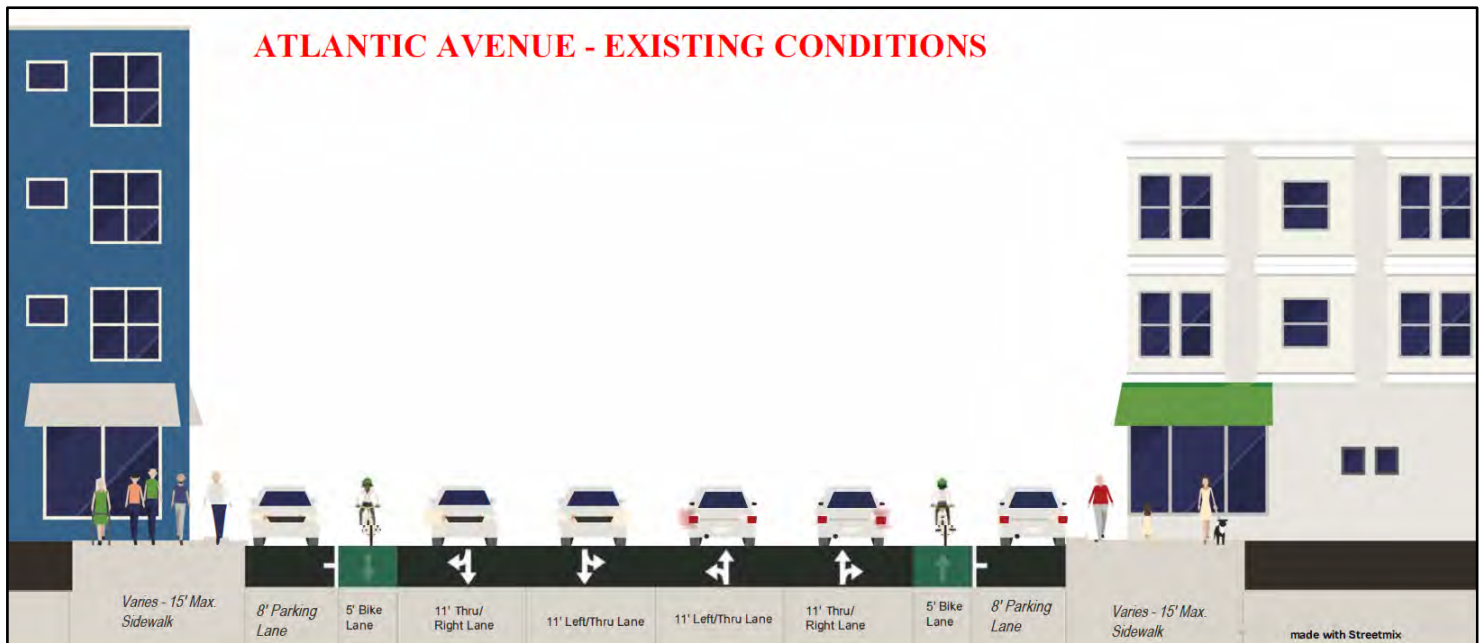


Exhibit 3 – Road Diet Option 1 Cross-Section

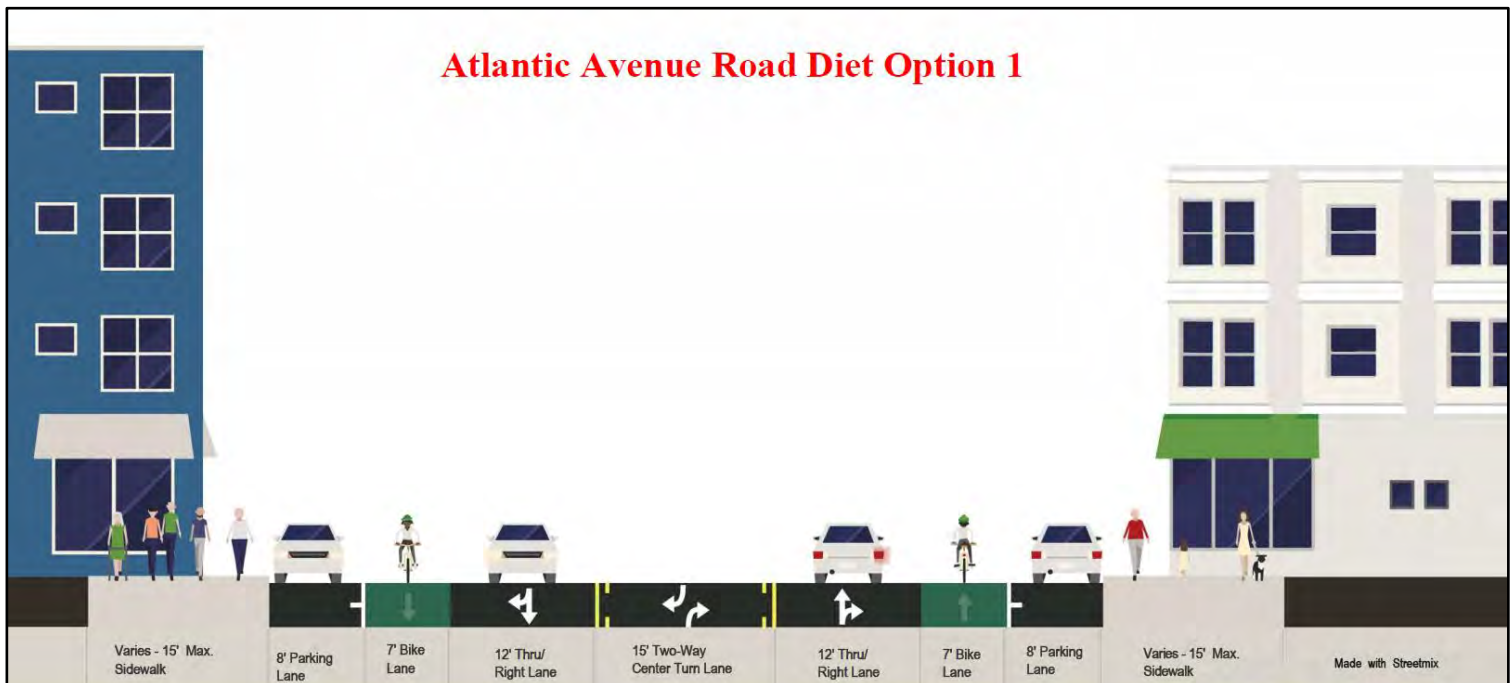
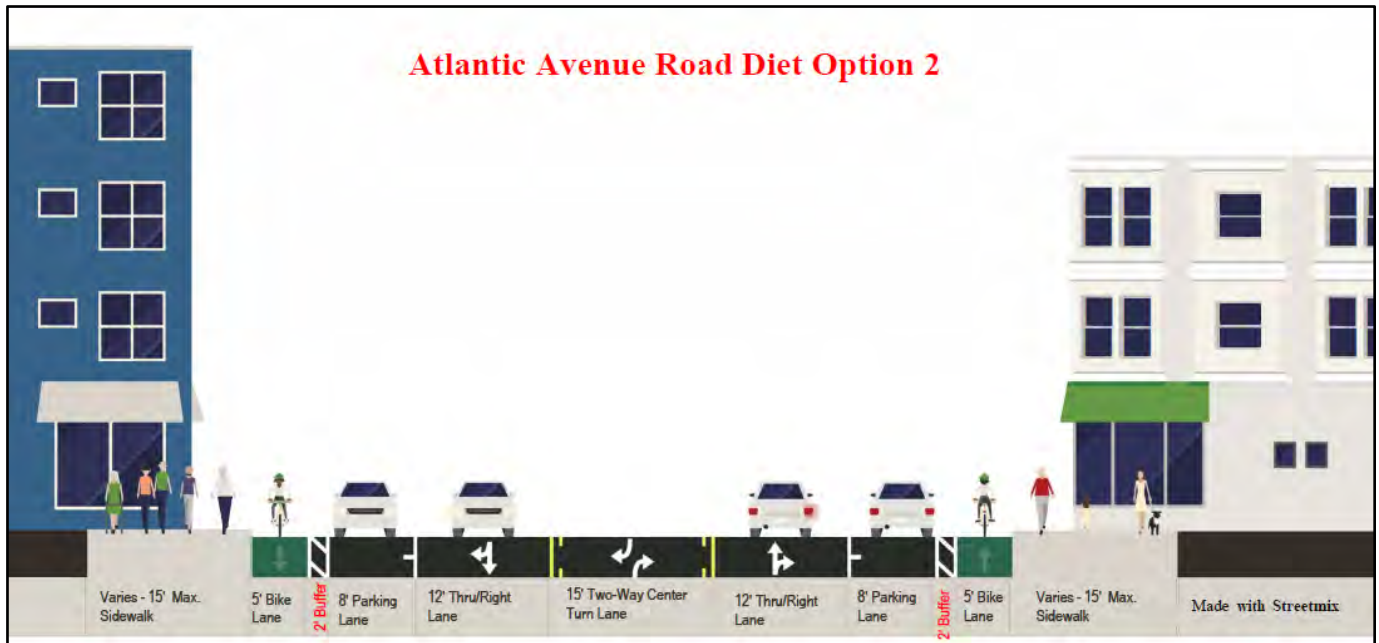


Exhibit 4 – Road Diet Option 2 Cross-Section



2.2.1 Traffic Analysis Tools

The operational performance of the study area segments and intersections will be analyzed according to methodologies provided in the Highway Capacity Manual, 6th Edition (HCM). For the study area segments and intersections, daily and peak hour traffic volumes will be evaluated using Synchro and SimTraffic 10 software. Synchro is a macroscopic capacity analysis and signal optimization computer program. SimTraffic is a microscopic traffic simulation computer program capable of modeling individual driver behavior and traffic flow on roadway networks. Performance measures selected for this project include delay per vehicle, Level of Service (LOS), and the volume to capacity (v/c) ratio for vehicles. Pedestrians and bikes were also evaluated and include LOS for Bikes or BLOS and LOS for Pedestrians or PLOS.

3.0 DATA COLLECTION

3.1 EXISTING LAND USE & ROADWAY CONFIGURATIONS

In general, the land use in the project study area is a mix of commercial, residential, shopping, restaurants, and other businesses. The Atlantic Avenue corridor is a coastal destination town with a strong emphasis on tourism during the summer months, and a high seasonal variation in traffic volume. To the north of Margate City is the municipality of Ventnor City and to the south is the Borough of Longport. The Atlantic Ocean borders the study area to the southeast and the bay serves as the border to the northwest. Margate City has a strong emphasis on both walking and biking.

3.1.1 Atlantic Avenue Characteristics

- Atlantic Avenue is a four-lane undivided roadway with no exclusive turn lanes present. Both Eastbound and Westbound Atlantic Avenue are comprised of a shared left/Thru lane and a shared Thru/Right lane.
- Bike lanes and pedestrian facilities (crosswalks, sidewalks, pedestrian signals, etc.) are generally present along the corridor.

- The traffic signals run in Stop & Go mode, with fixed timed operation during the summer months and mostly operate in Flash mode during other parts of the year.
- The roadway's functional classification is listed as an Urban Minor Arterial of Region 4 by the New Jersey's Department of Transportation (NJDOT);
 - <https://www.state.nj.us/transportation/refdata/roadway/traffic.shtm>
- The current posted speed limit is 25 Miles Per Hour (MPH), however prior to May of 2017, the posted speed limit was 35 MPH.
- The corridor topography is mostly level.

3.1.2 Base Data Inventory

The data collection efforts included an inventory of base data which included photos and intersection timings (**Appendix A**). Other items inventoried included:

- Lane configurations
- Lane widths
- Turn lane storage
- Approach grades
- Speed limits
- Signal Timings
- Signal Equipment

3.1.3 Traffic Count Data

Traffic counts were collected throughout the corridor and included midblock road volume counts and intersection turning movement counts (TMCs) (**Appendix B**).

3.1.4 Midblock Road Volume Counts

Four midblock road volume counts were collected at two locations (Eastbound and Westbound directions were counted separately) along Atlantic Avenue for a typical weekday (Tuesday, Wednesday, or Thursday), and for a typical weekend (Saturday).

The midblock road volume count data was collected using BLACK CAT II RADAR in lieu of traditional automatic traffic recorder tube counts across the roadway.

The counts occurred in the first two weeks of July 2020, after the Fourth of July holiday weekend. The midblock road volume count data was summarized by total two-way traffic volumes by hour (**Exhibits 5 & 6**), by direction for an average weekday (**Exhibits 7 & 8**) and Saturday (**Exhibits 9 & 10**). In addition, the count locations also collected average speed data at the fixed count locations. The vehicular speed data is summarized in **Exhibits 11 & 12**.

This information was used to investigate the various peak traffic periods that may occur throughout any given weekday or weekend.

Based on the traffic volumes collected at the various locations, the Average Annual Daily Traffic (AADT) along Atlantic Avenue Location #1 (near Cedar Grove Avenue) and along Atlantic Avenue Location #2

(near Huntington Avenue) is 6,764 and 4,907 vehicles per day, respectively. The AADT considers seasonal adjustments for fluctuations in traffic volumes throughout the entire year.

The unadjusted Average Daily Traffic (ADT) for the peak summer season at Locations #1 & #2 are 7,433 and 5,392 vehicles per day, respectively.

