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Commonwealth of Massachusetts

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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: November 13, 2015

SUBJECT: Traffic Calming Request #2014-001 – Taylor Avenue

Purpose

The Transportation Advisory Committee (TAC), at their 03/31/15 meeting, reviewed the traffic calming request form (#2014-001) submitted by Brian & Kim McKenna of 27 Taylor Avenue. Based upon the information provided in the form the McKenna's concerns are the speed at which vehicles travel, the volume of vehicles, pedestrian and bicycle safety, poor road conditions and children safety for the entire length of Taylor Avenue from Alden Street to Cedar Street. The TAC determined that this request warranted an initial evaluation to determine the actual speeds and volumes on Taylor Avenue and requested that the Engineering Department investigate this matter. The Engineering Department recommended that this request be reviewed later in the year since Taylor Avenue was scheduled to be repaved at some point in 2015. The TAC agreed with the recommendation. Final paving of Taylor Avenue took place in the first half of October 2015. This report summarizes the findings of the Engineering Department on the traffic study conducted after final paving.

Study Area

Taylor Avenue is an east/west thickly settled residential through street with a pavement width of approximately 22 feet from Alden Street to Cedar Street. Taylor Avenue is approximately 1,800 feet (0.34 miles) in length. The intersection of Taylor Avenue with Dresser Avenue is controlled with Stop Signs for the motorists on Taylor Avenue. There are sidewalks on both sides of the roadway from Alden Street to Dresser Avenue and a sidewalk on the northerly side of the road from Dresser Avenue to Cedar Street.

The prima facie speed limit on Taylor Avenue is 30 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; 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
- 30 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

Vehicles are parked sporadically along both sides of the roadway by residents and some possibly utilizing the Endicott train station. The section of Taylor Avenue from Dresser Avenue to Cedar Street has a "No Parking" restriction in place for both sides of the road, Monday through Friday from 7 am – 4 pm. This restriction was put in place to deter motorists who use the MBTA Commuter Rail Line (Endicott Station) from parking their vehicles during the day on Taylor Avenue and force them to use the parking spaces allocated for the Endicott Station located on Grant Avenue.

Observations

The Town of Dedham utilized 2 Jamar Radar Recorders to log the speed and volume of vehicles on Taylor Avenue during the period beginning October 27, 2015 and ending October 30, 2015. One radar was setup at the approximate midpoint of the segment from Alden Street to Dresser Avenue and from Dresser Avenue to Cedar Street. One counter was located on a utility pole at station 4+51 which is located in front of #35 Taylor Avenue (See Attached Locus Map #1) and the other on the utility pole at station15+21 which is located between #119 and #123 Taylor Avenue (See Attached Locus Map #2).

Taylor Avenue

The volume of traffic expressed as average daily traffic (ADT) and the speed data collected on Taylor Avenue is shown below in the following tables:

Table 1 – Traffic Data Station 4+51 (Dresser Ave to Cedar St)

Direction of Traffic	***ADT***	***Peak Hour Volume***	***Peak Volume Time***	***Speed Limit***	***85th Percentile Speed***	***Average Speed***
Eastbound	185 (36%)	26	6 – 7 pm	30 mph[a]	28 mph	23 mph
Westbound	336 (64%)	46	8 – 9 am	30 mph[a]	29 mph	23 mph
Combined	525	58	8 – 9 am	30 mph[a]	29 mph	24 mph

[a] – Prima Facie Speed Limit

Table 2 – Traffic Data Station 15+21 (Alden St to Dresser Ave)

Direction of Traffic	***ADT***	***Peak Hour Volume***	***Peak Volume Time***	***Speed Limit***	***85th Percentile Speed***	***Average Speed***
Eastbound	135 (59%)	16	8 – 9 am	30 mph[a]	24 mph	19 mph
Westbound	93 (41%)	14	8 – 9 am	30 mph[a]	25 mph	20 mph
Combined	228	30	8 – 9 am	30 mph[a]	25 mph	20 mph

[a] – Prima Facie Speed Limit

The combined average speed for both directions was found to be 24 mph for the Dresser Avenue to Cedar Street segment and 20 mph for the Alden Street to Dresser Avenue segment. The combined 85th percentile speed for both directions was found to be 29 mph for the Dresser Avenue to Cedar Street segment and 25 mph for the Alden Street to Dresser Avenue segment. 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. The 85th percentile speed indicates that at least 85% of the vehicles are travelling below the prima facie speed limit of 30 mph.

