



Functional Design Report Addendum

To: Carrie Lavallee, Chief Engineer / Deputy Administrator
MassDOT Highway Division
10 Park Plaza, Suite 4160
Boston, MA 02116

From: GM2 Associates, Inc.
10 Cabot Road, Suite 101B
Medford, MA 02155

Subject: 605168 Hingham – Route 3A – Bathing Beach Road Diet
Project Manager: Shawn Holland
Contract No. 115764 – Assignment No. 5

GM2 performed a new traffic counting program for the Hingham Route 3A Reconstruction project. The purpose of this work was to determine if any new conditions had materialized and if any traffic control measures needed refinement from the previously approved Functional Design Report. Based on public comments and a request from the Hingham Route 3A Task Force, one element that was reanalyzed was the Route 3A corridor from the beginning of our project limit (Otis Street at the causeway) to the North Street intersection. This section of 3A starts as a two-way, two-lane roadway and transitions to four lanes just past Burditt Avenue where it continues until North Street. With this new traffic counting program, we reanalyzed the possibility of decreasing the four-lane cross section and extending the existing two-lane cross section from Otis Street to Ship Street. Concerns at this location included impacts to wetland resource areas due to the prior approved cross section and existing vehicle speeds above the posted speed limit.

For the Bathing Beach synchro analysis, two different time periods were analyzed. The first dataset was collected in the beginning of June 2023, during a typical weekday while schools were still in session. The second dataset was collected in July 2023, during the summer weekend that included 14-hour counts (6 am to 8 pm) on Friday through Sunday. From these 42 hours, the summertime weekend peak hour was used as a “worst case scenario” for the analysis.

Our synchro analysis used the highest weekday volumes (PM peak) and the summertime weekend peak (Friday PM peak) to analyze the 2030 no-build and build conditions of the section of Route 3A. Simtraffic was primarily used to observe five simulated runs of each condition and identify changes in delay and queuing. Table 1 and 2 below shows the comparison results for the two-lane versus four-lane analysis during the weekday PM peak hour and summertime weekend peak hour.

Table 1: Comparison of Four Lane vs Two Lane Alternatives during Typical Weekday PM Peak Hour Traffic

<i>ID</i>	<i>Roadway</i>	<i>Movement</i>	<i>No Build 2030 Conditions</i>		
			<i>Typical PM Peak Hour</i>		
			<i>Delay²</i>	<i>LOS³</i>	<i>Queue⁴</i>
1	<i>Bathing Beach Lot at</i>	<i>WB L/R</i>	6.5	A	8/30
	<i>Otis Street (Route 3A)</i>	<i>NB T</i>	2.2	A	25/82
		<i>NB TR</i>	2.8	A	2/18
		<i>SB LT</i>	1.6	A	18/62
		<i>SB T</i>	1.3	A	15/57
	<i>Overall</i>		1.8	A	

Four Lane analysis with existing geometry (No-Build) - Typical Weekday PM

1 – Delay in seconds per vehicle; 2 – Level-of-Service; 3 – length of queue in feet (Average length/ 95th percentile queue length)

<i>ID</i>	<i>Roadway</i>	<i>Movement</i>	<i>Build 2030 Conditions</i>		
			<i>Typical PM Peak Hour</i>		
			<i>Delay²</i>	<i>LOS³</i>	<i>Queue⁴</i>
1	<i>Bathing Beach Lot at</i>	<i>WB L/R</i>	5.7	A	7/24
	<i>Otis Street (Route 3A)</i>	<i>NB T</i>	2.5	A	29/104
		<i>NB R</i>	0.3	A	1/9
		<i>SB L</i>	2.1	A	2/12
		<i>SB T</i>	2.5	A	36/171
	<i>Overall</i>		2.5	A	

Two Lane analysis with turn lanes and optimized timings - Typical Weekday PM

1 – Delay in seconds per vehicle; 2 – Level-of-Service; 3 – length of queue in feet (Average length/ 95th percentile queue length)

Table 2: Comparison of Four Lane vs Two Lane Alternatives during Summertime Weekend Peak Hour Traffic

ID	Roadway	Movement	No Build 2030 Conditions		
			Summertime Weekend Peak Hour		
			Delay ²	LOS ³	Queue ⁴
1	Bathing Beach Lot at	WB L/R	15.7	B	38/72
	Otis Street (Route 3A)	NB T	9.9	A	137/286
		NB TR	6.3	A	68/210
		SB LT	8.5	A	96/170
		SB T	5.0	A	81/164
	Overall			8.2	A

Four Lane analysis with existing geometry (No-Build) - Summertime Weekend Peak

1 – Delay in seconds per vehicle; 2 – Level-of-Service; 3 – length of queue in feet (Average length/ 95th percentile queue length)

ID	Roadway	Movement	Build 2030 Conditions		
			Summertime Weekend Peak Hour		
			Delay ²	LOS ³	Queue ⁴
1	Bathing Beach Lot at	WB L/R	27.3	C	38/79
	Otis Street (Route 3A)	NB T	11.7	B	157/329
		NB R	0.6	A	12/61
		SB L	16.4	B	21/62
		SB T	9.1	A	153/326
	Overall			10.8	B

Two Lane analysis with turn lanes and optimized timings - Summertime Weekend Peak

1 – Delay in seconds per vehicle; 2 – Level-of-Service; 3 – length of queue in feet (Average length/ 95th percentile queue length)

Overall, the intersection was shown to have negligible increases in delay. During the PM peak, the overall signal delay increased by 0.7 seconds. Similarly, the summertime peak condition increased by 2.6 seconds overall. A key observation from the analysis is that a southbound left-turn lane is required at the Bathing Beach intersection. Vehicles were observed to queue in the through lane if no left turn is provided. Because of this, a southbound left-turn lane has been proposed at the intersection of Bathing Beach. The entrance to Bathing Beach intersection has the highest volume of left turns across 3A within this corridor, so a protected/permissive phase is being recommended at the signal. Only 2-3 vehicles were observed queuing for the left turn during summertime peak hours.

The intersection of Summer Street (Route 3A) and Ship Street was also included within the analysis. The review concluded that with the increased saturation of the eastbound movement, northbound left turns onto Ship Street would be especially difficult. Additionally, residents have spoken about the difficulty of the left turn maneuver at this intersection. A 40-foot left turn lane is being provided for the several vehicles that make this movement during peak hours.

The last major intersection included in this analysis was North Street and Summer Street. This was included solely to understand whether the proposed tapers have enough capacity for queuing vehicles going to and from North Street. Based on the analysis and simulations, there were no capacity issues of vehicles blocking either North Street or Ship Street intersections.