Exhibit 5: Atlantic Ave ADT #1 - Two-Way Hourly Volumes

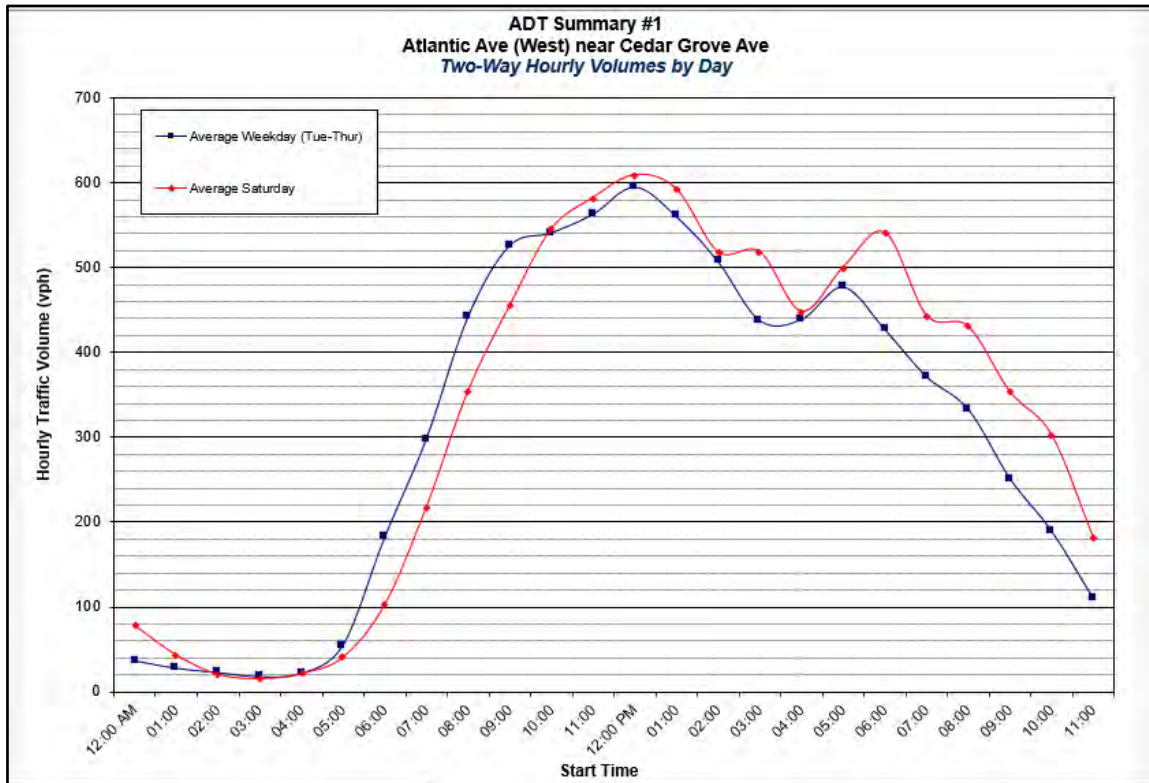


Exhibit 6: Atlantic Ave ADT #2 - Two-Way Hourly Volumes

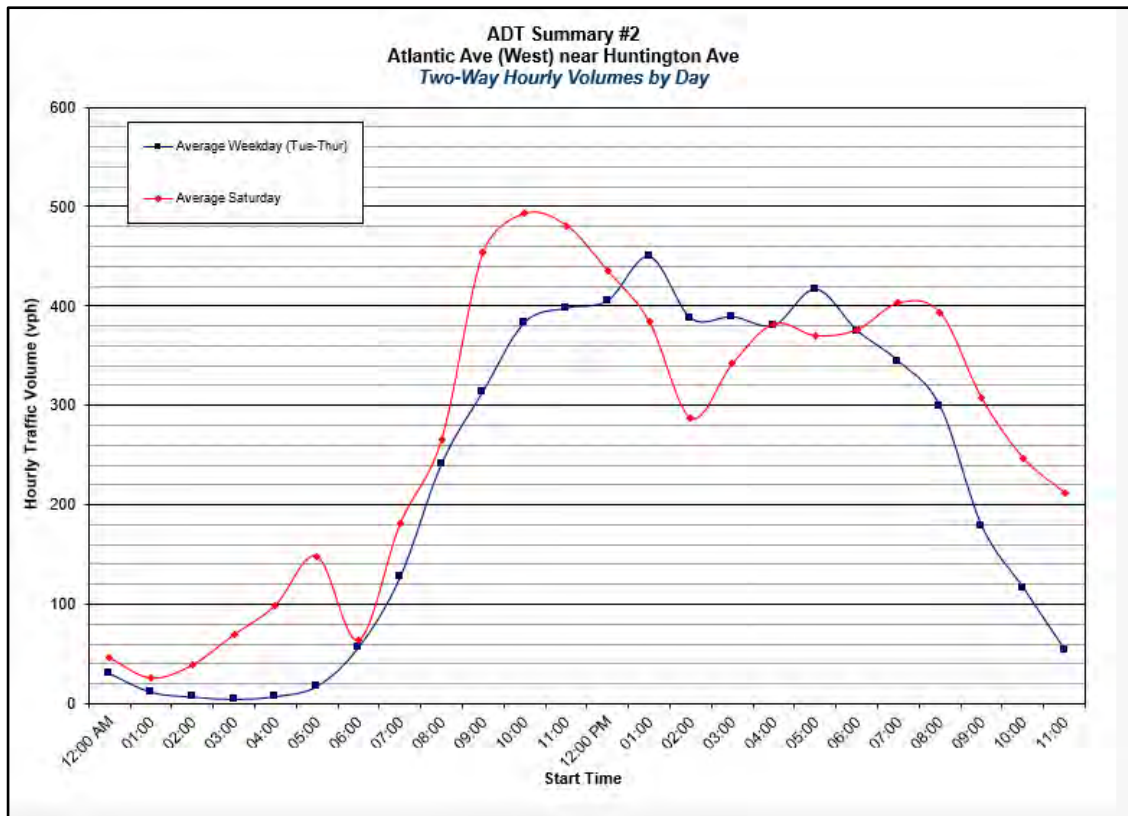


Exhibit 7: Atlantic Ave ADT #1- Average Weekday Directional Traffic

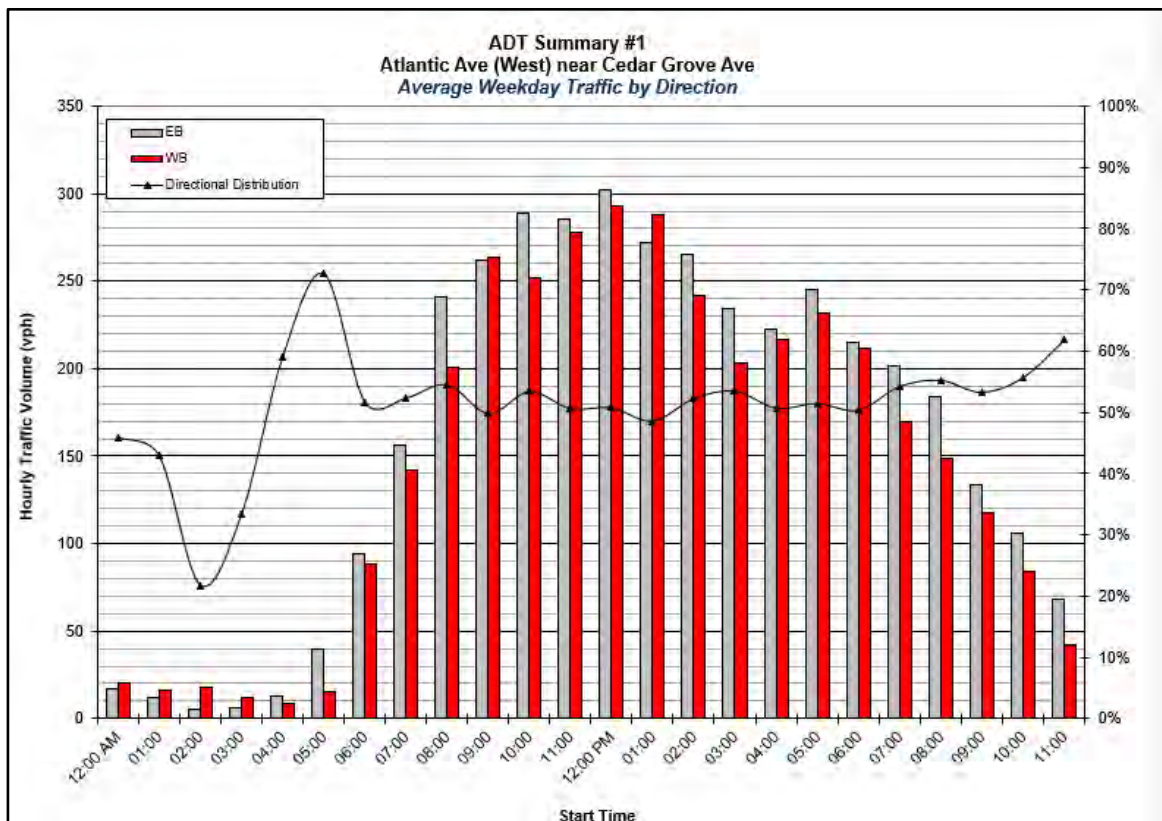


Exhibit 8: Atlantic Ave ADT #2- Average Weekday Directional Traffic

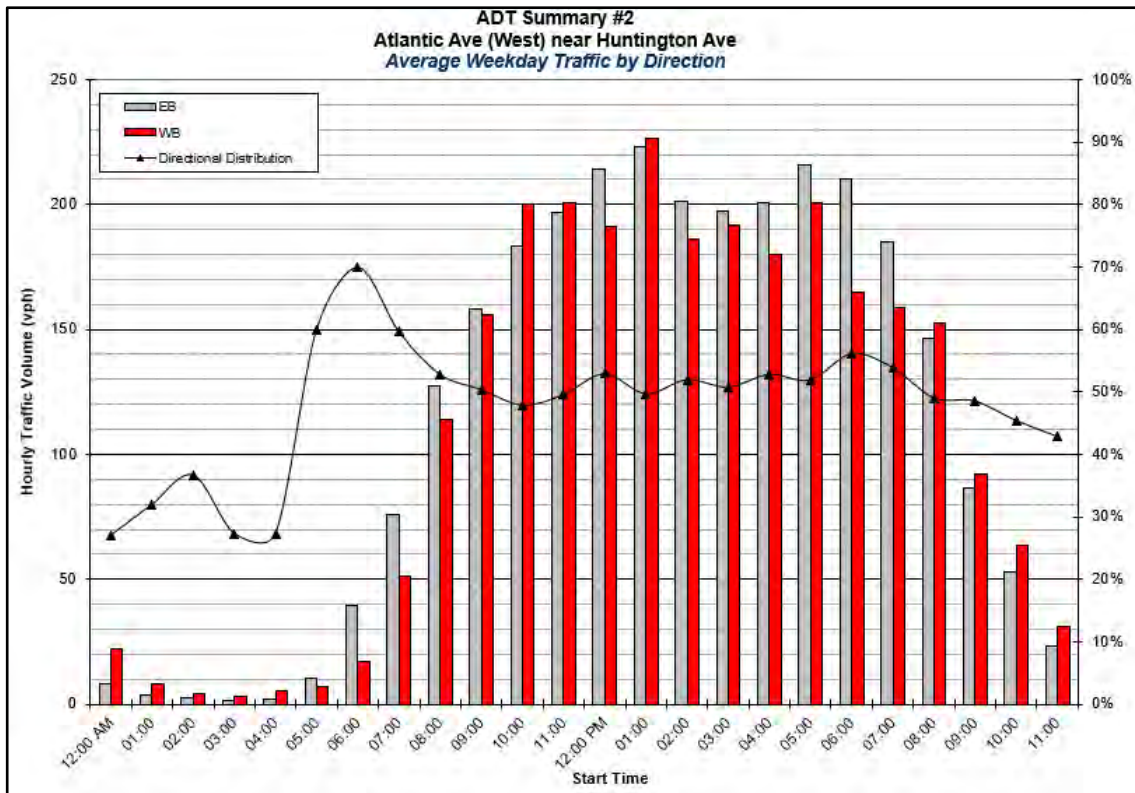


Exhibit 9: Atlantic Ave ADT #1 - Average Saturday Directional Traffic

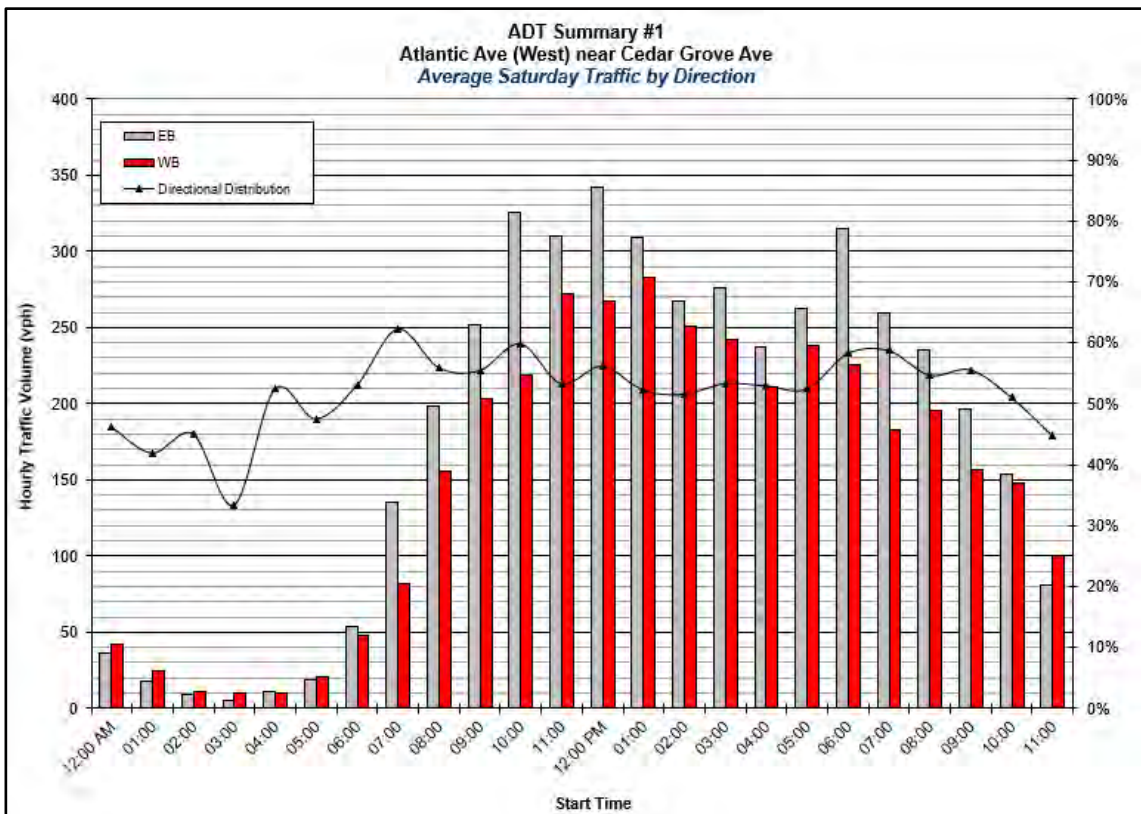
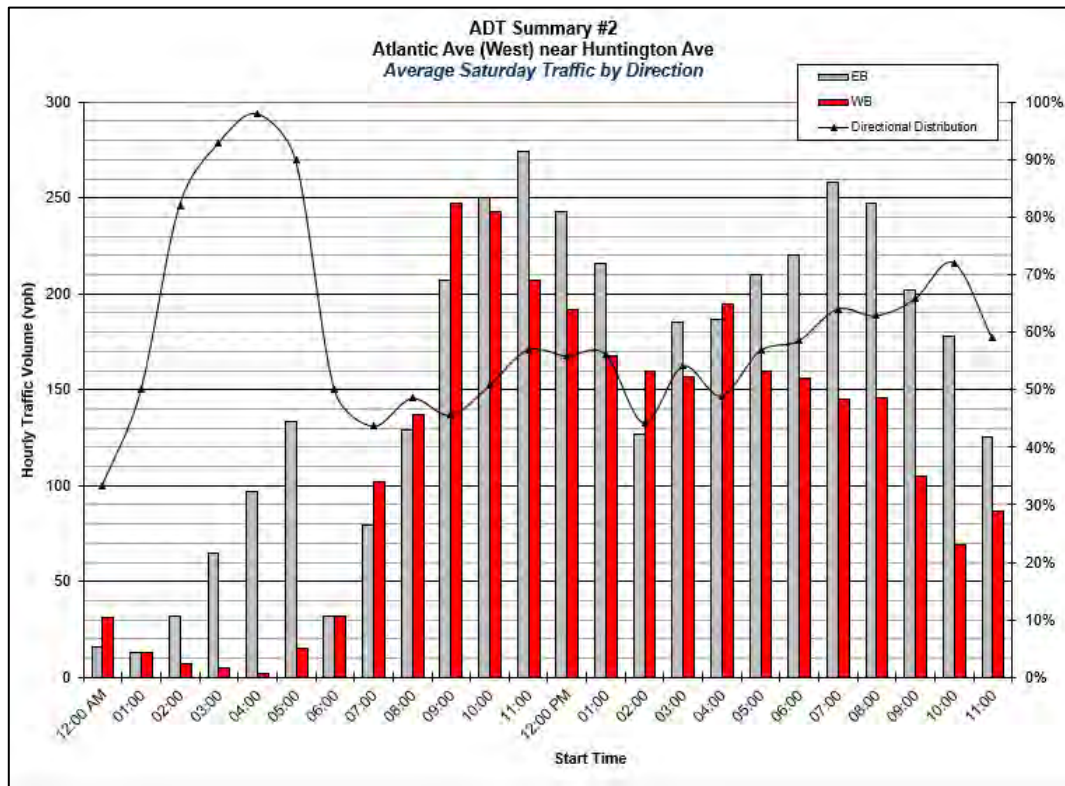


Exhibit 10: Atlantic Ave ADT #2 - Average Saturday Directional Traffic

Exhibit 11: Atlantic Ave ADT #1 – Weekday Speed Data Summary

Speed Studies Summary (Weekdays 9 am to 4 pm) - 2020			
Atlantic Avenue near Cedar Grove Avenue			
Movement	EB Through	Movement	WB Through
Time Period	Weekdays 9 am to 4 pm	Time Period	Weekdays 9 am to 4 pm
Posted Speed Limit	25 MPH	Posted Speed Limit	25 MPH
Average Speed	25.9 MPH	Average Speed	27.0 MPH
10 mph Pace	19 to 28 MPH	10 mph Pace	19 to 28 MPH
% in Pace	60%	% in Pace	72%
85% Speed	32.4 MPH	85% Speed	32.3 MPH

Exhibit 12: Atlantic Ave ADT #2 - Weekday Speed Data Summary

Speed Studies Summary (Weekdays 9 am to 4 pm) - 2020			
Atlantic Avenue near Huntington Avenue			
Movement	EB Through	Movement	WB Through
Time Period	Week days 9 am to 4 pm	Time Period	Week days 9 am to 4 pm
Posted Speed Limit	25 MPH	Posted Speed Limit	25 MPH
Average Speed	25.9 MPH	Average Speed	27.3 MPH
10 mph Pace	19 to 28 MPH	10 mph Pace	19 to 28 MPH
% in Pace	57%	% in Pace	75%
85% Speed	32.4 MPH	85% Speed	32.4 MPH

3.1.5 Turning Movement Counts (TMCs)

TMCs were conducted for six hours at each of the key study intersections, two hours for each of the three peak periods using Miovision video recorders and manual counts. After the TMCs were collected and processed, the highest peak hour was determined by calculating each intersection's local peak hour. This peak hour volume was then used to determine an overall study area peak hour to be used in the traffic analysis models and for TMC balancing purposes. The existing peak hours are as follows:

- AM Peak – 8:00 am to 9:00 am
- PM Peak – 5:00 pm to 6:00 pm
- SAT Peak – 12:00 am to 01:00 pm

The peak hour data (traffic volume, number of pedestrian and bicycles and percent trucks and buses) for each intersection was used in the traffic models. Due to non-key intersections not being counted that are between the key study intersections, the volumes were not adjusted or balanced. However, the volume differences between intersections reflects the change in traffic because of turning movements at other local intersecting roadways. The existing TMC data is included in. **Appendix B**.

4.0 CRASH ANALYSIS

Historical crash data for the Atlantic Avenue corridor was provided by the Margate City Police Department. The data represents all reported crashes for the five-year period between January 1, 2015 to present (July of 2019). This section summarizes the crash data. The individual crash reports used for this analysis contain personal information of those involved and therefore are not provided in this report. All crash data will remain on file with RVE for the duration of the project and used for engineering purposes only. Public access to the crash reports will not be provided.

It is important to note that only the reportable crashes were reviewed as part of this project. A “reportable crash” is defined by NJDOT as “a crash resulting in a death within 30 days of the crash; or injury in any degree, to any person involved; or crashes resulting in damage to any vehicle serious enough to require towing”. Based on anecdotal evidence, there may be additional minor, “non-reportable”, or unreported crashes that have occurred. If so, it would be expected that those crashes have or follow the characteristics of the reportable data that was reviewed.

The crash analysis involved assessing all crash data received for the study corridor and identifying patterns that may be susceptible to mitigation through signal timing optimization, and/or change in pavement markings and lane arrangements.

At the study intersections and along Atlantic Avenue from Ventnor City to the north, and to the City of Longport to the south, there were a total of 88 crashes in a 67-month period, which averages to approximately 15.8 crashes per year. 16% of the crashes occurred in midblock sections (between intersections), and the remaining 84% were considered intersection related. The crash data is summarized in **Exhibit 13 & 14** and is also discussed in further detail below.

