



# Traffic Alternatives Summary Report

**TO:** Dale Foster, Cape May County  
**FROM:** Joe Fishinger & Mike Dannemiller  
**DATE:** 08/17/2016  
**SUBJECT:** Pacific Avenue, Wildwood Crest – Traffic Analysis  
RBA Project # 728616-0000063.00

## Introduction

Cape May County, in cooperation with Wildwood Crest Borough has initiated a study to determine if the Pacific Avenue Corridor, between East Cresse Avenue and Farragut Road, could better serve the community with an alternative cross section. To help achieve this goal, The RBA Group has been retained to perform an analysis of existing traffic conditions along the corridor and analyze various alternative roadway configurations to determine if an alternative configuration could better accommodate bicycle and pedestrian travel without having a detrimental impact on traffic operations. **Figure 1**, attached, illustrates the study area.

## Existing Conditions

Pacific Avenue, between East Cresse Avenue and Farragut Road generally consists of two travel lanes in each direction with on street parking on both sides. The posted speed limit along the roadway is 25 miles per hour. South of East Rambler Road, Pacific Avenue is designated County Route 621 and is under the jurisdiction of Cape May County. North of East Rambler Road, Pacific Ave is under the jurisdiction of Wildwood Crest Borough. The corridor is part of a grid based roadway system, with cross streets at approximately 250 foot intervals. Many of the cross streets operate in alternating one way pairs. There are three traffic signals within the corridor, at East Heather Road and East Cardinal Road in the northern portion of the study area, and at East Rambler Road in the southern portion of the study area.



*Pacific Avenue Looking South*  
Photo: The RBA Group

### Data Collection

To establish existing traffic patterns along the corridor, digital video cameras were installed at each of the three signalized intersections along the corridor to record on Saturday, July 23<sup>rd</sup> and Saturday, July 30<sup>th</sup>. Since July 23<sup>rd</sup> had better weather conditions, the 23<sup>rd</sup> was chosen for analysis. The video was processed for Saturday, July 23<sup>rd</sup> from 10 AM to 6 PM. Based on the data collected, the peak hours for the corridor occur from 10:00 AM to 11:00 AM and from 5:00 PM to 6:00 PM. The resulting peak hour traffic volumes are illustrated in **Figure 2**, attached.



Video Screenshot at Pacific & Rambler  
Photo: The RBA Group

### Existing Levels of Service

Using Synchro, version 9.1, the three traffic signals within the study area were analyzed consistent with the *Highway Capacity Manual, 2010 Edition*, published by the Transportation Research Board, to determine average vehicle delays and levels of service. With this analysis, Level of Service (LOS) is expressed on a scale ranging from “A” to “F”, with “A” being best and “F” being worst. Level of Service is determined by the average delay per motor vehicle for a specific approach or lane group during the peak hour. For signalized intersections, LOS F refers to an average delay in excess of 80 seconds.



Synchro Screen Shot showing East Cardinal and East Heather Roads

For urbanized areas in peak hours, Level of Service D is generally considered the appropriate design standard, whereas Level of Service C or better is considered indicative of good operations. For left turn lanes and side streets, Level of Service E is generally considered adequate in peak hours, as the motorists making these movements have to do it once before joining a traffic stream on the roadway. **Table 1** on the following page indicates the existing peak hour levels of service for the mid-day and evening peak hours.