There are additional design considerations excluding traffic that make this alternative favorable. The 25% design submission shows impacts into the wetlands that are located along the southern edge of Route 3A within this section. With the decreased cross section, this alternative creates no impacts to these wetlands. Also, this cross section provides a more favorable pedestrian crossing at the intersection of Ship Street and Summer Street. The introduction of the three-lane cross section allows us to include the RRFBs.

This analysis was presented to the Route 3A Task Force on September 6, 2023. Members of the committee reviewed the information and requested a peer review by the Town's traffic consultant Vanasse & Associates Inc. (VAI). VAI was given the relevant Synchro files and concluded that the lane reduction would not cause adverse impacts on capacity and queueing. Please see the appendix for VAI's prepared memo.

GM2 has completed the reanalysis of the Route 3A corridor from Otis Street to the North Street intersection using new 2023 traffic counts. Conditions analyzed the 2030 No-Build and 2030 Build traffic-volume conditions primarily at the Bathing Beach intersection. The decrease in lanes will provide for shorter pedestrian crossings and would assist in slowing down traffic within this section of the corridor. In addition to that, wetland and property impacts will be reduced based on the revised cross section. GM2 concludes that the reduction of travel lanes will not have any adverse effects to corridor's capacity or queuing lengths.

If there are any questions or concerns with this addendum, please contact Stephan Zaets at szaets@gm2inc.com.

Respectfully,



Stephan Zaets, EIT
Traffic Engineer



Erik Rolser, PE
Project Manager

Attached: VAI Peer Review and Analysis Results

MEMORANDUM

TO: Mr. JR Frey
Town Engineer
Department of Public Works
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Hingham, MA 02043

FROM: Scott W. Thornton, P.E. *and*
Derek Roach, P.E.
Vanasse & Associates, Inc.
35 New England Business Center Drive,
Suite 140
Andover, MA 01810-1066

DATE: September 20, 2023

RE: 8536

SUBJECT: Route 3A Road Diet Analysis
Hingham, Massachusetts

As requested, Vanasse & Associates, Inc. (VAI) has conducted a capacity and queue analysis of a road diet concept for the segment of Route 3A between Burditt Avenue and the North Street intersection. This analysis provides a secondary review of information prepared by GM2 to determine if Route 3A between Burditt Avenue and Ship Street could be reduced to a two-lane section without causing adverse impacts on capacity and queuing. A favorable review would indicate the concept can be advanced to the next level of design. To summarize, VAI finds that the road diet concept generally improves operations and does not result in a significant increase in vehicle travel time or intersection queuing at most locations; therefore the concept can be advanced.

CAPACITY ANALYSIS

In order to perform this analysis, Synchro files developed by GM2 were reviewed. These files included a weekday evening peak-hour analysis (4:00-5:00 PM) and a peak-summer weekend analysis which occurred on a Friday (3:45-4:45 PM). The Synchro files include 2030 No-Build and 2030 Build conditions. The analysis was conducted using SimTraffic, which is designed to model networks of signalized and unsignalized intersections using microsimulation. SimTraffic can provide a number of measures of effectiveness for evaluating networks. One such measure is average delay per vehicle, which is calculated by dividing the total delay by the number of vehicles. Queue lengths are another output that SimTraffic generates. A vehicle is considered queued whenever it is traveling at less than 10 feet/second. Arterial reports were utilized for this analysis as they allow analysis of segments of roadways and not just intersections. A summary of the capacity analysis results is provided in Table 1.



Table 1
ARTERIAL CAPACITY ANALYSIS SUMMARY

Arterial/Peak Hour/Movement	2030 No-Build				2030 Build			
	Distance ^a	Delay ^b	Travel Time ^c	Vehicle Speed ^d	Distance	Delay	Travel Time	Vehicle Speed
ROUTE 3A								
<i>Weekday Evening</i>								
<i>Route 3A EB:</i>								
Western limit to start of four-lane section	0.1	0.6	8.8	46	0.1	0.8	9.1	45
Start of four-lane section to Bathing Beach driveway	0.1	1.5	11.8	29	0.1	2.8	13.1	26
Bathing Beach to Ship Street	0.2	2.0	1.4	36	0.2	3.7	18.1	32
Ship Street to North Street	0.2	19.9	41.8	13	0.2	19.6	40.9	12
Total/Average	0.6	24.1	78.8	24	0.6	27.0	81.1	23
<i>Route 3A WB:</i>								
North Street to Ship Street	0.2	16.0	36.4	14	0.2	17.0	48.0	14
Ship Street to Bathing Beach driveway	0.2	2.2	16.7	34	0.2	0.8	4.8	29
Bathing Beach driveway to end of four-lane section	0.1	2.8	17.3	34	0.1	2.7	17.3	34
Four-lane section to end of western limit	0.1	1.6	9.5	39	0.1	1.4	9.4	39
Total/Average	0.6	22.5	80.0	26	0.6	21.9	79.5	25
<i>Summer Weekend (Friday Evening)</i>								
<i>Route 3A EB:</i>								
Western limit to start of four-lane section	0.1	1.0	9.6	44	0.1	1.4	9.8	42
Start of four-lane section to Bathing Beach driveway	0.1	8.5	18.8	18	0.1	7.3	17.5	19
Bathing Beach to Ship Street	0.2	3.5	17.8	33	0.2	6.2	20.3	29
Ship Street to North Street	0.2	18.3	38.4	15	0.2	29.3	50.0	10
Total/Average	0.6	31.4	84.6	22	0.6	44.1	97.7	19
<i>Route 3A WB:</i>								
North Street to Ship Street	0.2	41.4	61.8	8	0.2	35.2	63.4	10
Ship Street to Bathing Beach driveway	0.2	3.6	18.1	31	0.2	1.9	5.4	26
Bathing Beach Driveway to end of four-lane section	0.1	12.2	26.9	22	0.1	11.0	25.6	23
Four-lane section to end of western limit	0.1	4.8	12.8	29	0.1	3.3	11.2	33
Total/Average	0.6	62.0	119.5	17	0.6	51.4	105.6	18

^aDistance in miles.

^bDelay per vehicle in seconds.

^cTravel time in seconds.

^dAverage vehicle speed in miles per hour.

EB = eastbound; WB = westbound.

As shown in Table 1, under 2030 No-Build conditions Route 3A between Burditt Avenue and North Street experienced 24.1 seconds of delay traveling eastbound and 22.5 seconds of delay traveling westbound during the weekday evening peak hour. Under 2030 Build conditions with the proposed improvements in place, Route 3A between Burditt Avenue and North Street experienced 27.0 seconds of delay traveling eastbound and 21.9 seconds of delay traveling westbound during the weekday evening peak hour. During the summer weekend peak hour, this segment of Route 3A experienced 31.4 seconds of delay eastbound and 62.0 seconds of delay westbound under 2030 No-Build conditions. Under 2030 Build conditions, this segment of Route 3A experienced 44.1 seconds of delay traveling eastbound and 51.4 seconds of delay traveling westbound during the summer weekend peak hour.