Exhibit 13: Crash Summary (1 of 2)

Year	Total Crashes	Time of Year		Severity	
		Peak Season (June to Aug)	Off-Season	Injury Crash	Fatal Crash
2015	16	6	10	4	0
2016	26	23	3	5	0
2017	20	10	10	2	0
2018	15	12	3	4	0
2019	10	4	6	4	0
2020**	1	1	0	1	0
67 Month Totals	88	56	32	20	0
% Summary	100.0%	63.6%	36.4%	22.7%	0.0%
**Denotes less than 12 months of data/COVID 19 period.					

Exhibit 14: Crash Summary (2 of 2)

Year	Total Crashes	Crash Type		
		Vehicular Only	Pedestrian Involved	Bicycle Involved
2015	16	15	1	0
2016	26	25	1	0
2017	20	16	1	3
2018	15	14	1	0
2019	10	10	0	0
2020*	1	0	0	1
67 Month Totals	88	80	4	4
Summary (%)	100.0%	90.9%	4.5%	4.5%
**Denotes less than 12 months of data/COVID 19 period.				

The four intersections with the highest number of crashes were:

- Atlantic Avenue at Granville Avenue (13 crashes)
- Atlantic Avenue at Adams Avenue (7 crashes)
- Atlantic Avenue at Essex Avenue (4 crashes)
- Atlantic Avenue at Gladstone Avenue (4 crashes)

Other characteristics of the crash data are as follows:

- Of the 88 crashes, most of the crashes (64%) occurred during the summer season (June, July, and August).
- None of the crashes were fatal.
- 23% of the crashes resulted in injuries.
- 91% of the crashes involved vehicles only, while the remaining 9% involved pedestrians and/or bicycles.

The data also shows a downward trend of total crashes from 2018 to the present. This change in the rate of crashes is in line with the change to the posted speed limit from 35 MPH to 25 MPH, which occurred after May of 2017. It appears evident that the lower speed limit has contributed to a lower number of reportable crashes along the corridor.

Based on the proposed road diet concept of reducing Atlantic Avenue from four to three lanes, it can be expected that the revised cross-sections would further help to control vehicular speeds and provide an added level of crash mitigation along the corridor.

5.0 BASE YEAR 2020 TRAFFIC ANALYSIS

5.1 MODEL DEVELOPMENT

The base models of existing conditions were developed using field inventory data (lane widths, turn bay lengths, approach grades, speed limits, etc.) obtained from field inspections, Google Earth, and traffic signal plans. Using the existing data, weekday models were developed for the AM and PM peak hour traffic scenarios for the study intersections, and for the weekend (SAT) peak hour. All analysis scenarios reflect summertime conditions.

Traffic Signal Timings

Signal timings were inputted into the traffic model from the provided signal plans controller timing sheets and field verified. The following bullet points describe existing signal timing operations within the study area:

- All the traffic signals along Atlantic Avenue are fixed time and include two phases that run together in a pretimed mode.
- Left turn movements are permissive only with no exclusive left-turn phasing.
- Offset reference phase is set the beginning of green of the coordinated phases, which is the mainline 2+6 phase for all intersections.
 - Offsets were field measured from observations.
- Pedestrian signal indications are only provided at the intersection of Atlantic Avenue at Washington Avenue.
 - The other seven intersections have pedestrians crossing with concurrent vehicular signal indications.

Modified Synchro Parameters

Various parameters in Synchro were modified in accordance with guidance provided by the *NJDOT* and *HCM 6th Edition* recommended practices. Modified Synchro parameters for this project included the following:

- Using the recommended base saturation flow rate of 1,850 vehicles per hour per lane for all movements, in accordance with guidance.

5.2 ANALYSIS RESULTS

Again, Synchro and SimTraffic software were utilized to perform capacity analyses for the study area intersections. Performance measures selected for this project include delay per vehicle, Level of Service (LOS), and the volume to capacity (v/c) ratio for vehicles. Pedestrians and bikes were also evaluated and include LOS for Bikes or BLOS and LOS for Pedestrians or PLOS.

The Capacity Manual 6th Edition (HCM) results were obtained from Synchro reports and are reported in the tables below. These results are also included in **Appendix C**. The summary tables are followed by the detailed output reports from the analysis software. **Exhibits 15 & 16** below provide a legend for reference of the LOS letter grades and how they correspond to delay. Overall intersection delay and LOS for the Base 2020 analysis are summarized in **Exhibits 17 to 25**.

