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TOWN OF DEDHAM
Commonwealth of Massachusetts



55 RIVER STREET
DEDHAM, MA 02026-2935

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DEPARTMENT OF INFRASTRUCTURE ENGINEERING

INITIAL TRAFFIC EVALUATION

TO: Transportation Advisory Committee

FROM: Jason L. Mammone, P.E., Director of Engineering

DATE: May 31, 2018

SUBJECT: Traffic Calming Request #2018-001 – Lower East Street

Purpose

The Transportation Advisory Committee (TAC), at their 05/08/18 meeting, reviewed the traffic calming request form (#2018-001) submitted by Maureen Magane of 28 Lower East Street. Based upon the information provided in the form Ms. Magane's concerns are the speed at which vehicles travel, the volume of vehicles, pedestrian and bicycle safety, sign placement, difficulty crossing the street, sight distance issues and children safety for the entire length of Lower East Street, Bonad Road and Willis Street. The TAC determined that this request warranted an initial evaluation on Lower East Street and requested that the Engineering Department investigate this matter. The Engineering Department recommended that this request be reviewed to include the intersecting neighborhood side streets of Bonad Road, Willis Street and Sumner Street. The TAC agreed with this recommendation. This report summarizes the findings of the Engineering Department.

Study Area

The study area encompasses the entire section of Lower East Street and the intersecting side streets of Bonad Road, Willis Street and Sumner Street in their entirety.

Lower East Street

Lower East Street is a north/south thickly settled residential through street with a pavement width of approximately 24 to 27 feet. Lower East Street is approximately 1,600 feet (0.3 miles) in length extending from the Town Line to Washington Street. There are no continuous sidewalks on either sides of the roadway for its entire length. Some of the residents utilize Lower Street for on-street parking.

There is an existing "No Parking This Side" parking restriction on the westerly side of Lower East Street extending from Washington Street to 184 feet northerly of Washington Street. There

were no vehicles parked within this area at any time observations were made as part of this study.

Sumner Street

Sumner Street is a north/south thickly settled residential through street with a pavement width of approximately 22 to 23 feet and street length of approximately 350 feet (0.07 miles) extending from Washington Street to Lower East Street. There are 4.5 to 5 foot wide continuous asphalt sidewalks on both sides of the roadway. There was vehicles parked on-street at the time of observations. Some of these vehicles were parked illegally on the sidewalks (See Attachment A).

Willis Street

Willis Street is a north/south thickly settled residential through street with a pavement width of approximately 24 to 25 feet and a street length of approximately 425 feet (0.08 miles) extending from Washington Street to Lower East Street. There are 4.5 to 5 foot wide continuous asphalt sidewalks on both sides of the roadway. There were vehicles parked on-street at the time of the observations. Some of these vehicles were parked illegally on the sidewalks (See Attachment A).

Bonad Road

Bonad Road is a north/south thickly settled dead end street with a pavement width of approximately 24 to 25 feet and a street length of approximately 350 feet (0.07 miles) extending from Lower East Street to its dead end. There are 4.5 to 5 foot wide sporadic non-continuous asphalt and concrete sidewalks on both sides of the roadway. These sporadic sidewalk areas appeared to be utilized as on-street parking spaces by the residents. There was vehicles parked on-street at the time of the observations. Some of these vehicles were parked illegally on the sidewalks (See Attachment A).

The prima facie speed limit on all roadways within the study area is 25 mph. A prima facie speed limit is a default speed limit that applies when no other specific speed limit is posted. According to Massachusetts General Laws (MGL), Chapter 90, Section 17 & Section 17c; unless posted otherwise, your speed would not be reasonable and proper if a motor vehicle is operated in excess of:

- 20 mph in a school zone
- 25 mph in a thickly settled or business district
- 40 mph outside a thickly settled or business district
- 50 mph on a highway outside a thickly settled or business district

Observations (Speed & Volume)

The Town of Dedham utilized 2 Jamar Radar Recorders to log the speed and volume of vehicles during the period beginning April 23, 2018 and ending April 27, 2018. One radar was setup on Lower East Street at the approximate midpoint of the straight away section between the Town Line and Washington Street. This radar was setup on a utility pole at Station 4+68 in front of #32 Lower East Street. The other radar was setup on Willis Street at the approximate midpoint of the roadway between Washington Street and Lower East Street. This radar was located on a utility pole at station 1+86 which is located in front of #19 Willis Street (See Attached Locus Map). Speed and volume data was not collected on Bonad Road since it is a dead end or on

Sumner Street due to its proximity and similar characteristics to Willis Street. For this study, the data collected for Willis Street will be assumed to exist in a similar fashion on Sumner Street and Bonad Road.