The Town of Dedham utilized a Jamar Turning Movement counter to log the turning movements of vehicles entering the intersection of Taylor Avenue at Dresser Avenue on 11/12/15 during the morning peak hour from 8 AM – 9 AM. As mentioned above, one of the concerns of the applicant is the volume of vehicles on Taylor Avenue (particularly between Dresser Avenue and Cedar Street) utilizing the Taylor Avenue as a cut through to avoid the roundabout traffic at the intersections of East Street, Sprague Street and Cedar Street.

The primary direction for cut through traffic is from vehicles turning off of Sprague Street onto Dresser Avenue, and then taking a left onto Taylor Avenue or continuing on Dresser and then taking a left on Kimball Road. All other turning movements made from the other approaches of this intersection are primarily from neighborhood Traffic.

Based upon the turning movement study approximately 45 percent of the traffic volume on the section of Taylor Avenue from Dresser Avenue to Cedar Street during the morning peak hour is cut through traffic. For the intersection as a whole approximately 20 percent of the vehicles entering the intersection made a left from Dresser Avenue onto Taylor Avenue and approximately 36 percent of vehicles went straight through the intersection on Dresser Avenue to Kimball Road at which time approximately 75% of those vehicles turned left onto Kimball Road heading towards Cedar Street.

Crash Data

The Engineering Department analyzed crash data utilizing the most recent 2004-2012 data available from the Massachusetts Highway Department (MassDOT) and the most recent 2006-2015 data available from the Dedham Police Department to determine if the subject area was experiencing a higher than normal rate of accidents. Upon review of the MassDOT and Town of Dedham data, it was determined that there were 4 accidents along the entire length Taylor Avenue over a 12 year period (0.33 crashes per year). One crash was snow related and another was due to operator distraction by passenger. The low number of crashes on Taylor Avenue indicates there are no overriding roadway geometric safety issues in this area. None of the crashes involved a pedestrian or bicyclist.

Conclusion

Traffic calming is not recommended for Taylor Avenue based upon the following:

- Taylor Avenue does not meet the eligibility requirements for traditional traffic calming measures as a means to mitigate speeding since the measured 85th percentile speed of 29 mph from Dresser Avenue to Cedar Street is 1 mph below the prima facie speed limit

of 30 mph and the measured 85th percentile speed of 25 mph from Alden Street to Dresser Avenue is 5 mph below the prima facie speed limit of 30 mph. Eligibility requirements, as stated in the Town's Traffic Calming Policy, require a residential street to exhibit an 85th percentile speed in excess of 5 mph over the speed limit to be considered for traditional traffic calming measures.

- Taylor Avenue does not experience a higher than normal volume of vehicles. The observed ADT of 525 vehicles per day experienced on Taylor Avenue between Dresser Avenue to Cedar Street is consistent with other residential streets in Dedham with similar characteristics.

- Based upon the 12 years of crash data, there have been 4 motor vehicle accidents which did not involve a bicyclist and/or pedestrian. Based upon this information it does not appear as though there is a bicyclist and/or pedestrian safety issue. Also, due to the low crash per year rate (0.33 crashes/year) there are no overriding roadway geometric safety issues in this area.

- A left hand turn restriction for vehicles wanting to make a left hand turn off of Dresser Avenue onto Taylor Avenue was looked at as a means to mitigate the amount of cut through traffic on Taylor Avenue. A left hand turn restriction would place more vehicles onto Kimball Road as the alternative cut through street. Based upon this study, Kimball Avenue already appears to have its share of cut through traffic and the Town would not want to create more of an issue for the residents on Kimball Road. A turn restriction would also restrict the residents of Taylor Avenue from making that movement which could frustrate those who utilize that turn to get to their homes. Based on this information a turn restriction is not recommended since Taylor Avenue is a public way for use by all traffic and the 85th percentile speed at which vehicles are traveling is below the prima facie speed limit of 30 mph.

Although the Engineering Department does not recommend traditional traffic calming measures for this section of Taylor Avenue, 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 the Taylor Avenue area.

- 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

- Establish a neighborhood group that could create pamphlets or flyers that can be passed out in the neighborhood that discusses the concerns of speeding vehicles on Taylor Avenue making people aware that they should drive cautiously.

- 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.

- Coordinate with the Police Department to see if they can place their mobile "Your Speed Is" sign on Taylor Avenue a couple of times throughout the year.