Exhibit 15: Delay & LOS Legend (Vehicles)

Level of Service Letter Grade (based on average delay per vehicle in seconds)		
Signalized Intersections		
A	=	0.0 - 9.9
B	=	10.0 - 19.9
C	=	20.0 - 34.9
D	=	35.0 - 54.9
E	=	55.0 - 79.9
F	=	80.0 & Above
V/C Ratios		
Intersections		
=		< 0.85
=		0.85 - 0.95
=		0.96 - 1.00
=		> 1.00

Exhibit 16: Delay & LOS Legend (Bikes/Peds)

Bike & Pedestrian Scores		
Signalized Intersections		
A	<=	1.50
B	>	1.50 - 2.50
C	>	2.50 - 3.50
D	>	3.50 - 4.50
E	>	4.50 - 5.50
F	>	5.50

Exhibit 17: AM Peak Base 2020 Measures of Effectiveness [MOEs] (Vehicles) [1/2]

SCENARIO/ANALYSIS YEAR			Base Conditions/2020							
PEAK HOUR			AM Peak (08:00 AM to 09:00 AM)							
PERFORMANCE MEASURE (HCM 6th Edition)			Vehicular Performance Measures							
			DELAY (seconds) & LOS (Letter Grade)					Volume to Capacity Ratio v/c Ratio (decimal ratio)		
Intersection Name(s)	Approach	Lane Configuration	By Lane Configuration		By Approach		By Overall Intersection	By Lane Configuration	Max	
Atlantic Ave @ Coolidge Ave	Eastbound	Left	8.9	A	9.0	A	6.3	A	0.18	0.18
		Thru	0.0	A					0.00	
		Right	9.0	A					0.18	
	Westbound	Left	0.4	A	0.4	A			0.15	
		Thru	0.0	A					0.00	
		Right	0.4	A					0.16	
	Northbound	Left	23.1	C	23.1	C			0.03	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	25.7	C	25.7	C			0.13	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Washington Ave	Eastbound	Left	0.6	A	0.7	A	2.7	A	0.22	0.26
		Thru	0.0	A					0.00	
		Right	0.7	A					0.23	
	Westbound	Left	0.5	A	0.6	A			0.22	
		Thru	0.0	A					0.00	
		Right	0.7	A					0.24	
	Northbound	Left	23.8	C	23.8	C			0.04	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	30.8	C	30.8	C			0.26	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Cedar Grove Ave	Eastbound	Left	0.6	A	0.7	A	5.8	A	0.23	0.24
		Thru	0.0	A					0.00	
		Right	0.8	A					0.24	
	Westbound	Left	8.8	A	8.9	A			0.22	
		Thru	0.0	A					0.00	
		Right	9.0	A					0.23	
	Northbound	Left	24.2	C	24.2	C			0.05	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	23.9	C	23.9	C			0.04	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Mansfield Ave	Eastbound	Left	0.5	A	0.6	A	1.1	A	0.20	0.25
		Thru	0.0	A					0.00	
		Right	0.7	A					0.21	
	Westbound	Left	0.7	A	0.7	A			0.24	
		Thru	0.0	A					0.00	
		Right	0.8	A					0.25	
	Northbound	Left	24.1	C	24.1	C			0.12	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	

Exhibit 18: AM Peak Base 2020 MOEs (Vehicles) [2/2]

SCENARIO/ANALYSIS YEAR			Base Conditions/2020							
PEAK HOUR			AM Peak (08:00 AM to 09:00 AM)							
HCM 6th Edition			Vehicular Performance Measures							
			DELAY (seconds) & LOS (Letter Grade)				Volume to Capacity Ratio			
Intersection Name(s)	Approach	Lane Configuration	By Lane Configuration		By Approach		By Overall Intersection		By Lane Configuration	Max
Atlantic Ave @ Huntington Ave	Eastbound	Left	0.6	A	0.6	A	6.4	A	0.21	0.26
		Thru	0.0	A					0.00	
		Right	0.7	A					0.22	
	Westbound	Left	10.5	B	10.6	B			0.25	
		Thru	0.0	A					0.00	
		Right	10.7	B					0.26	
	Northbound	Left	23.6	C	23.6	C			0.12	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Essex Ave	Eastbound	Left	0.7	A	0.7	A	11.6	B	0.24	0.24
		Thru	0.7	A					0.24	
	Westbound	Thru	19.6	B	19.6	B			0.23	
		Right	19.7	B					0.23	
	Southbound	Left	25.4	C	25.4	C			0.16	
		Right	0.0	A					0.00	
Atlantic Ave @ Douglass Ave	Eastbound	Left	0.5	A	0.6	A	1.2	A	0.21	0.28
		Thru	0.0	A					0.00	
		Right	0.7	A					0.22	
	Westbound	Left	0.7	A	0.8	A			0.26	
		Thru	0.0	A					0.00	
		Right	0.9	A					0.28	
	Northbound	Left	25.2	C	25.2	C			0.15	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Fredericksburg Ave	Eastbound	Left	0.6	A	0.7	A	7.1	A	0.23	0.28
		Thru	0.0	A					0.00	
		Right	0.7	A					0.24	
	Westbound	Left	10.8	B	10.9	B			0.27	
		Thru	0.0	A					0.00	
		Right	11.0	B					0.28	
	Northbound	Left	21.3	C	21.3	C			0.05	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	21.2	C	21.2	C			0.05	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	

Exhibit 19: PM Peak Base 2020 MOEs (Vehicles) [1/2]

SCENARIO/ANALYSIS YEAR			Base Conditions/2020							
PEAK HOUR			PM Peak (05:00 PM to 06:00 PM)							
PERFORMANCE MEASURE (HCM 6th Edition)			Vehicular Performance Measures							
			DELAY (seconds) & LOS (Letter Grade)					Volume to Capacity Ratio v/c Ratio (decimal ratio)		
Intersection Name(s)	Approach	Lane Configuration	By Lane Configuration		By Approach		By Overall Intersection		By Lane Configuration	Max
Atlantic Ave @ Coolidge Ave	Eastbound	Left	8.8	A	8.8	A	5.8	A	0.17	0.20
		Thru	0.0	A					0.00	
		Right	8.9	A					0.17	
	Westbound	Left	0.4	A	0.5	A			0.19	
		Thru	0.0	A					0.00	
		Right	0.5	A					0.20	
	Northbound	Left	24.3	C	24.3	C			0.09	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	27.3	C	27.3	C			0.19	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Washington Ave	Eastbound	Left	37.3	D	37.8	D	27.2	C	0.44	0.56
		Thru	0.0	A					0.00	
		Right	38.3	D					0.47	
	Westbound	Left	20.0	C	20.9	C			0.51	
		Thru	0.0	A					0.00	
		Right	22.0	C					0.56	
	Northbound	Left	8.3	A	8.3	A			0.07	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	9.9	A	9.9	A			0.16	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Cedar Grove Ave	Eastbound	Left	0.5	A	0.5	A	6.2	A	0.22	0.26
		Thru	0.0	A					0.00	
		Right	0.6	A					0.23	
	Westbound	Left	9.1	A	9.2	A			0.25	
		Thru	0.0	A					0.00	
		Right	9.2	A					0.26	
	Northbound	Left	24.6	C	24.6	C			0.08	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	24.2	C	24.2	C			0.07	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Mansfield Ave	Eastbound	Left	6.6	A	6.6	A	3.8	A	0.22	0.24
		Thru	0.0	A					0.00	
		Right	6.7	A					0.23	
	Westbound	Left	0.5	A	0.6	A			0.23	
		Thru	0.0	A					0.00	
		Right	0.7	A					0.24	
	Northbound	Left	24.1	C	24.1	C			0.12	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	

Exhibit 20: PM Peak Base 2020 MOEs (Vehicles) [2/2]

SCENARIO/ANALYSIS YEAR			Base Conditions/2020							
PEAK HOUR			PM Peak (05:00 PM to 06:00 PM)							
HCM 6th Edition			Vehicular Performance Measures							
			DELAY (seconds) & LOS (Letter Grade)					Volume to Capacity Ratio		
Intersection	Approach	Lane Config.	By Lane Config.		By Approach		By Overall Intersection		By Lane Config.	Max
Atlantic Ave @ Huntington Ave	Eastbound	Left	0.5	A	0.5	A	6.0	A	0.22	0.25
		Thru	0.0	A					0.00	
		Right	0.6	A					0.22	
	Westbound	Left	10.4	B	10.4	B			0.24	
		Thru	0.0	A					0.00	
		Right	10.5	B					0.25	
	Northbound	Left	21.0	C	21.0	C			0.04	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Essex Ave	Eastbound	Left	1.2	A	1.0	A	10.6	B	0.31	0.31
		Thru	0.9	A					0.29	
	Westbound	Thru	19.2	B	19.2	B			0.21	
		Right	19.3	B					0.21	
	Southbound	Left	25.9	C	25.9	C			0.20	
		Right	0.0	A					0.00	
Atlantic Ave @ Douglass Ave	Eastbound	Left	0.7	A	0.7	A	1.0	A	0.26	0.27
		Thru	0.0	A					0.00	
		Right	0.7	A					0.27	
	Westbound	Left	0.6	A	0.7	A			0.25	
		Thru	0.0	A					0.00	
		Right	0.7	A					0.26	
	Northbound	Left	21.6	C	21.6	C			0.03	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Fredericksburg Ave	Eastbound	Left	0.6	A	0.6	A	6.3	A	0.24	0.26
		Thru	0.0	A					0.00	
		Right	0.7	A					0.25	
	Westbound	Left	10.5	B	10.6	B			0.25	
		Thru	0.0	A					0.00	
		Right	10.7	B					0.26	
	Northbound	Left	22.6	C	22.6	C			0.09	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	23.4	C	23.4	C			0.13	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	

Exhibit 21: SAT Peak Base 2020 MOEs (Vehicles) [1/2]

SCENARIO/ANALYSIS YEAR			Base Conditions/2020							
PEAK HOUR			SAT Peak (12:00 PM to 01:00 PM)							
PERFORMANCE MEASURE (HCM 6th Edition)			Vehicular Performance Measures							
			DELAY (seconds) & LOS (Letter Grade)					Volume to Capacity Ratio v/c Ratio (decimal ratio)		
Intersection Name(s)	Approach	Lane Configuration	By Lane Configuration		By Approach		By Overall Intersection		By Lane Configuration	Max
Atlantic Ave @ Coolidge Ave	Eastbound	Left	11.7	B	11.9	B	7.7	A	0.40	0.42
		Thru	0.0	A					0.00	
		Right	12.1	B					0.42	
	Westbound	Left	1.4	A	1.5	A			0.38	
		Thru	0.0	A					0.00	
		Right	1.7	A					0.40	
	Northbound	Left	23.6	C	23.6	C			0.06	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	23.9	C	23.9	C			0.11	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Washington Ave	Eastbound	Left	1.7	A	1.8	A	3.9	A	0.41	0.45
		Thru	0.0	A					0.00	
		Right	1.9	A					0.43	
	Westbound	Left	1.6	A	1.9	A			0.43	
		Thru	0.0	A					0.00	
		Right	2.2	A					0.45	
	Northbound	Left	24.2	C	24.2	C			0.06	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	36.5	D	36.5	D			0.41	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Cedar Grove Ave	Eastbound	Left	1.5	A	1.6	A	7.9	A	0.41	0.46
		Thru	0.0	A					0.00	
		Right	1.8	A					0.43	
	Westbound	Left	11.5	B	11.8	B			0.44	
		Thru	0.0	A					0.00	
		Right	12.0	B					0.46	
	Northbound	Left	24.4	C	24.4	C			0.08	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	24.8	C	24.8	C			0.12	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Mansfield Ave	Eastbound	Left	7.5	A	7.6	A	4.5	A	0.33	0.42
		Thru	0.0	A					0.00	
		Right	7.7	A					0.35	
	Westbound	Left	1.4	A	1.6	A			0.40	
		Thru	0.0	A					0.00	
		Right	1.7	A					0.42	
	Northbound	Left	21.5	C	21.5	C			0.04	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	

Exhibit 22: SAT Peak Base 2020 MOEs (Vehicles) [2/2]

SCENARIO/ANALYSIS YEAR			Base Conditions/2020							
PEAK HOUR			SAT Peak (12:00 PM to 01:00 PM)							
HCM 6th Edition			Vehicular Performance Measures							
			DELAY (seconds) & LOS (Letter Grade)					Volume to Capacity Ratio		
Intersection	Approach	Lane Con.	By Lane Con.		By Approach		By Overall Intersection		By Lane Con.	Max
Atlantic Ave @ Huntington Ave	Eastbound	Left	0.9	A	1.0	A	7.8	A	0.30	0.42
		Thru	0.0	A					0.00	
		Right	1.1	A					0.32	
	Westbound	Left	12.4	B	12.7	B			0.40	
		Thru	0.0	A					0.00	
		Right	13.1	B					0.42	
	Northbound	Left	21.3	C	21.3	C			0.06	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Essex Ave	Eastbound	Left	1.9	A	1.5	A	7.8	A	0.35	0.35
		Thru	1.1	A					0.32	
	Westbound	Thru	20.9	C	20.9	C			0.28	
		Right	20.9	C					0.29	
	Southbound	Left	27.9	C	27.9	C			0.34	
		Right	0.0	A					0.00	
Atlantic Ave @ Douglass Ave	Eastbound	Left	0.9	A	0.9	A	1.2	A	0.31	0.34
		Thru	0.0	A					0.00	
		Right	1.0	A					0.32	
	Westbound	Left	0.9	A	1.0	A			0.32	
		Thru	0.0	A					0.00	
		Right	1.1	A					0.34	
	Northbound	Left	21.9	C	21.9	C			0.05	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Fredericksburg Ave	Eastbound	Left	0.8	A	0.9	A	6.6	A	0.28	0.34
		Thru	0.0	A					0.00	
		Right	0.9	A					0.29	
	Westbound	Left	11.3	B	11.5	B			0.32	
		Thru	0.0	A					0.00	
		Right	11.6	B					0.34	
	Northbound	Left	0.0	A	0.0	A			0.00	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	0.0	A	0.0	A			0.00	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	

Exhibit 23: AM Peak Base 2020 MOEs (Bikes/Peds) [1/1]

