English Creek Ave Traffic Improvement Study

2018 SUBREGIONAL WORK PROGRAM Task III

April 2019

Atlantic County
Department of Regional Planning and Economic Development

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Table of Contents

Study Area Description	3
Study Purpose	3
Document and Data Review	3
Findings	3-6
Recommendations	5

Appendices

A. 2007 Access Management Study

Study Area Description

The English Creek Avenue Traffic Study area is bounded by NJ Route 40/322 in the North and continues south on English Creek Avenue for approximately 1.1 miles through the intersection of West Jersey Avenue. This is a heavily travelled North-South County Arterial that serves commercial and residential traffic. The Black Horse Pike is a densely developed commercial corridor while English Creek Avenue to the collects traffic from this section of the Pinelands Regional Growth Zone in Egg Harbor Township all the way to Somers Point Mays Landing Road. Traffic on this arterial has grown exponentially from the beginning of the Casino Gaming industry's inception in Atlantic City serving as both a collector of residential development trips and commercial access trips east and west on the Black Horse Pike. The roadway experiences significant peak hour delay in both the A.M. and P.M. peaks. Saturday peaks also generate considerable delay at the West Jersey Avenue Intersection. This segment experiences volumes exceeding 19,000 vehicles daily.

Study Purpose

The purpose of the study was to compare 2007 traffic counts and level of service calculations with 2018 traffic count data and levels of service to determine the need for capital improvements to enhance capacity and quality of flow. In addition the County evaluated crash data to evaluate safety trends along the subject corridor. To accomplish this the County evaluated to studies conducted by Orth Rodgers and Associates. The first was the 2005 Road Safety Audit which was done in conjunction with SJTPO staff. The second study was commissioned by Atlantic County in 2007 as an Access Management Study for portions of Ocean Heights and English Creek Avenue.

Document and Data Review

Evaluation of the traffic counts conducted in 2007 as part of the access management study and the counts conducted in 2018 are shown in the tables below. Level of Service shows a full letter deterioration of the English Creek mainline from a level of service "D" to a level of service "E". Incidentally evaluation of the mainline conditions south of West Jersey Avenue remained static at a level of service "C".

Findings

While the northern portion of English Creek Avenue has seen a continuous moderate rate of traffic volume growth over the past decade, it does not begin to approach the six percent growth rate suggested by the 2007 Orth Rodgers access study. The southern portion of the roadway has seen no significant traffic volume growth at all. This reduction in overall traffic growth is the result of numerous economic factors in the County as a whole. In 2008 a year after Orth Rodgers study the County experienced the impacts of the national recession when the housing bubble burst.

In addition to the national recession Atlantic County was also experiencing the contraction of the casino industry in Atlantic City. Multiple casinos closed and over 10,000 jobs were lost in direct casino employment and thousands more in related support industries and businesses. This resulted in the crash

of the construction industry and also created an incredible spike in residential foreclosures in the County. The County led the nation in foreclosure rate for almost an entire year and foreclosures remain at a high level even now. A corresponding loss of retail businesses is still underway on the mainland including this area of Egg Harbor Township, Hamilton Township and Galloway Township. For these reasons it is not a surprise that traffic growth has also been reduced during this time frame.

English Creek Level of Service

	English Creek Ave. between West Jersey Ave. & Black Horse Pike		
Direction	2007 Motor Vehicle LOS	Existing (2018) Motor Vehicle LOS	
Northbound	D	E	
Southbound	D	E	

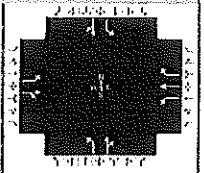
	English Creek Ave. between Dogwood Ave. & West Jersey Ave.		
Direction	2007 Motor Vehicle LOS	Existing (2018) Motor Vehicle LOS	
Northbound	C	C	
Southbound	C	C	

Evaluation of the intersection of English Creek and West Jersey Avenue shows the static nature of the traffic growth over the past decade. The tables below show the results using the Highway Capacity Software (HCS) analysis tool. Both A.M. and P.M. peak HCS results show an overall intersection level of service "C" which is acceptable for a suburban area of this type.

Intersection Level of Service English Creek and West Jersey AM Peak Hour

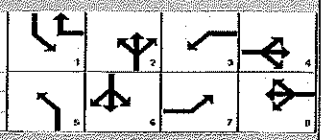
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Atlantic County			Duration, h	0.25
Analyst	NP checked by AM	Analysis Date	May 12, 2018	Area Type	Other
Jurisdiction	Egg Harbor Township	Time Period	7:15 AM - 8:15 AM	PHF	1.00
Urban Street	English Creek Ave (CR...	Analysis Year	2018	Analysis Period	1> 7:15
Intersection	English Creek Ave & We...	File Name	English Creek and West Jersey 7.15 AM.xus		
Project Description	English Creek Ave Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	220	251	63	53	160	93	65	450	59	85	254	46

Signal Information					EB			WB			NB			SB		
Cycle, s	93.0	Reference Phase	2													
Offset, s	0	Reference Point	End	Green	8.0	29.0	9.0	25.0	0.0	0.0						
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	3.0	5.0	4.0	5.0	0.0	0.0						
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	3.0	0.0	2.0	0.0	0.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	3.0	1.1	4.0	1.1	4.0
Phase Duration, s	13.0	32.0	13.0	32.0	11.0	37.0	11.0	37.0
Change Period, (Y+R c), s	4.0	7.0	4.0	7.0	3.0	8.0	3.0	8.0
Max Allow Headway (MAH), s	3.0	3.0	3.0	3.0	3.0	2.9	3.0	2.9
Queue Clearance Time (g s), s	10.5	16.9	3.9	9.0	4.2	25.8	4.8	17.1
Green Extension Time (g e), s	0.0	0.7	0.0	0.9	0.0	0.6	0.0	1.2
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	0.05	0.03	0.00	0.26	0.87	0.72	0.02

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	220	308		53	160	93	65	503		85	295	
Adjusted Saturation Flow Rate (s), veh/h/ln	1739	1714		1725	1707	1693	1725	1856		1781	1545	
Queue Service Time (g s), s	8.5	14.9		1.9	7.0	3.5	2.2	23.8		2.8	15.1	
Cycle Queue Clearance Time (g c), s	8.5	14.9		1.9	7.0	3.5	2.2	23.8		2.8	15.1	
Green Ratio (g/C)	0.37	0.27		0.37	0.27	0.35	0.40	0.31		0.40	0.31	
Capacity (c), veh/h	451	461		335	459	601	360	579		261	482	
Volume-to-Capacity Ratio (X)	0.488	0.668		0.158	0.349	0.155	0.181	0.869		0.325	0.612	
Back of Queue (Q), ft/ln (50 th percentile)	84.7	170.3		18.5	75.2	33.2	21	307.2		27.1	160.7	
Back of Queue (Q), veh/ln (50 th percentile)	3.3	6.1		0.7	2.7	1.3	0.8	11.7		1.1	5.3	
Queue Storage Ratio (RQ) (50 th percentile)	0.21	0.43		0.07	0.19	0.18	0.05	0.77		0.07	0.40	
Uniform Delay (d 1), s/veh	22.0	30.3		20.9	27.4	20.5	19.2	30.2		21.7	27.2	
Incremental Delay (d 2), s/veh	0.3	3.0		0.1	0.2	0.0	0.1	12.9		0.3	1.7	
Initial Queue Delay (d 3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	22.3	33.3		21.0	27.6	20.5	19.3	43.1		21.9	28.9	
Level of Service (LOS)	C	C		C	C	C	B	D		C	C	
Approach Delay, s/veh / LOS	28.7	C		24.3	C		40.4	D		27.3	C	
Intersection Delay, s/veh / LOS	31.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.93	B	1.93	B	2.11	B	1.93	B
Bicycle LOS Score / LOS	1.36	A	0.99	A	1.42	A	1.11	A

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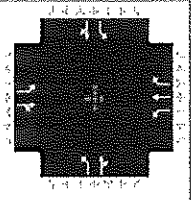
Intersection Level of Service English Creek and West Jersey PM Peak Hour

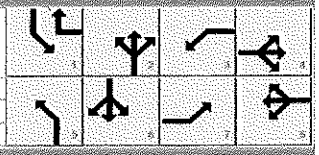
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	May 12, 2016	Area Type	Other
Jurisdiction		Time Period	4:00 PM - 5:00 PM	PHF	1.00
Urban Street	English Creek Ave (CR...	Analysis Year	2018	Analysis Period	1> 4:00
Intersection	English Creek Ave & We...	File Name	English Creek and West Jersey Peak 4 PM.xus		
Project Description	Egg Harbor Township, Atlantic County				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	133	240	106	158	379	125	121	372	43	179	445	98

Signal Information													
Cycle, s	93.0	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	8.0	29.0	9.0	25.0	0.0	0.0			
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	3.0	5.0	4.0	5.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	3.0	0.0	2.0	0.0	0.0			



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	3.0	1.1	4.0	1.1	4.0
Phase Duration, s	13.0	32.0	13.0	32.0	11.0	37.0	11.0	37.0
Change Period, ($Y+R_c$), s	4.0	7.0	4.0	7.0	3.0	8.0	3.0	8.0
Max Allow Headway (*MAH*), s	3.0	3.0	3.0	3.0	3.0	2.9	3.0	2.9
Queue Clearance Time (g_s), s	6.8	17.0	7.6	19.1	6.1	20.1	8.2	27.1
Green Extension Time (g_e), s	0.0	1.2	0.0	1.0	0.0	1.4	0.0	0.5
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	0.12	1.00	0.29	1.00	0.09	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	133	340		158	379	125	121	409		179	538	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1781	1883		1810	1885	1706	1767	1856		1795	1911	
Queue Service Time (g_s), s	4.8	15.0		5.6	17.1	4.7	4.1	18.1		6.2	25.1	
Cycle Queue Clearance Time (g_c), s	4.8	15.0		5.6	17.1	4.7	4.1	18.1		6.2	25.1	
Green Ratio (*g/C*)	0.37	0.27		0.37	0.27	0.35	0.40	0.31		0.40	0.31	
Capacity (*c*), veh/h	313	506		344	507	605	247	579		326	596	
Volume-to-Capacity Ratio (*X*)	0.424	0.672		0.460	0.748	0.206	0.490	0.707		0.549	0.903	
Back of Queue (*Q*), ft/ln (50 th percentile)	47.5	170		56.3	202.2	45.2	40	206.4		61.4	333.7	
Back of Queue (*Q*), veh/ln (50 th percentile)	1.9	6.7		2.3	8.0	1.8	1.6	7.9		2.4	13.2	
Queue Storage Ratio (*RQ*) (50 th percentile)	0.12	0.42		0.23	0.51	0.25	0.10	0.52		0.15	0.83	
Uniform Delay (d_1), s/veh	22.5	30.3		22.3	31.1	20.9	22.5	28.2		21.4	30.7	
Incremental Delay (d_2), s/veh	0.3	2.8		0.4	5.4	0.1	0.6	3.4		1.1	16.7	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	22.8	33.2		22.7	36.5	20.9	23.0	31.6		22.5	47.4	
Level of Service (LOS)	C	C		C	D	C	C	C		C	D	
Approach Delay, s/veh / LOS	30.3	C		30.3	C		29.7	C		41.2	D	
Intersection Delay, s/veh / LOS	33.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.93	B	1.93	B	2.11	B	1.93	B
Bicycle LOS Score / LOS	1.27	A	1.58	B	1.36	A	1.67	B

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Recommendations

Review of the historic and current data shows that overall English Creek Avenue corridor functions in an acceptable level of service and quality of flow. However, it is also clear that the segment between Blackhorse Pike and West Jersey Avenue would benefit from mainline improvements on English Creek Avenue. Specifically a continuous center left turn lane would benefit both commercial and residential properties and developments along the entire length. As a result of this re-evaluation we are recommending that the County go into detailed analysis of right of way holdings along the corridor to evaluate design and construction costs for the center left turn lane concept beginning at Scarborough Drive to West Jersey Avenue.

While the signalized intersection of English Creek and West Jersey currently operates at a level of service "C" in the HCS methodology there are times in certain PM peaks and on Saturdays that the intersection operates at a degraded level of service. It is recommended that the County continue to monitor this intersection as the economic recovery occurs to assure an acceptable level of service be maintained.

Appendix

ATLANTIC COUNTY

ACCESS MANAGEMENT STUDY

English Creek Avenue (CR 575) from Ocean Heights Avenue (CR559A) to Providence Road and Ocean Heights Avenue, from English Creek Avenue to Mill Road

Egg Harbor Township
Atlantic County,
New Jersey

Prepared for:

Atlantic County Division of Engineering

August 2007

Kim Rochester
Project Manager

ORA
Orth - Rodgers & Associates, Inc.
TRANSPORTATION ENGINEERS and PLANNERS

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TABLE OF CONTENTS

Page Number

INTRODUCTION **1**

TASK 1 – EXISTING CONDITIONS **3**

GENERAL ROADWAY CHARACTERISTICS WITHIN THE STUDY AREA 4

TASK 2 - FUTURE CONDITIONS **16**

TASK 3 – TRAFFIC SIGNAL WARRANT ANALYSES **26**

TASK 4 – QUEUE ANALYSIS **27**

TASK 5 – LEFT-TURN LANE WARRANT ANALYSIS **29**

TASK 6 – ROAD SAFETY AUDIT RECOMMENDATIONS **30**

TASK 7 – CONCEPTUAL DESIGN **31**

CONCLUSIONS AND RECOMMENDATIONS **32**

LIST OF FIGURES

Figure No.	Page Number
Figure 1 - Project Location Map	2
Figure 2 - Existing AM Peak Hour Traffic Volumes	7
Figure 3 - Existing PM Peak Hour Traffic Volumes	8
Figure 4 - Existing AM Peak Hour Levels of Service	13
Figure 5 - Existing PM Peak Hour Levels of Service	14
Figure 6 – 2017 Future Morning Peak Hour Volumes	17
Figure 7 – 2007 Future Evening Peak Hour Volumes	18
Figure 8 – 2017 Future Morning Peak Hour Levels of Service	19
Figure 9 – 2017 Future Evening Peak Hour Levels of Service	20
Figure 10 – 2017 Future Morning with Mitigation Peak Hour Levels of Service	24
Figure 11 – 2017 Future Evening with Mitigation Peak Hour Levels of Service	25

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LIST OF TABLES

Table No.	Page Number
Table I: Count Locations	6
Table II: Level of Service and Expected Delay for Unsignalized Intersections	11
Table III: Level of Service and Expected Delay for Signalized Intersections	12
Table IV: Queue Analysis, under Existing Conditions, for Signalized Intersections	27
Table V: Queue Analysis, under Existing Conditions, for Unsignalized Intersections	28
Table VI: Queue Analysis, under Future Conditions, for Signalized Intersections	28
Table VII: Queue Analysis, under Future Conditions, for Unsignalized Intersections	29
Table VIII: 2005 SJTPO Road Safety Audit Recommendations	30
Table IX: 2017 Recommended Mitigation	31