Vehicle Queuing

SimTraffic also provides queue lengths by lane at each intersection within the roadway segment. A summary of the vehicle queue length at each intersection for No-Build and Build conditions is provided in Table 2.



Table 2
INTERSECTION QUEUE LENGTH SUMMARY

Arterial/Peak Hour/Movement	2030 No-Build	2030 Build
	Queue ^a Avg/95th	Queue ^a Avg/95th
Route 3A at Bathing Beach Driveway		
<i>Weekday Evening:</i>		
Bathing Beach Driveway WB LT/RT	11/34	8/24
Route 3A NB TH	33/110	34/118
Route 3A NB TH/RT	4/32	--
Route 3A NB RT	--	0/6
Route 3A SB LT	--	2/15
Route 3A SB LT/TH	25/76	--
Route 3A SB TH	20/70	44/153
<i>Friday Evening:</i>		
Bathing Beach Driveway WB LT/RT	38/74	36/79
Route 3A NB TH	161/326	154/326
Route 3A NB TH/RT	82/243	--
Route 3A NB RT	--	14/68
Route 3A SB LT	--	19/59
Route 3A SB LT/TH	107/220	--
Route 3A SB TH	93/214	125/246
Route 3A at Ship Street		
<i>Weekday Evening:</i>		
Route 3A EB TH	0/0	0/0
Route 3A EB TH/RT	0/0	--
Route 3A EB RT	--	0/4
Route 3A WB LT	--	0/6
Route 3A WB LT/TH	0/0	--
Route 3A WB TH	0/0	8/83
Ship Street NB LT/RT	11/34	17/52
<i>Friday Evening:</i>		
Route 3A EB TH	0/0	0/0
Route 3A EB TH/RT	0/0	--
Route 3A EB RT	--	0/3
Route 3A WB LT	--	5/24
Route 3A WB LT/TH	16/88	--
Route 3A WB TH	7/59	39/227
Ship Street NB LT/RT	10/31	11/39
Route 3A at North Street		
<i>Weekday Evening:</i>		
Route 3A EB TH	178/282	179/278
Route 3A EB TH/RT	194/299	206/309
Route 3A WB LT/TH	210/331	193/321
Route 3A WB TH	143/293	133/270
North Street NB LT	63/112	60/107
North Street NB RT	68/140	66/156
<i>Friday Evening:</i>		
Route 3A EB TH	182/292	213/407
Route 3A EB TH/RT	200/312	245/420
Route 3A WB LT/TH	406/646	316/488
Route 3A WB TH	346/586	260/437
North Street NB LT	92/160	84/137
North Street NB RT	56/119	43/114

^aQueue length in feet for Average/95th Percentile (maximum) conditions.
EB = eastbound; WB = westbound; NB = northbound; SB = southbound; LT = left-turning movements; RT = right-turning movements; TH = through movements.

As shown in Table 2, vehicle queue lengths increase at some locations with the reduction in lanes from four to two. However, the increase in queue length is minor for most locations, and at some locations there are decreases in queue lengths that are significant.



CONCLUSIONS

VAI has completed a capacity and queue analysis of Route 3A under existing geometry (four-lane segment) and proposed geometry (two-lane segment) under 2030 No-Build and 2030 Build traffic-volume conditions. The traffic volumes and geometry were provided by GM2. Based on this analysis, VAI concludes that the proposed lane reduction on Route 3A will not cause significant adverse impacts to the roadway segments capacity or queue lengths and further design efforts of this alternative should proceed.

Feel free to contact either of us should you have any questions on this assessment.

Enclosures: Technical Appendix

cc: File



APPENDIX

CAPACITY ANALYSIS
VEHICLE QUEUE LENGTHS

CAPACITY ANALYSIS

Arterial Level of Service: EB Otis St (3A)

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	22	0.6	8.8	0.1	46
Bathing Beach	1	1.5	11.8	0.1	29
Ship St	2	2.0	16.4	0.2	36
North St	3	19.9	41.8	0.2	13
Total		24.1	78.8	0.5	24

Arterial Level of Service: NB Otis St (3A)

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
North St	3	16.0	36.4	0.1	14
Ship St	2	2.2	16.7	0.2	34
Bathing Beach	1	2.8	17.3	0.2	34
	22	1.6	9.5	0.1	39
Total		22.5	80.0	0.6	26

Arterial Level of Service: EB Otis St (3A)

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	22	0.8	9.1	0.1	45
Bathing Beach	1	2.8	13.1	0.1	26
Ship St	2	3.7	18.1	0.2	32
	19	0.6	5.4	0.0	26
North St	3	19.0	35.5	0.1	12
Total		27.0	81.1	0.5	23

Arterial Level of Service: NB Otis St (3A)

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
North St	3	14.4	31.4	0.1	14
	19	2.6	16.6	0.1	25
Ship St	2	0.8	4.8	0.0	29
Bathing Beach	1	2.7	17.3	0.2	34
	22	1.4	9.4	0.1	39
Total		21.9	79.5	0.5	25

Arterial Level of Service: EB Otis St (3A)

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	22	1.0	9.6	0.1	44
Bathing Beach	1	8.5	18.8	0.1	18
Ship St	2	3.5	17.8	0.2	33
North St	3	18.3	38.4	0.2	15
Total		31.4	84.6	0.5	22

Arterial Level of Service: NB Otis St (3A)

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
North St	3	41.4	61.8	0.1	8
Ship St	2	3.6	18.1	0.2	31
Bathing Beach	1	12.2	26.9	0.2	22
	22	4.8	12.8	0.1	29
Total		62.0	119.5	0.6	17

Arterial Level of Service: EB Otis St (3A)

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	22	1.4	9.8	0.1	42
Bathing Beach	1	7.3	17.5	0.1	19
Ship St	2	6.2	20.3	0.2	29
	19	0.5	6.1	0.0	23
North St	3	28.8	43.9	0.1	10
Total		44.1	97.7	0.5	19

Arterial Level of Service: NB Otis St (3A)

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
North St	3	28.6	45.5	0.1	10
	19	6.6	17.9	0.1	23
Ship St	2	1.9	5.4	0.0	26
Bathing Beach	1	11.0	25.6	0.2	23
	22	3.3	11.2	0.1	33
Total		51.4	105.6	0.5	18

VEHICLE QUEUE LENGTHS

Intersection: 1: Otis St (3A) & Bathing Beach

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	TR	LT	T
Maximum Queue (ft)	34	147	71	102	101
Average Queue (ft)	11	33	4	25	20
95th Queue (ft)	34	110	32	76	70
Link Distance (ft)	114	802	802	374	374
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Ship St & Otis St (3A)