SCENARIO/ANALYSIS YEAR		Base Conditions/2020				
PEAK HOUR		AM Peak (08:00 AM to 09:00 AM)				
HCM 6th Edition	Bike Performance Measures			Pedestrian Performance Measures		
Intersection	Approach	Score	LOS	Crosswalk	Score	LOS
Atlantic Ave @ Coolidge Ave	Eastbound	1.52	B	Southbound	2.28	B
	Westbound	1.47	A	Northbound	2.28	B
	Northbound	1.62	B	Eastbound	1.74	B
	Southbound	1.62	B	Westbound	1.75	B
Atlantic Ave @ Washington Ave	Eastbound	1.55	B	Southbound	2.33	B
	Westbound	1.58	B	Northbound	2.33	B
	Northbound	1.62	B	Eastbound	1.80	B
	Southbound	1.66	B	Westbound	1.80	B
Atlantic Ave @ Cedar Grove Ave	Eastbound	1.57	B	Southbound	2.33	B
	Westbound	1.58	B	Northbound	2.33	B
	Northbound	1.62	B	Eastbound	1.75	B
	Southbound	1.63	B	Westbound	1.75	B
Atlantic Ave @ Mansfield Ave	Eastbound	1.52	B	Southbound	2.32	B
	Westbound	1.42	A	Northbound	2.31	B
	Northbound	1.61	B	Eastbound	1.74	B
	Southbound	N/A	N/A	Westbound	1.46	A
Atlantic Ave @ Huntington Ave	Eastbound	1.54	B	Southbound	2.31	B
	Westbound	1.43	A	Northbound	2.32	B
	Northbound	1.62	B	Eastbound	1.71	B
	Southbound	N/A	N/A	Westbound	1.43	A
Atlantic Ave @ Essex Ave	Eastbound	1.90	B	Southbound	2.35	B
	Westbound	1.58	B	Northbound	2.32	B
	Southbound	1.70	B	Westbound	1.78	B
Atlantic Ave @ Douglass Ave	Eastbound	1.56	B	Southbound	2.33	B
	Westbound	1.46	A	Northbound	2.34	B
	Northbound	1.62	B	Eastbound	1.73	B
	Southbound	N/A	N/A	Westbound	1.45	A
Atlantic Ave @ Fredericksburg Ave	Eastbound	1.56	B	Southbound	2.35	B
	Westbound	1.65	B	Northbound	2.35	B
	Northbound	1.63	B	Eastbound	1.72	B
	Southbound	1.64	B	Westbound	1.74	B

Exhibit 24: PM Peak Base 2020 MOEs (Bikes/Peds) [1/1]

SCENARIO/ANALYSIS YEAR		Base Conditions/2020				
PEAK HOUR		PM Peak (05:00 PM to 06:00 PM)				
HCM 6th Edition	Bike Performance Measures			Pedestrian Performance		
Intersection	Approach	Score	LOS	Crosswalk	Score	LOS
Atlantic Ave @ Coolidge Ave	Eastbound	1.52	B	Southbound	2.32	B
	Westbound	1.56	B	Northbound	2.31	B
	Northbound	1.63	B	Eastbound	1.75	B
	Southbound	1.64	B	Westbound	1.75	B
Atlantic Ave @ Washington Ave	Eastbound	1.59	B	Southbound	2.38	B
	Westbound	1.65	B	Northbound	2.36	B
	Northbound	1.64	B	Eastbound	1.81	B
	Southbound	1.66	B	Westbound	1.80	B
Atlantic Ave @ Cedar Grove Ave	Eastbound	1.61	B	Southbound	2.37	B
	Westbound	1.66	B	Northbound	2.37	B
	Northbound	1.63	B	Eastbound	1.77	B
	Southbound	1.64	B	Westbound	1.77	B
Atlantic Ave @ Mansfield Ave	Eastbound	1.58	B	Southbound	2.34	B
	Westbound	1.45	A	Northbound	2.34	B
	Northbound	1.61	B	Eastbound	1.75	B
	Southbound	N/A	N/A	Westbound	1.46	A
Atlantic Ave @ Huntington Ave	Eastbound	1.60	B	Southbound	2.34	B
	Westbound	1.46	A	Northbound	2.34	B
	Northbound	1.62	B	Eastbound	1.71	B
	Southbound	N/A	N/A	Westbound	1.43	A
Atlantic Ave @ Essex Ave	Eastbound	2.01	B	Southbound	2.41	B
	Westbound	1.59	B	Northbound	2.46	B
	Southbound	1.73	B	Westbound	1.81	B
Atlantic Ave @ Douglass Ave	Eastbound	1.66	B	Southbound	2.37	B
	Westbound	1.48	A	Northbound	2.36	B
	Northbound	1.61	B	Eastbound	1.75	B
	Southbound	N/A	N/A	Westbound	1.47	A
Atlantic Ave @ Fredericksburg Ave	Eastbound	1.64	B	Southbound	2.38	B
	Westbound	1.65	B	Northbound	2.37	B
	Northbound	1.62	B	Eastbound	1.73	B
	Southbound	1.63	B	Westbound	1.74	B

Exhibit 25: SAT Peak Base 2020 MOEs (Bikes/Peds) [1/1]

SCENARIO/ANALYSIS YEAR		Base Conditions/2020				
PEAK HOUR		SAT Peak (12:00 PM to 01:00 PM)				
HCM 6th Edition	Bike Performance Measures			Pedestrian Performance Measures		
Intersection	Approach	Score	LOS	Crosswalk	Score	LOS
Atlantic Ave @ Coolidge Ave	Eastbound	1.74	B	Southbound	2.45	B
	Westbound	1.74	B	Northbound	2.44	B
	Northbound	1.63	B	Eastbound	1.78	B
	Southbound	1.63	B	Westbound	1.78	B
Atlantic Ave @ Washington Ave	Eastbound	1.77	B	Southbound	2.47	B
	Westbound	1.80	B	Northbound	2.46	B
	Northbound	1.63	B	Eastbound	1.83	B
	Southbound	1.70	B	Westbound	1.84	B
Atlantic Ave @ Cedar Grove Ave	Eastbound	1.81	B	Southbound	2.51	C
	Westbound	1.83	B	Northbound	2.49	B
	Northbound	1.64	B	Eastbound	1.79	B
	Southbound	1.69	B	Westbound	1.80	B
Atlantic Ave @ Mansfield Ave	Eastbound	1.67	B	Southbound	2.41	B
	Westbound	1.62	B	Northbound	2.42	B
	Northbound	1.62	B	Eastbound	1.78	B
	Southbound	N/A	N/A	Westbound	1.48	A
Atlantic Ave @ Huntington Ave	Eastbound	1.67	B	Southbound	2.40	B
	Westbound	1.60	B	Northbound	2.40	B
	Northbound	1.63	B	Eastbound	1.73	B
	Southbound	N/A	N/A	Westbound	1.45	A
Atlantic Ave @ Essex Ave	Eastbound	2.00	B	Southbound	2.47	B
	Westbound	1.67	B	Northbound	2.47	B
	Southbound	1.83	B	Westbound	1.97	B
Atlantic Ave @ Douglass Ave	Eastbound	1.72	B	Southbound	2.41	B
	Westbound	1.58	B	Northbound	2.41	B
	Northbound	1.62	B	Eastbound	1.76	B
	Southbound	N/A	N/A	Westbound	1.48	A
Atlantic Ave @ Fredericksburg Ave	Eastbound	1.44	A	Southbound	2.41	B
	Westbound	1.52	B	Northbound	2.41	B
	Northbound	1.41	A	Eastbound	1.74	B
	Southbound	1.44	A	Westbound	1.76	B

The summary exhibits show that the intersections generally operate acceptable LOS [LOS D or better, and/or a v/c ratio of 0.85 or less], during all peak hours for vehicles, pedestrians, and bicyclists. No areas of recurring congestions were identified in the analysis.

6.0 FUTURE YEAR ANALYSIS

6.1 TRAFFIC FORECASTING

Again, the Build scenarios for Atlantic Avenue assumed a Future Year 2025 Scenario (assumed Opening Year) and a Future Year 2045 Scenario (assumed Design Year). These traffic forecasts are included in **Appendix B**.

The Base Year 2020 traffic volumes, pedestrian volumes, and bike volumes were grown to the respective future years 2025 and 2045.

The future 2025 and 2045 traffic volumes, pedestrian volumes, and bike volumes were derived by applying a linear growth rate to the existing traffic volumes at each study intersection. The linear traffic growth rate was 1.00% per year for the City of Margate. This growth rate was obtained from NJ DOT's website.

6.1.1 Future Years 2025 Analysis Results

The Build scenario assumes the conversion from four to three lanes to be completed for vehicles, while inclusion of bike lanes, parking, and pedestrian facilities. Due to limitations within the Synchro and SimTraffic software, the below results summarize Road Diets Options 1 & 2. The advantages and disadvantages of having protected bike lanes will be discussed later in the report.

Again, Synchro and SimTraffic software were utilized to perform capacity analyses for the study area intersections. Performance measures selected for this project include delay per vehicle, Level of Service (LOS), and the volume to capacity (v/c) ratio for vehicles. Pedestrians and bikes were also evaluated and include LOS for Bikes or BLOS and LOS for Pedestrians or PLOS.

Summary tables for future operations are summarized below in **Exhibits 26 to 34**.

These summary tables are also included in **Appendix D** and are followed by the detailed output reports from the analysis software.

Exhibit 26: AM Peak Future Year 2025 MOEs (Vehicles) [1/2]

SCENARIO/ANALYSIS YEAR			Road Diet/Future Year 2025							
PEAK HOUR			AM Peak (08:00 AM to 09:00 AM)							
HCM 6th Edition			Vehicular Performance Measures							
			DELAY (seconds) & LOS (Letter Grade)					Volume to Capacity Ratio		
Intersection	Approach	Lane Config.	By Lane Config.		By Approach		By Overall Intersection		By Lane Config.	Max
Atlantic Ave @ Coolidge Ave	Eastbound	Left	1.8	A	2.7	A	4.3	A	0.01	0.28
		Thru	0.0	A					0.00	
		Right	2.7	A					0.26	
	Westbound	Left	0.2	A	0.4	A			0.01	
		Thru	0.0	A					0.00	
		Right	0.4	A					0.23	
	Northbound	Left	39.3	D	39.3	D			0.11	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	42.9	D	42.9	D			0.28	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Washington Ave	Eastbound	Left	0.1	A	0.7	A	4.0	A	0.04	0.46
		Thru	0.0	A					0.00	
		Right	0.8	A					0.32	
	Westbound	Left	0.0	A	0.8	A			0.01	
		Thru	0.0	A					0.00	
		Right	0.8	A					0.36	
	Northbound	Left	36.7	D	36.7	D			0.09	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	44.7	D	44.7	D			0.46	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Cedar Grove Ave	Eastbound	Left	0.2	A	0.8	A	2.8	A	0.03	0.36
		Thru	0.0	A					0.00	
		Right	0.9	A					0.36	
	Westbound	Left	0.0	A	0.7	A			0.01	
		Thru	0.0	A					0.00	
		Right	0.7	A					0.33	
	Northbound	Left	39.8	D	39.8	D			0.16	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	39.3	D	39.3	D			0.14	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Mansfield Ave	Eastbound	Left	0.0	A	0.7	A	2.0	A	0.01	0.50
		Thru	0.0	A					0.00	
		Right	0.7	A					0.31	
	Westbound	Left	0.2	A	0.8	A			0.03	
		Thru	0.0	A					0.00	
		Right	0.9	A					0.37	
	Northbound	Left	46.6	D	46.6	D			0.50	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	

Exhibit 27: AM Peak Future Year 2025 MOEs (Vehicles) [2/2]

SCENARIO/ANALYSIS YEAR			Road Diet/Future Year 2025							
PEAK HOUR			AM Peak (08:00 AM to 09:00 AM)							
HCM 6th Edition			Vehicular Performance Measures							
			DELAY (seconds) & LOS (Letter Grade)					Volume to Capacity Ratio		
Intersection	Approach	Lane Config.	By Lane Config.		By Approach		By Overall Intersection		By Lane Config.	Max
Atlantic Ave @ Huntington Ave	Eastbound	Left	0.0	A	0.6	A	1.9	A	0.02	0.50
		Thru	0.0	A					0.00	
		Right	0.7	A					0.31	
	Westbound	Left	0.0	A	0.8	A			0.01	
		Thru	0.0	A					0.00	
		Right	0.7	A					0.37	
	Northbound	Left	46.6	D	46.6	D			0.50	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Essex Ave	Eastbound	Left	0.1	A	0.6	A	4.0	A	0.04	0.51
		Thru	0.7	A					0.31	
	Westbound	Thru	0.0	A	0.8	A			0.00	
		Right	0.8	A					0.36	
	Southbound	Left	41.9	D	41.9	D			0.51	
		Right	0.0	A					0.00	
Atlantic Ave @ Douglass Ave	Eastbound	Left	0.0	A	0.7	A	1.9	A	0.02	0.50
		Thru	0.0	A					0.00	
		Right	0.7	A					0.32	
	Westbound	Left	0.0	A	1.0	A			0.01	
		Thru	0.0	A					0.00	
		Right	1.0	A					0.41	
	Northbound	Left	46.6	D	46.6	D			0.50	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Fredericksburg Ave	Eastbound	Left	0.5	A	0.7	A	4.4	A	0.01	0.40
		Thru	0.0	A					0.00	
		Right	0.7	A					0.33	
	Westbound	Left	1.7	A	3.4	A			0.01	
		Thru	0.0	A					0.00	
		Right	3.5	A					0.40	
	Northbound	Left	39.2	D	39.2	D			0.17	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	38.9	D	38.9	D			0.17	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	

Exhibit 28: PM Peak Future Year 2025 MOEs (Vehicles) [1/2]