LIST OF GRAPHS

Graph No.	Page Number
Graph I – English Creek Avenue Automatic Traffic Recorder Volumes	9
Graph II – Ocean Heights Avenue Automatic Traffic Recorder Volumes	10

INTRODUCTION

The Atlantic County Division of Engineering has retained Orth-Rodgers and Associates, Inc. (ORA) to perform an Access Management Study on English Creek Avenue (CR 575). Specifically, Atlantic County seeks to study traffic flow at accesses and intersections on English Creek Avenue (CR 575), between Providence Road and Ocean Heights Avenue (CR 559A), and on Ocean Heights Avenue between English Creek Avenue and Mill Road, in Egg Harbor Township, Atlantic County, New Jersey, as shown in the Project Location Map (see Figure 1). To this end, ORA performed traffic engineering analyses to complete an Access Management Study along the entire corridor, analyzing traffic operation, traffic safety issues, and existing and projected capacity, with particular attention given to the following locations:

- The unsignalized intersection of English Creek Avenue and Providence Road
- The signalized intersection of English Creek Avenue and West Jersey Avenue
- The unsignalized intersection of English Creek Avenue and Dogwood Avenue
- The unsignalized intersection of English Creek Avenue and High School Drive
- The signalized intersection of English Creek Avenue and Ocean Heights Avenue
- The unsignalized intersection of Ocean Heights Avenue and Mill Road

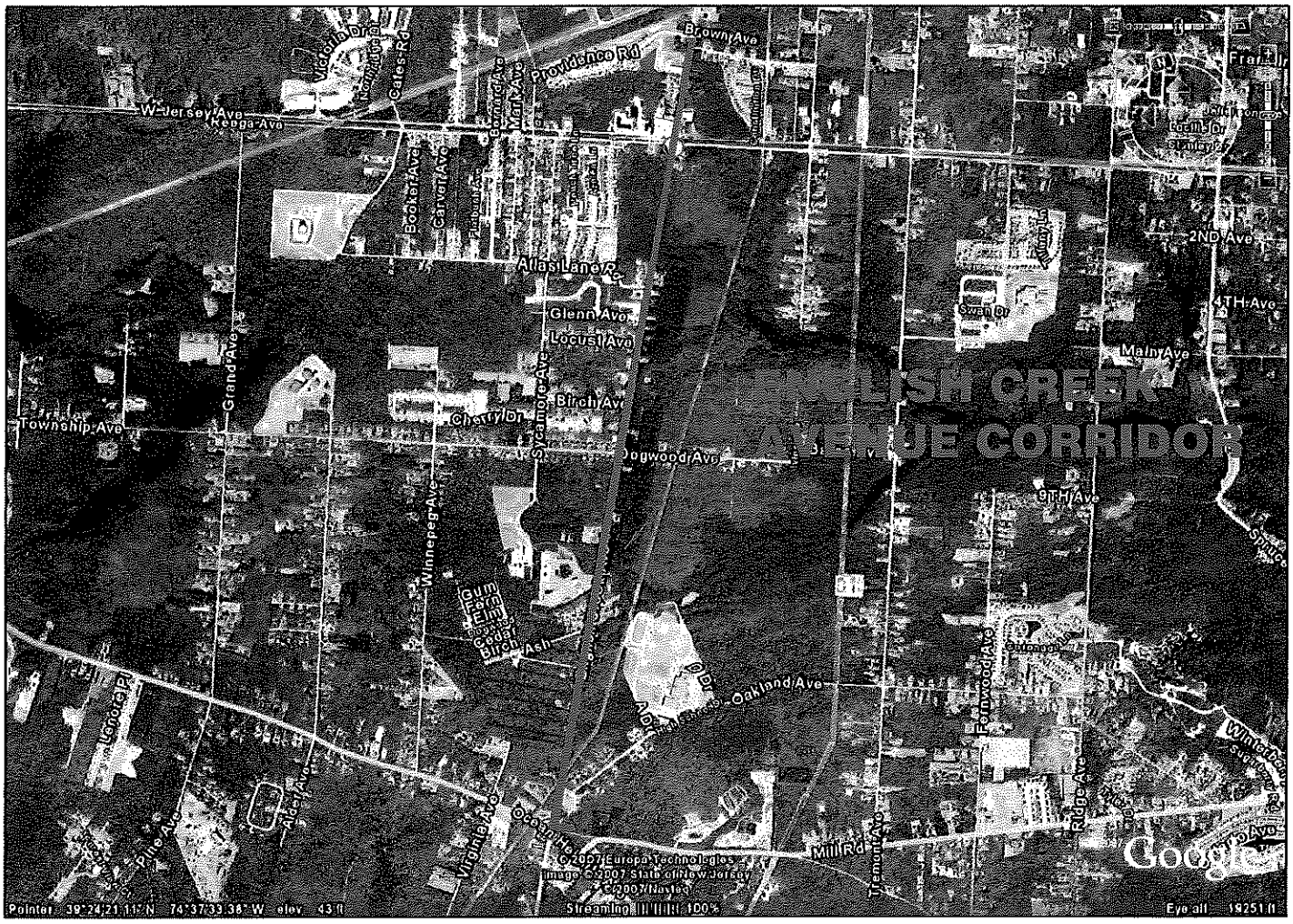
It is the intent of this study to analyze traffic operations, traffic safety issues, and existing and projected roadway and intersection capacity over a ten (10) year period. The results of this study are outlined in this report and depicted in conceptual corridor recommendations laid out on aerial photographs of the corridor.

Orth - Rodgers and Associates, Inc.
TRANSPORTATION ENGINEERS and PLANNERS

FIGURE 1

PROJECT LOCATION MAP

ENGLISH CREEK AVENUE ACCESS MANAGEMENT STUDY
EGG HARBOR TOWNSHIP
ATLANTIC COUNTY, NEW JERSEY



LEGEND:

○ – *DENOTES EXISTING TRAFFIC SIGNAL*
—— – *DENOTES EXISTING ROADWAY*

TASK 1 – EXISTING CONDITIONS

A kickoff meeting was held with Atlantic County Division of Engineering staff to discuss their vision for this project. Meeting minutes were taken to record the County's visions and observations along the corridor, along with background information they provided. The County indicated that the corridor is the major, direct north-south route in the County, and is in the Pinelands Regional Growth Area and the CAFRA Regional Growth Area. County officials added that several thousand housing units had recently been approved in the vicinity of the English Creek Avenue corridor. In addition, it was noted that a Super Wawa was to be constructed (and has now been constructed) on the northwest corner of Ocean Heights Avenue and Mill Road. The developer of the Wawa was required to add a left turn lane on English Creek Avenue (extending back to High School Drive) and on Ocean Heights Avenue. A traffic signal was also to be installed at the intersection of Ocean Heights Avenue and Mill Road. Meeting minutes from said kickoff meeting are included in the Appendix of this report.

The ORA project team made a visit to the site to review existing road and traffic conditions. Notations of existing physical characteristics of the road system were made and any particular challenges related to the intersections and the corridors itself were identified. ORA obtained traffic signal plans and timing information at the signalized intersections previously listed from the County.

Where feasible, ORA considered safety issues identified and made use of traffic data collected during the June 2005 South Jersey Transportation Planning Organization (SJTPO) Road Safety Audit for this study. Under this project, two of the intersections listed above were counted (English Creek Avenue and Dogwood Avenue, and English Creek Avenue and West Jersey Avenue). Crash analyses were performed on and at the vicinity of these intersections and safety improvements at the intersections and along English Creek Avenue for the entire study area length were identified. Corridor-wide observations were made, and recommendations were given with regard to traffic signage, lane assignments and safety improvements.

The June 2005 SJTPO Road Safety Audit final report identified 49 traffic-related issues that may justify remedial action, subject to further review. Of these 49, two (2) pertain directly to the scope of this study. ORA considered the information from the June 2005 SJTPO Road Safety Audit when conducting analyses of the study locations.

General Roadway Characteristics within the Study Area

ORA completed a comprehensive study of traffic movement on English Creek Avenue (CR 575), between Providence Road, at the northern end of the corridor, and Ocean Heights Avenue (CR 559A), at its southern end. The length of Ocean Heights Avenue between English Creek Avenue and Mill Road was also examined to incorporate the improvements made by the introduction of a Super Wawa. The following is a description of the roadways and major intersections in the study area:

- **English Creek Avenue (CR 575)**

  County Route 575 is classified by the New Jersey Department of Transportation (NJDOT) as an urban, minor, arterial. It is oriented in a general north/ south direction. The roadway typically consists of two or three travel lanes separated by solid double yellow lines. Turning movements on CR Route 575 are generally accomplished via dedicated left turn lanes at signalized intersections and shared turning movements at unsignalized intersections. The speed limit on CR 575 is posted at 50 miles per hour.

- **Ocean Heights Avenue (CR 559A)**

  The length of County Route 559A between English Creek Avenue and Ocean Heights Avenue was studied, and is classified by the New Jersey Department of Transportation (NJDOT) as an urban, minor, arterial. It has a general east/ west orientation in the vicinity of English Creek Avenue. The roadway typically consists of one travel lane in each direction separated by solid double yellow lines. Left turning movements on CR Route 559A in the vicinity of the study area are accomplished via dedicated turning lanes. In the vicinity of the study area, the speed limit on CR 559A is posted at 50 miles per hour.

- **English Creek Avenue and Providence Road (MP 6.02)**

  The intersection of English Creek Avenue and Providence Road is an unsignalized T-intersection, stop-controlled on the Providence Road approach. The Providence Road eastbound approach consists of a dedicated right turn and left turn lane to accommodate turning movements. The northbound English Creek Avenue approach consists of a single through lane, with turning movements accomplished via a two-way left turn lane. The southbound English Creek Avenue approach consists of a single through lane and a dedicated right-turn lane. Land uses in the vicinity of the intersection are predominately residential.

- **English Creek Avenue and West Jersey Avenue (MP 5.67)**

  The intersection of English Creek Avenue and West Jersey Avenue is a signalized intersection controlled by a four-phase traffic signal. The eastbound West Jersey Avenue approach consists of a dedicated left and shared through/right turn lane. The westbound West Jersey Avenue approach consists of dedicated left turn, single through and dedicated right turn lane to accommodate all movements. The English Creek Avenue northbound and southbound approaches consist of a dedicated left turn lane and a single shared through right turn lane to accommodate all movements. Land uses in the vicinity of the intersection are a combination of commercial uses and residential homes.

- **English Creek Avenue and Dogwood Avenue (MP 4.62)**

  The intersection of English Creek Avenue and Dogwood Avenue is an unsignalized intersection, stop-controlled on the two Dogwood Avenue approaches. The eastbound and westbound Dogwood Avenue approaches consist of a single lane to accommodate all movements. The English Creek Avenue northbound and southbound approaches consist of a single lane to accommodate all movements. Land uses in the vicinity of the intersection are primarily residential.

- **English Creek Avenue and High School Drive (MP 3.48)**

  The intersection of English Creek Avenue and High School Drive is an unsignalized T-intersection, stop-controlled on the High School Drive approach. The westbound High School Drive approach consists of a dedicated right turn lane and a dedicated left turn lane. The English Creek Avenue northbound approach consists of a single lane to accommodate shared through movements and right turns, and the southbound approach consists of a single through lane and a dedicated left turn lane. Land uses in the vicinity of the intersection are primarily rural.

- **English Creek Avenue and Ocean Heights Avenue (MP 3.36)**

  The intersection of English Creek Avenue and Ocean Heights Avenue is a four-way signalized intersection, controlled by a four-phase traffic signal. The eastbound Ocean Heights Avenue approach consists of a shared through/right lane and a dedicated left turn lane. The westbound Ocean Heights Avenue approach consists of a dedicated left turn lane, a single through lane and a dedicated right turn lane. The English Creek Avenue northbound approach consists of a dedicated left turn lane, a shared through lane with a channelized right turn. The English Creek Avenue southbound approach consists of a dedicated left turn lane, a single through lane and a channelized right turn lane. Land uses in the vicinity of the intersection are primarily commercial.

- **Ocean Heights Avenue and Mill Road (MP 5.11)**

  The intersection of Ocean Heights Avenue and Mill Road is a stop-controlled unsignalized T-intersection, with a stop sign on the Mill Road approach. The eastbound Ocean Heights Avenue approach consists of a single through lane and a dedicated left turn lane. The westbound Ocean Heights Avenue approach consists of a shared through/right turn lane. The Mill Road southbound approach consists of a dedicated left turn lane and a dedicated right turn lane. Land uses in the vicinity of the intersection are a mix of commercial and residential.

Manual turning movement count data and Automatic Traffic Recorder (ATR) data was also collected for this study. The following is the list of intersections and locations counted:

Table I: Count Locations

Intersection	Counted By	Count Type	Count Period
English Creek @ Providence Road	Atlantic Co.	County provided previously-collected data.	
English Creek @ West Jersey Avenue	ORA	ORA used data from Safety Audit.	
English Creek @ Dogwood Avenue	ORA	TMC (with peds, trucks)	7 AM to 6 PM
English Creek @ High School Drive	ORA	TMC (with peds, trucks)	7 AM to 6 PM
English Creek @ Ocean Heights Avenue	Atlantic Co.	TMC (peds, trucks, RTORs)	7 to 9 AM, 3 to 6 PM
Mill Road @ Ocean Heights Avenue	Atlantic Co.	TMC (with peds, trucks)	7 to 9 AM, 3 to 6 PM
English Creek south of Dogwood Avenue	ORA	ATR	24 hour, one week
Ocean Heights, between English Creek and Mill Road	ORA	ATR	24 hour, one week

ORA tabulated all of the intersection count data, and prepared volume figures of the count data obtained and collected. Count data may be found in the Appendix of this report, and AM and PM peak hour volume figures may be found in Figures 2 and 3 following.