Cc: Board of Selectmen

Attachments: Taylor Avenue Locus Map
Combined Speed Statistics Report
Traffic Volume Report
Turning Movement Report

TAYLOR AVE (CEDAR ST TO DRESSER AVE)
TCR #2014-001
LOCUS MAP #1

DEDHAM GIS

TOWN OF DEDHAM, MASSACHUSETTS

TAYLOR AVE (DRESSER AVE TO ALDEN ST)
TCR #2014-001
LOCUS MAP #2

DEDHAM GIS

TOWN OF DEDHAM, MASSACHUSETTS

Town of Dedham
Engineering Department
55 River Street
Dedham, MA 02026
(781) 751-9350

Site Code: 00000032
Station ID: Sta. 4+51
On Utility Pole In Front
Of #35 Taylor Ave
Latitude: 0' 0.0000 Undefined

COMBINED

Report for 10/27/2015 11:00:00 AM to 10/30/2015 11:30:44 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	197	221	520	490	145	26	0	0	0	0	0	0	0	0
Percent	12.3	13.8	32.5	30.6	9.1	1.6	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	1402	1181	661	171	26	0	0	0	0	0	0	0	0	0
Percent	87.7	73.9	41.3	10.7	1.6	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	12	14	17	24	25	25	29	31	32

Average (Mean) 24

Pace Speed 20-29
Number in Pace 1010
Percent in Pace 63.2

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Latitude: 0' 0.0000 Undefined

COMBINED

Speed	Volume
8	1
9	7
10	18
11	27
12	42
13	27
14	39
15	36
16	33
17	37
18	38
19	52
20	61
21	76
22	84
23	102
24	103
25	155
26	114
27	114
28	121
29	80
30	61
31	53
32	42
33	22
34	16
35	12
36	9
37	10
38	6
39	0
40	1

Town of Dedham
Engineering Department
55 River Street
Dedham, MA 02026
(781) 751-9350

Site Code:
Station ID: Sta. 15+21
On Utility Pole Between
#119 & #123 Taylor Ave
Latitude: 0' 0.0000 Undefined

COMBINED

Report for 10/27/2015 12:00:00 PM to 10/30/2015 11:22:17 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	140	209	244	85	7	0	0	0	0	0	0	0	0	0
Percent	20.4	30.5	35.6	12.4	1.0	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	545	336	92	7	0	0	0	0	0	0	0	0	0	0
Percent	79.6	49.1	13.4	1.0	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	11	12	14	19	20	21	25	27	28

Average (Mean) 20

Pace Speed 16-25
Number in Pace 453
Percent in Pace 66.1

Town of Dedham
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On Utility Pole Between
#119 & #123 Taylor Ave
Latitude: 0' 0.0000 Undefined

COMBINED

Speed	Volume
5	1
6	7
7	6
8	4
9	10
10	4
11	26
12	26
13	10
14	29
15	17
16	42
17	62
18	36
19	45
20	24
21	62
22	61
23	38
24	44
25	39
26	11
27	29
28	19
29	16
30	10
31	2
32	3
33	2

Town of Dedham
Engineering Department

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(781) 751-9350

Site Code: 00000032
Station ID: Sta. 4+51
On Utility Pole In Front
Of #35 Taylor Ave
Latitude: 0' 0.0000 Undefined