SCENARIO/ANALYSIS YEAR			Road Diet/Future Year 2025							
PEAK HOUR			PM Peak (05:00 PM to 06:00 PM)							
HCM 6th Edition			Vehicular Performance Measures							
			DELAY (seconds) & LOS (Letter Grade)					Volume to Capacity Ratio		
Intersection	Approach	Lane Configuration	By Lane Configuration		By Approach		By Overall Intersection		By Lane Configuration	Max
Atlantic Ave @ Coolidge Ave	Eastbound	Left	3.2	A	2.8	A	5.9	A	0.01	0.39
		Thru	0.0	A					0.00	
		Right	2.7	A					0.25	
	Westbound	Left	2.9	A	2.9	A			0.01	
		Thru	0.0	A					0.00	
		Right	2.9	A					0.29	
	Northbound	Left	42.8	D	42.8	D			0.23	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	46.9	D	46.9	D			0.39	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Washington Ave	Eastbound	Left	0.1	A	0.6	A	3.9	A	0.04	0.42
		Thru	0.0	A					0.00	
		Right	0.7	A					0.33	
	Westbound	Left	0.0	A	1.0	A			0.01	
		Thru	0.0	A					0.00	
		Right	1.0	A					0.41	
	Northbound	Left	38.7	D	38.7	D			0.25	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	43.5	D	43.5	D			0.42	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Cedar Grove Ave	Eastbound	Left	0.0	A	0.6	A	3.2	A	0.01	0.38
		Thru	0.0	A					0.00	
		Right	0.6	A					0.33	
	Westbound	Left	0.0	A	0.8	A			0.02	
		Thru	0.0	A					0.00	
		Right	0.8	A					0.38	
	Northbound	Left	41.9	D	41.9	D			0.23	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	41.1	D	41.1	D			0.19	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Mansfield Ave	Eastbound	Left	0.0	A	0.6	A	1.6	A	0.01	0.45
		Thru	0.0	A					0.00	
		Right	0.6	A					0.32	
	Westbound	Left	0.0	A	0.7	A			0.01	
		Thru	0.0	A					0.00	
		Right	0.7	A					0.34	
	Northbound	Left	47.8	D	47.8	D			0.45	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	

Exhibit 29: PM Peak Future Year 2025 MOEs (Vehicles) [2/2]

SCENARIO/ANALYSIS YEAR			Road Diet/Future Year 2025							
PEAK HOUR			PM Peak (05:00 PM to 06:00 PM)							
HCM 6th Edition			Vehicular Performance Measures							
			DELAY (seconds) & LOS (Letter Grade)				Volume to Capacity Ratio			
Intersection	Approach	Lane Config.	By Lane Config.		By Approach		By Overall Intersection		By Lane Config.	Max
Atlantic Ave @ Huntington Ave	Eastbound	Left	0.1	A	0.6	A	1.4	A	0.02	0.35
		Thru	0.0	A					0.00	
		Right	0.6	A					0.31	
	Westbound	Left	0.0	A	0.7	A			0.01	
		Thru	0.0	A					0.00	
		Right	0.7	A					0.35	
	Northbound	Left	38.9	D	38.9	D			0.13	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Essex Ave	Eastbound	Left	0.3	A	0.9	A	4.6	A	0.11	0.65
		Thru	0.9	A					0.42	
	Westbound	Thru	0.0	A	0.7	A			0.00	
		Right	0.7	A					0.35	
	Southbound	Left	45.8	D	45.8	D			0.65	
		Right	0.0	A					0.00	
Atlantic Ave @ Douglass Ave	Eastbound	Left	0.1	A	0.5	A	1.4	A	0.05	0.35
		Thru	0.0	A					0.00	
		Right	0.5	A					0.33	
	Westbound	Left	0.0	A	0.6	A			0.01	
		Thru	0.0	A					0.00	
		Right	0.6	A					0.35	
	Northbound	Left	46.3	D	46.3	D			0.26	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Fredericksburg Ave	Eastbound	Left	0.3	A	0.6	A	3.5	A	0.01	0.36
		Thru	0.0	A					0.00	
		Right	0.6	A					0.34	
	Westbound	Left	1.5	A	2.8	A			0.01	
		Thru	0.0	A					0.00	
		Right	2.8	A					0.36	
	Northbound	Left	44.4	D	44.4	D			0.23	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	45.7	D	45.7	D			0.30	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	

Exhibit 30: SAT Peak Future Year 2025 MOEs (Vehicles) [1/2]

SCENARIO/ANALYSIS YEAR			Road Diet/Future Year 2025							
PEAK HOUR			SAT Peak (12:00 PM to 01:00 PM)							
HCM 6th Edition			Vehicular Performance Measures							
			DELAY (seconds) & LOS (Letter Grade)						Volume to Capacity Ratio	
Intersection	Approach	Lane Configuration	By Lane Configuration		By Approach		By Overall Intersection		By Lane Configuration	Max
Atlantic Ave @ Coolidge Ave	Eastbound	Left	2.1	A	6.3	A	6.6	A	0.03	0.60
		Thru	0.0	A					0.00	
		Right	6.4	A					0.60	
	Westbound	Left	2.1	A	1.7	A			0.01	
		Thru	0.0	A					0.00	
		Right	1.6	A					0.58	
	Northbound	Left	45.4	D	45.4	D			0.18	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	46.3	D	46.3	D			0.32	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Washington Ave	Eastbound	Left	0.2	A	2.4	A	6.1	A	0.08	0.74
		Thru	0.0	A					0.00	
		Right	2.5	A					0.64	
	Westbound	Left	0.0	A	3.7	A			0.01	
		Thru	0.0	A					0.00	
		Right	3.7	A					0.74	
	Northbound	Left	36.9	D	36.9	D			0.11	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	53.6	D	53.6	D			0.61	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Cedar Grove Ave	Eastbound	Left	0.1	A	2.1	A	5.2	A	0.02	0.67
		Thru	0.0	A					0.00	
		Right	2.1	A					0.63	
	Westbound	Left	0.1	A	2.7	A			0.03	
		Thru	0.0	A					0.00	
		Right	2.8	A					0.67	
	Northbound	Left	45.3	D	45.3	D			0.22	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	46.2	D	46.2	D			0.34	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Mansfield Ave	Eastbound	Left	0.0	A	0.9	A	2.1	A	0.02	0.54
		Thru	0.0	A					0.00	
		Right	0.9	A					0.44	
	Westbound	Left	0.0	A	1.4	A			0.01	
		Thru	0.0	A					0.00	
		Right	1.4	A					0.54	
	Northbound	Left	50.4	D	50.4	D			0.29	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	

Exhibit 31: SAT Peak Future Year 2025 MOEs (Vehicles) [2/2]

SCENARIO/ANALYSIS YEAR			Road Diet/Future Year 2025							
PEAK HOUR			SAT Peak (12:00 PM to 01:00 PM)							
HCM 6th Edition			Vehicular Performance Measures							
			DELAY (seconds) & LOS (Letter Grade)					Volume to Capacity Ratio		
Intersection	Approach	Lane Configuration	By Lane Configuration		By Approach		By Overall Intersection		By Lane Configuration	Max
Atlantic Ave @ Huntington Ave	Eastbound	Left	3.8	A	7.1	A	5.1	A	0.02	0.61
		Thru	0.0	A					0.00	
		Right	7.1	A					0.48	
	Westbound	Left	1.6	A	2.2	A			0.03	
		Thru	0.0	A					0.00	
		Right	2.3	A					0.61	
	Northbound	Left	38.3	D	38.3	D			0.22	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Essex Ave	Eastbound	Left	0.2	A	0.8	A	7.8	A	0.08	0.83
		Thru	0.9	A					0.39	
	Westbound	Thru	0.0	A	1.1	A			0.00	
		Right	1.1	A					0.45	
	Southbound	Left	54.0	D	54.0	D			0.83	
		Right	0.0	A					0.00	
Atlantic Ave @ Douglass Ave	Eastbound	Left	0.1	A	0.8	A	1.6	A	0.05	0.48
		Thru	0.0	A					0.00	
		Right	0.8	A					0.42	
	Westbound	Left	0.0	A	1.1	A			0.01	
		Thru	0.0	A					0.00	
		Right	1.1	A					0.48	
	Northbound	Left	45.6	D	45.6	D			0.18	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Fredericksburg Ave	Eastbound	Left	1.0	A	0.9	A	5.0	A	0.01	0.48
		Thru	0.0	A					0.00	
		Right	0.9	A					0.41	
	Westbound	Left	1.9	A	4.4	A			0.01	
		Thru	0.0	A					0.00	
		Right	4.4	A					0.48	
	Northbound	Left	43.7	D	43.7	D			0.10	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	45.3	D	45.3	D			0.26	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	

Exhibit 32: AM Peak Future Year 2025 MOEs (Bikes/Peds) [1/1]

SCENARIO/ANALYSIS YEAR		Road Diet/Future Year 2025				
PEAK HOUR		AM Peak (08:00 AM to 09:00 AM)				
(HCM 6th Edition)	Bike Performance Measures			Pedestrian Performance Measures		
Intersection	Approach	Score	LOS	Crosswalk	Score	LOS
Atlantic Ave @ Coolidge Ave	Eastbound	1.82	B	Southbound	2.16	B
	Westbound	1.72	B	Northbound	2.16	B
	Northbound	1.46	A	Eastbound	1.75	B
	Southbound	1.46	A	Westbound	1.75	B
Atlantic Ave @ Washington Ave	Eastbound	1.88	B	Southbound	2.22	B
	Westbound	1.94	B	Northbound	2.22	B
	Northbound	1.46	A	Eastbound	1.83	B
	Southbound	1.50	A	Westbound	1.81	B
Atlantic Ave @ Cedar Grove Ave	Eastbound	1.93	B	Southbound	2.23	B
	Westbound	1.95	B	Northbound	2.22	B
	Northbound	1.46	A	Eastbound	1.76	B
	Southbound	1.46	A	Westbound	1.76	B
Atlantic Ave @ Mansfield Ave	Eastbound	1.82	B	Southbound	2.19	B
	Westbound	1.79	B	Northbound	2.19	B
	Northbound	1.45	A	Eastbound	1.76	B
	Southbound	N/A	N/A	Westbound	1.47	A
Atlantic Ave @ Huntington Ave	Eastbound	1.86	B	Southbound	2.20	B
	Westbound	1.81	B	Northbound	2.21	B
	Northbound	1.46	A	Eastbound	1.77	B
	Southbound	N/A	N/A	Westbound	1.48	A
Atlantic Ave @ Essex Ave	Eastbound	2.07	B	Southbound	2.24	B
	Westbound	1.93	B	Northbound	2.12	B
	Southbound	1.53	B	Westbound	1.84	B
Atlantic Ave @ Douglass Ave	Eastbound	1.89	B	Southbound	2.22	B
	Westbound	1.88	B	Northbound	2.23	B
	Northbound	1.46	A	Eastbound	1.77	B
	Southbound	N/A	N/A	Westbound	1.49	A
Atlantic Ave @ Frederickburg Ave	Eastbound	1.91	B	Southbound	2.25	B
	Westbound	2.08	B	Northbound	2.25	B
	Northbound	1.47	A	Eastbound	1.76	B
	Southbound	1.48	A	Westbound	1.76	B

Exhibit 33: PM Peak Future Year 2025 MOEs (Bikes/Peds) [1/1]

SCENARIO/ANALYSIS YEAR		Road Diet/Future Year 2025				
PEAK HOUR		PM Peak (05:00 PM to 06:00 PM)				
HCM 6th Edition	Bike Performance Measures			Pedestrian Performance Measures		
Intersection	Approach	Score	LOS	Crosswalk	Score	LOS
Atlantic Ave @ Coolidge Ave	Eastbound	1.82	B	Southbound	2.20	B
	Westbound	1.89	B	Northbound	2.20	B
	Northbound	1.46	A	Eastbound	1.76	B
	Southbound	1.48	A	Westbound	1.76	B
Atlantic Ave @ Washington Ave	Eastbound	1.97	B	Southbound	2.27	B
	Westbound	2.09	B	Northbound	2.26	B
	Northbound	1.48	A	Eastbound	1.85	B
	Southbound	1.50	A	Westbound	1.82	B
Atlantic Ave @ Cedar Grove Ave	Eastbound	2.00	B	Southbound	2.28	B
	Westbound	2.10	B	Northbound	2.28	B
	Northbound	1.47	A	Eastbound	1.78	B
	Southbound	1.48	A	Westbound	1.78	B
Atlantic Ave @ Mansfield Ave	Eastbound	1.95	B	Southbound	2.23	B
	Westbound	1.84	B	Northbound	2.23	B
	Northbound	1.45	A	Eastbound	1.76	B
	Southbound	N/A	N/A	Westbound	1.47	A
Atlantic Ave @ Huntington Ave	Eastbound	1.97	B	Southbound	2.23	B
	Westbound	1.87	B	Northbound	2.24	B
	Northbound	1.46	A	Eastbound	1.77	B
	Southbound	N/A	N/A	Westbound	1.48	A
Atlantic Ave @ Essex Ave	Eastbound	2.47	B	Southbound	2.36	B
	Westbound	2.00	B	Northbound	2.26	B
	Southbound	1.58	B	Westbound	1.96	B
Atlantic Ave @ Douglass Ave	Eastbound	2.12	B	Southbound	2.27	B
	Westbound	1.92	B	Northbound	2.28	B
	Northbound	1.45	A	Eastbound	1.81	B
	Southbound	N/A	N/A	Westbound	1.51	B
Atlantic Ave @ Fredericksburg Ave	Eastbound	2.06	B	Southbound	2.29	B
	Westbound	2.09	B	Northbound	2.28	B
	Northbound	1.46	A	Eastbound	1.76	B
	Southbound	1.46	A	Westbound	1.76	B

Exhibit 34: SAT Peak Future Year 2025 MOEs (Bikes/Peds) [1/1]