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Figure 2

Existing AM Peak Hour Traffic Volumes

Atlantic County Access Management
Egg Harbor Township
Atlantic County, New Jersey

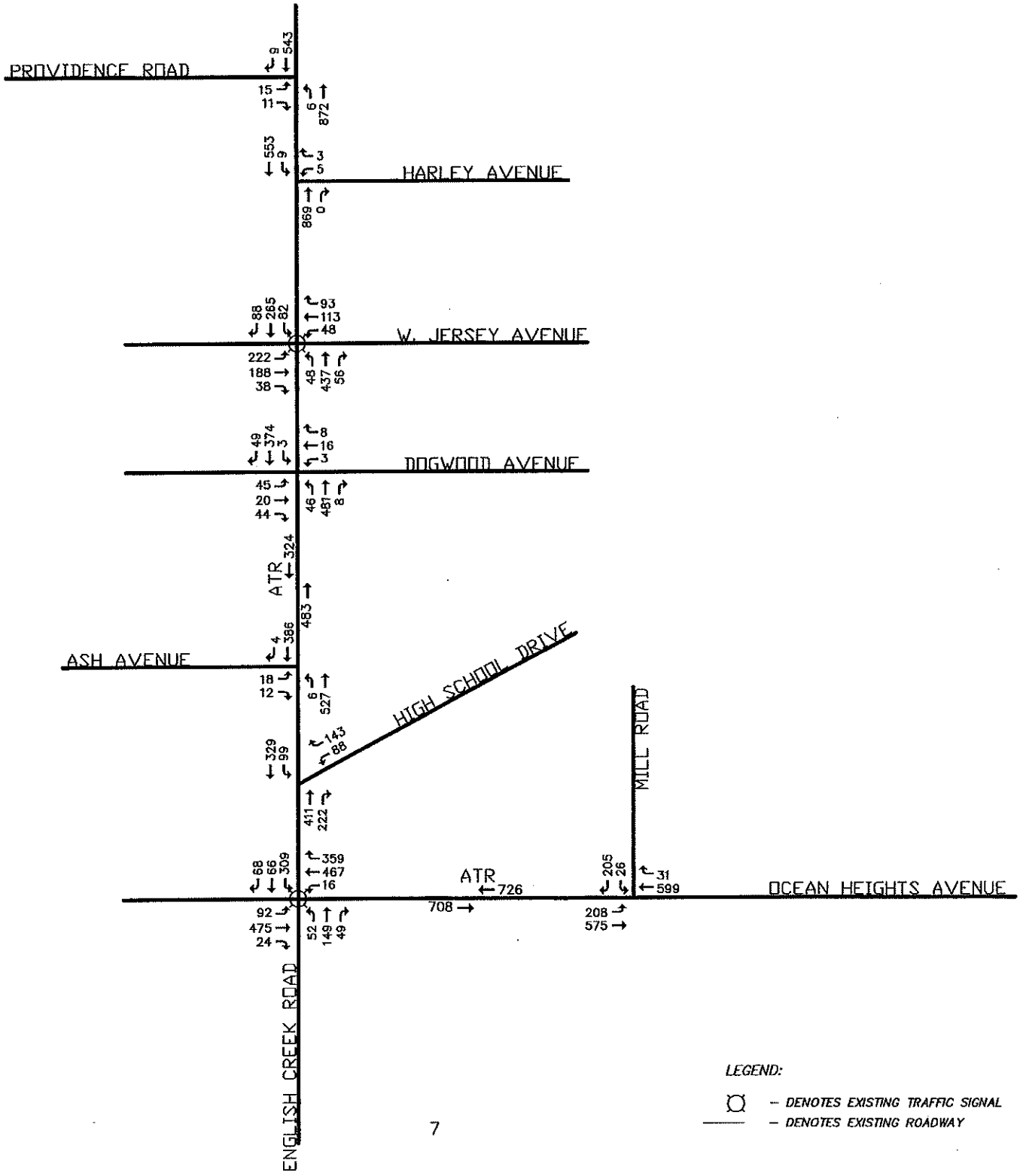

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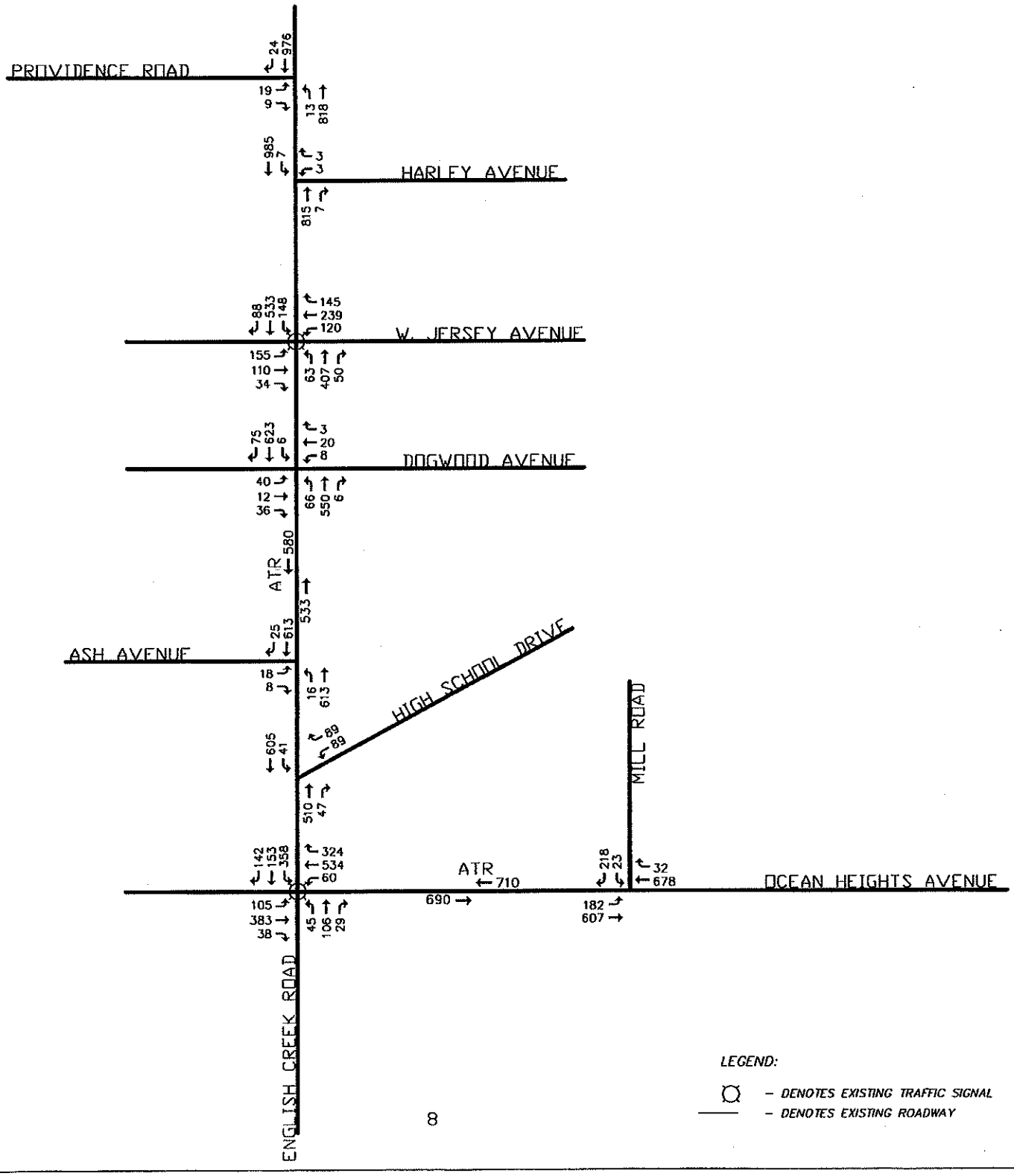
Figure 3

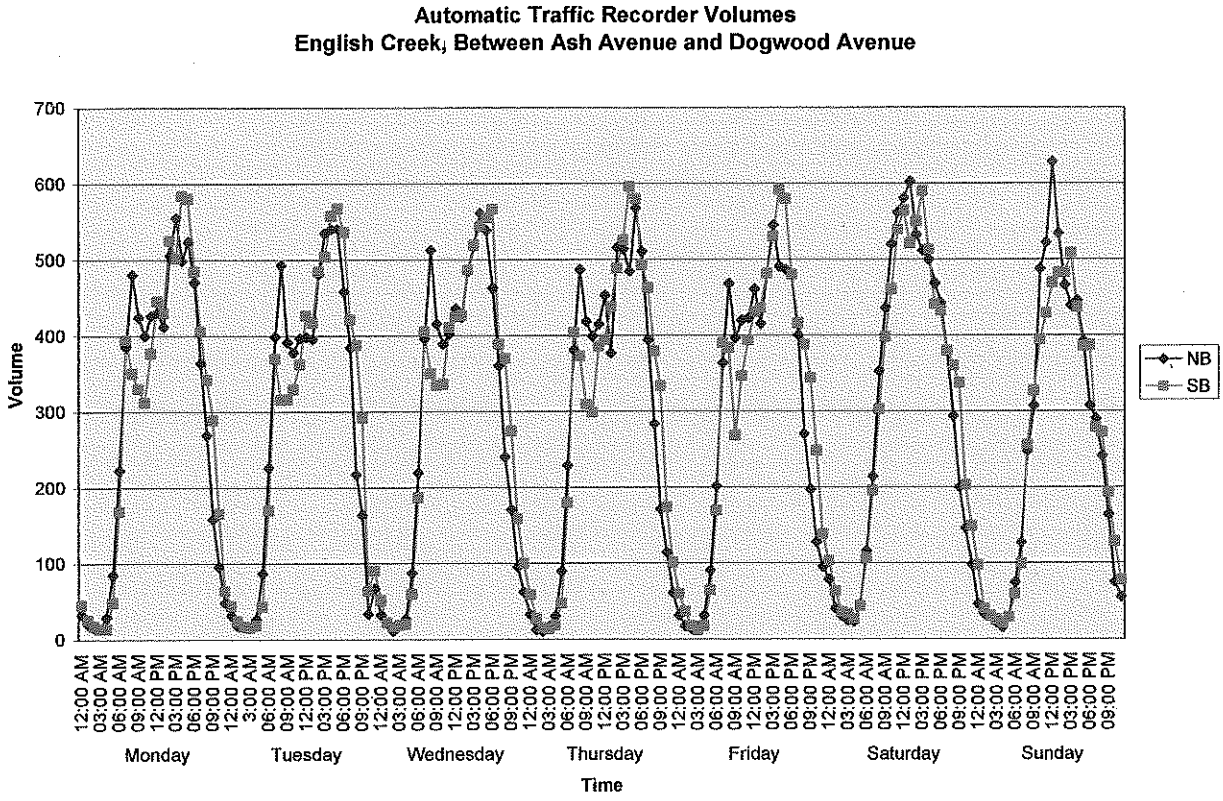
Existing PM Peak Hour Traffic Volumes

Atlantic County Access Management
Egg Harbor Township
Atlantic County, New Jersey

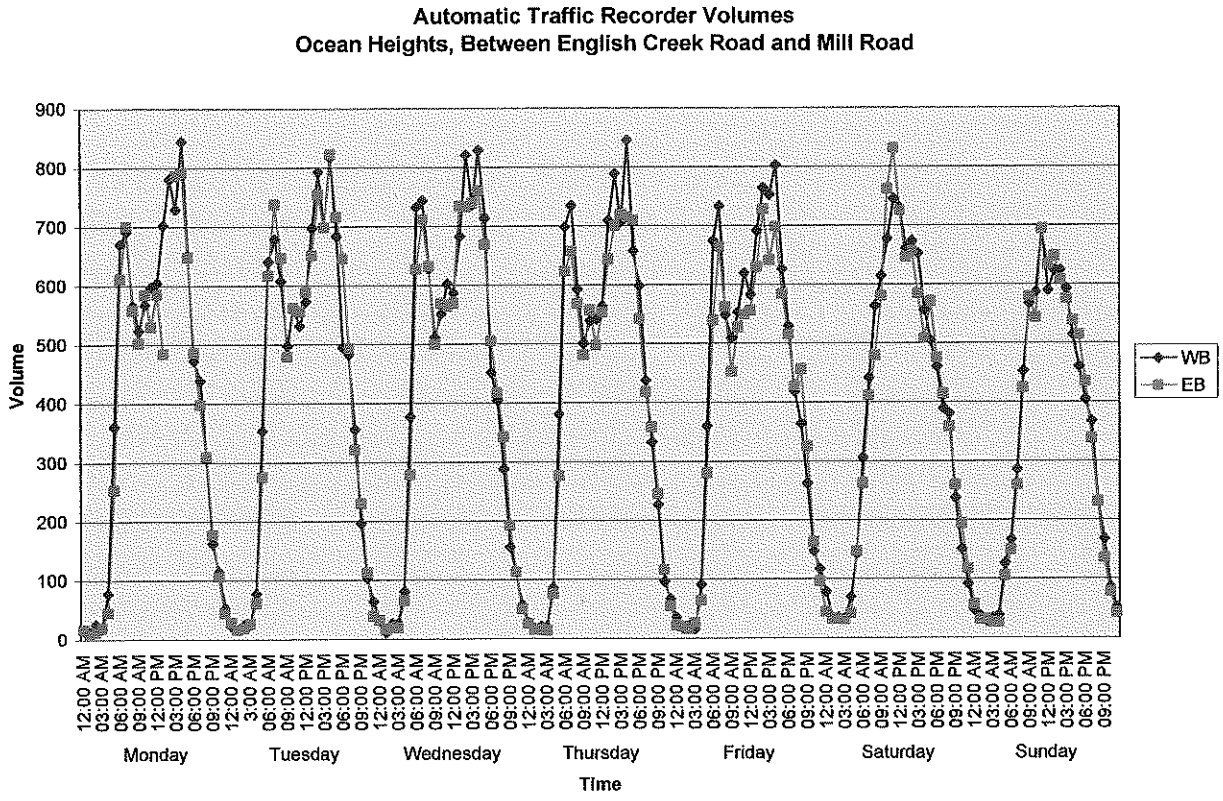


As mentioned previously, and as part of our traffic volume data collection, ORA collected 24 hour, weeklong ATR data along English Creek Road, between Ash Avenue and Dogwood Avenue, and on Ocean Heights Avenue, between English Creek Road and Mill Road. The peak hour ATR traffic volumes are shown on Figures 2 and 3. For a complete summary of the ATR volumes collected on each day of the week, ORA generated the following two (2) graphs to itemize the variations in existing volumes by weekday and hour of collection.

Graph I – English Creek Avenue Automatic Traffic Recorder Volumes



Graph II – Ocean Heights Avenue Automatic Traffic Recorder Volumes



Under existing volume and roadway conditions, capacity analyses at each of the study intersections were performed, based on procedures outlined in the 2000 edition of the Highway Capacity Manual. Existing Levels of Service and queues were found as a result of this analysis.

Capacity Observations

In order to identify any existing operational deficiencies of the intersections within the study area, capacity analyses of the existing traffic volumes were conducted.

While traffic volumes provide an important measure of activity on the area road system, evaluating how well that system accommodates those volumes is also important, i.e., by performing a comparison of peak traffic volumes with available roadway capacity. By definition, capacity represents the maximum number of vehicles that can be accommodated given the constraints of roadway geometry, environment, traffic characteristics and controls.