Start	26-Oct-15		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	East	West	East	West	East	West	East	West	East	West	East	West	East	West	East	West
12:00 AM	*	*	*	*	0	0	0	9	1	1	*	*	*	*	0	3
01:00	*	*	*	*	1	0	0	7	0	0	*	*	*	*	0	2
02:00	*	*	*	*	0	0	0	12	0	1	*	*	*	*	0	4
03:00	*	*	*	*	0	0	0	57	1	0	*	*	*	*	0	19
04:00	*	*	*	*	0	0	0	1	0	0	*	*	*	*	0	0
05:00	*	*	*	*	0	3	0	4	2	3	*	*	*	*	1	3
06:00	*	*	*	*	4	9	3	11	5	8	*	*	*	*	4	9
07:00	*	*	*	*	3	39	5	27	8	33	*	*	*	*	5	33
08:00	*	*	*	*	**14**	**45**	13	**58**	9	**36**	*	*	*	*	**12**	**46**
09:00	*	*	*	*	11	16	7	20	7	18	*	*	*	*	8	18
10:00	*	*	*	*	8	9	8	10	**14**	18	*	*	*	*	10	12
11:00	*	*	**10**	**15**	4	20	**19**	12	8	12	*	*	*	*	10	15
12:00 PM	*	*	6	10	6	14	13	14	*	*	*	*	*	*	8	13
01:00	*	*	12	11	9	13	8	8	*	*	*	*	*	*	10	11
02:00	*	*	13	20	13	11	8	12	*	*	*	*	*	*	11	14
03:00	*	*	14	**31**	15	**34**	20	**52**	*	*	*	*	*	*	16	**39**
04:00	*	*	12	24	11	16	27	36	*	*	*	*	*	*	17	25
05:00	*	*	**22**	20	**20**	25	29	22	*	*	*	*	*	*	24	22
06:00	*	*	17	25	18	31	**44**	26	*	*	*	*	*	*	**26**	27
07:00	*	*	10	5	5	3	9	9	*	*	*	*	*	*	8	6
08:00	*	*	9	1	2	3	8	5	*	*	*	*	*	*	6	3
09:00	*	*	3	2	8	2	0	4	*	*	*	*	*	*	4	3
10:00	*	*	3	0	2	21	4	2	*	*	*	*	*	*	3	8
11:00	*	*	1	2	2	1	3	1	*	*	*	*	*	*	2	1
Lane	0	0	132	166	156	315	228	419	55	130	0	0	0	0	185	336
Day	0		298		471		647		185		0		0		521	
AM Peak	-	-	11:00	11:00	08:00	08:00	11:00	08:00	10:00	08:00	-	-	-	-	08:00	08:00
Vol.	-	-	10	15	14	45	19	58	14	36	-	-	-	-	12	46
PM Peak	-	-	17:00	15:00	17:00	15:00	18:00	15:00	-	-	-	-	-	-	18:00	15:00
Vol.	-	-	22	31	20	34	44	52	-	-	-	-	-	-	26	39

Comb. Total	0	298	471	647	185	0	0	521

ADT ADT 525 AADT 525

Town of Dedham
Engineering Department

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

Site Code:
Station ID: Sta. 15+21
On Utility Pole Between
#119 & #123 Taylor Ave
Latitude: 0' 0.0000 Undefined

Start	26-Oct-15		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	East	West	East	West	East	West	East	West	East	West	East	West	East	West	East	West
12:00 AM	*	*	*	*	0	0	0	0	2	0	*	*	*	*	1	0
01:00	*	*	*	*	1	0	2	1	1	0	*	*	*	*	1	0
02:00	*	*	*	*	0	0	0	0	0	1	*	*	*	*	0	0
03:00	*	*	*	*	0	0	0	0	0	0	*	*	*	*	0	0
04:00	*	*	*	*	0	0	0	0	0	0	*	*	*	*	0	0
05:00	*	*	*	*	0	0	1	0	2	1	*	*	*	*	1	0
06:00	*	*	*	*	3	2	5	4	5	1	*	*	*	*	4	2
07:00	*	*	*	*	8	9	7	8	3	12	*	*	*	*	6	10
08:00	*	*	*	*	**18**	**15**	**19**	**10**	**10**	**17**	*	*	*	*	**16**	**14**
09:00	*	*	*	*	3	10	5	1	5	4	*	*	*	*	4	5
10:00	*	*	*	*	3	7	5	0	7	7	*	*	*	*	5	5
11:00	*	*	*	*	6	8	9	7	4	6	*	*	*	*	6	7
12:00 PM	*	*	9	0	10	2	7	3	*	*	*	*	*	*	9	2
01:00	*	*	13	4	9	4	13	1	*	*	*	*	*	*	12	3
02:00	*	*	14	6	6	9	6	5	*	*	*	*	*	*	9	7
03:00	*	*	**21**	5	**12**	**10**	9	9	*	*	*	*	*	*	**14**	**8**
04:00	*	*	14	0	6	8	12	**12**	*	*	*	*	*	*	11	7
05:00	*	*	15	2	8	10	10	6	*	*	*	*	*	*	11	6
06:00	*	*	11	**9**	10	7	**14**	9	*	*	*	*	*	*	12	8
07:00	*	*	5	3	3	1	5	6	*	*	*	*	*	*	4	3
08:00	*	*	2	3	4	1	4	6	*	*	*	*	*	*	3	3
09:00	*	*	5	1	4	0	1	1	*	*	*	*	*	*	3	1
10:00	*	*	1	1	3	1	2	1	*	*	*	*	*	*	2	1
11:00	*	*	0	2	1	1	1	1	*	*	*	*	*	*	1	1
Lane	0	0	110	36	118	105	137	91	39	49	0	0	0	0	135	93
Day	0		146		223		228		88		0		0		228	
AM Peak	-	-	-	-	08:00	08:00	08:00	08:00	08:00	08:00	-	-	-	-	08:00	08:00
Vol.	-	-	-	-	18	15	19	10	10	17	-	-	-	-	16	14
PM Peak	-	-	15:00	18:00	15:00	15:00	18:00	16:00	-	-	-	-	-	-	15:00	15:00
Vol.	-	-	21	9	12	10	14	12	-	-	-	-	-	-	14	8