Lower East Street

The volume of traffic expressed as average daily traffic (ADT) and the speed data collected on Lower East Street is shown below in the following table:

Table 1 – Traffic Data Station 4+68

Direction of Traffic	ADT	Peak Hour Volume	Peak Volume Time	Speed Limit	85th Percentile Speed	Average Speed
Southbound	1370 (66%)	170	4 - 5 pm	25 mph ^a	33 mph	29 mph
Northbound	691 (34%)	59	4 - 5 pm	25 mph ^a	29 mph	25 mph
Combined	2,061	229	8 - 9 am	25 mph ^a	33 mph	28 mph

^a – Prima Facie Speed Limit

Willis Street

The volume of traffic expressed as average daily traffic (ADT) and the speed data collected on Willis Street is shown below in the following table:

Table 2 – Traffic Data Station 1+86

Direction of Traffic	ADT	Peak Hour Volume	Peak Volume Time	Speed Limit	85th Percentile Speed	Average Speed
Northbound	148 (44%)	11	12 - 1 pm	25 mph ^a	23 mph	19 mph
Southbound	185 (56%)	26	5 - 6 pm	25 mph ^a	25 mph	21 mph
Combined	333	36	5 - 6 pm	25 mph ^a	25 mph	21 mph

^a – Prima Facie Speed Limit

The combined average speed for both directions was found to be 28 mph for Lower East Street. The combined 85th percentile speed for both directions was found to be 33 mph for Lower East Street. The 85th percentile speed is the speed at or below which 85 percent of vehicles travel and is the national standard utilized to determine if the speed on a given roadway is in excess, at or below the speed limit. Based upon the data, approximately 70.5% of the vehicles were driving at speeds greater than 25 mph and 29.1% were driving at speeds greater than 30 mph.

Crash Data (Traffic Collisions)

The Engineering Department analyzed crash data utilizing the most recent 2015-2017 data available from the Dedham Police Department to determine if the subject area was experiencing a higher than normal rate of accidents.

Table 3 – Crash Data

Road	Total # of Crashes	Crashes Per Year
Lower East Street	3	1.0
Willis Street	0	0

At least 1 accident occurred during inclement weather conditions and least one accident was a result of an operator under the influence. The low number of crashes per year on Lower East Street and Willis Street indicates there are no overriding roadway geometric safety issues. None of the crashes involved a pedestrian or bicyclist.

GIS Data (Pedestrian Generators & Residential Density)

The Engineering Department utilized our latest Geographic Information System (GIS) data to collect the types of pedestrian generators and determine the residential density located within 1,000 feet of the study area.

Pedestrian generators are those facilities that are considered points of interest that pedestrians travel to, such as parks, community centers, Town/neighborhood centers, libraries, public transit stations, churches and public schools. Based upon the available data, there are 2 MBTA bus stations and 1 park (Draper Field in West Roxbury) located within 1,000 feet of the study area.

Based upon the available data, the study area (only considering residential properties within Dedham) has approximately 18 Two-Family Residential dwellings and 149 Single-Family Dwellings.

Scoring

According to the latest version of the Town’s Traffic Calming Policy, for a roadway to qualify for traditional traffic calming measures, the petitioned roadway must score more than 50 points utilizing the scores calculated from the 6 criteria including; Speed, Volume, Pedestrian Route, Traffic Collisions, Pedestrian Generators and Residential Density. The table below summarizes the scoring for each criterion.

Table 4 - Scoring

Criteria	Score (Lower East St)	Score (Willis St)
Speed – Based upon how many mph the combined 85 th percentile speed is over the speed limit. 2 points awarded for each mph over the speed limit from 1 to 5 mph over the speed limit and 4 points awarded for each mph over the speed limit starting at 6 mph and greater over the speed limit	22	0
Volume – 1 point awarded for every 100 vehicles of average daily traffic (ADT)	21	3
Pedestrian Route – 10 points awarded if no continuous sidewalk exist on both sides of the roadway or 5 points awarded if there is only a continuous sidewalk on one side of the roadway	10	0
Traffic Collisions – 2 points awarded for each preventable collision in a 3 year period that occurred along the subject roadway. 8 points awarded if a collision involved a pedestrian or bicyclist.	2	0
Pedestrian Generators – 3 points awarded for every park, community center, library, public transit station or church located within 1,000 feet of the subject roadway. 10 points awarded for each public school within 1,000 feet of the subject roadway	9	9
Residential Density – 1 point awarded for every 50 dwelling units within 1,000 feet of the subject roadway	4	4
TOTAL SCORE	68	16

Conclusion

Traffic calming is not recommended for Sumner Street, Willis Street and Bonad Road based upon the following conclusions. As mentioned earlier in the report, due to the similarities in the characteristics of the intersecting side streets, the data collected from Willis Street was used for Sumner Street and Bonad Road as well.