Primarily, intersections control capacity in road networks, since conflicts exist at these points between through, crossing and turning traffic. Because of these conflicts, congestion is most likely to occur at intersections. Therefore, intersections are studied most often when determining the quality of traffic flow.

Although an unsignalized intersection on a through route is seldom critical to the overall capacity, the quality of traffic flow on both the side street approaches and the major street left turn movements is affected. When analyzing unsignalized intersections, major street through movements and right turns are unimpeded and have the right-of-way over all side street traffic and left turns from the major street. All other turning movements in the intersection cross, merge with, or are otherwise impeded by major street movements.

Traffic delays at unsignalized intersections are determined by sequentially processing these impeded movements. For each impeded movement in turn, all conflicting flows are summed. It should be noted that the Highway Capacity Manual (HCM) assumes a random arrival for all the movements, which is not always the case (i.e., adjacent signals or slow moving vehicles will platoon vehicles).

A descriptive concept has been developed for unsignalized intersections called Level of Service. Level of Service relates expected traffic delay to critical movement. Unsignalized levels of service range from Level of Service 'a' (indicating average delays of 10 seconds or less) to Level of Service 'f' (indicating average delays of greater than 50 seconds). Level of Service 'e' is generally considered as the acceptable limit of delay for most drivers in a suburban setting. A more detailed level of service description for unsignalized intersections is summarized in Table I.

Table II: Level of Service and Expected Delay for Unsignalized Intersections[1]

Level of Service	Average Total Delay per Vehicle (seconds)
a	0 to 10.0
b	10.1 to 15.0
c	15.1 to 25.0
d	25.1 to 35.0
e	35.1 to 50.0
f	over 50

At the signalized intersections, factors that affect the various approach capacities include width of approach, number of lanes, signal 'green' time, turning percentages, truck volumes, etc. However, operation at capacity can be less than satisfactory since substantial delays or reduced operating speeds are likely.

[1] Transportation Research Board, Special Report 209, Highway Capacity Manual, 2000, published by the Transportation Research Board. Washington, D.C., 2000.

Delays cannot be related to capacity in a simple one-to-one fashion. It is possible to have delays in the Level of service 'F' range without exceeding roadway capacity. Substantial delays can exist without exceeding capacity if one or more of the following conditions exist:

- long signal cycle lengths;
- a particular traffic movement experiences a long red time; or,
- progressive movement for a particular lane group is poor.

Table II describes the level of service ranges for signalized intersections.

Table III: Level of Service and Expected Delay for Signalized Intersections[2]

Level of Service	Average Stopped Delay per Vehicle (seconds)
A	0 to 10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	over 80

An analysis of existing volume-capacity and level of service relationships at intersections in the study area yields the results shown in Figures 4 and 5.

[2] Ibid 1.

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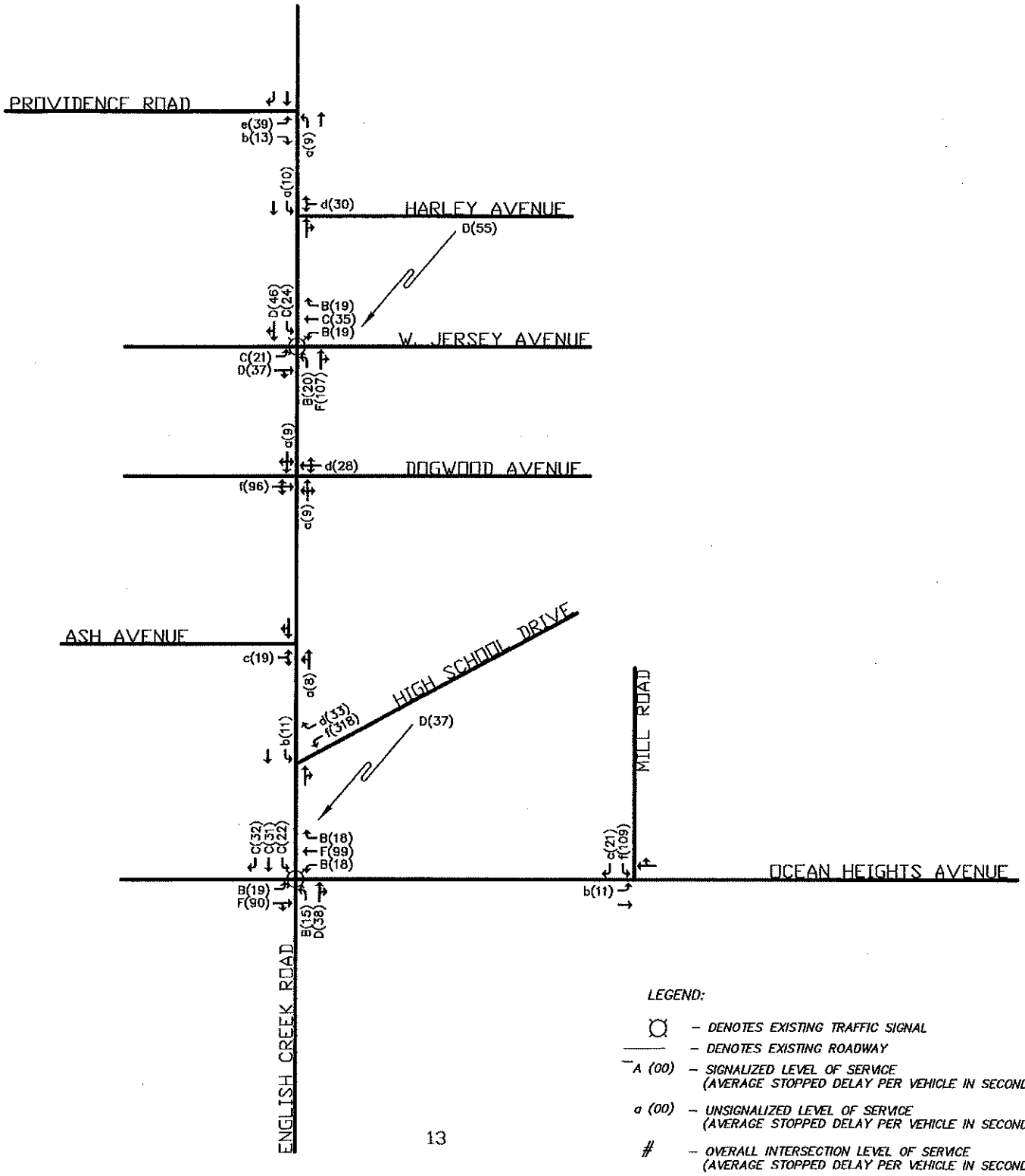
Figure 4

Existing AM Peak Hour Levels of Service

Atlantic County Access Management
Egg Harbor Township
Atlantic County, New Jersey



LEGEND:

- ⬡ – *DENOTES EXISTING TRAFFIC SIGNAL*
- ——— – *DENOTES EXISTING ROADWAY*
- A (00) – *SIGNALIZED LEVEL OF SERVICE (AVERAGE STOPPED DELAY PER VEHICLE IN SECONDS)*
- a (00) – *UNSIGNALIZED LEVEL OF SERVICE (AVERAGE STOPPED DELAY PER VEHICLE IN SECONDS)*
- # – *OVERALL INTERSECTION LEVEL OF SERVICE (AVERAGE STOPPED DELAY PER VEHICLE IN SECONDS)*

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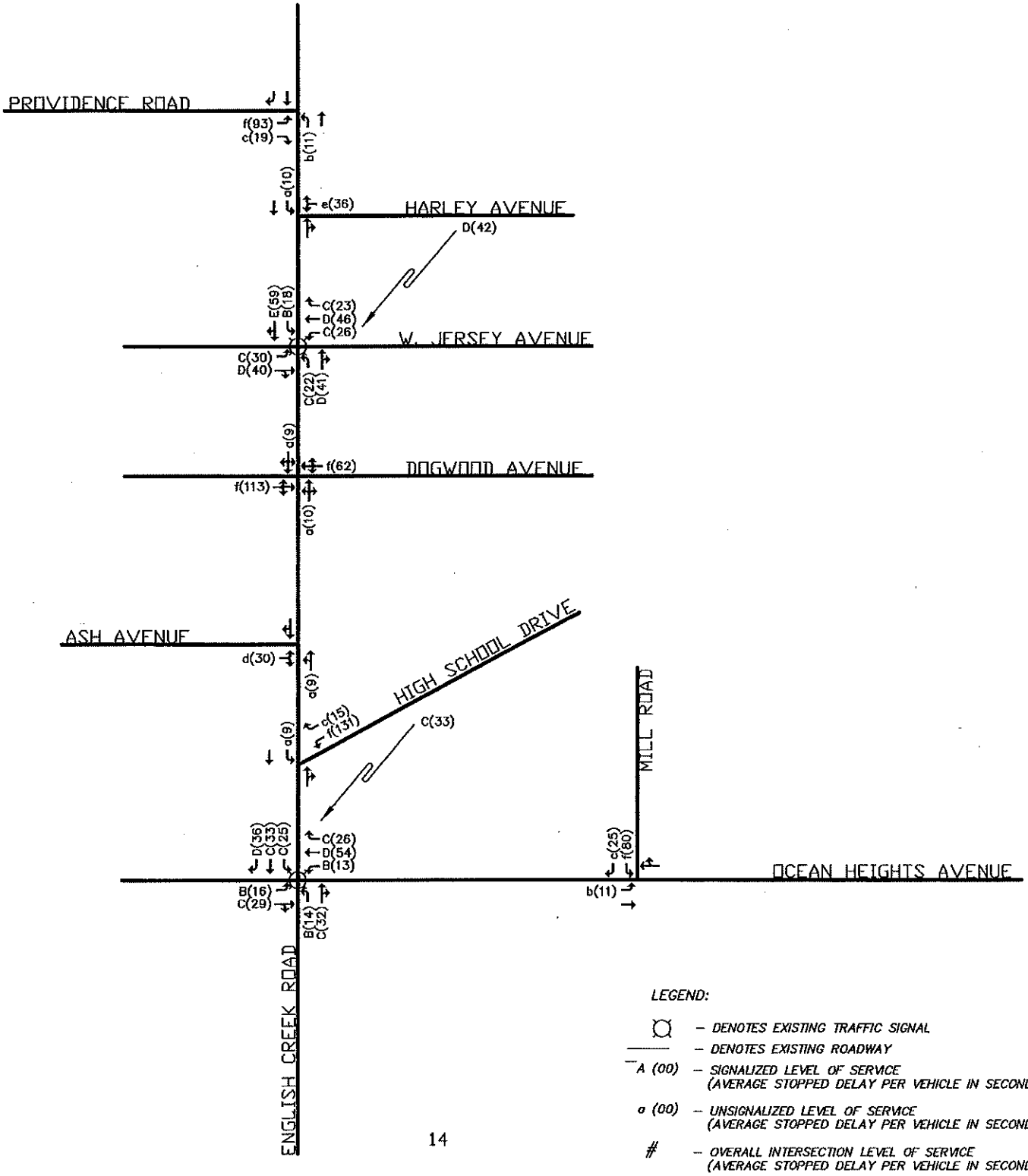
Figure 5

Existing PM Peak Hour Levels of Service

Atlantic County Access Management
Egg Harbor Township
Atlantic County, New Jersey



LEGEND:

- *DENOTES EXISTING TRAFFIC SIGNAL*
- *DENOTES EXISTING ROADWAY*
- *A (00) – SIGNALIZED LEVEL OF SERVICE (AVERAGE STOPPED DELAY PER VEHICLE IN SECONDS)*
- *a (00) – UNSIGNALIZED LEVEL OF SERVICE (AVERAGE STOPPED DELAY PER VEHICLE IN SECONDS)*
- *# – OVERALL INTERSECTION LEVEL OF SERVICE (AVERAGE STOPPED DELAY PER VEHICLE IN SECONDS)*

At the unsignalized intersection of **English Creek Avenue and Providence Road**, all movements operate at level of service (LOS) 'c' or better during both peak hours with the exception of the eastbound Providence Road left turn movement, which operates at LOS 'e' during the AM peak hour and LOS 'f' during the PM peak hour.

At the signalized intersection of **English Creek Avenue and West Jersey Avenue**, all movements on the eastbound and westbound West Jersey Avenue approaches operate at LOS 'D' or better during both peak hours studied. The northbound and southbound left turn movements operate at LOS 'C' or better during both peak hours. The northbound English Creek Avenue shared through/right turn movement operates at LOS 'F' during the morning peak hour, and operates at LOS 'D' during the evening peak hour. The southbound English Creek Avenue shared through/right turn movement operates at LOS 'D' during the morning peak hour, and operates at LOS 'E' during the evening peak hour.

At the unsignalized intersection of **English Creek Avenue and Dogwood Avenue**, the northbound and southbound approaches of English Creek Avenue operate at LOS 'a' during both peak hours studied. The westbound approach of Dogwood Avenue operates at LOS 'd' during the AM peak hour and LOS 'f' during the PM peak hour, while the eastbound approach operates at LOS 'f' during both peak hours studied.

At the unsignalized intersection of **English Creek Avenue and High School Drive**, the northbound and southbound approaches of English Creek Avenue operate at LOS 'b' or better during both peak hours studied. The westbound right turn of High School Drive operates at LOS 'd' during the AM peak hour and LOS 'c' during the PM peak hour, while the westbound left turn operates at LOS 'f' during both peak hours studied.

At the signalized intersection of **English Creek Avenue and Ocean Heights Avenue**, all movements operate at LOS 'D' or better during both peak hours studied, with the exception of the westbound through right turn movement which operates at a LOS 'F' during the AM peak hour.

At the unsignalized intersection of **Ocean Heights Avenue and Mill Road**, all movements operate at level of service (LOS) 'c' or better during both peak hours with the exception of the southbound Mill Road left turn movement, which operates at LOS 'f' during both the AM peak hour and the PM peak hour.

TASK 2 - FUTURE CONDITIONS

In order to account for regional traffic growth on the roadways in the study area, a background growth of 5.0 percent per year was agreed upon during the kick-off meeting. Subsequently, 5.0 percent per year (over ten years) was added to the existing volumes to obtain projections for the 2017 design year (62.89% total growth).

The projected ten-year future traffic volumes for the weekday morning and evening peak hours are illustrated in Figures 6 and 7. The future traffic volumes were then analyzed via Highway Capacity Software, version 5.2, which is the computerized analysis for the 2000 Highway Capacity Manual (HCM), published by the Transportation Research Board. The HCM is considered the standard methodology for analyzing roadway capacity versus demand.