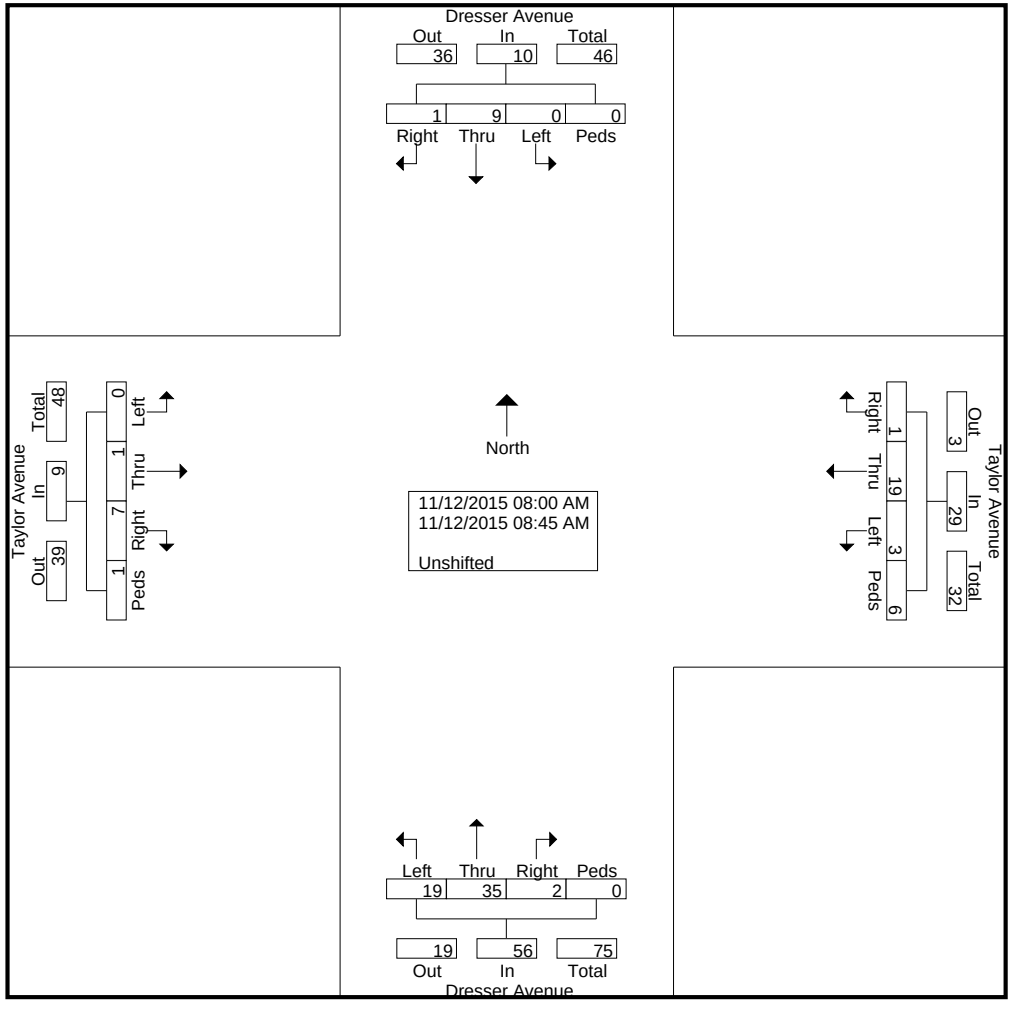
Comb. Total	0	146	223	228	88	0	0	228

ADT ADT 228 AADT 228

Town of Dedham

55 River Street
Dedham, MA 02026
781-751-9350
Engineering Department

File Name : Taylor at Dresser AM 15min
Site Code : 00000001
Start Date : 11/12/2015
Page No : 2



Town of Dedham

55 River Street
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Engineering Department

File Name : Taylor at Dresser AM 15min
Site Code : 00000001
Start Date : 11/12/2015
Page No : 3