SCENARIO/ANALYSIS		Road Diet/Future Year 2025				
PEAK HOUR		SAT Peak (12:00 PM to 01:00 PM)				
HCM 6th Edition	Bike Performance Measures			Pedestrian Performance Measures		
Intersection	Approach	Score	LOS	Crosswalk	Score	LOS
Atlantic Ave @ Coolidge Ave	Eastbound	2.27	B	Southbound	2.37	B
	Westbound	2.27	B	Northbound	2.37	B
	Northbound	1.46	A	Eastbound	1.77	B
	Southbound	1.52	B	Westbound	1.80	B
Atlantic Ave @ Washington Ave	Eastbound	2.33	B	Southbound	2.40	B
	Westbound	2.40	B	Northbound	2.40	B
	Northbound	1.47	A	Eastbound	1.85	B
	Southbound	1.70	B	Westbound	1.86	B
Atlantic Ave @ Cedar Grove Ave	Eastbound	2.43	B	Southbound	2.45	B
	Westbound	2.47	B	Northbound	2.44	B
	Northbound	1.48	A	Eastbound	1.79	B
	Southbound	1.53	B	Westbound	1.81	B
Atlantic Ave @ Mansfield Ave	Eastbound	2.12	B	Southbound	2.34	B
	Westbound	2.18	B	Northbound	2.35	B
	Northbound	1.47	A	Eastbound	1.78	B
	Southbound	N/A	N/A	Westbound	1.50	A
Atlantic Ave @ Huntington Ave	Eastbound	2.28	B	Southbound	2.32	B
	Westbound	2.14	B	Northbound	2.34	B
	Northbound	1.68	B	Eastbound	1.78	B
	Southbound	N/A	N/A	Westbound	1.51	B
Atlantic Ave @ Essex Ave	Eastbound	2.24	B	Southbound	2.39	B
	Westbound	2.12	B	Northbound	2.30	B
	Southbound	1.45	A	Westbound	2.00	B
Atlantic Ave @ Douglass Ave	Eastbound	1.72	B	Southbound	2.34	B
	Westbound	1.58	B	Northbound	2.34	B
	Northbound	1.62	B	Eastbound	1.82	B
	Southbound	N/A	N/A	Westbound	1.53	B
Atlantic Ave @ Fredericksburg Ave	Eastbound	2.11	B	Southbound	2.34	B
	Westbound	2.27	B	Northbound	2.34	B
	Northbound	1.46	A	Eastbound	1.78	B
	Southbound	1.49	A	Westbound	1.78	B

The summary exhibits show that the intersections generally operate acceptable LOS [LOS D or better, and/or a v/c ratio of 0.85 or less], during all peak hours for vehicles, pedestrians, and bicyclists for the Future Year 2025 with a Road Diet. No areas of recurring congestions were identified in the analysis.

6.1.2 Future Years 2045 Analysis Results

Similarly, to the Future Year 2025 results, the Future Year 2045 results used the same methodology for analysis and are summarized in the below summary tables for Future Year 2045 operations (**Exhibits 35 to 43**).

These summary tables are also included in **Appendix E** and are followed by the detailed output reports from the analysis software.

Exhibit 35: AM Peak Future Year 2045 MOEs (Vehicles) [1/2]

SCENARIO/ANALYSIS YEAR			Road Diet/Future Year 2045							
PEAK HOUR			AM Peak (08:00 AM to 09:00 AM)							
HCM 6th Edition n			Vehicular Performance Measures						Volume to Capacity Ratio	
			DELAY (seconds) & LOS (Letter Grade)				Volume to Capacity Ratio			
Intersection	Approach	Lane Configuration	By Lane Configuration		By Approach		By Overall Intersection	By Lane Configuration	Max	
Atlantic Ave @ Coolidge Ave	Eastbound	Left	1.8	A	2.9	A	4.6	A	0.01	0.34
		Thru	0.0	A					0.00	
		Right	2.9	A					0.31	
	Westbound	Left	0.3	A	0.5	A			0.01	
		Thru	0.0	A					0.00	
		Right	0.5	A					0.27	
	Northbound	Left	43.7	D	43.7	D			0.13	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	48.6	D	48.6	D			0.34	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Washington Ave	Eastbound	Left	0.1	A	1.0	A	4.3	A	0.05	0.48
		Thru	0.0	A					0.00	
		Right	1.1	A					0.40	
	Westbound	Left	0.0	A	1.0	A			0.01	
		Thru	0.0	A					0.00	
		Right	1.0	A					0.39	
	Northbound	Left	36.7	D	36.7	D			0.08	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	45.8	D	45.8	D			0.48	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Cedar Grove Ave	Eastbound	Left	0.6	A	1.1	A	43.8	D	0.03	0.42
		Thru	0.0	A					0.00	
		Right	1.1	A					0.42	
	Westbound	Left	1.8	A	3.1	A			0.01	
		Thru	0.0	A					0.00	
		Right	3.1	A					0.35	
	Northbound	Left	44.4	D	44.4	D			0.19	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	43.8	D	43.8	D			0.16	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Mansfield Ave	Eastbound	Left	2.0	A	0.8	A	7.2	A	0.01	0.63
		Thru	0.0	A					0.00	
		Right	0.8	A					0.33	
	Westbound	Left	5.9	A	10.2	B			0.03	
		Thru	0.0	A					0.00	
		Right	10.2	B					0.35	
	Northbound	Left	59.5	E	59.5	E			0.63	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	

Exhibit 36: AM Peak Future Year 2045 MOEs (Vehicles) [2/2]

SCENARIO/ANALYSIS YEAR			Road Diet/Future Year 2045							
PEAK HOUR			AM Peak (08:00 AM to 09:00 AM)							
HCM 6th Edition			Vehicular Performance Measures							
			DELAY (seconds) & LOS (Letter Grade)					Volume to Capacity Ratio		
Intersection	Approach	Lane Config.	By Lane Config.		By Approach		By Overall Intersection		By Lane Config.	Max
Atlantic Ave @ Huntington Ave	Eastbound	Left	0.0	A	0.8	A	2.3	A	0.02	0.63
		Thru	0.0	A					0.00	
		Right	0.8	A					0.36	
	Westbound	Left	0.0	A	0.8	A			0.01	
		Thru	0.0	A					0.00	
		Right	0.9	A					0.38	
	Northbound	Left	59.5	E	59.5	E			0.63	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Essex Ave	Eastbound	Left	0.1	A	0.8	A	4.2	A	0.05	0.50
		Thru	0.9	A					0.37	
	Westbound	Thru	0.0	A	0.8	A			0.00	
		Right	0.8	A					0.37	
	Southbound	Left	45.2	D	45.2	D			0.50	
		Right	0.0	A					0.00	
Atlantic Ave @ Douglass Ave	Eastbound	Left	0.0	A	0.8	A	2.3	A	0.02	0.63
		Thru	0.0	A					0.00	
		Right	0.8	A					0.37	
	Westbound	Left	0.0	A	1.0	A			0.01	
		Thru	0.0	A					0.00	
		Right	1.0	A					0.41	
	Northbound	Left	59.5	E	59.5	E			0.63	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Fredericksburg Ave	Eastbound	Left	0.6	A	0.9	A	4.8	A	0.01	0.41
		Thru	0.0	A					0.00	
		Right	0.9	A					0.38	
	Westbound	Left	1.7	A	3.5	A			0.01	
		Thru	0.0	A					0.00	
		Right	3.5	A					0.41	
	Northbound	Left	43.9	D	43.9	D			0.21	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	43.4	D	43.4	D			0.20	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	

Exhibit 37: PM Peak Future Year 2045 MOEs (Vehicles) [1/2]

SCENARIO/ANALYSIS YEAR			Road Diet/Future Year 2045							
PEAK HOUR			PM Peak (05:00 PM to 06:00 PM)							
HCM 6th Edition			Vehicular Performance Measures							
			DELAY (seconds) & LOS (Letter Grade)					Volume to Capacity Ratio		
Intersection	Approach	Lane Configuration	By Lane Configuration		By Approach		By Overall Intersection		By Lane Configuration	Max
Atlantic Ave @ Coolidge Ave	Eastbound	Left	3.2	A	2.8	A	5.9	A	0.01	0.42
		Thru	0.0	A					0.00	
		Right	2.7	A					0.30	
	Westbound	Left	2.9	A	2.9	A			0.01	
		Thru	0.0	A					0.00	
		Right	2.9	A					0.35	
	Northbound	Left	42.8	D	42.8	D			0.25	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	46.9	D	46.9	D			0.42	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Washington Ave	Eastbound	Left	0.1	A	0.6	A	3.9	A	0.04	0.44
		Thru	0.0	A					0.00	
		Right	0.7	A					0.39	
	Westbound	Left	0.0	A	1.0	A			0.01	
		Thru	0.0	A					0.00	
		Right	1.0	A					0.44	
	Northbound	Left	38.7	D	38.7	D			0.26	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	43.5	D	43.5	D			0.44	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Cedar Grove Ave	Eastbound	Left	0.0	A	0.8	A	3.4	A	0.02	0.40
		Thru	0.0	A					0.00	
		Right	0.9	A					0.40	
	Westbound	Left	0.0	A	0.8	A			0.02	
		Thru	0.0	A					0.00	
		Right	0.9	A					0.40	
	Northbound	Left	41.6	D	41.6	D			0.24	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	41.0	D	41.0	D			0.23	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Mansfield Ave	Eastbound	Left	0.0	A	0.6	A	1.4	A	0.01	0.45
		Thru	0.0	A					0.00	
		Right	0.6	A					0.28	
	Westbound	Left	0.0	A	0.6	A			0.01	
		Thru	0.0	A					0.00	
		Right	0.6	A					0.30	
	Northbound	Left	45.4	D	45.4	D			0.45	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	

Exhibit 38: PM Peak Future Year 2045 MOEs (Vehicles) [2/2]

SCENARIO/ANALYSIS YEAR			Road Diet/Future Year 2045							
PEAK HOUR			PM Peak (05:00 PM to 06:00 PM)							
HCM 6th Edition			Vehicular Performance Measures						Volume to Capacity Ratio	
			DELAY (seconds) & LOS (Letter Grade)							
Intersection	Approach	Lane Configuration	By Lane Configuration		By Approach		By Overall Intersection		By Lane Configuration	Max
Atlantic Ave @ Huntington Ave	Eastbound	Left	0.1	A	0.7	A	1.6	A	0.02	0.35
		Thru	0.0	A					0.00	
		Right	0.7	A					0.31	
	Westbound	Left	0.0	A	0.7	A			0.01	
		Thru	0.0	A					0.00	
		Right	0.7	A					0.35	
	Northbound	Left	39.0	D	39.0	D			0.13	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Essex Ave	Eastbound	Left	0.3	A	0.9	A	4.4	A	0.11	0.65
		Thru	1.0	A					0.42	
	Westbound	Thru	0.0	A	0.7	A			0.00	
		Right	0.7	A					0.35	
	Southbound	Left	44.1	D	44.1	D			0.65	
		Right	0.0	A					0.00	
Atlantic Ave @ Douglass Ave	Eastbound	Left	0.2	A	0.8	A	1.6	A	0.05	0.35
		Thru	0.0	A					0.00	
		Right	0.9	A					0.33	
	Westbound	Left	0.1	A	0.8	A			0.01	
		Thru	0.0	A					0.00	
		Right	0.9	A					0.35	
	Northbound	Left	38.9	D	38.9	D			0.26	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Fredericksburg Ave	Eastbound	Left	0.4	A	0.8	A	3.7	A	0.01	0.36
		Thru	0.0	A					0.00	
		Right	0.8	A					0.34	
	Westbound	Left	1.6	A	3.1	A			0.01	
		Thru	0.0	A					0.00	
		Right	3.1	A					0.36	
	Northbound	Left	44.6	D	44.6	D			0.23	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	45.9	D	45.9	D			0.30	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	

Exhibit 39: SAT Peak Future Year 2045 MOEs (Vehicles) [1/2]

SCENARIO/ANALYSIS YEAR			Road Diet/Future Year 2045							
PEAK HOUR			SAT Peak (12:00 PM to 01:00 PM)							
HCM 6th Edition			Vehicular Performance Measures							
			DELAY (seconds) & LOS (Letter Grade)					Volume to Capacity Ratio		
Intersection	Approach	Lane Configuration	By Lane Configuration		By Approach		By Overall Intersection		By Lane Configuration	Max
Atlantic Ave @ Coolidge Ave	Eastbound	Left	2.1	A	8.5	A	8.1	A	0.03	0.71
		Thru	0.0	A					0.00	
		Right	8.6	A					0.71	
	Westbound	Left	4.4	A	2.5	A			0.02	
		Thru	0.0	A					0.00	
		Right	2.4	A					0.68	
	Northbound	Left	47.9	D	47.9	D			0.21	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	49.1	D	49.1	D			0.37	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Washington Ave	Eastbound	Left	0.2	A	3.3	A	6.9	A	0.10	0.76
		Thru	0.0	A					0.00	
		Right	3.5	A					0.74	
	Westbound	Left	0.0	A	3.9	A			0.02	
		Thru	0.0	A					0.00	
		Right	3.9	A					0.76	
	Northbound	Left	39.6	D	39.6	D			0.13	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	63.0	E	63.0	E			0.67	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Cedar Grove Ave	Eastbound	Left	0.1	A	2.9	A	5.8	A	0.03	0.74
		Thru	0.0	A					0.00	
		Right	3.0	A					0.74	
	Westbound	Left	0.1	A	2.9	A			0.03	
		Thru	0.0	A					0.00	
		Right	3.0	A					0.69	
	Northbound	Left	47.9	D	47.9	D			0.24	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	48.9	D	48.9	D			0.37	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Mansfield Ave	Eastbound	Left	0.0	A	1.0	A	2.2	A	0.02	0.57
		Thru	0.0	A					0.00	
		Right	1.0	A					0.53	
	Westbound	Left	0.0	A	1.5	A			0.01	
		Thru	0.0	A					0.00	
		Right	1.5	A					0.57	
	Northbound	Left	52.4	D	52.4	D			0.31	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	

