

## Memorandum

Date: October 25, 2011  
To: Dedham Country Day School  
From: John G. Morgan, P.E., PTOE  
Re: Sight Distance at Highland Street Driveway  
Dedham Country Day School  
Dedham, MA

Coler & Colantonio, Inc. has prepared this Sight Distance Memorandum in order to document our review of available sight distance at the location of the proposed new site driveway at Dedham Country Day School located on Highland Street in Dedham. The new driveway would be a 15' wide, one-way, entrance only driveway.

Since the proposed driveway is an entrance only, a stopping sight distance evaluation was performed for approaching vehicles. Vehicles approaching the driveway travelling along Highland Street will require sufficient sight distance to stop if there is a vehicle waiting to turn into the site. In order to determine the available stopping sight distance approaching the proposed driveway from each direction on Highland Street, Coler & Colantonio, Inc. performed a sight distance evaluation in the field and also prepared a sight distance plan and profile using AutoCad software.

### *Stopping Sight Distance*

The sight distance required for stopping is a direct function of the travel speed for roadway. There is no posted speed limit on Highland Street. The fundamental speed limit of 30mph is assumed for this local, thickly settled, primarily residential roadway. Automatic traffic recorder speed counts were performed for a 72-hour period from Thursday, October 20, 2011 through Saturday, October 22, 2011 to determine actual travel speeds along Highland Street. Speed was recorded at a location approximately 200 feet south of the proposed driveway location. This location was chosen as it is close to the critical point where approaching drivers will see the proposed site driveway and will need to make a decision on whether or not braking or stopping is required. Both the average speed and 85<sup>th</sup> percentile speed (speed at which 85% of vehicles are travelling at or below) were examined. The 85<sup>th</sup> percentile speed is routinely used in evaluating sight distance and is also an industry standard for use in determining design speed of a roadway. Table 1 summarizes the recorded travel speeds.

**TABLE 1. TRAVEL SPEEDS**

<b>Direction</b>	<b>Average Speed</b>	<b>85<sup>th</sup> Percentile Speed</b>
Northbound	25 mph	29 mph
Southbound	28 mph	32 mph

The stopping sight distance was measured in the field and by using an object height 2.0 feet above the road surface at the new site drive location and driver's eye height of 3.5 feet, according to AASHTO (American Association of State Highways and Transportation Officials) guidelines. An object height of 2.0 feet is representative of an object that involves risk to drivers that can also be recognized by a driver in time to stop before reaching it.<sup>1</sup>

Table 2 displays the AASHTO minimum stopping sight distance for the average speed and 85<sup>th</sup> percentile speed of each approach. The minimum distances on the northbound approach were adjusted for the average 7.5% upgrade on Highland Street approaching the driveway location from the south. The table displays the available stopping sight distance as measured in the field approaching the access driveway from each direction, which will be available after the construction of the driveway. The Table also indicates the available sight distance as measured using a plan and profile of Highland Street.

**TABLE 2. STOPPING SIGHT DISTANCE**

<b>Sight Distance Condition</b>	<b>Stopping Sight Distance (ft)</b>
<b>AASHTO Minimum Sight Distance<sup>3</sup></b>	
<i>Northbound</i>	
25 MPH – Average Speed(on 7.5% Upgrade)	142 ft
29 MPH – 85 <sup>th</sup> % Speed(on 7.5% Upgrade)	174 ft
<i>Southbound</i>	
28 MPH - Average Speed	182 ft
32 MPH – 85 <sup>th</sup> % Speed	220 ft
<b>Available Stopping Sight Distance</b>	
Approaching Northbound (Field)	177 ft
Approaching Northbound (Profile)	200 ft
Approaching Southbound (Field)	415 ft
Approaching Southbound (Profile)	400+ ft

It is evident from Table 2 that the measured available stopping sight distance for vehicles approaching from the north (415') well exceeds the minimum AASHTO stopping sight distance for the average travel speed (182') and 85<sup>th</sup> percentile speed (220'). The field measured available sight distance approaching from the south (177') is limited by the vertical curve in Highland Street and is above the minimum distance required by AASHTO for the 25 mph average speed (142') and 85<sup>th</sup> percentile speed (174') on the 7.5% upgrade. The calculated available sight

<sup>1</sup> American Association of State Highway and Transportation Officials, *A Policy on Geometric Design of Highways and Streets*, AASHTO, 2004, Page 127.

distance using the available plan and profile data was found to be over 200' northbound and over 400 feet southbound. Therefore, it is concluded that approaching vehicles from both the north and south will have sufficient sight distance to recognize an object in the roadway and to stop if needed based on AASHTO standards.