Movement	NB
Directions Served	LR
Maximum Queue (ft)	37
Average Queue (ft)	11
95th Queue (ft)	34
Link Distance (ft)	287
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: North St & Otis St (3A)

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	TR	LT	T	L	R
Maximum Queue (ft)	324	338	372	345	140	166
Average Queue (ft)	178	194	210	143	63	68
95th Queue (ft)	282	299	331	293	112	140
Link Distance (ft)	751	751	734	734	526	526
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 0

Intersection: 1: Otis St (3A) & Bathing Beach

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	R	L	T
Maximum Queue (ft)	30	180	12	30	246
Average Queue (ft)	8	34	0	2	44
95th Queue (ft)	24	118	6	15	153
Link Distance (ft)	109	798			373
Upstream Blk Time (%)					0
Queuing Penalty (veh)					0
Storage Bay Dist (ft)			100	100	
Storage Blk Time (%)		1			2
Queuing Penalty (veh)		0			0

Intersection: 2: Ship St & Otis St (3A)

Movement	EB	WB	B19	B19	NB
Directions Served	TR	L	T		LR
Maximum Queue (ft)	5	12	98	73	74
Average Queue (ft)	0	0	5	3	17
95th Queue (ft)	4	6	48	35	52
Link Distance (ft)	798		545	545	291
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		20			
Storage Blk Time (%)		0			
Queuing Penalty (veh)		0			

Intersection: 3: North St & Otis St (3A)

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	TR	LT	T	L	R
Maximum Queue (ft)	304	335	340	287	117	186
Average Queue (ft)	179	206	193	133	60	66
95th Queue (ft)	278	309	321	270	107	156
Link Distance (ft)	545	545	607	607	519	519
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 0

Intersection: 1: Otis St (3A) & Bathing Beach

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	TR	LT	T
Maximum Queue (ft)	84	391	303	265	258
Average Queue (ft)	38	161	82	107	93
95th Queue (ft)	74	326	243	220	214
Link Distance (ft)	114	802	802	374	374
Upstream Blk Time (%)	0			0	0
Queuing Penalty (veh)	0			0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Ship St & Otis St (3A)

Movement	WB	WB	NB
Directions Served	LT	T	LR
Maximum Queue (ft)	166	126	35
Average Queue (ft)	16	7	10
95th Queue (ft)	88	59	31
Link Distance (ft)	751	751	287
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: North St & Otis St (3A)

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	TR	LT	T	L	R
Maximum Queue (ft)	359	379	639	611	179	142
Average Queue (ft)	182	200	406	346	92	56
95th Queue (ft)	292	312	646	586	160	119
Link Distance (ft)	751	751	734	734	526	526
Upstream Blk Time (%)			1	0		
Queuing Penalty (veh)			0	0		
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 0

Intersection: 1: Otis St (3A) & Bathing Beach

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	R	L	T
Maximum Queue (ft)	111	453	123	80	315
Average Queue (ft)	36	154	14	19	125
95th Queue (ft)	79	326	68	59	246
Link Distance (ft)	109	798			373
Upstream Blk Time (%)	1				0
Queuing Penalty (veh)	0				0
Storage Bay Dist (ft)			100	100	
Storage Blk Time (%)		8	0		6
Queuing Penalty (veh)		3	0		2

Intersection: 2: Ship St & Otis St (3A)

Movement	EB	WB	WB	B19	B19	NB
Directions Served	TR	L	T	T		LR
Maximum Queue (ft)	4	34	72	209	77	53
Average Queue (ft)	0	5	4	26	9	11
95th Queue (ft)	3	24	50	128	49	39
Link Distance (ft)	798		145	545	545	291
Upstream Blk Time (%)			0			
Queuing Penalty (veh)			1			
Storage Bay Dist (ft)		20				
Storage Blk Time (%)		4				
Queuing Penalty (veh)		43				

Intersection: 3: North St & Otis St (3A)

Movement	EB	EB	B19	WB	WB	NB	NB
Directions Served	T	TR	T	LT	T	L	R
Maximum Queue (ft)	447	428	7	485	440	167	151
Average Queue (ft)	213	245	0	316	260	84	43
95th Queue (ft)	407	415	5	488	437	137	114
Link Distance (ft)	545	545	145	607	607	519	519
Upstream Blk Time (%)	0	0		0			
Queuing Penalty (veh)	1	1		0			
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Network Summary

Network wide Queuing Penalty: 51

Summary of All Intervals

Start Time	3:45
End Time	5:00
Total Time (min)	75
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	2398
Vehs Exited	2376
Starting Vehs	53
Ending Vehs	75
Travel Distance (mi)	1331
Travel Time (hr)	58.3
Total Delay (hr)	15.5
Total Stops	1537
Fuel Used (gal)	46.5

Interval #0 Information Seeding

Start Time	3:45
End Time	4:00
Total Time (min)	15

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	5:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	2398
Vehs Exited	2376
Starting Vehs	53
Ending Vehs	75
Travel Distance (mi)	1331
Travel Time (hr)	58.3
Total Delay (hr)	15.5
Total Stops	1537
Fuel Used (gal)	46.5

1: Otis St (3A) #Pr & Bathing Beach Performance by lane

Lane	WB	NB	NB	SB	SB	All
Movements Served	LR	T	TR	LT	T	
Denied Del/Veh (s)						0.0
Total Del/Veh (s)	10.1	2.7	3.2	1.7	1.6	2.2

Intersection: 1: Otis St (3A) #Pr & Bathing Beach

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	TR	LT	T
Maximum Queue (ft)	29	136	52	106	99
Average Queue (ft)	10	27	3	26	22
95th Queue (ft)	32	94	22	85	79
Link Distance (ft)	114	802	802	374	374
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Summary of All Intervals

Start Time	3:45
End Time	5:00
Total Time (min)	75
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	2319
Vehs Exited	2296
Starting Vehs	41
Ending Vehs	64
Travel Distance (mi)	1281
Travel Time (hr)	55.5
Total Delay (hr)	14.1
Total Stops	1478
Fuel Used (gal)	44.4

Interval #0 Information Seeding

Start Time	3:45
End Time	4:00
Total Time (min)	15

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	5:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	2319
Vehs Exited	2296
Starting Vehs	41
Ending Vehs	64
Travel Distance (mi)	1281
Travel Time (hr)	55.5
Total Delay (hr)	14.1
Total Stops	1478
Fuel Used (gal)	44.4