Capacity analyses were conducted for the weekday morning peak street hour and the evening peak street hour for each of the intersections within the study area discussed earlier. Capacity analyses were conducted for the 2017 future scenario without improvement, and 2017 future with recommended mitigation conditions. Capacity calculations were conducted utilizing the existing roadway geometry and operation at English Creek and Providence Road, West Jersey Avenue and Ocean Heights Avenue. At English Creek Avenue and Dogwood Avenue, English Creek Avenue and High School Drive, and Ocean Heights Avenue and Mill Road, capacity calculations were conducted using existing roadway geometry and proposed signalized operation. All three of these intersections were found to warrant signalization as described in Task 3. The 2017 Future Levels of Service figures for the morning and evening peak hours are shown on Figures 8 and 9, respectively.

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Figure 6

2017 Future AM Peak Hour Traffic Volumes

Atlantic County Access Management
Egg Harbor Township
Atlantic County, New Jersey

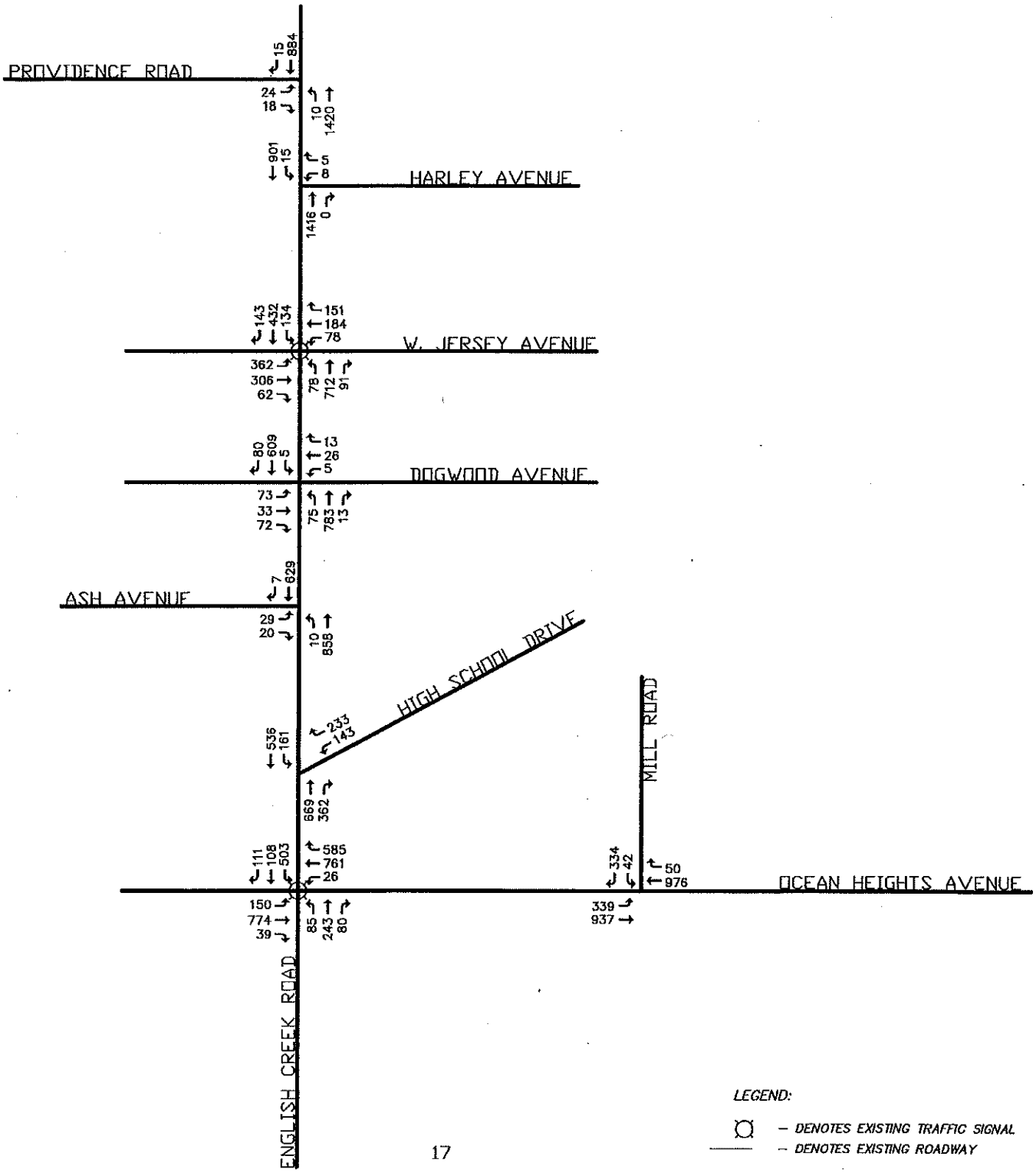

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Figure 7

2017 Future PM Peak Hour Traffic Volumes

Atlantic County Access Management
Egg Harbor Township
Atlantic County, New Jersey

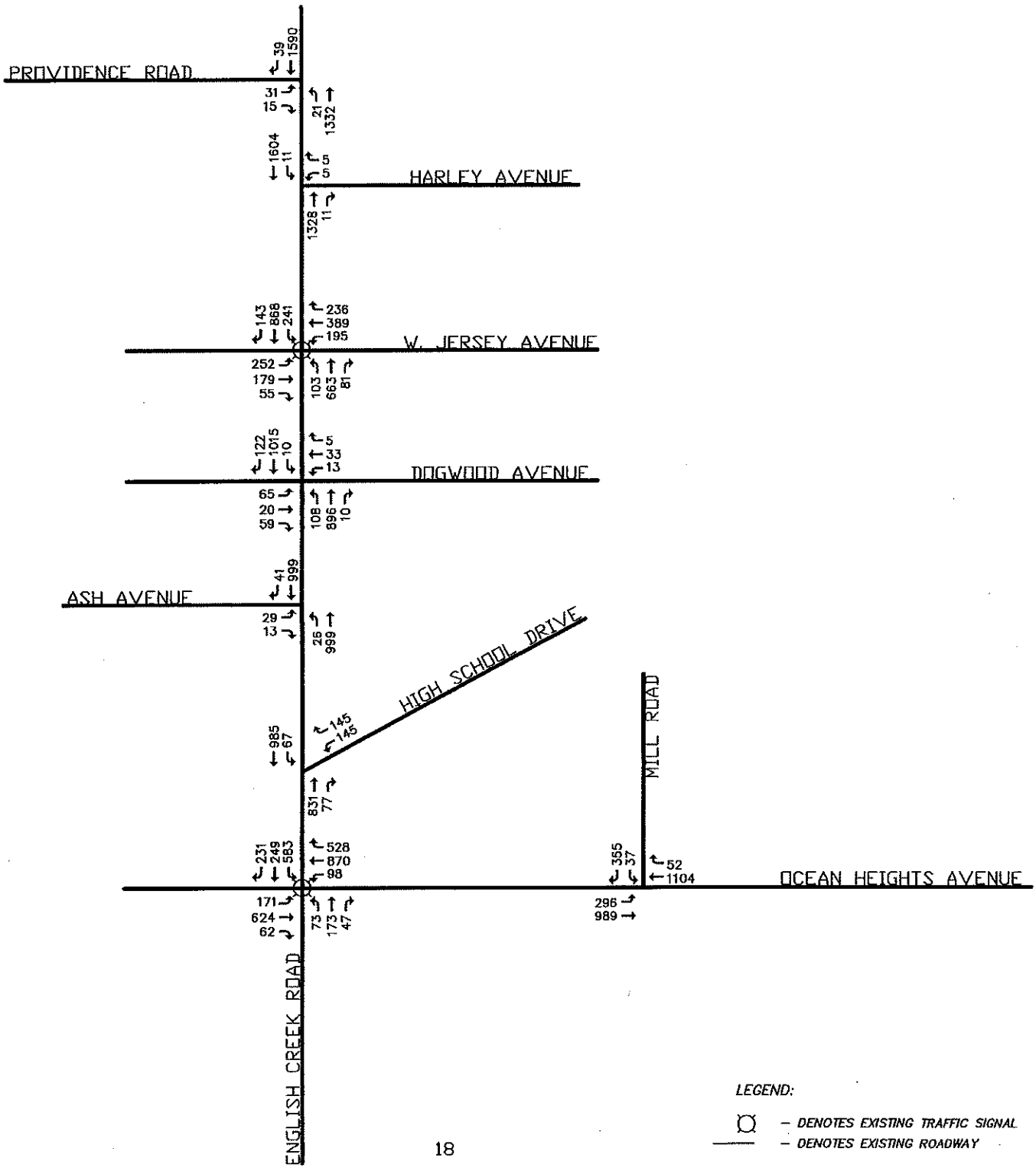

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Figure 8

2017 Future AM Peak Hour Levels of Service

Atlantic County Access Management
Egg Harbor Township
Atlantic County, New Jersey

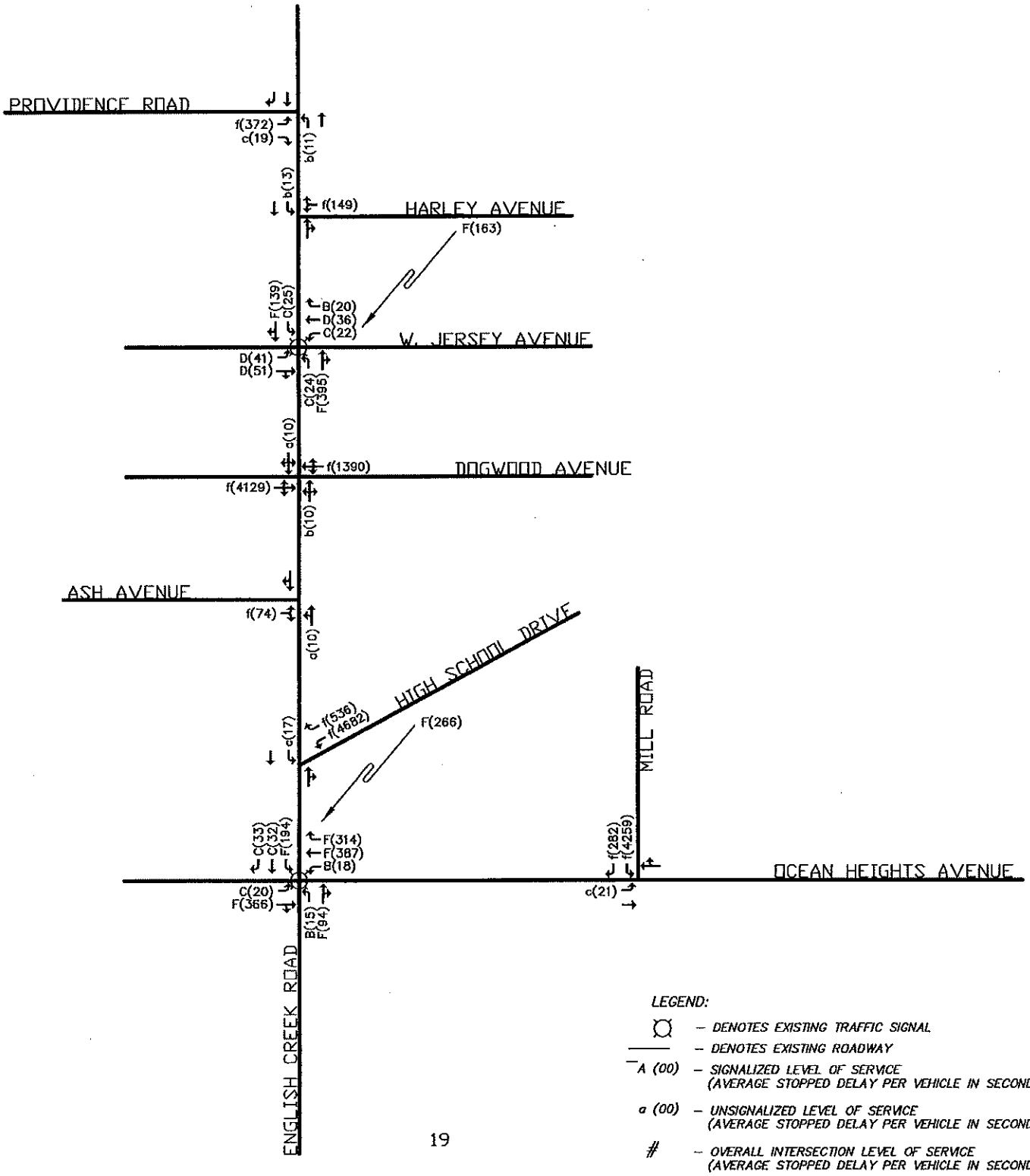

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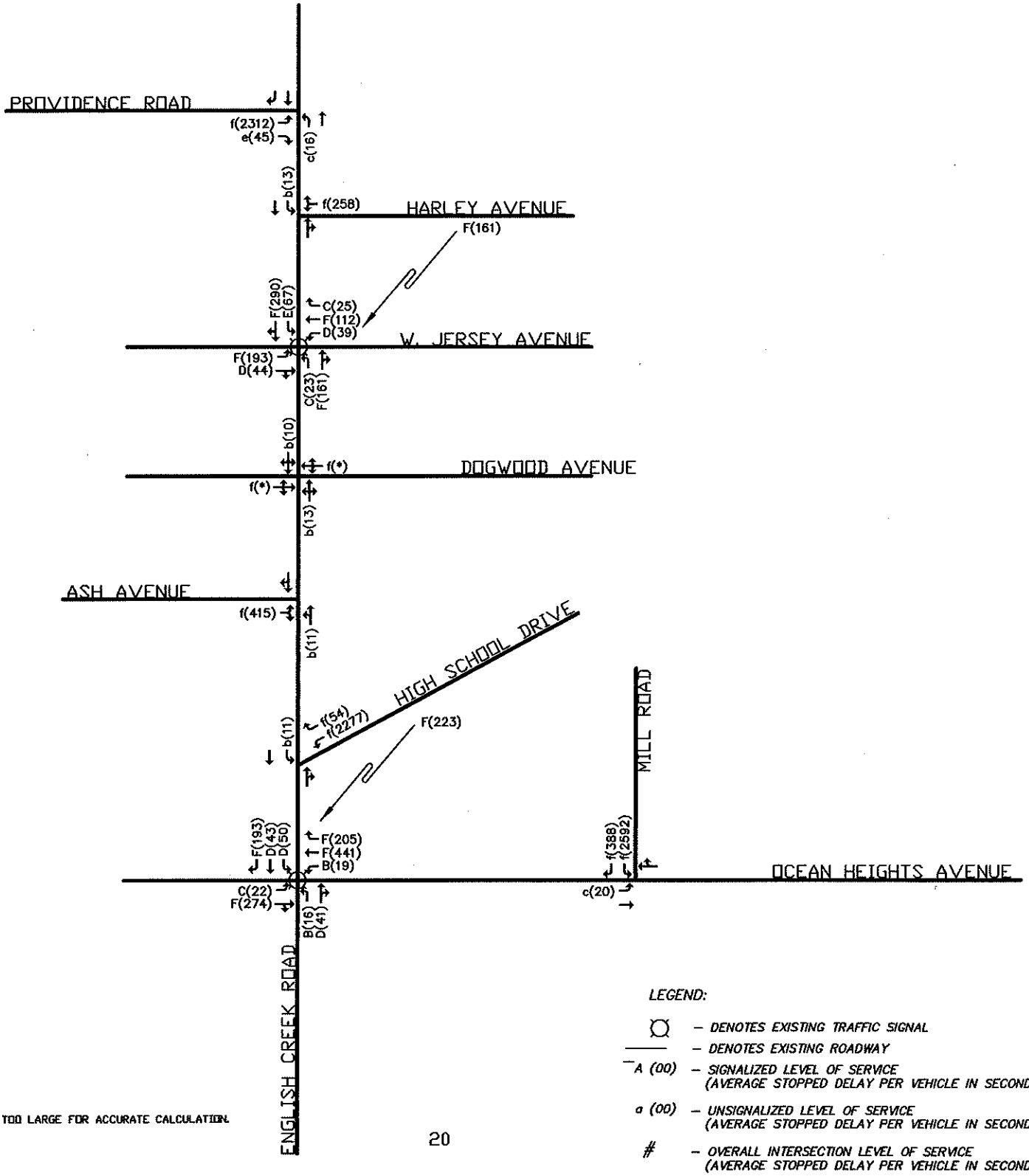
Figure 9