**Table 1 – 2016 Existing Peak Hour Levels of Service**

Pacific Ave & East Rambler Rd		
	2016 Existing Saturday Mid-Day	2016 Existing Saturday Evening
Eastbound	C(24)	C(24)
Westbound	C(22)	C(24)
Northbound	A(9)	A(9)
Southbound	A(8)	A(8)
Overall	B(13)	B(14)
Pacific Ave & East Cardinal Rd		
	2016 Existing Saturday Mid-Day	2016 Existing Saturday Evening
Eastbound	C(24)	C(24)
Westbound	C(23)	C(23)
Northbound	A(7)	A(7)
Southbound	A(6)	A(6)
Overall	A(10)	A(10)
Pacific Ave & East Heather Rd		
	2016 Existing Saturday Mid-Day	2016 Existing Saturday Evening
Eastbound	C(20)	B(19)
Westbound	B(19)	B(20)
Northbound	A(7)	A(7)
Southbound	A(7)	A(7)
Overall	A(10)	A(10)

LOS(XX) = Level of Service (Average Delay in Seconds)

As **Table 1** indicates, all movements operate at a Level of Service C or better under existing conditions.

### Crash History

To establish a baseline for the number of crashes which occur on the corridor, the Plan4Safety crash database was consulted. Based on the query to the Plan4Safety database, 27 crashes occurred on Pacific Avenue during the five year period from 2011 to 2015. **Table 2** below indicates the number of crashes reported by crash type.

**Table 2 – Pacific Avenue Crashes by Type, 2011-2015**

Crash Type	Number of Crashes
Backing	1
Opposite Direction – Side Swipe	1
Struck Parked Vehicle	2
Same Direction – Rear End	2
Pedestrian	2
Same Direction – Side Swipe	4
Pedalcyclist*	7
Right Angle*	8
<b>Total</b>	<b>27</b>

\*Most Frequent Crash Types

While **Table 2** above does not indicate an exhaustive crash search, it does indicate that the top two crash types along the corridor are bicyclist and right angle crashes. The addition of bicycle lanes typically improves pedalcyclist crash rates.

### Proposed Alternatives

Pacific Avenue currently has four lanes (two lanes in each direction) with on street parking on each side. Bicycles currently either ride on the sidewalk or share the travel lanes. Two alternative lane configurations were considered which would reduce the number travel lanes for motor vehicles and provide additional space for shoulders or bike lanes.

#### 2 Lane Cross Section

In the two lane cross section scenario, the number of lanes on Pacific Avenue was modeled as a single lane in each direction to accommodate all movements. The area reclaimed could be utilized as a bike lane, buffer area, and/or shoulder.

#### 3 Lane Cross Section

In the three lane cross section scenario, a single through lane in each direction was modeled on Pacific Avenue plus a dedicated left turn lane on the northbound and southbound approaches to each signalized intersection. While the model was prepared with a two way center left turn lane between signalized intersections, individual turn lanes at un-signalized intersections could also be employed with similar results.

### Current Year Levels of Service

The two lane and three lane scenarios were analyzed similar to existing conditions to identify the impacts on traffic operations with the change in cross section to Pacific Avenue. **Table 3** on the following page indicates the resulting levels of service under each scenario.

**Table 3 – Level of Service Comparison – Existing vs Alternatives**

Pacific Ave & East Rambler Rd						
	2016 Existing Saturday Mid-Day	2 Lane Scenario Saturday Mid-Day	3 Lane Scenario Saturday Mid-Day	2016 Existing Saturday Evening	2 Lane Scenario Saturday Evening	3 Lane Scenario Saturday Evening
Eastbound	C(24)	C(24)	C(224)	C(24)	C(24)	C(24)
Westbound	C(22)	C(23)	C(23)	C(24)	C(24)	C(24)
Northbound	A(9)	B(10)	A(9)	A(9)	B(11)	B(10)
Southbound	A(8)	A(9)	A(1)	A(8)	A(1)	A(1)
Overall	B(13)	B(14)	B(12)	B(14)	B(13)	B(13)
Pacific Ave & East Cardinal Rd						
	2016 Existing Saturday Mid-Day	2 Lane Scenario Saturday Mid-Day	3 Lane Scenario Saturday Mid-Day	2016 Existing Saturday Evening	2 Lane Scenario Saturday Evening	3 Lane Scenario Saturday Evening
Eastbound	C(24)	C(24)	C(24)	C(24)	C(24)	C(24)
Westbound	C(23)	C(23)	C(23)	C(23)	C(23)	C(23)
Northbound	A(7)	A(8)	A(1)	A(7)	A(1)	A(1)
Southbound	A(6)	A(7)	A(7)	A(6)	A(7)	A(7)
Overall	A(10)	B(11)	A(7)	A(10)	A(7)	A(7)
Pacific Ave & East Heather Rd						
	2016 Existing Saturday Mid-Day	2 Lane Scenario Saturday Mid-Day	3 Lane Scenario Saturday Mid-Day	2016 Existing Saturday Evening	2 Lane Scenario Saturday Evening	3 Lane Scenario Saturday Evening
Eastbound	C(20)	C(20)	C(20)	B(19)	B(19)	B(19)
Westbound	B(19)	B(19)	B(19)	B(20)	B(20)	B(20)
Northbound	A(7)	A(9)	A(9)	A(7)	A(9)	A(8)
Southbound	A(7)	A(8)	A(8)	A(7)	A(7)	A(7)
Overall	A(10)	B(11)	B(11)	A(10)	B(10)	B(10)