1: Otis St (3A) #Pr & Bathing Beach Performance by lane

Lane	WB	NB	NB	SB	SB	All
Movements Served	LR	T	TR	LT	T	
Denied Del/Veh (s)						0.0
Total Del/Veh (s)	4.6	1.6	2.8	0.9	0.9	1.2

Intersection: 1: Otis St (3A) #Pr & Bathing Beach

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	TR	LT	T
Maximum Queue (ft)	51	94	26	76	74
Average Queue (ft)	7	13	1	10	9
95th Queue (ft)	30	59	9	45	40
Link Distance (ft)	114	802	802	374	374
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Summary of All Intervals

Start Time	3:45
End Time	5:00
Total Time (min)	75
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	2407
Vehs Exited	2398
Starting Vehs	53
Ending Vehs	62
Travel Distance (mi)	1328
Travel Time (hr)	57.2
Total Delay (hr)	14.6
Total Stops	1510
Fuel Used (gal)	45.9

Interval #0 Information Seeding

Start Time	3:45
End Time	4:00
Total Time (min)	15

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	5:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	2407
Vehs Exited	2398
Starting Vehs	53
Ending Vehs	62
Travel Distance (mi)	1328
Travel Time (hr)	57.2
Total Delay (hr)	14.6
Total Stops	1510
Fuel Used (gal)	45.9

1: Otis St (3A) #Pr & Bathing Beach Performance by lane

Lane	WB	NB	NB	SB	SB	All
Movements Served	LR	T	TR	LT	T	
Denied Del/Veh (s)						0.0
Total Del/Veh (s)	4.5	2.2	3.2	1.3	0.9	1.6

Intersection: 1: Otis St (3A) #Pr & Bathing Beach

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	TR	LT	T
Maximum Queue (ft)	29	122	85	94	72
Average Queue (ft)	8	22	4	18	12
95th Queue (ft)	28	86	30	62	46
Link Distance (ft)	114	802	802	374	374
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Summary of All Intervals

Start Time	3:45
End Time	5:00
Total Time (min)	75
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	2286
Vehs Exited	2282
Starting Vehs	46
Ending Vehs	50
Travel Distance (mi)	1271
Travel Time (hr)	56.1
Total Delay (hr)	15.1
Total Stops	1471
Fuel Used (gal)	44.2

Interval #0 Information Seeding

Start Time	3:45
End Time	4:00
Total Time (min)	15

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	5:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	2286
Vehs Exited	2282
Starting Vehs	46
Ending Vehs	50
Travel Distance (mi)	1271
Travel Time (hr)	56.1
Total Delay (hr)	15.1
Total Stops	1471
Fuel Used (gal)	44.2

1: Otis St (3A) #Pr & Bathing Beach Performance by lane

Lane	WB	NB	NB	SB	SB	All
Movements Served	LR	T	TR	LT	T	
Denied Del/Veh (s)						0.0
Total Del/Veh (s)	7.1	2.1	2.2	1.3	1.2	1.6

Intersection: 1: Otis St (3A) #Pr & Bathing Beach

Movement	WB	NB	SB	SB
Directions Served	LR	T	LT	T
Maximum Queue (ft)	29	139	76	97
Average Queue (ft)	8	15	17	16
95th Queue (ft)	30	65	57	63
Link Distance (ft)	114	802	374	374
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Summary of All Intervals

Start Time	3:45
End Time	5:00
Total Time (min)	75
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	2436
Vehs Exited	2447
Starting Vehs	54
Ending Vehs	43
Travel Distance (mi)	1358
Travel Time (hr)	60.3
Total Delay (hr)	16.5
Total Stops	1680
Fuel Used (gal)	47.9

Interval #0 Information Seeding

Start Time	3:45
End Time	4:00
Total Time (min)	15

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	5:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	2436
Vehs Exited	2447
Starting Vehs	54
Ending Vehs	43
Travel Distance (mi)	1358
Travel Time (hr)	60.3
Total Delay (hr)	16.5
Total Stops	1680
Fuel Used (gal)	47.9

1: Otis St (3A) #Pr & Bathing Beach Performance by lane

Lane	WB	NB	NB	SB	SB	All
Movements Served	LR	T	TR	LT	T	
Denied Del/Veh (s)						0.0
Total Del/Veh (s)	6.4	2.3	2.6	2.7	2.1	2.4

Intersection: 1: Otis St (3A) #Pr & Bathing Beach

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	TR	LT	T
Maximum Queue (ft)	28	149	55	180	171
Average Queue (ft)	12	25	2	43	37
95th Queue (ft)	35	82	18	127	125
Link Distance (ft)	114	802	802	374	374
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Summary of All Intervals

Start Time	3:45
End Time	5:00
Total Time (min)	75
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	2366
Vehs Exited	2352
Starting Vehs	50
Ending Vehs	64
Travel Distance (mi)	1265
Travel Time (hr)	57.0
Total Delay (hr)	16.1
Total Stops	1561
Fuel Used (gal)	43.7

Interval #0 Information Seeding

Start Time	3:45
End Time	4:00
Total Time (min)	15
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	4:00
End Time	5:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	
Vehs Entered	2366
Vehs Exited	2352
Starting Vehs	50
Ending Vehs	64
Travel Distance (mi)	1265
Travel Time (hr)	57.0
Total Delay (hr)	16.1
Total Stops	1561
Fuel Used (gal)	43.7

1: Otis St (3A) #Pr & Bathing Beach Performance by lane

Lane	WB	NB	NB	SB	SB	All
Movements Served	LR	T	R	L	T	
Denied Del/Veh (s)						0.0
Total Del/Veh (s)	6.1	2.7	0.6	1.5	2.6	2.7

Intersection: 1: Otis St (3A) #Pr & Bathing Beach

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	R	L	T
Maximum Queue (ft)	21	139	28	31	232
Average Queue (ft)	8	33	2	1	41
95th Queue (ft)	25	106	13	10	152
Link Distance (ft)	109	798			373
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			100	100	
Storage Blk Time (%)		1			2
Queuing Penalty (veh)		0			0

Summary of All Intervals

Start Time	3:45
End Time	5:00
Total Time (min)	75
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	2303
Vehs Exited	2304
Starting Vehs	65
Ending Vehs	64
Travel Distance (mi)	1228
Travel Time (hr)	54.7
Total Delay (hr)	15.1
Total Stops	1433
Fuel Used (gal)	42.5

Interval #0 Information Seeding

Start Time	3:45
End Time	4:00
Total Time (min)	15
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	4:00
End Time	5:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	
Vehs Entered	2303
Vehs Exited	2304
Starting Vehs	65
Ending Vehs	64
Travel Distance (mi)	1228
Travel Time (hr)	54.7
Total Delay (hr)	15.1
Total Stops	1433
Fuel Used (gal)	42.5