It should also be noted that the actual available stopping sight distance for approaching drivers looking at vehicles waiting to enter the site driveway may be greater than the measurements recorded using AASHTO criteria. This is true when vertical curves are the sight distance obstruction due to the actual height of a vehicle being greater than the 2' object height used by AASHTO. This is the case for the northbound approach to the proposed site driveway on Highland Street where approaching drivers will be able to see the top of waiting vehicles at a distance of greater than the 177' measured in the field.

### ***Recommendations***

Coler & Colantonio, Inc. recommends the following with regards to the proposed new entrance driveway to the Dedham Country Day School on Highland Street.

- The proposed site driveway should be limited to an entrance only as proposed. The available sight distance for vehicles exiting a driveway at this location would not meet AASHTO minimum standards.
- Speed limit signs should be installed on Highland Street.

If there are any questions regarding this Memorandum, please do not hesitate to contact our office.

**REVISIONS:**

No.	DATE

**GENERAL NOTES:**

**COLER & COLANTONIO**  
ENGINEERS AND ARCHITECTS

201-862-8000  
www.coler-c.com  
100 Newland, W. 02026

**CONCEPTUAL PLAN FOR  
DISCUSSION PURPOSES ONLY**

**TITLE:**

FIRE TRUCK TURNING EXHIBIT  
FOR EXISTING CONDITIONS  
DEDHAM COUNTRY DAY SCHOOL  
PROPOSED BUILDING ADDITION  
90 SANDY VALLEY ROAD  
DEDHAM, MA 02026

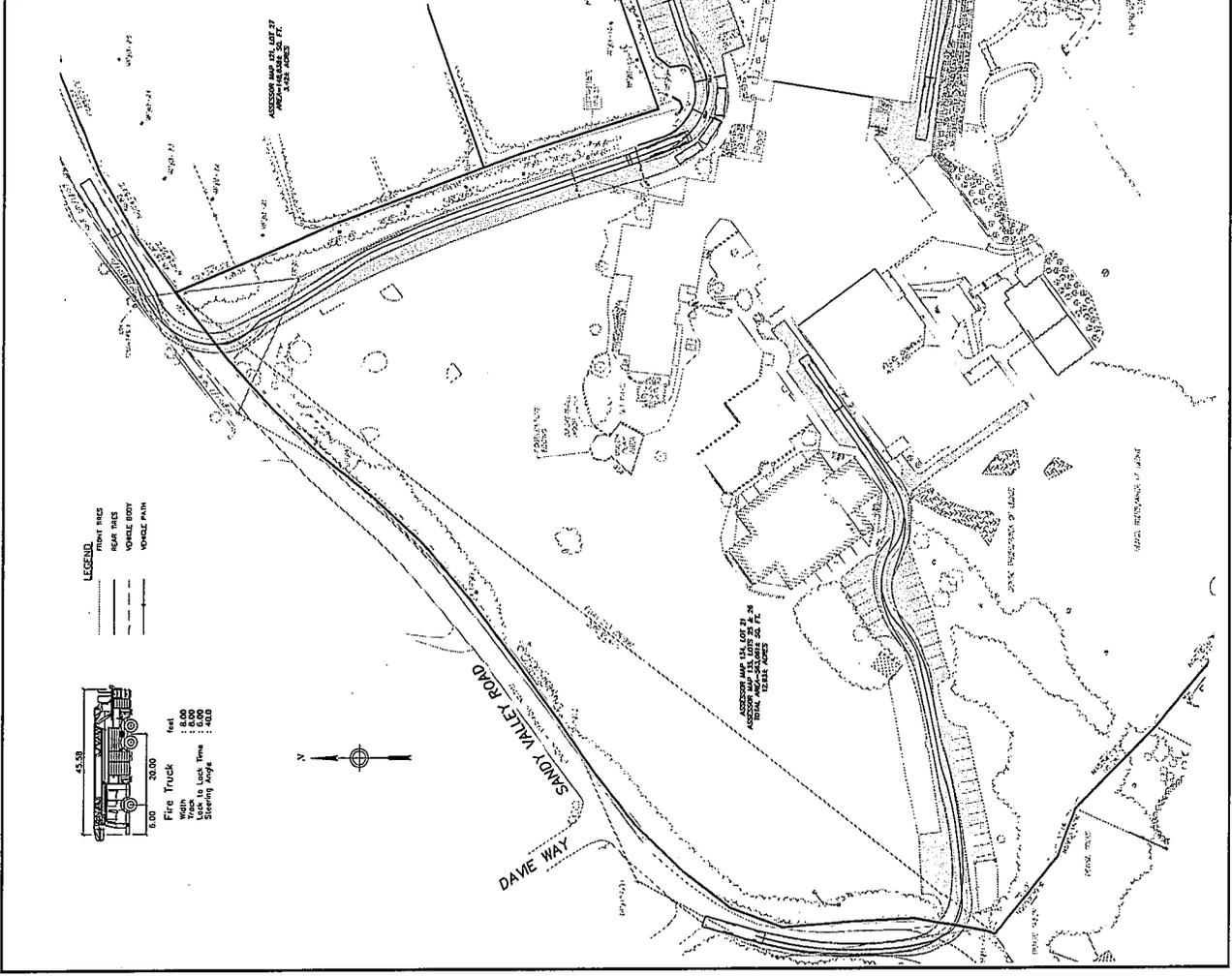
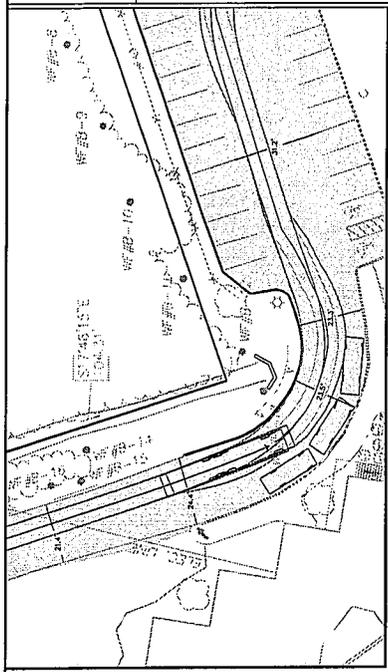
**PREPARED FOR:**