2017 Future PM Peak Hour Levels of Service

Atlantic County Access Management
Egg Harbor Township
Atlantic County, New Jersey



LEGEND:

- ⌧ – DENOTES EXISTING TRAFFIC SIGNAL
- —— – DENOTES EXISTING ROADWAY
- A (00) – SIGNALIZED LEVEL OF SERVICE (AVERAGE STOPPED DELAY PER VEHICLE IN SECONDS)
- a (00) – UNSIGNALIZED LEVEL OF SERVICE (AVERAGE STOPPED DELAY PER VEHICLE IN SECONDS)
- # – OVERALL INTERSECTION LEVEL OF SERVICE (AVERAGE STOPPED DELAY PER VEHICLE IN SECONDS)

*DELAY TOO LARGE FOR ACCURATE CALCULATION.

The following are discussions pertaining to each of the intersections analyzed outlining future levels of service. Also provided, where necessary, is a discussion of mitigation required to reach acceptable levels of service. All capacity analyses are included in the Appendix at the end of this document.

1. **English Creek Avenue and Providence Road**

   No mitigation is necessary at the intersection of English Creek Avenue and Providence Road as a result of the level of service analysis. The LOS 'f' experienced by 2017 eastbound left turning traffic is somewhat misleading, as traffic should have gaps to exit the intersection.

2. **English Creek Avenue and West Jersey Avenue**

   The signalized intersection of English Creek Avenue and West Jersey Avenue will experience degradation in levels of service on all approaches with the introduction of 2017 traffic volumes. The worst degradation in level of service will occur on the northbound and southbound approaches. As a result, the following mitigation is recommended:

   1. A southbound through lane should be added, yielding dual through lanes on the southbound approach.
   2. A northbound through lane should be added, yielding dual through lanes on the northbound approach.
   3. A dedicated southbound right turn lane should be added.
   4. It is recommended that signal timings be changed, increasing the cycle length to 120 seconds, giving more of a percentage of time to the northbound and southbound approaches.

   With signalization and the above recommended geometric improvements, all movements will operate with acceptable levels of service using the timings recommended by ORA, as provided in the HCS printouts in the Appendix of this document.

3. **English Creek Avenue and Dogwood Avenue**

   Based on accident history, and MUTCD eight-hour and four-hour volume warrants, it is recommended that the intersection of English Creek Avenue and Dogwood Avenue be signalized. In addition, in order to accommodate projected 2017 traffic volumes, it is recommended that dedicated left turn lanes be added on all approaches, and a dedicated right turn lane be added on the southbound English Creek Avenue approach. With signalization and the recommended geometric improvements, all movements will operate with acceptable levels of service using the timings recommended by ORA, as provided in the HCS printouts in the Appendix of this document.

4. **English Creek Avenue and High School Drive**

Based on MUTCD eight-hour and four-hour volume warrants, it is recommended that the intersection of English Creek Avenue and High School Drive be signalized. In addition, in order to accommodate projected 2017 traffic volumes, an additional northbound right turn lane is recommended. With signalization and the geometric improvement, all movements will operate with acceptable levels of service using the timings recommended by ORA, as provided in the HCS printouts in the Appendix of this document.

5. **English Creek Avenue and Ocean Heights Avenue**

The signalized intersection of English Creek Avenue and Ocean Heights Avenue will experience degradation in levels of service on all approaches with the projected 2017 traffic volumes. As a result, the following mitigation is recommended:

1. An additional dedicated southbound left turn lane.
2. Signalize the channelized northbound right turn, restricting its movement during the English Creek Avenue southbound left turn phase.
3. An eastbound through lane should be added, yielding dual through lanes on the eastbound approach.
4. A westbound through lane should be added, yielding dual through lanes on the westbound approach.
5. Increase the width of the southbound double left, through and right turn lanes to 12', 12; and 15' respectively.
6. It is recommended that signal timings be changed, increasing the cycle length to 120 seconds, and granting more of a percentage of time to the northbound and southbound approaches.

With signalization and the above recommended geometric improvements, all movements will operate with acceptable levels of service using the timings recommended by ORA, as provided in the HCS printouts in the Appendix of this document.

6. **Ocean Heights Avenue and Mill Road**

Based on MUTCD four-hour volume warrants, it is recommended that the intersection of English Creek Avenue and Mill Road be signalized. In addition, it is recommended that the Ocean Heights Avenue eastbound left turn lane be extended from 250 feet to 300 feet. It was found with the extension and dualization of the eastbound and westbound through lanes at English Creek Avenue and Ocean Heights Avenue, that Ocean Heights Avenue at Mill Road will need to have dual through lanes on the eastbound and westbound approaches as well to enable proper transitions from the single lane to dual through lanes (appropriate for the 50 mph speed limit). With signalization and the recommended geometric improvement, all movements will operate with acceptable levels of service using the timings recommended by ORA, as provided in the HCS printouts in the Appendix of this document.

With the above mitigation in place, all intersections within the study area will operate with acceptable levels of service. The figures featuring 2017 Future levels of service with mitigation for the morning and evening peak hours are shown on Figures 10 and 11, respectively.

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Figure 10

2017 Future AM with Mitigation Peak Hour Levels of Service

Atlantic County Access Management
Egg Harbor Township
Atlantic County, New Jersey

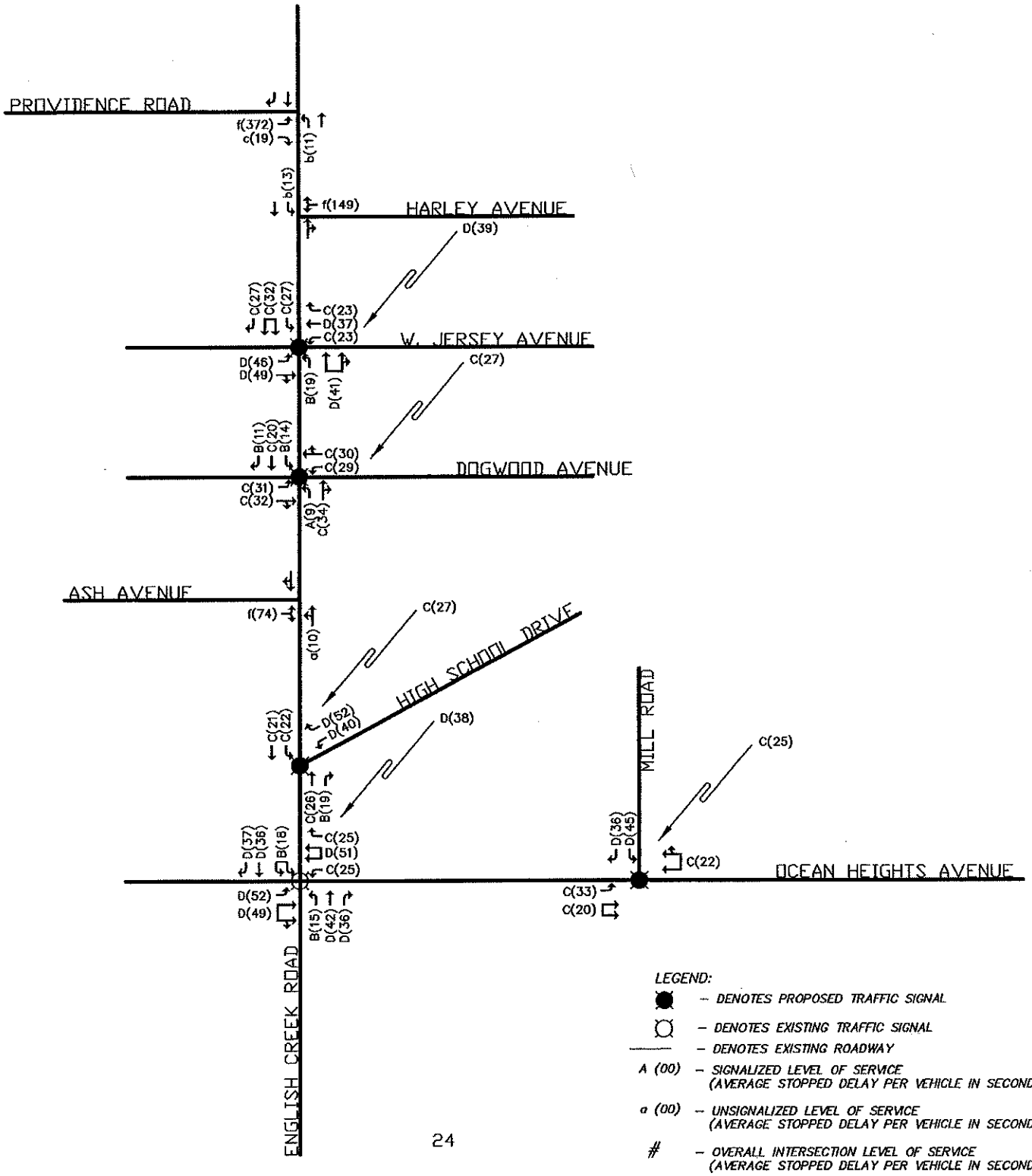

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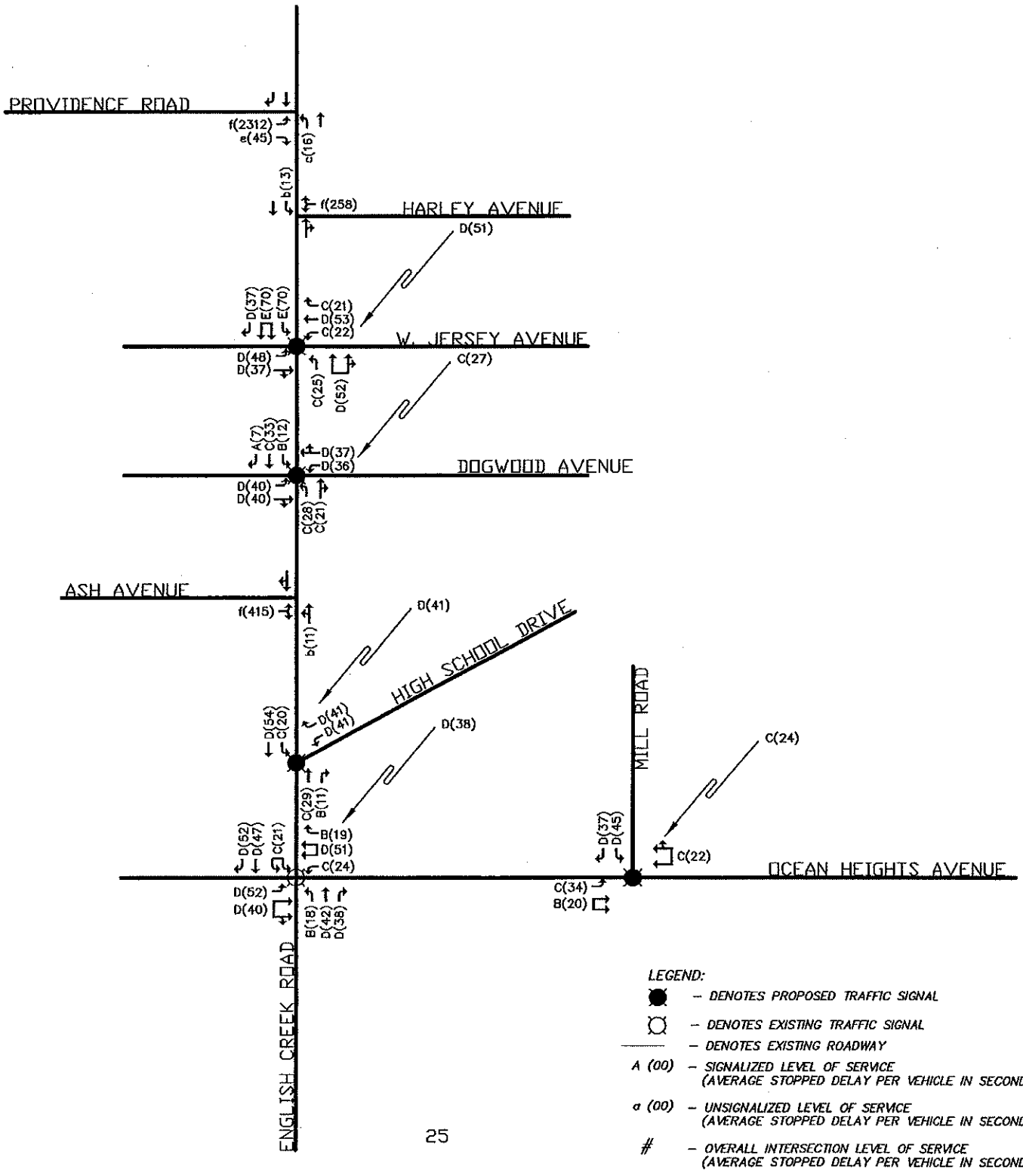
Figure 11

2017 Future PM with Mitigation Peak Hour Levels of Service

Atlantic County Access Management
Egg Harbor Township
Atlantic County, New Jersey



TASK 3 – TRAFFIC SIGNAL WARRANT ANALYSES

Under 2007 existing conditions, ORA performed a Traffic Signal Warrant Analysis for the following intersections:

1. English Creek Avenue and Dogwood Avenue
2. English Creek Avenue and High School Drive
3. Ocean Heights and Mill Road

This Traffic Signal Warrant Analysis was prepared based on the Manual of Uniform Traffic Control Devices (MUTCD) published by the U.S. Department of Transportation Federal Highway Administration, November 2003.