1: Otis St (3A) #Pr & Bathing Beach Performance by lane

Lane	WB	NB	NB	SB	SB	All
Movements Served	LR	T	R	L	T	
Denied Del/Veh (s)						0.0
Total Del/Veh (s)	6.5	2.5	0.2	1.5	2.0	2.2

Intersection: 1: Otis St (3A) #Pr & Bathing Beach

Movement	WB	NB	NB	SB
Directions Served	LR	T	R	T
Maximum Queue (ft)	21	180	30	174
Average Queue (ft)	6	29	1	25
95th Queue (ft)	22	119	10	106
Link Distance (ft)	109	798		373
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	
Storage Blk Time (%)		1		1
Queuing Penalty (veh)		0		0

Summary of All Intervals

Start Time	3:45
End Time	5:00
Total Time (min)	75
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	2345
Vehs Exited	2339
Starting Vehs	46
Ending Vehs	52
Travel Distance (mi)	1243
Travel Time (hr)	54.8
Total Delay (hr)	14.6
Total Stops	1447
Fuel Used (gal)	42.8

Interval #0 Information Seeding

Start Time	3:45
End Time	4:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	5:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	2345
Vehs Exited	2339
Starting Vehs	46
Ending Vehs	52
Travel Distance (mi)	1243
Travel Time (hr)	54.8
Total Delay (hr)	14.6
Total Stops	1447
Fuel Used (gal)	42.8

1: Otis St (3A) #Pr & Bathing Beach Performance by lane

Lane	WB	NB	NB	SB	SB	All
Movements Served	LR	T	R	L	T	
Denied Del/Veh (s)						0.0
Total Del/Veh (s)	4.7	1.9	0.4	2.4	2.1	2.0

Intersection: 1: Otis St (3A) #Pr & Bathing Beach

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	R	L	T
Maximum Queue (ft)	47	135	28	31	152
Average Queue (ft)	8	22	2	3	28
95th Queue (ft)	27	79	13	17	106
Link Distance (ft)	109	798			373
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			100	100	
Storage Blk Time (%)		0			1
Queuing Penalty (veh)		0			0

Summary of All Intervals

Start Time	3:45
End Time	5:00
Total Time (min)	75
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	2437
Vehs Exited	2447
Starting Vehs	67
Ending Vehs	57
Travel Distance (mi)	1294
Travel Time (hr)	58.6
Total Delay (hr)	16.6
Total Stops	1572
Fuel Used (gal)	44.9

Interval #0 Information Seeding

Start Time	3:45
End Time	4:00
Total Time (min)	15

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	5:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	2437
Vehs Exited	2447
Starting Vehs	67
Ending Vehs	57
Travel Distance (mi)	1294
Travel Time (hr)	58.6
Total Delay (hr)	16.6
Total Stops	1572
Fuel Used (gal)	44.9

1: Otis St (3A) #Pr & Bathing Beach Performance by lane

Lane	WB	NB	NB	SB	SB	All
Movements Served	LR	T	R	L	T	
Denied Del/Veh (s)						0.0
Total Del/Veh (s)	7.1	2.4	0.0	1.6	2.5	2.4

Intersection: 1: Otis St (3A) #Pr & Bathing Beach

Movement	WB	NB	SB	SB
Directions Served	LR	T	L	T
Maximum Queue (ft)	21	121	27	172
Average Queue (ft)	8	24	2	33
95th Queue (ft)	24	88	13	116
Link Distance (ft)	109	798		373
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	
Storage Blk Time (%)		0		1
Queuing Penalty (veh)		0		0

Summary of All Intervals

Start Time	3:45
End Time	5:00
Total Time (min)	75
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	2369
Vehs Exited	2375
Starting Vehs	56
Ending Vehs	50
Travel Distance (mi)	1266
Travel Time (hr)	58.3
Total Delay (hr)	17.4
Total Stops	1572
Fuel Used (gal)	44.4

Interval #0 Information Seeding

Start Time	3:45
End Time	4:00
Total Time (min)	15
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	4:00
End Time	5:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	
Vehs Entered	2369
Vehs Exited	2375
Starting Vehs	56
Ending Vehs	50
Travel Distance (mi)	1266
Travel Time (hr)	58.3
Total Delay (hr)	17.4
Total Stops	1572
Fuel Used (gal)	44.4

1: Otis St (3A) #Pr & Bathing Beach Performance by lane

Lane	WB	NB	NB	SB	SB	All
Movements Served	LR	T	R	L	T	
Denied Del/Veh (s)						0.0
Total Del/Veh (s)	4.1	3.0	0.5	3.7	3.4	3.2

Intersection: 1: Otis St (3A) #Pr & Bathing Beach

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	R	L	T
Maximum Queue (ft)	21	154	28	30	354
Average Queue (ft)	5	39	1	3	52
95th Queue (ft)	20	128	9	18	191
Link Distance (ft)	109	798			373
Upstream Blk Time (%)					0
Queuing Penalty (veh)					0
Storage Bay Dist (ft)			100	100	
Storage Blk Time (%)		2			2
Queuing Penalty (veh)		0			0

Summary of All Intervals

Start Time	3:30
End Time	4:45
Total Time (min)	75
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	3020
Vehs Exited	3015
Starting Vehs	82
Ending Vehs	87
Travel Distance (mi)	1468
Travel Time (hr)	74.7
Total Delay (hr)	27.6
Total Stops	2524
Fuel Used (gal)	56.6

Interval #0 Information Seeding

Start Time	3:30
End Time	3:45
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	3:45
End Time	4:45
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	3020
Vehs Exited	3015
Starting Vehs	82
Ending Vehs	87
Travel Distance (mi)	1468
Travel Time (hr)	74.7
Total Delay (hr)	27.6
Total Stops	2524
Fuel Used (gal)	56.6

1: Otis St (3A) #Pr & Bathing Beach Performance by lane

Lane	WB	NB	NB	SB	SB	All
Movements Served	LR	T	TR	LT	T	
Denied Del/Veh (s)						0.1
Total Del/Veh (s)	19.8	12.1	7.3	9.1	5.9	9.7

Intersection: 1: Otis St (3A) #Pr & Bathing Beach

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	TR	LT	T
Maximum Queue (ft)	94	356	377	205	185
Average Queue (ft)	43	169	96	106	92
95th Queue (ft)	85	335	282	178	179
Link Distance (ft)	114	802	802	374	374
Upstream Blk Time (%)	0				
Queuing Penalty (veh)	0				
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Summary of All Intervals

Start Time	3:30
End Time	4:45
Total Time (min)	75
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	2982
Vehs Exited	3014
Starting Vehs	98
Ending Vehs	66
Travel Distance (mi)	1457
Travel Time (hr)	72.4
Total Delay (hr)	25.8
Total Stops	2387
Fuel Used (gal)	55.9