- These intersecting side streets do not meet the eligibility requirements for traditional traffic calming measures since it did not score greater than 50 points based upon the criterion listed in Table 4.
- These side streets experience an 85th percentile speed of 25 mph which indicates that there is not a speeding issue.

Although the Engineering Department does not recommend traditional traffic calming measures for Sumner Street, Willis Street or Bonad Road, we do recommend the following low-cost traffic calming measures that could be utilized and/or taken on by the concerned residents and neighbors of these roadways.

- Purchasing a Step2 Kid Alert Visual Warning System – These can be purchased at Toys R' Us, Wal-Mart, Amazon.com and other similar retail and online stores for about \$25 to \$35. The Step2 Kid should be placed at the end of your driveway so it is visible to motorists. This should only be placed out during times when kids are actually outside playing in the yard. By having it out all the time, it will reduce its effectiveness. Studies have shown that when used properly, it usually aids in the reduction of vehicle speeds.



Photo of Step 2 Kid Alert

- Work with your neighbors to park your cars on either side of the street in a staggered fashion as to reduce the openness of the roadway while still allowing for the safe passage of emergency response vehicles (i.e. Police, Ambulance, Fire Engine). This measure physically narrows the roadway making the motorist slow down to negotiate by the parked vehicles.

Based upon the data and scoring collected for Lower East Street, the Engineering Department recommends that a Traffic Calming Needs Assessment be conducted. The Traffic Calming Needs Assessment will take a more detailed look at data and existing conditions to develop recommendations for the TAC pertaining to traffic calming viability.

Cc: Board of Selectmen

Attachments: Attachment A - Photos
Lower East Street Locus Map
Lower East Street Neighborhood Locus Map
Combined Speed Statistics Report
Traffic Volume Report

Attachment A - Photos



Summer Street



Willis Street



Bonad Road (1)



Bonad Road (2)



Applicant's Property
28 Lower East Street

Traffic Recorder set up
on utility pole.



Traffic Recorder set up
on utility pole.

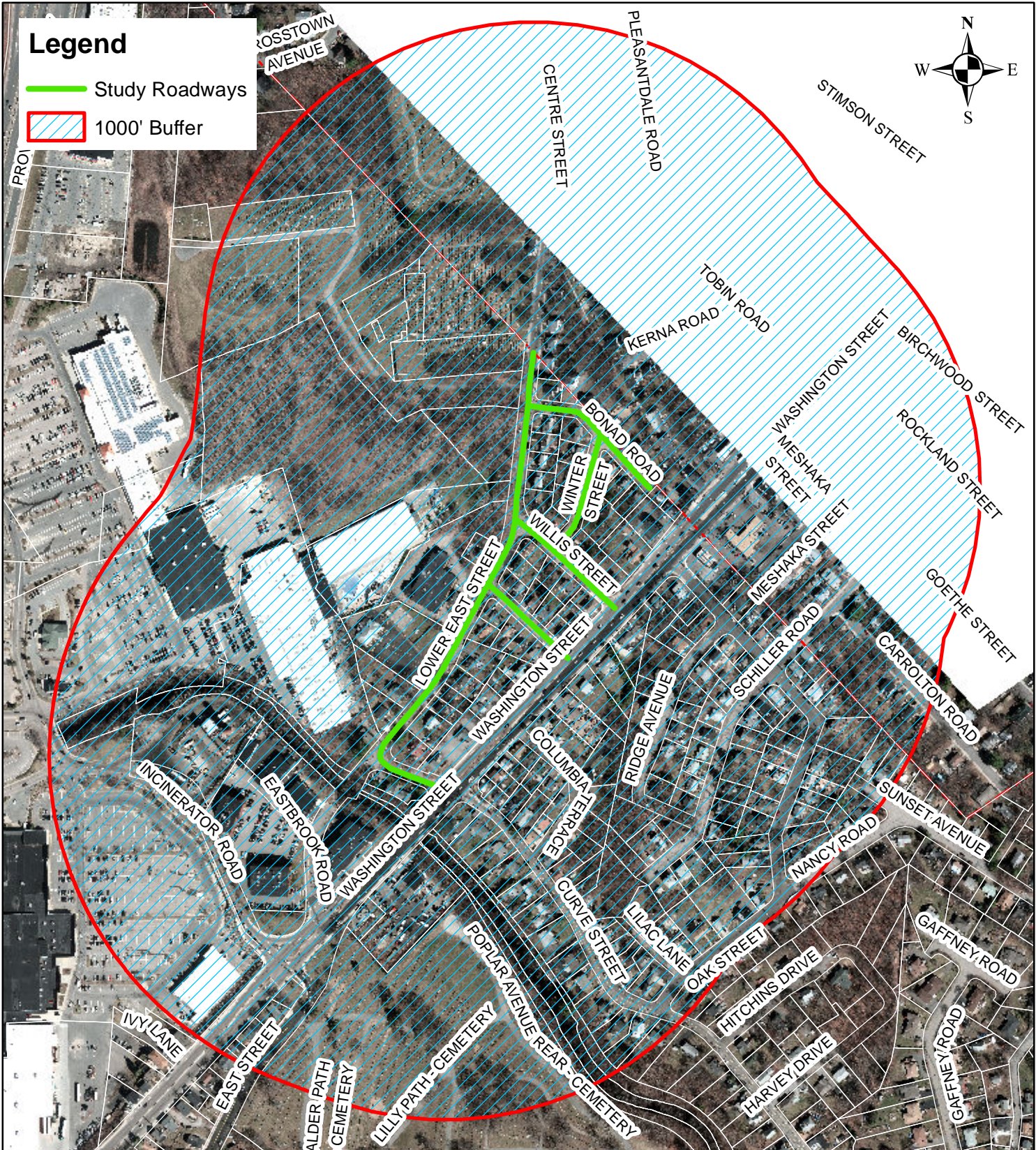
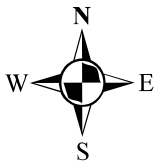