DEDHAM COUNTRY DAY SCHOOL  
90 SANDY VALLEY ROAD  
DEDHAM, MA, 02026

DATE: AUGUST 12, 2011
COMP./PERSON: AJP
CHECK: SK/OC
DRAWN: AJP
SCALE: 1" = 40'
JOB NO.: 26-103
DWG. NO.: 2011-08-001 (REVISED)
DWG. INT. PROJ. CONTROL

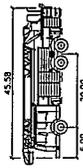
**C-1**

SHEET 1 OF 2
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**LEGEND**

FRONT WHEELS
REAR WHEELS
VEHICLE BODY
VEHICLE PATH



Fire Truck  
Width: 8.00  
Wheel to Last Wheel: 20.00  
Steering Angle: 40.0



REVISIONS:	
No.	DATE

GENERAL NOTES:

DATE: AUGUST 12, 2011  
 COMP./DESIGN: AMP  
 CHECK: SK/CC  
 DRAWN: AMP  
 SCALE: 1" = 40'  
 JOB NO.: 26-113  
 DATE PLOTTED: 08/12/11  
 DWG. NO.: 26-113-001

**COLER & COLANTONIO**  
 ENGINEERS AND SCIENTISTS

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**CONCEPTUAL PLAN FOR  
 DISCUSSION PURPOSES ONLY**

**TITLE:**  
 FIRE TRUCK TURNING EXHIBIT  
 FOR PROPOSED CONDITIONS

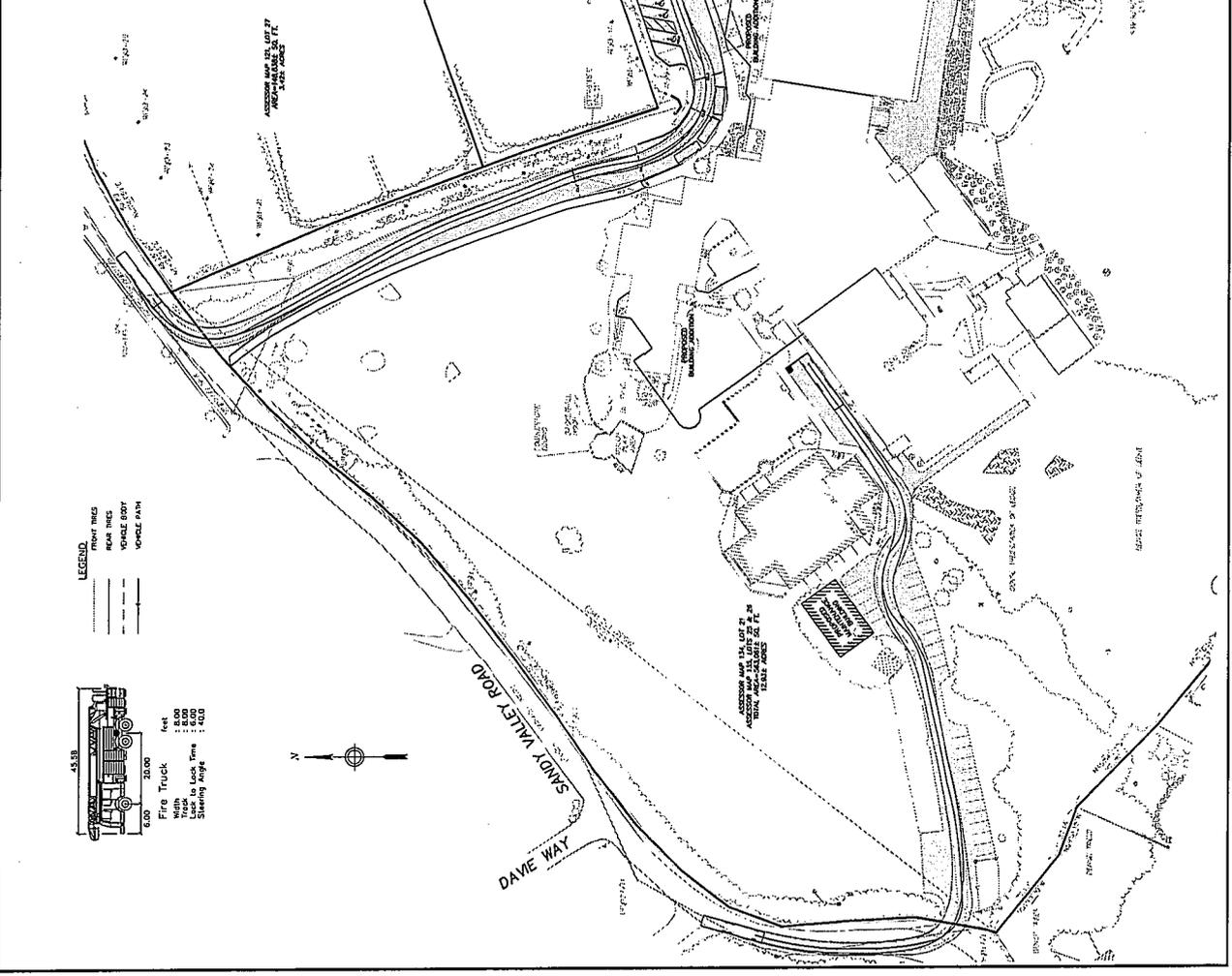
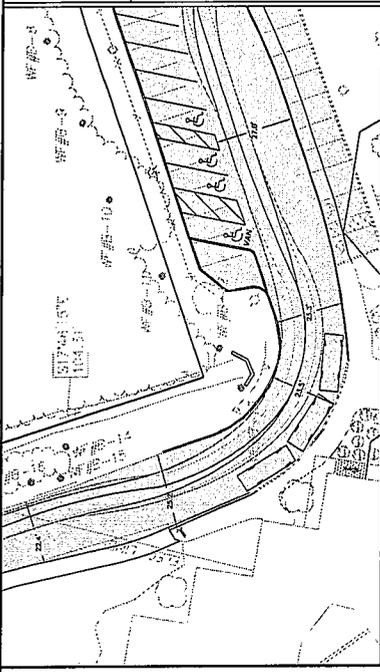
DEDHAM COUNTRY DAY SCHOOL  
 PROPOSED BUILDING ADDITION  
 90 SANDY VALLEY ROAD  
 DEDHAM, MA 02026

PREPARED FOR:  
 DEDHAM COUNTRY DAY SCHOOL  
 90 SANDY VALLEY ROAD  
 DEDHAM, MA, 02026

DATE: AUGUST 12, 2011  
 COMP./DESIGN: AMP  
 CHECK: SK/CC  
 DRAWN: AMP  
 SCALE: 1" = 40'  
 JOB NO.: 26-113  
 DATE PLOTTED: 08/12/11  
 DWG. NO.: 26-113-001

**C-2**

SHEET 2 OF 2



**Transportation Data Corporation**

Mario Perone, mperone1@verizon.net

t. (781) 587-0086 f. (781) 587-0189

Highland Street  
north of Pacella Drive  
City, State: Dedham, MA  
Client: C&C/J. Morgan