Interval #0 Information Seeding

Start Time	3:30
End Time	3:45
Total Time (min)	15
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	3:45
End Time	4:45
Total Time (min)	60
Volumes adjusted by Growth Factors.	
Vehs Entered	2982
Vehs Exited	3014
Starting Vehs	98
Ending Vehs	66
Travel Distance (mi)	1457
Travel Time (hr)	72.4
Total Delay (hr)	25.8
Total Stops	2387
Fuel Used (gal)	55.9

1: Otis St (3A) #Pr & Bathing Beach Performance by lane

Lane	WB	NB	NB	SB	SB	All
Movements Served	LR	T	TR	LT	T	
Denied Del/Veh (s)						0.1
Total Del/Veh (s)	16.8	8.8	5.3	6.5	4.4	7.1

Intersection: 1: Otis St (3A) #Pr & Bathing Beach

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	TR	LT	T
Maximum Queue (ft)	118	244	198	162	171
Average Queue (ft)	39	131	54	91	79
95th Queue (ft)	75	235	155	152	141
Link Distance (ft)	114	802	802	374	374
Upstream Blk Time (%)	0				
Queuing Penalty (veh)	0				
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Summary of All Intervals

Start Time	3:30
End Time	4:45
Total Time (min)	75
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	2993
Vehs Exited	2986
Starting Vehs	78
Ending Vehs	85
Travel Distance (mi)	1451
Travel Time (hr)	73.7
Total Delay (hr)	27.0
Total Stops	2378
Fuel Used (gal)	55.8

Interval #0 Information Seeding

Start Time	3:30
End Time	3:45
Total Time (min)	15
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	3:45
End Time	4:45
Total Time (min)	60
Volumes adjusted by Growth Factors.	
Vehs Entered	2993
Vehs Exited	2986
Starting Vehs	78
Ending Vehs	85
Travel Distance (mi)	1451
Travel Time (hr)	73.7
Total Delay (hr)	27.0
Total Stops	2378
Fuel Used (gal)	55.8

1: Otis St (3A) #Pr & Bathing Beach Performance by lane

Lane	WB	NB	NB	SB	SB	All
Movements Served	LR	T	TR	LT	T	
Denied Del/Veh (s)						0.1
Total Del/Veh (s)	14.2	7.2	4.9	8.9	4.6	7.0

Intersection: 1: Otis St (3A) #Pr & Bathing Beach

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	TR	LT	T
Maximum Queue (ft)	72	325	277	227	246
Average Queue (ft)	31	100	38	93	76
95th Queue (ft)	64	238	131	192	190
Link Distance (ft)	114	802	802	374	374
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Summary of All Intervals

Start Time	3:30
End Time	4:45
Total Time (min)	75
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	3001
Vehs Exited	2987
Starting Vehs	61
Ending Vehs	75
Travel Distance (mi)	1467
Travel Time (hr)	79.5
Total Delay (hr)	32.3
Total Stops	2686
Fuel Used (gal)	58.0

Interval #0 Information Seeding

Start Time	3:30
End Time	3:45
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	3:45
End Time	4:45
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	3001
Vehs Exited	2987
Starting Vehs	61
Ending Vehs	75
Travel Distance (mi)	1467
Travel Time (hr)	79.5
Total Delay (hr)	32.3
Total Stops	2686
Fuel Used (gal)	58.0

1: Otis St (3A) #Pr & Bathing Beach Performance by lane

Lane	WB	NB	NB	SB	SB	All
Movements Served	LR	T	TR	LT	T	
Denied Del/Veh (s)						0.1
Total Del/Veh (s)	16.7	11.9	8.3	11.6	5.9	10.1

Intersection: 1: Otis St (3A) #Pr & Bathing Beach

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	TR	LT	T
Maximum Queue (ft)	78	396	339	204	208
Average Queue (ft)	42	153	88	112	95
95th Queue (ft)	73	310	251	184	170
Link Distance (ft)	114	802	802	374	374
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Summary of All Intervals

Start Time	3:30
End Time	4:45
Total Time (min)	75
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	2887
Vehs Exited	2890
Starting Vehs	63
Ending Vehs	60
Travel Distance (mi)	1421
Travel Time (hr)	70.2
Total Delay (hr)	24.7
Total Stops	2182
Fuel Used (gal)	54.0

Interval #0 Information Seeding

Start Time	3:30
End Time	3:45
Total Time (min)	15
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	3:45
End Time	4:45
Total Time (min)	60
Volumes adjusted by Growth Factors.	
Vehs Entered	2887
Vehs Exited	2890
Starting Vehs	63
Ending Vehs	60
Travel Distance (mi)	1421
Travel Time (hr)	70.2
Total Delay (hr)	24.7
Total Stops	2182
Fuel Used (gal)	54.0

1: Otis St (3A) #Pr & Bathing Beach Performance by lane

Lane	WB	NB	NB	SB	SB	All
Movements Served	LR	T	TR	LT	T	
Denied Del/Veh (s)						0.1
Total Del/Veh (s)	11.2	9.6	5.9	6.2	4.2	7.2

Intersection: 1: Otis St (3A) #Pr & Bathing Beach

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	TR	LT	T
Maximum Queue (ft)	72	415	388	140	230
Average Queue (ft)	34	134	63	76	63
95th Queue (ft)	61	310	229	146	142
Link Distance (ft)	114	802	802	374	374
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Summary of All Intervals

Start Time	3:30
End Time	4:45
Total Time (min)	75
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	2924
Vehs Exited	2896
Starting Vehs	90
Ending Vehs	118
Travel Distance (mi)	1523
Travel Time (hr)	87.6
Total Delay (hr)	39.1
Total Stops	3144
Fuel Used (gal)	59.4

Interval #0 Information Seeding

Start Time	3:30
End Time	3:45
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	3:45
End Time	4:45
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	2924
Vehs Exited	2896
Starting Vehs	90
Ending Vehs	118
Travel Distance (mi)	1523
Travel Time (hr)	87.6
Total Delay (hr)	39.1
Total Stops	3144
Fuel Used (gal)	59.4

1: Otis St (3A) #Pr & Bathing Beach Performance by lane

Lane	WB	NB	NB	SB	SB	All
Movements Served	LR	T	R	L	T	
Denied Del/Veh (s)						0.1
Total Del/Veh (s)	36.0	12.6	0.8	15.6	13.2	13.6