The Eight-Hour Vehicular Volume Warrant is covered under two possible conditions, Condition A and Condition B. Condition A is "intended for application at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic signal.[3] Condition B is "intended for application at locations where Condition A is not satisfied and where the traffic volume on a major street is so heavy that that traffic on a minor intersecting street suffers excessive delay or conflict in entering or crossing the major street."[4]

In order for an intersection to meet this warrant, either the minimum vehicular volume thresholds under Condition A or Condition B, or a combination of Conditions A and B must be met. The comparison is made with the sum of the volume of traffic of both major approaches and the higher of the minor approach to the given thresholds for each condition. Consideration is also given to the number of lanes on each approach, vehicle speed, and area population.

The Four-Hour Vehicular Volume Warrant "is intended to be applied where the volume of intersecting traffic is the principal reason to consider installing a traffic control signal."[5] In order for an intersection to meet this warrant, at least four of the plotted points representing hourly approach volumes for the subject intersection must fall above the appropriate curve on the appropriate graph. These volumes are calculated as the sum of the volumes on the major approaches to the intersection and the higher minor approach to the intersection. Consideration is also given to the number of lanes on each approach, vehicle speed, and area population.

3 Manual on Uniform Traffic Control Devices, 2000, 4C-6.
4 Ibid 3.
5 Ibid 3.

Our analysis shows that the intersections of English Creek Avenue and High School Drive, and the intersection of English Creek Avenue and Dogwood Avenue meet the Eight-Hour Volume Warrant and the Four-Hour Volume Warrant in accordance with the 2003 MUTCD. In addition, based on the four hour count data ORA received, the intersection of Ocean Heights Avenue and Mill Road meets the Four-Hour Volume Warrant in accordance with the 2003 MUTCD. Based on the traffic data, it is recommended that these three (3) intersections be considered for signalization in the future to provide for safe and efficient movement of traffic. As mentioned above, the 2017 Future analyses were conducted with these three intersections under signalized operation.

TASK 4 – QUEUE ANALYSIS

Using software which supports the 2000 edition of the Highway Capacity Manual, ORA determined the average back-of-queue of traffic at the two (2) existing signalized intersections in the study area, and the 95th percentile queue of traffic for the four (4) existing unsignalized intersections. The results of the queue analyses for the existing intersections are featured in the following two (2) tables:

Table IV: Queue Analysis, under Existing Conditions, for Signalized Intersections

	Average Back of Queue (linear feet)											
	AM											
Signalized Intersections	**NB**			**SB**			**EB**			**WB**		
	L	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**
English Creek Ave. and Ocean Heights Ave.	22.5	145	-	158	40	42.5	37.5	530	-	7.5	575	375
English Creek Ave. and West Jersey Ave.	25	710	-	45	338	-	128	185	-	25	85	52.5
	PM											
	L	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**
English Creek Ave. and Ocean Heights Ave.	20	92.5	-	185	103	97.5	45	373	-	25	695	258
English Creek Ave. and West Jersey Ave.	30	435	-	70	733	-	105	118	-	75	218	90

Table V: Queue Analysis, under Existing Conditions, for Unsignalized Intersections

	95th Percentile Queue (linear feet)											
	AM											
Unsignalized Intersections	NB			SB			EB			WB		
	L	T	R	L	T	R	L	T	R	L	T	R
English Creek Ave. and Providence Road	-	-	-	13.8	-	2.5	0.5	-	-	-	-	-
English Creek Ave. and Dogwood Avenue	-	17.5	-	-	197	-	-	4	-	-	0.25	-
English Creek Ave. and High School Drive	363	-	159	-	-	-	-	-	-	13.3	-	-
Ocean Heights Ave. and Mill Road	-	-	-	46.5	-	72.5	27.3	-	-	-	-	-
	PM											
	L	T	R	L	T	R	L	T	R	L	T	R
English Creek Ave. and Providence Road	-	-	-	49	-	4.5	1.5	-	-	-	-	-
English Creek Ave. and Dogwood Avenue	-	43	-	-	130	-	-	6.75	-	-	0.5	-
English Creek Ave. and High School Drive	203	-	34.3	-	-	-	-	-	-	3.5	-	-
Ocean Heights Ave. and Mill Road	-	-	-	30.5	-	83.3	21.8	-	-	-	-	-

This same queue analysis was conducted on the future volumes, grown by 5% per year, over the entire corridor. When evaluating these volumes, and incorporating the signalization at Dogwood Avenue, High School Drive, and Mill Road, we arrived at queue results under future growth conditions, as featured in the following two (2) tables:

Table VI: Queue Analysis, under Future Conditions, for Signalized Intersections

	Average Back of Queue (linear feet)											
	AM											
Signalized Intersections	NB			SB			EB			WB		
	L	T	R	L	T	R	L	T	R	L	T	R
English Creek Ave. and Ocean Heights Ave.	85	408	128	275	165	175	220	738	-	35	783	863
English Creek Ave. and West Jersey Ave.	85	685	-	163	330	-	483	643	-	92.5	288	193
English Creek Ave. and Dogwood Avenue	40	1088	-	2.5	623	75	95	138	-	7.5	47.5	-
English Creek Ave. and High School Drive	-	903	410	135	633	-	-	-	-	243	-	428
Ocean Heights Ave. and Mill Road	-	-	-	75	-	535	265	543	-	-	615	-
	PM											
	L	T	R	L	T	R	L	T	R	L	T	R
English Creek Ave. and Ocean Heights Ave.	80	298	77.5	348	428	423	250	588	-	118	830	633
English Creek Ave. and West Jersey Ave.	123	715	-	380	960	233	365	368	-	228	698	285
English Creek Ave. and Dogwood Avenue	55	1045	-	5	1473	90	97.5	115	-	17.5	55	-
English Creek Ave. and High School Drive	-	1273	82.5	50	2045	-	-	-	-	240	-	245
Ocean Heights Ave. and Mill Road	-	-	-	65	-	560	213	613	-	-	780	-

Table VII: Queue Analysis, under Future Conditions, for Unsignalized Intersections

	95th Percentile Queue (linear feet)											
	AM											
Unsignalized Intersections	NB			SB			EB			WB		
	L	T	R	L	T	R	L	T	R	L	T	R
English Creek Ave. and Providence Road	-	-	-	91.3	-	7	1.25	-	-	-	-	-
	PM											
	L	T	R	L	T	R	L	T	R	L	T	R
English Creek Ave. and Providence Road	-	-	-	206	-	21	4.5	-	-	-	-	-

ORA used the results of the average back of queue and the 95th percentile queue lengths to determine whether each of the intersection's storage lengths are and will be sufficient to house turning traffic.

TASK 5 – LEFT-TURN LANE WARRANT ANALYSIS

Using the industry-accepted "Harmelink Method", ORA evaluated the need for extension of existing left turn lanes on unsignalized locations along the corridor. Specifically, ORA reviewed the following locations and approaches:

1. Ocean Heights and Mill Road, eastbound approach
2. English Creek Avenue and Providence Road, northbound approach
3. English Creek Avenue and Harley Avenue, southbound approach
4. English Creek Avenue and Ash Avenue, northbound approach
5. English Creek Avenue and High School Drive, southbound approach

As a result of this calculation, and the result of the queue length calculation conducted under Task 4. ORA recommends that the following turn lanes be extended to support the calculated queue lengths, as shown in Task 7:

1. English Creek Avenue and Providence Road, northbound left turn lane
2. English Creek Avenue and Harley Avenue, southbound left turn lane
3. Ocean Heights and Mill Road, eastbound left turn lane.

TASK 6 – ROAD SAFETY AUDIT RECOMMENDATIONS

The June 2005 SJTPO Road Safety Audit identified 49 traffic-related issues that could require remedial action. Of these 49, two (2) pertain directly to the scope of this study. Those two issues are as follows:

Table VIII: 2005 SJTPO Road Safety Audit Recommendations

SAFETY ISSUE		REMEDIAL ACTION	LEVEL OF EFFORT REQUIRED			POTENTIAL SAFETY BENEFIT		
			LOW	MEDIUM	HIGH	LOW	MEDIUM	HIGH
21	Confusing lane configuration and signing in the area of Providence Road.	Consider revising the pavement marking and signing. Possibly extend center left turn lane.		X			X	
46	Left turn storage along the southbound approach to Rt. 559 is very limited. Motorists wanting to turn left at the intersection are driving over the painted cross-hatching. County has attempted to discourage this by installing flex-posts on the centerline in the crosshatched area. During the audit some motorists were observed driving over the painted crosshatching to the left of the flex posts.	Request police increase enforcement of this practice. Super Wawa is planned for northeast quadrant of this intersection [English Creek Avenue and Ocean Heights Avenue]. Roadway improvements associated with Super Wawa should address this issue. Negotiations with the developer should attempt to limit movement to the existing driveway to right turns only.			X			X

ORA considered the information above from the June 2005 SJTPO Road Safety Audit when conducting analyses of the study locations.

TASK 7 – CONCEPTUAL DESIGN

ORA completed conceptual corridor recommendations, depicting all recommendations on aerial plans. For convenience, a list of our recommendations for the 2017 year is detailed below.

Table IX: 2017 Recommended Mitigation

Intersection	Recommendations
English Creek Ave. and West Jersey Avenue	1. Change timing. 2. Add a NB thru lane. 3. Add a SB thru lane. 4. Add a dedicated SB right turn lane.
English Creek Ave. and Dogwood Drive	1. Signalize the intersection 2. Add dedicated left turn lanes on all approaches 3. Add a dedicated right turn lane on the southbound English Creek Avenue approach.
English Creek Ave. and High School Drive	1. Signalize the intersection 2. Add a dedicated right turn lane on the northbound English Creek Avenue approach.
English Creek Ave. and Ocean Heights Ave.	1. Add an additional dedicated SB left turn lane 2. Signalize the channelized NB right turn, restricting movement during the SB left turn phase. 3. Add an EB thru lane 4. Add a WB thru lane 6. Increase width of southbound double left, through and right turn lanes to 12', 12', 12', and 15' respectively. 7. Increase cycle length to 120 seconds, coordinate with Mill Road signal.
Ocean Heights Ave. and Mill Road	1. Extend the eastbound left turn lane from 250 feet to 300 feet. 2. Add an EB thru lane (extended from the Ocean Heights Avenue signal) 3. Add a WB thru lane (extended from the Ocean Heights Avenue signal) 4. Signalize the intersection, interconnect with the English Creek Avenue signal.

* Aerials illustrating the proposed improvements are located in the Appendix to this report.

CONCLUSIONS AND RECOMMENDATIONS

The analysis contained herein has examined the 2007 existing traffic conditions on English Creek Avenue between the intersections of Providence Road and Ocean Heights Road, and on Ocean Heights Road between English Creek Avenue and Mill Road. This study has further examined the future traffic growth potential in the study area and has assigned this growth to the area road system. Total future traffic volumes were estimated based on a 5% annual growth rate, recommended by Atlantic County Division of Engineering, and each intersection was analyzed for the 2017 design year.

The design year levels of service analysis indicates that traffic within the study area will experience efficient movement provided the suggested mitigation plans are completed as summarized in Table III above. Furthermore, all intersections will operate with acceptable levels of service with the suggested mitigation measures in place.

It should be noted that the length of the turning lanes depicted in our concept aerial plans would be shortened if a lesser speed limit was posted through the intersection of English Creek Road and Ocean Heights Avenue. For example, the dual eastbound through lanes at the intersection are depicted on our concept plans at 760' in length, extending past Mill Road, based on the 50 mph speed limit. If the speed limit on eastbound Ocean Heights Avenue was dropped to 45 mph, the dual eastbound through lanes would be 560', and for a 40 mph speed limit, the lanes would need to be 380'. Such a drop in speed limit would also be advantageous due to the number of accesses and transitions present in the vicinity of the English Creek and Ocean Heights intersection.

As this corridor is part of a burgeoning area, it is also recommended that the Atlantic County Division of Engineering perform periodic spot traffic counts to confirm that traffic volumes are actually increasing at the forecasted 5% annual rate. These counts may be used to determine when and at what level of complexity the mitigation recommendations listed above should be implemented.

Atlantic County Division of Engineering.

Route 9 & Dolphin Avenue,
Northfield, NJ 08225
(609) 645 5898

CR575
English Creek Rd.
Between W. Jersey and & Black Horse Pike
Egg Harbor Township

Site Code: 575.2
@ pole #15420
Latitude: 39' 42.722 North
Longitude: -74' 61.278 West
Date Start: 30-Jul-18
Date End: 02-Aug-18

Start	30-Jul-18		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	*	*	86	40	80	42	83	31	*	*	*	*	*	*	83	38
01:00	*	*	43	23	56	37	44	25	*	*	*	*	*	*	48	28
02:00	*	*	34	26	31	33	41	26	*	*	*	*	*	*	35	28
03:00	*	*	30	32	30	39	33	36	*	*	*	*	*	*	31	36
04:00	*	*	46	62	57	58	61	54	*	*	*	*	*	*	55	58
05:00	*	*	55	179	64	179	60	169	*	*	*	*	*	*	60	176
06:00	*	*	118	327	135	344	65	248	*	*	*	*	*	*	106	306
07:00	*	*	299	581	302	571	*	*	*	*	*	*	*	*	300	576
08:00	*	*	455	735	435	785	*	*	*	*	*	*	*	*	445	760
09:00	*	*	439	675	462	714	*	*	*	*	*	*	*	*	450	694
10:00	479	643	495	652	519	640	*	*	*	*	*	*	*	*	498	645
11:00	516	681	556	713	605	641	*	*	*	*	*	*	*	*	559	678
12:00 PM	741	860	639	725	640	711	*	*	*	*	*	*	*	*	673	765
01:00	644	743	634	689	664	733	*	*	*	*	*	*	*	*	647	722
02:00	716	659	679	660	648	661	*	*	*	*	*	*	*	*	681	660
03:00	752	686	719	660	720	620	*	*	*	*	*	*	*	*	730	655
04:00	833	645	782	621	835	654	*	*	*	*	*	*	*	*	817	640
05:00	771	618	786	652	786	642	*	*	*	*	*	*	*	*	781	637
06:00	721	543	624	563	649	564	*	*	*	*	*	*	*	*	665	557
07:00	498	434	525	450	524	471	*	*	*	*	*	*	*	*	516	452
08:00	471	315	467	333	493	389	*	*	*	*	*	*	*	*	477	346
09:00	313	204	345	194	363	245	*	*	*	*	*	*	*	*	340	214
10:00	208	143	234	148	257	176	*	*	*	*	*	*	*	*	233	156
11:00	122	90	126	103	159	102	*	*	*	*	*	*	*	*	136	98
Lane	7785	7264	9216	9843	9514	10051	387	589	0	0	0	0	0	0	9366	9925
Day	15049		19059		19565		976		0		0		0		19291	
AM Peak	11:00	11:00	11:00	08:00	11:00	08:00	00:00	06:00							11:00	08:00
Vol.	516	681	556	735	605	785	83	248							559	760
PM Peak	16:00	12:00	17:00	12:00	16:00	13:00									16:00	12:00
Vol.	833	860	786	725	835	733									817	765

Comb. Total	15049	19059	19565	976	0	0	0	19291

ADT ADT 19,312 AADT 19,312

HCS7: Two-Lane Highways Release 7.6

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	NP/AM
Agency/Co.	Atlantic County Div. of Engr.
Date Performed	11/9/2018
Analysis Time Period	
Highway	English Creek Ave (CR 575) NB
From/To	Btw Black Horse & West Jersey
Jurisdiction	Egg Harbor
Analysis Year	2018
Description	English Creek Analysis E.C.