04181Aspeed

Site Code: 04181

**Northbound**

Start Time	1	4	7	10	13	16	19	22	25	28	31	34	37	Total
	3	6	9	12	15	18	21	24	27	30	33	36	39	
10/20/11	0	0	0	0	0	0	0	2	1	0	0	0	0	3
01:00	0	0	0	0	0	0	0	2	1	0	0	0	0	3
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	1	1
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	1	1	0	0	0	0	0	2
06:00	0	0	1	0	0	2	3	7	6	3	0	0	0	22
07:00	0	0	0	1	0	2	13	39	71	60	8	2	0	196
08:00	0	0	0	0	0	1	8	21	27	21	5	0	0	83
09:00	0	0	0	0	0	3	4	3	4	5	3	0	0	22
10:00	0	0	0	0	0	1	1	7	10	6	1	0	0	26
11:00	0	0	0	0	0	1	4	6	7	5	0	1	0	24
12 PM	0	0	0	0	1	0	2	7	10	7	3	0	0	30
13:00	0	0	1	1	0	2	4	16	11	8	2	0	0	45
14:00	0	0	0	0	2	0	8	19	26	10	0	0	0	65
15:00	0	0	0	0	0	1	5	17	20	9	1	0	0	53
16:00	0	0	0	0	0	2	3	16	20	12	5	0	0	58
17:00	0	0	0	0	2	2	5	13	11	4	4	1	0	42
18:00	0	0	0	0	1	2	3	9	4	4	0	0	0	23
19:00	0	0	0	0	0	0	2	5	6	5	0	0	0	18
20:00	0	0	0	0	0	0	4	3	4	2	3	0	0	16
21:00	0	0	0	0	0	0	0	3	3	4	0	1	0	11
22:00	0	0	0	0	0	0	0	0	2	0	1	0	0	3
23:00	0	0	0	0	1	0	0	0	0	0	0	0	0	1
<b>Total</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>7</b>	<b>19</b>	<b>70</b>	<b>196</b>	<b>244</b>	<b>165</b>	<b>36</b>	<b>5</b>	<b>1</b>	<b>747</b>
<b>Percent</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.3%</b>	<b>0.3%</b>	<b>0.9%</b>	<b>2.5%</b>	<b>9.4%</b>	<b>26.2%</b>	<b>32.7%</b>	<b>22.1%</b>	<b>4.8%</b>	<b>0.7%</b>	<b>0.1%</b>	

Daily

15th Percentile : 22 MPH  
50th Percentile : 25 MPH  
85th Percentile : 29 MPH  
95th Percentile : 31 MPH

Mean Speed(Average) : 25 MPH  
10 MPH Pace Speed : 21-30 MPH  
Number in Pace : 629  
Percent in Pace : 84.2%  
Number of Vehicles > 25 MPH : 369  
Percent of Vehicles > 25 MPH : 49.4%

**RECEIVED**  
OCT 26 2011

**DEDHAM PLANNING BOARD**

**Transportation Data Corporation**

Mario Perone, mperone1@verizon.net

t. (781) 587-0086 f. (781) 587-0189.

Highland Street  
north of Pacella Drive  
City, State: Dedham, MA  
Client: C&C/J. Morgan

04181Aspeed  
Site Code: 04181

**Northbound**

Start Time	1	4	7	10	13	16	19	22	25	28	31	34	37	Total
Time	3	6	9	12	15	18	21	24	27	30	33	36	39	
10/21/11	0	0	0	0	0	0	0	0	0	0	2	0	0	2
01:00	0	0	0	0	0	1	0	0	0	0	0	0	0	1
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	1	1	0	0	0	0	0	1	3
04:00	0	0	0	0	0	0	0	0	0	1	0	0	0	1
05:00	0	0	0	0	0	0	0	1	1	0	0	0	0	2
06:00	0	0	0	0	0	0	2	10	4	6	1	0	0	23
07:00	0	0	0	1	1	2	15	30	61	54	12	1	0	177
08:00	0	0	0	0	0	3	7	15	24	14	4	0	0	67
09:00	0	1	0	1	1	1	2	12	6	9	4	2	0	39
10:00	0	0	0	0	1	2	5	8	11	7	6	0	0	40
11:00	0	0	0	0	0	0	9	7	8	7	3	0	0	34
12 PM	0	0	0	0	0	3	8	15	27	17	1	0	0	71
13:00	0	0	0	0	0	3	3	8	15	9	1	0	0	39
14:00	0	0	0	0	0	0	5	10	18	16	2	1	0	52
15:00	0	0	0	0	1	1	2	9	26	14	1	0	0	54
16:00	0	0	0	0	0	0	2	6	12	10	5	0	0	35
17:00	0	0	0	0	2	2	2	10	13	9	0	0	0	38
18:00	0	0	0	0	1	3	3	5	7	4	2	0	0	25
19:00	0	0	0	0	0	0	6	7	4	4	0	0	0	21
20:00	0	0	0	0	0	0	4	7	2	1	1	0	0	15
21:00	0	0	0	0	0	0	2	1	2	2	1	0	0	8
22:00	0	0	0	0	0	0	1	6	3	2	0	0	0	12
23:00	0	0	1	0	0	0	1	2	5	0	1	0	0	10
<b>Total</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>7</b>	<b>22</b>	<b>80</b>	<b>169</b>	<b>249</b>	<b>186</b>	<b>47</b>	<b>4</b>	<b>1</b>	<b>769</b>
<b>Percent</b>	<b>0.0%</b>	<b>0.1%</b>	<b>0.1%</b>	<b>0.3%</b>	<b>0.9%</b>	<b>2.9%</b>	<b>10.4%</b>	<b>22.0%</b>	<b>32.4%</b>	<b>24.2%</b>	<b>6.1%</b>	<b>0.5%</b>	<b>0.1%</b>	