LOS(XX) = Level of Service (Average Delay in Seconds)

As **Table 3** indicates, under each scenario, each of the intersections continues to operate at acceptable levels of service, with some movements operating at improved levels of service due to the reduction in the overall size of the intersections.

### Future Year Levels of Service

To account for potential future growth, each of the two lane scenarios were reviewed with traffic volumes increased by 20%. **Table 4** indicates the results of the with 20% growth analysis.

**Table 4 – Level of Service Comparison – Existing vs +20%**

Pacific Ave & East Rambler Rd						
	2016 Existing Saturday Mid-Day	2 Lane +20% Saturday Mid-Day	3 Lane +20% Saturday Mid-Day	2016 Existing Saturday Evening	2 Lane +20% Saturday Evening	3 Lane +20% Saturday Evening
Eastbound	C(24)	C(25)	C(25)	C(24)	C(26)	C(26)
Westbound	C(22)	C(23)	C(23)	C(24)	C(26)	C(26)
Northbound	A(9)	B(12)	B(10)	A(9)	B(13)	B(11)
Southbound	A(8)	A(9)	A(1)	A(8)	A(1)	A(1)
Overall	B(13)	B(15)	B(12)	B(14)	B(14)	B(14)
Pacific Ave & East Cardinal Rd						
	2016 Existing Saturday Mid-Day	2 Lane +20% Saturday Mid-Day	3 Lane +20% Saturday Mid-Day	2016 Existing Saturday Evening	2 Lane +20% Saturday Evening	3 Lane +20% Saturday Evening
Eastbound	C(24)	C(25)	C(25)	C(24)	C(24)	C(24)
Westbound	C(23)	C(24)	C(24)	C(23)	C(23)	C(23)
Northbound	A(7)	A(9)	A(1)	A(7)	A(2)	A(1)
Southbound	A(6)	A(7)	A(7)	A(6)	A(7)	A(7)
Overall	A(10)	B(12)	A(7)	A(10)	A(7)	A(7)
Pacific Ave & East Heather Rd						
	2016 Existing Saturday Mid-Day	2 Lane +20% Saturday Mid-Day	3 Lane +20% Saturday Mid-Day	2016 Existing Saturday Evening	2 Lane +20% Saturday Evening	3 Lane +20% Saturday Evening
Eastbound	C(20)	C(21)	C(21)	B(19)	B(20)	B(20)
Westbound	B(19)	B(20)	B(20)	B(20)	C(20)	C(20)
Northbound	A(7)	B(10)	A(10)	A(7)	A(10)	A(9)
Southbound	A(7)	A(8)	A(8)	A(7)	A(8)	A(8)
Overall	A(10)	B(12)	B(11)	A(10)	B(11)	B(11)

LOS(XX) = Level of Service (Average Delay in Seconds)