Exhibit 40: SAT Peak Future Year 2045 MOEs (Vehicles) [2/2]

SCENARIO/ANALYSIS YEAR			Road Diet/Future Year 2045							
PEAK HOUR			SAT Peak (12:00 PM to 01:00 PM)							
HCM 6th Edition			Vehicular Performance Measures							
			DELAY (seconds) & LOS (Letter Grade)						Volume to Capacity Ratio	
Intersection	Approach	Lane Config.	By:						By:	
			Lane Config.	Approach		Overall Int.		Lane Config.	Max	
Atlantic Ave @ Huntington Ave	Eastbound	Left	0.2	A	1.8	A	3.0	A	0.02	0.63
		Thru	0.0	A					0.00	
		Right	1.9	A					0.56	
	Westbound	Left	0.1	A	2.3	A			0.03	
		Thru	0.0	A					0.00	
		Right	2.3	A					0.63	
	Northbound	Left	41.3	D	41.3	D			0.26	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Essex Ave	Eastbound	Left	0.3	A	1.1	A	8.0	A	0.10	0.85
		Thru	1.2	A					0.47	
	Westbound	Thru	0.0	A	1.2	A			0.00	
		Right	1.2	A					0.47	
	Southbound	Left	57.1	E	57.1	E			0.85	
		Right	0.0	A					0.00	
Atlantic Ave @ Douglass Ave	Eastbound	Left	0.1	A	0.9	A	1.9	A	0.06	0.48
		Thru	0.0	A					0.00	
		Right	0.9	A					0.47	
	Westbound	Left	0.0	A	1.0	A			0.01	
		Thru	0.0	A					0.00	
		Right	1.0	A					0.47	
	Northbound	Left	58.3	E	58.3	E			0.48	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
Atlantic Ave @ Fredericksburg Ave	Eastbound	Left	1.0	A	1.1	A	5.1	A	0.02	0.49
		Thru	0.0	A					0.00	
		Right	1.2	A					0.48	
	Westbound	Left	1.7	A	4.0	A			0.01	
		Thru	0.0	A					0.00	
		Right	4.1	A					0.49	
	Northbound	Left	47.5	D	47.5	D			0.14	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	
	Southbound	Left	49.5	D	49.5	D			0.32	
		Thru	0.0	A					0.00	
		Right	0.0	A					0.00	

Exhibit 41: AM Peak Future Year 2045 MOEs (Bikes/Peds) [1/1]

SCENARIO/ANALYSIS YEAR		Road Diet/Future Year 2045				
PEAK HOUR		AM Peak (08:00 AM to 09:00 AM)				
HCM 6th Edition	Bike Performance Measures			Pedestrian Performance Measures		
Intersection	Approach	Score	LOS	Crosswalk	Score	LOS
Atlantic Ave @ Coolidge Ave	Eastbound	1.93	B	Southbound	2.20	B
	Westbound	1.80	B	Northbound	2.20	B
	Northbound	1.46	A	Eastbound	1.76	B
	Southbound	1.47	A	Westbound	1.76	B
Atlantic Ave @ Washington Ave	Eastbound	2.34	B	Westbound	2.42	B
	Westbound	1.98	B	Northbound	2.25	B
	Northbound	1.46	A	Eastbound	1.85	B
	Southbound	1.51	B	Westbound	1.82	B
Atlantic Ave @ Cedar Grove Ave	Eastbound	2.05	B	Southbound	2.27	B
	Westbound	1.99	B	Northbound	2.26	B
	Northbound	1.46	A	Eastbound	1.77	B
	Southbound	1.47	A	Westbound	1.77	B
Atlantic Ave @ Mansfield	Eastbound	1.93	B	Southbound	2.22	B
	Westbound	1.83	B	Northbound	2.23	B
	Northbound	1.46	A	Eastbound	1.77	B
	Southbound	N/A	N/A	Westbound	1.49	A
Atlantic Ave @ Huntingon Ave	Eastbound	1.98	B	Southbound	2.23	B
	Westbound	1.85	B	Northbound	2.24	B
	Northbound	1.46	A	Eastbound	1.78	B
	Southbound	N/A	N/A	Westbound	1.49	A
Atlantic Ave @ Essex Ave	Eastbound	2.19	B	Southbound	2.24	B
	Westbound	1.97	B	Northbound	2.18	B
	Southbound	1.54	B	Westbound	1.88	B
Atlantic Ave @ Douglass Ave	Eastbound	2.01	B	Southbound	2.25	B
	Westbound	1.92	B	Northbound	2.27	B
	Northbound	1.46	A	Eastbound	1.78	B
	Southbound	N/A	N/A	Westbound	1.50	A
Atlantic Ave @ Fredericksburg Ave	Eastbound	2.04	B	Southbound	2.29	B
	Westbound	2.12	B	Northbound	2.29	B
	Northbound	1.47	A	Eastbound	1.77	B
	Southbound	1.48	A	Westbound	1.77	B

Exhibit 42: PM Peak Future Year 2045 MOEs (Bikes/Peds) [1/1]

SCENARIO/ANALYSIS YEAR	Road Diet/Future Year 2045					
PEAK HOUR	PM Peak (05:00 PM to 06:00 PM)					
HCM 6th Edition	Bike Performance Measures			Pedestrian Performance		
Intersection	Approach	Score	LOS	Crosswalk	Score	LOS
Atlantic Ave @ Coolidge Ave	Eastbound	1.92	B	Southbound	2.25	B
	Westbound	2.01	B	Northbound	2.25	B
	Northbound	1.47	A	Eastbound	1.77	B
	Southbound	1.48	A	Westbound	1.77	B
Atlantic Ave @ Washington Ave	Eastbound	2.10	B	Southbound	2.31	B
	Westbound	2.13	B	Northbound	2.30	B
	Northbound	1.48	A	Eastbound	1.87	B
	Southbound	1.51	B	Westbound	1.83	B
Atlantic Ave @ Cedar Grove Ave	Eastbound	2.14	B	Southbound	2.32	B
	Westbound	2.15	B	Northbound	2.32	B
	Northbound	1.47	A	Eastbound	1.79	B
	Southbound	1.49	A	Westbound	1.79	B
Atlantic Ave @ Mansfield Ave	Eastbound	1.92	B	Southbound	2.22	B
	Westbound	1.81	B	Northbound	2.22	B
	Northbound	1.44	A	Eastbound	1.76	B
	Southbound	N/A	N/A	Westbound	1.47	A
Atlantic Ave @ Huntingon Ave	Eastbound	2.11	B	Southbound	2.27	B
	Westbound	1.91	B	Northbound	2.28	B
	Northbound	1.46	A	Eastbound	1.78	B
	Southbound	N/A	N/A	Westbound	1.49	A
Atlantic Ave @ Essex Ave	Eastbound	2.47	B	Southbound	2.37	B
	Westbound	2.00	B	Northbound	2.27	B
	Southbound	1.58	B	Westbound	1.98	B
Atlantic Ave @ Douglass Ave	Eastbound	2.29	B	Southbound	2.32	B
	Westbound	1.97	B	Northbound	2.32	B
	Northbound	1.46	A	Eastbound	1.83	B
	Southbound	N/A	N/A	Westbound	1.53	B
Atlantic Ave @ Fredericksburg Ave	Eastbound	2.21	B	Southbound	2.33	B
	Westbound	2.13	B	Northbound	2.32	B
	Northbound	1.46	A	Eastbound	1.77	B
	Southbound	1.47	A	Westbound	1.76	B

Exhibit 43: SAT Peak Future Year 2045 MOEs (Bikes/Peds) [1/1]

SCENARIO / ANALYSIS YEAR	Road Diet/Future Year 2045					
PEAK HOUR	SAT Peak (12:00 PM to 01:00 PM)					
HCM 6th Edition	Bike Performance Measures			Pedestrian Performance Measures		
Intersection	Approach	Score	LOS	Crosswalk	Score	LOS
Atlantic Ave @ Coolidge Ave	Eastbound	2.46	B	Southbound	2.47	B
	Westbound	2.46	B	Northbound	2.46	B
	Northbound	1.47	A	Eastbound	1.81	B
	Southbound	1.54	B	Westbound	1.81	B
Atlantic Ave @ Washington Ave	Eastbound	2.54	C	Southbound	2.46	B
	Westbound	2.46	B	Northbound	2.46	B
	Northbound	1.48	A	Eastbound	1.90	B
	Southbound	1.54	B	Westbound	1.87	B
Atlantic Ave @ Cedar Grove Ave	Eastbound	2.53	C	Southbound	2.53	C
	Westbound	2.51	C	Northbound	2.51	C
	Northbound	1.82	B	Eastbound	1.82	B
	Southbound	1.83	B	Westbound	1.83	B
Atlantic Ave @ Mansfield Ave	Eastbound	2.30	B	Southbound	2.38	B
	Westbound	2.26	B	Northbound	2.39	B
	Northbound	1.46	A	Eastbound	1.79	B
	Southbound	N/A	N/A	Westbound	1.51	B
Atlantic Ave @ Huntingon Ave	Eastbound	2.28	B	Southbound	2.36	B
	Westbound	2.23	B	Northbound	2.39	B
	Northbound	1.47	A	Eastbound	1.79	B
	Southbound	N/A	N/A	Westbound	1.52	B
Atlantic Ave @ Essex Ave	Eastbound	2.44	B	Southbound	2.44	B
	Westbound	2.18	B	Northbound	2.36	B
	Southbound	1.69	B	Westbound	2.03	B
Atlantic Ave @ Douglass Ave	Eastbound	2.43	B	Southbound	2.39	B
	Westbound	2.18	B	Northbound	2.39	B
	Northbound	1.46	A	Eastbound	1.84	B
	Southbound	N/A	N/A	Westbound	1.54	B
Atlantic Ave @ Fredericksburg Ave	Eastbound	2.27	B	Southbound	2.38	B
	Westbound	2.32	B	Northbound	2.39	B
	Northbound	1.47	A	Eastbound	1.78	B
	Southbound	1.50	A	Westbound	1.79	B

The summary exhibits show that the intersections generally operate acceptable LOS [LOS D or better, and/or a v/c ratio of 0.85 or less], during all peak hours for vehicles, pedestrians, and bicyclists for the Future Year 2045 with a Road Diet. No areas of recurring congestions were identified in the analysis. However, there are a few movements where the operation has degraded to a LOS E. These movement will experience longer delays and vehicle queues but should operate acceptably.

7.0 CONCLUSIONS & RECOMMENDATIONS

7.1 CONCLUSIONS

The traffic analysis completed for both the Future Year 2025 and Future Year 2045 show the Road Diet will work for all users of the corridor and intersections. No significant degradation in operations is expected for vehicles, while the corridor will be more pedestrian and bike friendly.

Some of the community benefits include:

- **ENHANCED SAFETY** - Road diets lead to greater safety by slowing down through movement and redistributing space. These safety outcomes have a direct impact on people on foot and bicycles, patrons of a sidewalk business, and those behind the wheel. When redesigning a street, it is vital to prioritize designs that enable safe mobility for particularly vulnerable users, such as children and elderly pedestrians.
- **MULTIMODALITY** - Not all transportation modes are created equal. Each has its own advantages in terms of safety, cost, efficiency, speed, and inclusivity. Safety accommodations for people on bicycles and on foot require a significantly less amount of space than single occupancy vehicles. By freeing up space and balancing the needs of different types of users, road diets create the opportunity for truly multimodal streets.
- **INCREASED PEDESTRIAN ACCESSIBILITY** - One prominent benefit of a road diet is expanding the increased walkability of the corridor, directly impacting the current and future businesses that front on to them. Sidewalk businesses—like cafe's, that contribute spillover activity to other business and spaces – contribute to an areas' economic vitality, walkability, perceived safety, and overall appeal.
- **LOCAL ECONOMY BOOST** - Pedestrians and cyclists spend more money on local businesses than motorists. An unsurprising revelation from several research studies supports the case for better infrastructure to improve the experience of these users, which in turn improves the local economy.

7.2 RECOMMENDATIONS

- RVE recommends the City of Margate moves forward with a Road Diet concept that reduces Atlantic Avenue from a four to three-lane vehicular option.
- Two Road Diet Alternatives were evaluated for this report as a uniform operation along the Atlantic Avenue corridor and at each intersection. This included protected bike lanes versus non-protected bike lanes. Based on analysis of the corridor RVE recommends implementing the cross-section listed in Road Diet Option 1 (**Exhibit 3**). Plans showing the typical pavement marking scheme are included in **Appendix F**. Please note, the typical plans shown in the appendix slightly vary with the typical sections of the options presented in this report.
- However, variations at some intersections should be considered. For example, at the intersection of Atlantic Avenue at Washington Avenue, there is a high volume of westbound

right-turners, and an exclusive right turn lane would be beneficial, while other signalized locations include higher left turn movements and would warrant exclusive left turn lanes.

- Other ideas for enhanced safety include, evaluation of right turns on red, restricting parking near intersections, and adding pedestrian bulb-outs to reduce the crossing width of the crosswalk for pedestrians. Please note, the pedestrian bulb-outs may have to be initially completed with gore stripping, as additional drainage structures and pipes will likely conflict with the existing signal conduits and foundations.
- Future upgrades to the existing traffic signals from the current fixed pre-timed operation to an actuated and coordinated system would also provide an added level of efficiency to the corridor operation. It is recommended that the City include this signal technology upgrade for future consideration.