Intersection: 1: Otis St (3A) #Pr & Bathing Beach

Movement	WB	NB	NB	SB	SB	B22
Directions Served	LR	T	R	L	T	T
Maximum Queue (ft)	124	659	125	31	613	80
Average Queue (ft)	48	188	11	14	216	3
95th Queue (ft)	99	436	64	39	458	26
Link Distance (ft)	109	798			373	410
Upstream Blk Time (%)	2				2	
Queuing Penalty (veh)	0				0	
Storage Bay Dist (ft)			100	100		
Storage Blk Time (%)		10			12	
Queuing Penalty (veh)		4			3	

Summary of All Intervals

Start Time	3:30
End Time	4:45
Total Time (min)	75
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	2899
Vehs Exited	2895
Starting Vehs	95
Ending Vehs	99
Travel Distance (mi)	1511
Travel Time (hr)	83.8
Total Delay (hr)	35.5
Total Stops	2834
Fuel Used (gal)	58.1

Interval #0 Information Seeding

Start Time	3:30
End Time	3:45
Total Time (min)	15
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	3:45
End Time	4:45
Total Time (min)	60
Volumes adjusted by Growth Factors.	
Vehs Entered	2899
Vehs Exited	2895
Starting Vehs	95
Ending Vehs	99
Travel Distance (mi)	1511
Travel Time (hr)	83.8
Total Delay (hr)	35.5
Total Stops	2834
Fuel Used (gal)	58.1

1: Otis St (3A) #Pr & Bathing Beach Performance by lane

Lane	WB	NB	NB	SB	SB	All
Movements Served	LR	T	R	L	T	
Denied Del/Veh (s)						0.0
Total Del/Veh (s)	31.7	11.4	0.7	17.5	8.4	10.3

Intersection: 1: Otis St (3A) #Pr & Bathing Beach

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	R	L	T
Maximum Queue (ft)	124	391	125	93	596
Average Queue (ft)	34	159	19	23	148
95th Queue (ft)	76	288	79	61	400
Link Distance (ft)	109	798			373
Upstream Blk Time (%)	1				1
Queuing Penalty (veh)	0				0
Storage Bay Dist (ft)			100	100	
Storage Blk Time (%)		11	0	1	7
Queuing Penalty (veh)		4	0	7	2

Summary of All Intervals

Start Time	3:30
End Time	4:45
Total Time (min)	75
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	2927
Vehs Exited	2912
Starting Vehs	84
Ending Vehs	99
Travel Distance (mi)	1533
Travel Time (hr)	86.9
Total Delay (hr)	38.2
Total Stops	3007
Fuel Used (gal)	59.2

Interval #0 Information Seeding

Start Time	3:30
End Time	3:45
Total Time (min)	15

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	3:45
End Time	4:45
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	2927
Vehs Exited	2912
Starting Vehs	84
Ending Vehs	99
Travel Distance (mi)	1533
Travel Time (hr)	86.9
Total Delay (hr)	38.2
Total Stops	3007
Fuel Used (gal)	59.2

1: Otis St (3A) #Pr & Bathing Beach Performance by lane

Lane	WB	NB	NB	SB	SB	All
Movements Served	LR	T	R	L	T	
Denied Del/Veh (s)						0.1
Total Del/Veh (s)	16.4	11.4	0.7	12.6	8.4	9.8

Intersection: 1: Otis St (3A) #Pr & Bathing Beach

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	R	L	T
Maximum Queue (ft)	64	366	125	119	377
Average Queue (ft)	27	135	15	15	141
95th Queue (ft)	52	275	67	56	273
Link Distance (ft)	109	798			373
Upstream Blk Time (%)					0
Queuing Penalty (veh)					0
Storage Bay Dist (ft)			100	100	
Storage Blk Time (%)		7			7
Queuing Penalty (veh)		3			2

Summary of All Intervals

Start Time	3:30
End Time	4:45
Total Time (min)	75
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	2946
Vehs Exited	2968
Starting Vehs	106
Ending Vehs	84
Travel Distance (mi)	1532
Travel Time (hr)	83.7
Total Delay (hr)	34.9
Total Stops	2852
Fuel Used (gal)	58.9

Interval #0 Information Seeding

Start Time	3:30
End Time	3:45
Total Time (min)	15
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	3:45
End Time	4:45
Total Time (min)	60
Volumes adjusted by Growth Factors.	
Vehs Entered	2946
Vehs Exited	2968
Starting Vehs	106
Ending Vehs	84
Travel Distance (mi)	1532
Travel Time (hr)	83.7
Total Delay (hr)	34.9
Total Stops	2852
Fuel Used (gal)	58.9

1: Otis St (3A) #Pr & Bathing Beach Performance by lane

Lane	WB	NB	NB	SB	SB	All
Movements Served	LR	T	R	L	T	
Denied Del/Veh (s)						0.1
Total Del/Veh (s)	25.1	10.4	0.6	18.1	8.4	9.8

Intersection: 1: Otis St (3A) #Pr & Bathing Beach

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	R	L	T
Maximum Queue (ft)	124	395	118	124	352
Average Queue (ft)	40	146	10	29	138
95th Queue (ft)	84	309	48	89	280
Link Distance (ft)	109	798			373
Upstream Blk Time (%)	1				
Queuing Penalty (veh)	0				
Storage Bay Dist (ft)			100	100	
Storage Blk Time (%)		8	0		6
Queuing Penalty (veh)		3	0		2

Summary of All Intervals

Start Time	3:30
End Time	4:45
Total Time (min)	75
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	2885
Vehs Exited	2884
Starting Vehs	84
Ending Vehs	85
Travel Distance (mi)	1491
Travel Time (hr)	84.3
Total Delay (hr)	36.7
Total Stops	2949
Fuel Used (gal)	58.2

Interval #0 Information Seeding

Start Time	3:30
End Time	3:45
Total Time (min)	15

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	3:45
End Time	4:45
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	2885
Vehs Exited	2884
Starting Vehs	84
Ending Vehs	85
Travel Distance (mi)	1491
Travel Time (hr)	84.3
Total Delay (hr)	36.7
Total Stops	2949
Fuel Used (gal)	58.2

1: Otis St (3A) #Pr & Bathing Beach Performance by lane

Lane	WB	NB	NB	SB	SB	All
Movements Served	LR	T	R	L	T	
Denied Del/Veh (s)						0.1
Total Del/Veh (s)	27.4	12.6	0.4	18.2	7.3	10.4

Intersection: 1: Otis St (3A) #Pr & Bathing Beach

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	R	L	T
Maximum Queue (ft)	124	455	125	124	236
Average Queue (ft)	41	157	7	24	123
95th Queue (ft)	86	337	46	66	217
Link Distance (ft)	109	798			373
Upstream Blk Time (%)	1				
Queuing Penalty (veh)	0				
Storage Bay Dist (ft)			100	100	
Storage Blk Time (%)		9			6
Queuing Penalty (veh)		4			2