Daily

15th Percentile : 22 MPH  
50th Percentile : 26 MPH  
85th Percentile : 29 MPH  
95th Percentile : 31 MPH

Mean Speed(Average) : 25 MPH  
10 MPH Pace Speed : 21-30 MPH  
Number in Pace : 631  
Percent in Pace : 82.1%  
Number of Vehicles > 25 MPH : 404  
Percent of Vehicles > 25 MPH : 52.5%

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04181Asped  
Site Code: 04181

**Northbound**

Start Time	1	4	7	10	13	16	19	22	25	28	31	34	37	Total
	3	6	9	12	15	18	21	24	27	30	33	36	39	
10/22/11	0	0	0	0	0	1	0	0	0	1	0	0	0	2
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	1	0	0	1
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	1	0	0	0	1
05:00	0	0	0	0	0	0	1	2	2	0	0	0	0	5
06:00	0	0	0	0	0	0	0	6	3	1	1	0	0	11
07:00	0	0	0	0	0	0	2	5	6	3	0	0	0	16
08:00	0	0	0	0	0	1	9	7	9	7	2	0	0	35
09:00	0	0	0	0	0	2	5	16	12	14	5	1	0	55
10:00	0	0	0	0	1	1	0	8	9	4	3	1	0	27
11:00	0	0	0	0	1	1	3	9	13	4	4	0	0	35
12 PM	0	0	1	0	1	0	3	7	15	4	3	2	0	34
13:00	0	0	0	2	0	1	1	5	10	6	1	0	0	26
14:00	0	0	0	2	0	1	1	5	5	5	0	0	0	21
15:00	0	0	0	0	1	1	5	4	5	5	0	0	0	35
16:00	0	0	0	0	1	0	6	7	13	8	0	0	0	29
17:00	0	0	0	0	1	1	1	7	10	7	2	0	0	17
18:00	0	0	0	0	0	2	2	3	5	3	2	0	0	18
19:00	0	0	0	0	0	0	4	7	4	2	1	0	0	14
20:00	0	0	0	0	0	0	3	5	1	3	2	0	0	11
21:00	0	0	0	0	0	1	0	3	7	0	0	0	0	9
22:00	0	0	0	0	0	0	1	4	4	0	0	0	0	8
23:00	0	0	0	0	0	1	2	2	2	0	1	0	0	8
<b>Total</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>5</b>	<b>14</b>	<b>46</b>	<b>107</b>	<b>131</b>	<b>73</b>	<b>28</b>	<b>4</b>	<b>0</b>	<b>411</b>
<b>Percent</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.2%</b>	<b>0.5%</b>	<b>1.2%</b>	<b>3.4%</b>	<b>11.2%</b>	<b>26.0%</b>	<b>31.9%</b>	<b>17.8%</b>	<b>6.8%</b>	<b>1.0%</b>	<b>0.0%</b>	

Daily

15th Percentile : 21 MPH  
 50th Percentile : 25 MPH  
 85th Percentile : 29 MPH  
 95th Percentile : 32 MPH

Mean Speed(Average) : 25 MPH  
 10 MPH Pace Speed : 21-30 MPH  
 Number in Pace : 327  
 Percent in Pace : 79.6%  
 Number of Vehicles > 25 MPH : 192  
 Percent of Vehicles > 25 MPH : 46.7%