**LOWER EAST STREET
REQUEST #2018-001
LOCUS MAP**



Legend

-  Study Roadways
-  1000' Buffer



LOCUS MAP LOWER EAST STREET NEIGHBORHOOD MAY 2018



TOWN OF DEDHAM, MASSACHUSETTS



Town of Dedham Engineering Department

55 River Street
Dedham, MA 02026
(781) 751-9350

Site Code:
Station ID: STA 4+68
On Utility Pole In Front OF
#32 Lower East St
Latitude: 0' 0.0000 Undefined

COMBINED

Report for 4/23/2018 12:00:00 PM to 4/27/2018 1:59:55 PM

SPEED STATISTICS - 15 to 70+ by 5 MPH

Speed in MPH	1 - 15	16 - 20	21 - 25	26 - 30	31 - 35	36 - 40	41 - 45	46 - 50	51 - 55	56 - 60	61 - 65	66 - 70	71 - 75	76 - 999
Count	187	527	1653	3319	1908	390	36	3	0	0	0	0	0	0
Percent	2.3	6.6	20.6	41.4	23.8	4.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Over Speed	15	20	25	30	35	40	45	50	55	60	65	70	75	999
Count	7836	7309	5656	2337	429	39	3	0	0	0	0	0	0	0
Percent	97.7	91.1	70.5	29.1	5.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Percentile	5%	10%	15%	45%	50%	55%	85%	90%	95%
Speed	17	21	23	28	29	29	33	34	36

Average 28
(Mean)

Pace Speed 24-33
Number in 5630
Pace
Percent in 70.2
Pace



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COMBINED

Speed	Volume
7	3
8	2
9	4
10	1
11	16
12	38
13	19
14	58
15	46
16	95
17	125
18	74
19	155
20	78
21	180
22	200
23	172
24	443
25	658
26	340
27	760
28	430
29	890
30	899
31	340
32	612
33	258
34	397
35	301
36	140
37	126
38	38
39	46
40	40
41	12
42	12
43	8
44	0
45	4
46	0
47	3



Town of Dedham Engineering Department

55 River Street
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Site Code: 00000037
Station ID: STA 1+86
On Utility Pole In Front of
#19 Willis St
Latitude: 0' 0.0000 Undefined