Input Data

Highway class	Class 3		Peak hour factor, PHF	0.90	
Shoulder width	0.5	ft	% Trucks and buses	5	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	1.2	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	1	%
Grade: Length	-	mi	% No-passing zones	40	%
Up/down	-	%	Access point density	15	/mi

Analysis direction volume, Vd 924 veh/h
Opposing direction volume, Vo 884 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.1*		1.0	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor, (note-5) fHV	0.995		1.000	
Grade adj. factor, (note-1) fg	1.00		1.00	
Directional flow rate, (note-2) vi	1032	pc/h	982	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed, (note-3) S FM	-	mi/h
Observed total demand, (note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, (note-3) BFFS	55.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	4.2	mi/h
Adj. for access point density, (note-3) fA	3.8	mi/h
Free-flow speed, FFSd	47.0	mi/h
Adjustment for no-passing zones, fnp	0.3	mi/h
Average travel speed, ATSd	31.1	mi/h
Percent Free Flow Speed, PFFS	66.0	%

Percent Time-Spent-Following

Direction	Analysis (d)	Opposing (o)
PCE for trucks, ET	1.0	1.0
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	1.000	1.000
Grade adjustment factor, (note-1) fg	1.00	1.00
Directional flow rate, (note-2) vi	1027 pc/h	982 pc/h
Base percent time-spent-following, (note-4) BPTSFd	78.5 %	
Adjustment for no-passing zones, fnp	15.7	
Percent time-spent-following, PTSFd	86.5 %	

Level of Service and Other Performance Measures

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.61	
Peak 15-min vehicle-miles of travel, VMT15	308	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1109	veh-mi
Peak 15-min total travel time, TT15	9.9	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	1.2	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	31.1	mi/h
Percent time-spent-following, PTSFd (from above)	86.5	
Level of service, LOSd (from above)	E	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1026.7
Effective width of outside lane, We	12.50
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	6.41
Bicycle LOS	F

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

* These items have been entered or edited to override calculated value

HCS7: Two-Lane Highways Release 7.6

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	NP/AM
Agency/Co.	Atlantic County Div. of Engr.
Date Performed	11/9/2018
Analysis Time Period	
Highway	English Creek Ave (CR 575) SB
From/To	Btw Black Horse & West Jersey
Jurisdiction	Egg Harbor
Analysis Year	2018
Description	English Creek Analysis E.C.

Input Data

Highway class	Class 3		Peak hour factor, PHF	0.90	
Shoulder width	1.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	1.2	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	1	%
Grade: Length	-	mi	% No-passing zones	42	%
Up/down	-	%	Access point density	12	/mi

Analysis direction volume, Vd 884 veh/h
Opposing direction volume, Vo 924 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.1*		1.0	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor, (note-5) fHV	0.992		1.000	
Grade adj. factor, (note-1) fg	1.00		1.00	
Directional flow rate, (note-2) vi	990	pc/h	1027	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed, (note-3) S FM	-	mi/h
Observed total demand, (note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, (note-3) BFFS	55.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	4.2	mi/h
Adj. for access point density, (note-3) fA	3.0	mi/h
Free-flow speed, FFSd	47.8	mi/h
Adjustment for no-passing zones, fnp	0.4	mi/h
Average travel speed, ATSd	31.8	mi/h
Percent Free Flow Speed, PFFS	66.4	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.0		1.0	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	1.000		1.000	
Grade adjustment factor, (note-1) fg	1.00		1.00	
Directional flow rate, (note-2) vi	982	pc/h	1027	pc/h
Base percent time-spent-following, (note-4) BPTSFd	77.7	%		
Adjustment for no-passing zones, fnp	15.8			
Percent time-spent-following, PTSFd	85.4	%		

Level of Service and Other Performance Measures

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.58	
Peak 15-min vehicle-miles of travel, VMT15	295	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1061	veh-mi
Peak 15-min total travel time, TT15	9.3	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	1.2	mi
Length of two-lane highway upstream of the passing lane, Lu	0.3	mi
Length of passing lane including tapers, Lpl	0.0	mi
Average travel speed, ATSd (from above)	31.8	mi/h
Percent time-spent-following, PTSFd (from above)	85.4	
Level of service, LOSd (from above)	E	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	1.70	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-0.80	mi
Adj. factor for the effect of passing lane on average speed, fpl	1.11	
Average travel speed including passing lane, ATSpl	33.7	
Percent free flow speed including passing lane, PFFSpl	70.4	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	3.73	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-2.83	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	0.62	
Percent time-spent-following including passing lane, PTSFpl	64.0	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	D	
Peak 15-min total travel time, TT15	8.8	veh-h

Bicycle Level of Service

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	982.2
Effective width of outside lane, We	13.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	7.29
Bicycle LOS	F

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

* These items have been entered or edited to override calculated value

Atlantic County Division of Engineering.

Route 9 & Dolphin Avenue.
Northfield, NJ 08225
(609) 645 5898

CR575
English Creek Rd.
Between Dogwood & W. Jersey
Egg Harbor Township

Site Code: 575 1
@ pole #10039
Latitude: 39' 41.722 North
Longitude: -74' 62.000 West
Date Start: 30-Jul-18
Date End: 02-Aug-18

Start	30-Jul-18		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	*	*	36	52	39	65	27	66	*	*	*	*	*	*	34	61
01:00	*	*	20	28	28	42	16	32	*	*	*	*	*	*	21	34
02:00	*	*	22	25	25	24	22	24	*	*	*	*	*	*	23	24
03:00	*	*	18	19	25	20	24	17	*	*	*	*	*	*	22	19
04:00	*	*	42	22	37	28	37	27	*	*	*	*	*	*	39	26
05:00	*	*	137	53	138	65	121	65	*	*	*	*	*	*	132	61
06:00	*	*	234	103	255	133	144	53	*	*	*	*	*	*	211	96
07:00	*	*	485	257	457	234	*	*	*	*	*	*	*	*	471	246
08:00	*	*	521	365	543	365	*	*	*	*	*	*	*	*	532	365
09:00	*	*	479	344	488	355	*	*	*	*	*	*	*	*	484	350
10:00	490	375	460	380	460	380	*	*	*	*	*	*	*	*	470	378
11:00	467	424	493	408	454	460	*	*	*	*	*	*	*	*	471	431
12:00 PM	572	549	478	480	515	488	*	*	*	*	*	*	*	*	522	506
01:00	523	469	503	461	513	465	*	*	*	*	*	*	*	*	513	472
02:00	454	512	454	484	449	489	*	*	*	*	*	*	*	*	452	495
03:00	499	558	461	561	477	545	*	*	*	*	*	*	*	*	479	555
04:00	420	581	478	593	490	619	*	*	*	*	*	*	*	*	463	598
05:00	426	568	483	625	463	613	*	*	*	*	*	*	*	*	457	602
06:00	395	563	372	511	409	506	*	*	*	*	*	*	*	*	392	527
07:00	310	355	337	410	352	437	*	*	*	*	*	*	*	*	333	401
08:00	255	326	233	349	297	386	*	*	*	*	*	*	*	*	262	354
09:00	140	256	146	275	187	275	*	*	*	*	*	*	*	*	158	269
10:00	93	159	115	173	140	181	*	*	*	*	*	*	*	*	116	171
11:00	63	82	66	80	69	112	*	*	*	*	*	*	*	*	66	91
Lane	5107	5777	7073	7078	7310	7287	391	284	0	0	0	0	0	0	7123	7132
Day	10884		14151		14597		675		0		0		0		14255	
AM Peak	10:00	11:00	08:00	11:00	08:00	11:00	06:00	00:00							08:00	11:00
Vol.	490	424	521	408	543	460	144	66							532	431
PM Peak	12:00	16:00	13:00	17:00	12:00	16:00									12:00	17:00
Vol.	572	581	503	625	515	619									522	602

Comb. Total	10884	14151	14597	675	0	0	0	14255

ADT ADT 14,374 AADT 14,374

HCS7: Two-Lane Highways Release 7.6

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	NP/AM
Agency/Co.	Atlantic County Div. of Engr.
Date Performed	11/9/2018
Analysis Time Period	
Highway	English Creek Ave (CR 575) NB
From/To	Between Dogwood & West Jersey
Jurisdiction	Egg Harbor
Analysis Year	2018
Description	English Creek Analysis E.C.

Input Data

Highway class	Class 3		Peak hour factor, PHF	0.90	
Shoulder width	2.0	ft	% Trucks and buses	5	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	1.1	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	38	%
Up/down	-	%	Access point density	14	/mi

Analysis direction volume, Vd 628 veh/h
Opposing direction volume, Vo 676 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.1*		1.1	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor, (note-5) fHV	0.995		0.995	
Grade adj. factor, (note-1) fg	1.00		1.00	
Directional flow rate, (note-2) vi	701	pc/h	755	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed, (note-3) S FM	-	mi/h
Observed total demand, (note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, (note-3) BFFS	54.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	3.5	mi/h
Free-flow speed, FFSd	47.9	mi/h
Adjustment for no-passing zones, fnp	0.5	mi/h
Average travel speed, ATSd	36.1	mi/h
Percent Free Flow Speed, PFFS	75.4	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.0		1.0	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	1.000		1.000	
Grade adjustment factor, (note-1) fg	1.00		1.00	
Directional flow rate, (note-2) vi	698	pc/h	751	pc/h
Base percent time-spent-following, (note-4) BPTSFd	64.7	%		
Adjustment for no-passing zones, fnp	22.5			
Percent time-spent-following, PTSFd	75.5	%		

Level of Service and Other Performance Measures

Level of service, LOS	C	
Volume to capacity ratio, v/c	0.41	
Peak 15-min vehicle-miles of travel, VMT15	192	veh-mi
Peak-hour vehicle-miles of travel, VMT60	691	veh-mi
Peak 15-min total travel time, TT15	5.3	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	1.1	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	36.1	mi/h
Percent time-spent-following, PTSFd (from above)	75.5	
Level of service, LOSd (from above)	C	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	697.8
Effective width of outside lane, We	14.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	6.02
Bicycle LOS	F

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

* These items have been entered or edited to override calculated value

HCS7: Two-Lane Highways Release 7.6

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	NP/AM
Agency/Co.	Atlantic County Div. of Engr.
Date Performed	11/9/2018
Analysis Time Period	
Highway	English Creek Ave (CR 575) SB
From/To	Between Dogwood & West Jersey
Jurisdiction	Egg Harbor
Analysis Year	2018
Description	English Creek Analysis E.C.

Input Data

Highway class	Class 3		Peak hour factor, PHF	0.90	
Shoulder width	2.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	1.1	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	1	%
Grade: Length	-	mi	% No-passing zones	22	%
Up/down	-	%	Access point density	12	/mi

Analysis direction volume, Vd 676 veh/h
Opposing direction volume, Vo 628 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.1*		1.1	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor, (note-5) fHV	0.994		0.994	
Grade adj. factor, (note-1) fg	1.00		1.00	
Directional flow rate, (note-2) vi	756	pc/h	702	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed, (note-3) S FM	-	mi/h
Observed total demand, (note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, (note-3) BFFS	54.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	3.0	mi/h
Free-flow speed, FFSd	48.4	mi/h
Adjustment for no-passing zones, fnp	0.5	mi/h
Average travel speed, ATSd	36.6	mi/h
Percent Free Flow Speed, PFFS	75.7	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.0		1.0	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	1.000		1.000	
Grade adjustment factor, (note-1) fg	1.00		1.00	
Directional flow rate, (note-2) vi	751	pc/h	698	pc/h
Base percent time-spent-following, (note-4) BPTSFd	66.7	%		
Adjustment for no-passing zones, fnp	19.6			
Percent time-spent-following, PTSFd	76.9	%		

Level of Service and Other Performance Measures

Level of service, LOS	C	
Volume to capacity ratio, v/c	0.44	
Peak 15-min vehicle-miles of travel, VMT15	207	veh-mi
Peak-hour vehicle-miles of travel, VMT60	744	veh-mi
Peak 15-min total travel time, TT15	5.7	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	1.1	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	36.6	mi/h
Percent time-spent-following, PTSFd (from above)	76.9	
Level of service, LOSd (from above)	C	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	751.1
Effective width of outside lane, We	14.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	6.35
Bicycle LOS	F

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

* These items have been entered or edited to override calculated value

Lindaw_Robert

From: Cheryl Bolden (CENSUS/NY FED) <cheryl.bolden@2020census.gov>
Sent: Friday, April 12, 2019 11:36 AM
To: Lindaw_Robert
Cc: Gilmore_Linda; Lowery_Rhonda; DelRosso_Jerry; Patricia R Greene Alston (CENSUS/NY FED); Lisa Moore (CENSUS/NY FED)
Subject: Re: Conference Call Confirmation RE: Census 2020

Importance: High

Robert,

Good morning.

I have scheduled the conference call for Monday, April 15, 2019 at 3pm.

Please use the following number - ***(Dial-in Number)*** ***1 347 973 4395*** ***925 855 80# - Passcode.***
As per our conversation, our agenda is as follows:

AGENDA ITEMS:
ACO Location.
Materials.
Presentations .
Hiring of local residents.
Any other topics that need to be discussed.

I look forward to speaking to you.

Thank you.

Cheryl Bolden
Supervisory Partnership Specialist
New York Regional Census Center
Field Division
U.S. Census Bureau

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