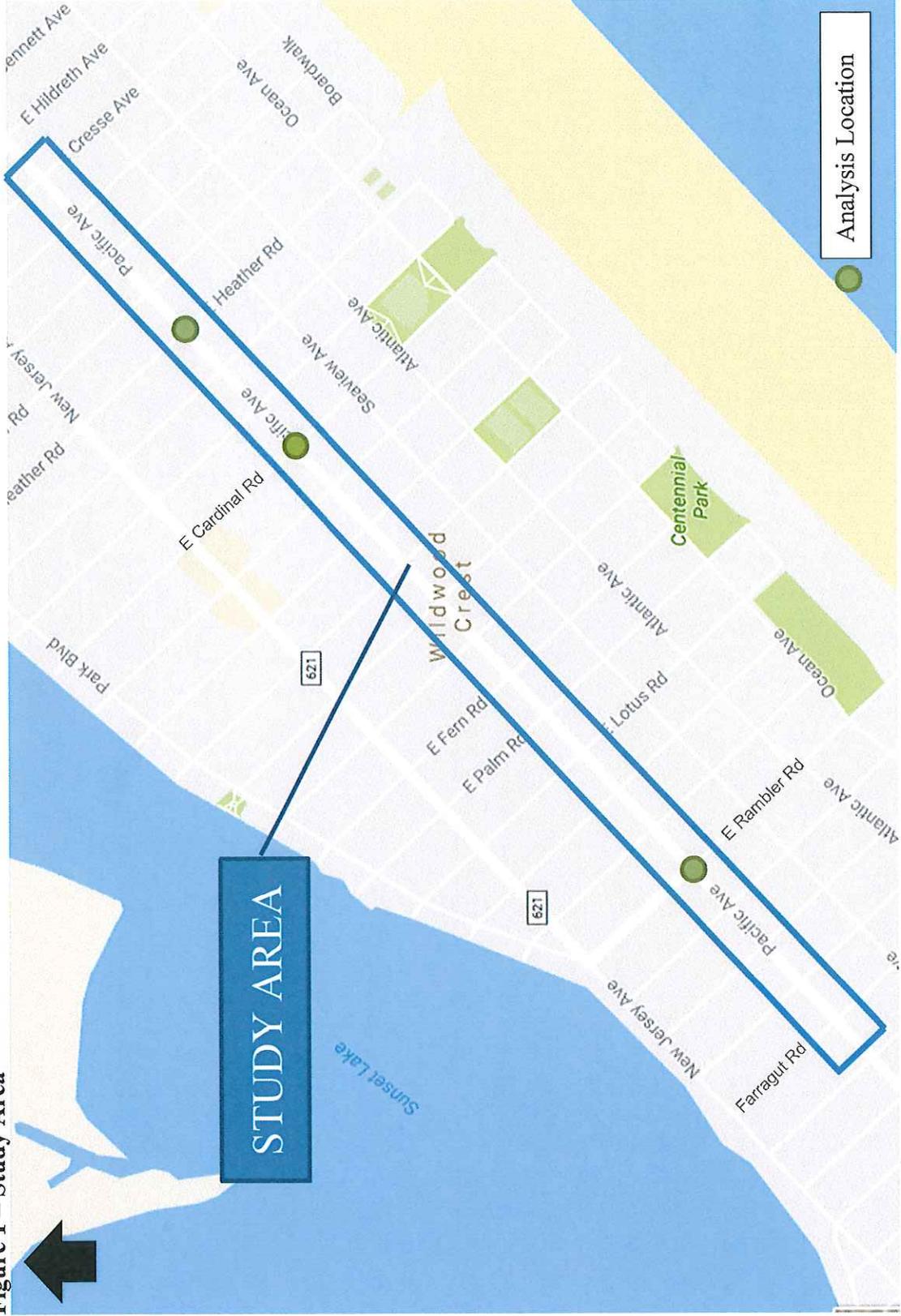
As **Table 4** indicates the levels of service under each of the scenarios remains consistent with an additional 20% volume added to all movements.