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Client: C&C/J. Morgan

04181Aspeed  
Site Code: 04181

**Southbound**

Start Time	1	4	7	10	13	16	19	22	25	28	31	34	37	Total
	3	6	9	12	15	18	21	24	27	30	33	36	39	
10/20/11	0	0	0	0	0	0	0	0	1	1	0	0	0	2
01:00	0	0	0	0	0	0	0	0	0	2	0	0	0	2
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0	1	0	1	0	0	0	2
06:00	0	0	0	0	1	0	1	2	5	4	1	0	0	14
07:00	0	0	0	0	0	0	1	14	42	68	23	5	0	153
08:00	0	0	0	0	0	0	5	7	16	21	14	3	0	66
09:00	0	0	0	0	0	0	3	2	11	12	6	3	0	37
10:00	0	0	1	0	1	1	2	2	10	14	9	0	0	40
11:00	0	0	0	0	0	0	2	3	10	12	8	1	0	36
12 PM	0	0	0	1	0	0	0	3	16	16	10	3	0	49
13:00	0	0	0	1	1	4	4	8	18	10	9	3	0	58
14:00	0	0	0	0	1	1	5	25	41	40	13	2	0	128
15:00	0	0	0	0	1	0	4	17	42	51	28	9	0	152
16:00	0	0	0	0	0	2	0	19	55	80	41	11	0	208
17:00	0	0	0	0	0	5	1	18	46	69	52	13	0	204
18:00	0	0	0	0	1	0	1	2	16	45	23	5	0	93
19:00	0	0	0	0	0	0	2	6	18	21	10	4	1	62
20:00	0	0	0	0	0	0	0	1	8	15	10	1	0	35
21:00	0	0	0	0	0	0	2	1	6	6	3	3	0	21
22:00	0	0	0	0	0	0	1	0	1	4	1	0	0	7
23:00	0	0	0	0	0	0	0	0	0	0	1	1	0	2
<b>Total</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>6</b>	<b>13</b>	<b>34</b>	<b>131</b>	<b>362</b>	<b>492</b>	<b>262</b>	<b>67</b>	<b>1</b>	<b>1371</b>
<b>Percent</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.1%</b>	<b>0.1%</b>	<b>0.4%</b>	<b>0.9%</b>	<b>2.5%</b>	<b>9.6%</b>	<b>26.4%</b>	<b>35.9%</b>	<b>19.1%</b>	<b>4.9%</b>	<b>0.1%</b>	

Daily

- 15th Percentile : 25 MPH
- 50th Percentile : 28 MPH
- 85th Percentile : 32 MPH
- 95th Percentile : 33 MPH

- Mean Speed(Average) : 28 MPH
- 10 MPH Pace Speed : 24-33 MPH
- Number in Pace : 1160
- Percent in Pace : 84.6%
- Number of Vehicles > 25 MPH : 1064
- Percent of Vehicles > 25 MPH : 77.6%

**Transportation Data Corporation**

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Client: C&C/J. Morgan

04181Aspeed  
Site Code: 04181

**Southbound**

Start Time	1	4	7	10	13	16	19	22	25	28	31	34	37	Total
Time	3	6	9	12	15	18	21	24	27	30	33	36	39	Total
10/21/11	0	0	0	0	0	0	1	1	1	1	0	1	1	6
01:00	0	0	0	0	0	0	0	0	0	1	0	0	0	1
02:00	0	0	0	0	0	0	1	0	0	0	0	0	0	1
03:00	0	0	0	0	0	0	0	1	0	0	0	0	0	1
04:00	0	0	0	0	0	0	0	0	0	0	1	1	0	2
05:00	0	0	0	0	0	0	0	0	1	0	1	0	1	3
06:00	0	0	0	0	0	0	0	0	2	0	3	0	0	5
07:00	0	0	0	0	0	0	4	11	41	69	35	5	0	165
08:00	0	0	0	0	1	0	2	9	21	25	8	3	0	69
09:00	0	0	0	0	0	0	3	8	5	25	13	1	0	55
10:00	0	0	0	0	1	2	2	5	12	9	11	3	0	45
11:00	0	0	0	0	0	0	2	5	14	23	13	1	0	58
12 PM	0	0	0	0	2	2	3	18	35	22	13	2	0	97
13:00	0	0	0	0	0	0	3	6	11	23	17	3	1	64
14:00	0	0	0	0	0	1	2	16	40	48	21	10	0	138
15:00	0	0	0	0	0	2	10	19	48	64	39	8	0	190
16:00	0	0	0	0	0	0	2	11	46	87	43	15	2	206
17:00	0	0	0	0	1	1	2	11	49	74	61	12	0	211
18:00	0	0	0	0	0	0	0	8	31	28	18	4	0	89
19:00	0	0	0	0	0	0	1	5	11	19	10	6	0	52
20:00	0	0	0	0	0	1	2	6	9	9	3	1	0	31
21:00	0	0	0	0	0	0	2	2	6	4	6	3	1	24
22:00	0	0	0	0	0	0	0	4	3	7	1	0	0	15
23:00	0	0	0	0	0	0	1	0	3	0	3	0	1	8
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>9</b>	<b>43</b>	<b>146</b>	<b>389</b>	<b>538</b>	<b>320</b>	<b>79</b>	<b>7</b>	<b>1536</b>
<b>Percent</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.3%</b>	<b>0.6%</b>	<b>2.8%</b>	<b>9.5%</b>	<b>25.3%</b>	<b>35.0%</b>	<b>20.8%</b>	<b>5.1%</b>	<b>0.5%</b>	