COMBINED

Report for 4/23/2018 12:16:17 PM to 4/27/2018 9:59:59 AM

SPEED STATISTICS - 15 to 70+ by 5 MPH

Speed in MPH	1 - 15	16 - 20	21 - 25	26 - 30	31 - 35	36 - 40	41 - 45	46 - 50	51 - 55	56 - 60	61 - 65	66 - 70	71 - 75	76 - 999
Count	127	453	566	123	14	0	0	0	0	0	0	0	0	0
Percent	9.9	35.3	44.1	9.6	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Over Speed	15	20	25	30	35	40	45	50	55	60	65	70	75	999
Count	1156	703	137	14	0	0	0	0	0	0	0	0	0	0
Percent	90.1	54.8	10.7	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Percentile	5%	10%	15%	45%	50%	55%	85%	90%	95%
Speed	14	16	17	20	21	21	25	26	27

Average 21
(Mean)

Pace Speed 17-26
Number in 1025
Pace
Percent in 79.9
Pace



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(781) 751-9350

Site Code: 00000037
Station ID: STA 1+86
On Utility Pole In Front of
#19 Willis St
Latitude: 0' 0.0000 Undefined

COMBINED

Speed	Volume
9	2
10	7
11	12
12	26
13	15
14	30
15	35
16	47
17	69
18	96
19	110
20	131
21	162
22	128
23	120
24	99
25	57
26	53
27	32
28	19
29	13
30	6
31	11
32	2
33	0
34	1



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#32 Lower East St
Latitude: 0' 0.0000 Undefined

Start Time	23-Apr-18		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	Northboun	Southbo	Northbou	Southbo	Northbou	Southbo	Northbou	Southbo	Northbou	Southbo	Northbou	Southbo	Northbou	Southbo	Northbou	Southbo
12:00 AM	*	*	1	8	2	4	1	4	4	14	*	*	*	*	2	8
01:00	*	*	1	1	2	2	0	0	2	9	*	*	*	*	1	3
02:00	*	*	1	2	0	2	1	2	1	1	*	*	*	*	1	2
03:00	*	*	1	0	0	1	0	1	3	1	*	*	*	*	1	1
04:00	*	*	2	2	2	2	2	0	1	1	*	*	*	*	2	1
05:00	*	*	3	13	3	17	4	13	5	11	*	*	*	*	4	14
06:00	*	*	13	31	17	18	9	18	19	21	*	*	*	*	14	22
07:00	*	*	56	64	23	20	46	42	45	73	*	*	*	*	42	50
08:00	*	*	58	55	13	20	51	73	58	106	*	*	*	*	45	64
09:00	*	*	43	96	13	17	35	76	39	94	*	*	*	*	32	71
10:00	*	*	41	86	16	29	26	52	*	*	*	*	*	*	28	56
11:00	*	*	36	92	34	68	49	79	*	*	*	*	*	*	40	80
12:00 PM	43	89	49	66	41	92	40	70	*	*	*	*	*	*	43	79
01:00	46	85	55	70	47	74	43	97	*	*	*	*	*	*	48	82
02:00	47	76	41	78	33	72	46	82	*	*	*	*	*	*	42	77
03:00	59	132	72	129	46	90	50	123	*	*	*	*	*	*	57	118
04:00	67	157	66	176	33	155	71	192	*	*	*	*	*	*	59	170
05:00	60	177	62	205	14	44	71	173	*	*	*	*	*	*	52	150
06:00	81	170	59	172	10	28	74	137	*	*	*	*	*	*	56	127
07:00	42	102	66	94	24	41	60	118	*	*	*	*	*	*	48	89
08:00	44	62	38	47	22	35	35	88	*	*	*	*	*	*	35	58
09:00	25	20	22	35	10	13	28	34	*	*	*	*	*	*	21	26
10:00	4	10	14	21	5	7	17	17	*	*	*	*	*	*	10	14
11:00	1	8	8	9	4	3	17	11	*	*	*	*	*	*	8	8
Lane	519	1088	808	1552	414	854	776	1502	177	331	0	0	0	0	691	1370
Day	1607		2360		1268		2278		508		0	0	0	0	2061	
AM Peak	-	-	08:00	09:00	11:00	11:00	08:00	11:00	08:00	08:00	-	-	-	-	08:00	11:00
Vol.	-	-	58	96	34	68	51	79	58	106	-	-	-	-	45	80
PM Peak	18:00	17:00	15:00	17:00	13:00	16:00	18:00	16:00	-	-	-	-	-	-	16:00	16:00
Vol.	81	177	72	205	47	155	74	192	-	-	-	-	-	-	59	170

Comb. Total	1607	2360	1268	2278	508	0	0	2061
ADT	ADT 2,055	AADT 2,055						



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Page 2

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