### ***Conclusions and Recommendations***

The level of service analysis indicates that the Pacific Avenue corridor within Wildwood Crest will operate at acceptable levels of service as either a two lane cross section with a single lane in each direction or a three lane cross section with a single through lane in each direction with left turn lanes where appropriate. This conclusion remains the same if traffic volumes along the corridor are increased by 20%.

The corridor contains a number of closely spaced intersections along with residential and commercial driveways along its length. Given the character of the corridor, this office recommends the three lane cross section, which will provide roadway area for the creation of bike lanes but still maintain mobility and access to the cross streets and driveways.

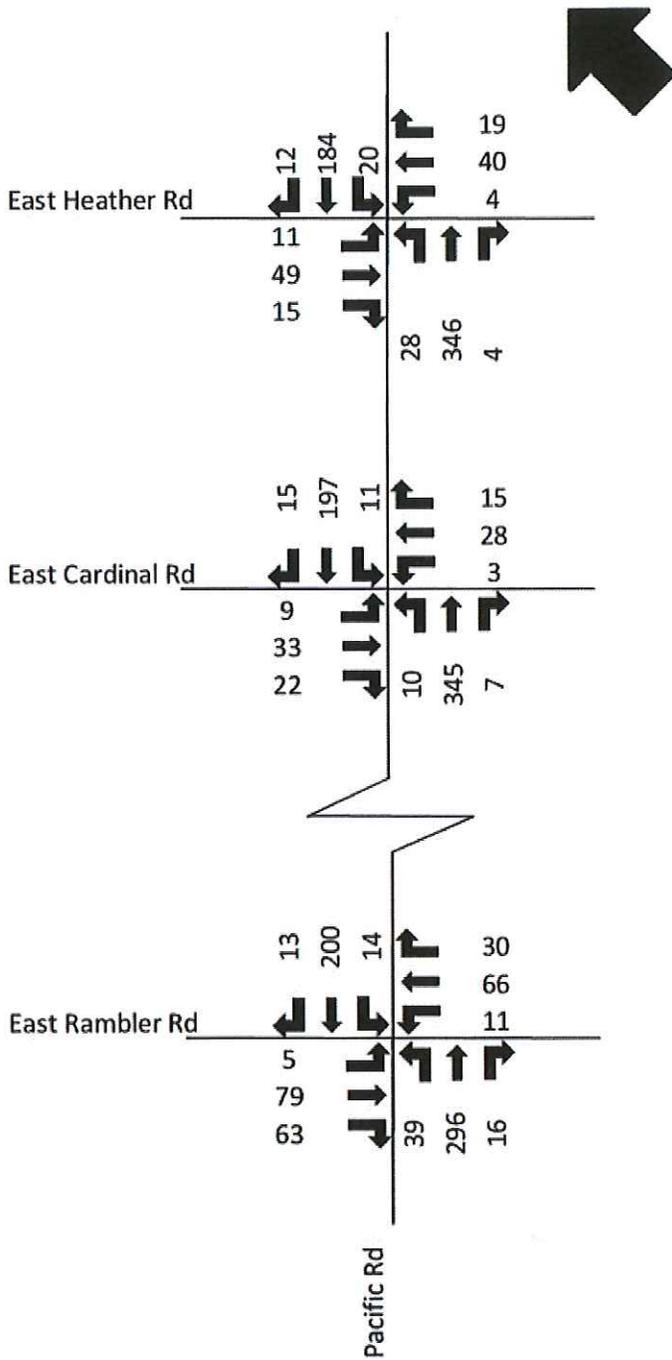
Figure 1 – Study Area



Source: Google Maps

Figure 2 – 2016 Existing Peak Hour Volumes

2016 Existing Mid-day Saturday Peak Hour



2016 Existing Evening Saturday Peak Hour