Daily

15th Percentile : 25 MPH  
50th Percentile : 28 MPH  
85th Percentile : 32 MPH  
95th Percentile : 34 MPH

Mean Speed(Average) : 28 MPH  
10 MPH Pace Speed : 24-33 MPH

Number in Pace : 1296  
Percent in Pace : 84.4%  
Number of Vehicles > 25 MPH : 1204  
Percent of Vehicles > 25 MPH : 78.4%

**Transportation Data Corporation**

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Highland Street  
north of Pacella Drive  
City, State: Dedham, MA  
Client: C&C/J. Morgan

04181Aspeed  
Site Code: 04181

**Southbound**

Start Time	1	4	7	10	13	16	19	22	25	28	31	34	37	Total
	3	6	9	12	15	18	21	24	27	30	33	36	39	
10/22/11	0	0	0	0	0	0	0	1	1	0	0	1	0	3
01:00	0	0	0	0	0	0	1	0	0	0	0	0	0	1
02:00	0	0	0	0	0	0	0	1	0	0	0	0	0	1
03:00	0	0	0	0	0	0	0	2	0	0	0	0	0	2
04:00	0	0	0	0	0	0	0	0	0	1	0	0	0	1
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	0	0	0	0	0	0	0	1	1	0	0	0	0	2
07:00	0	0	0	0	0	0	1	2	3	8	1	0	0	15
08:00	0	0	0	0	0	1	3	2	9	16	13	3	0	47
09:00	0	0	0	0	0	0	2	3	8	17	7	1	0	38
10:00	0	0	0	0	0	0	1	7	10	18	16	5	0	57
11:00	0	0	0	0	0	0	1	3	14	15	13	7	0	53
12 PM	0	0	0	0	1	1	9	19	17	22	13	6	0	88
13:00	0	0	0	0	0	0	5	8	30	17	17	1	0	78
14:00	0	0	0	0	0	0	0	4	14	16	13	6	1	54
15:00	0	0	0	0	0	0	1	14	15	15	10	1	0	56
16:00	0	0	0	0	0	0	2	5	20	13	11	2	1	54
17:00	0	0	0	0	0	1	2	5	6	17	5	0	1	37
18:00	0	0	0	0	0	0	4	5	8	13	5	2	0	37
19:00	0	0	0	0	0	0	0	0	3	6	3	2	1	15
20:00	0	0	0	0	0	0	0	0	3	9	1	0	0	13
21:00	0	0	0	0	0	0	0	3	2	4	2	0	1	12
22:00	0	0	0	0	0	0	0	4	5	5	2	0	0	16
23:00	0	0	0	0	0	0	0	3	8	4	0	0	0	15
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>4</b>	<b>31</b>	<b>92</b>	<b>177</b>	<b>216</b>	<b>132</b>	<b>37</b>	<b>5</b>	<b>695</b>
<b>Percent</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.1%</b>	<b>0.6%</b>	<b>4.5%</b>	<b>13.2%</b>	<b>25.5%</b>	<b>31.1%</b>	<b>19.0%</b>	<b>5.3%</b>	<b>0.7%</b>	

Daily

15th Percentile : 24 MPH  
50th Percentile : 28 MPH  
85th Percentile : 32 MPH  
95th Percentile : 34 MPH

Mean Speed(Average) : 28 MPH  
10 MPH Pace Speed : 24-33 MPH

Number in Pace : 556  
Percent in Pace : 80.0%  
Number of Vehicles > 25 MPH : 508  
Percent of Vehicles > 25 MPH : 73.1%