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DEPARTMENT OF INFRASTRUCTURE ENGINEERING

TRAFFIC CALMING NEEDS ASSESSMENT

TO: Transportation Advisory Committee

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

DATE: September 17, 2019

SUBJECT: Traffic Calming Request #2019-002 – Upland Road

Purpose

The Transportation Advisory Committee (TAC), at their 07/09/19 meeting, reviewed the Initial Evaluation for the traffic calming request for Upland Road (#2019-002) submitted by Carlo Prisco of 95 Upland Road. Based upon the results of the initial evaluation, the TAC voted unanimously that the Upland Road request for traffic calming merited further consideration and requested that the Engineering Department to prepare a Traffic Calming Needs Assessment Report. This report summarizes the findings of the Engineering Department.

Study Area

The study area encompasses the entire section of Upland Road in its entirety.

Upland Road is an east/west thickly settled residential through street with a pavement width of approximately 23 to 26 feet. Upland Road is approximately 1,300 feet (0.25 miles) in length extending from East Street to Sprague Street. There is one sidewalk that extends for the entire length of Upland Road but is not continuous. The sidewalk exists on the south side of the road from Sprague Street to just beyond Hermaine Avenue and then continues on the north side of the road from Hermaine Avenue to East Street. Some of the residents utilize Upland Road for on-street parking.

The prima facie speed limit on Upland Road 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

The applicant and those that signed the traffic calming request as supporters have concerns about the volume of heavy commercial vehicles utilizing Upland Road as a cut through to avoid the East Street roundabout during peak morning and evening hours. They also have concerns about speeding vehicles.

Results from the Initial Evaluation indicated that there was only one pedestrian generator (St. Luke's Church) located within 1,000 feet.

Observations (Speed & Volume)

The Town of Dedham utilized a tube counter to log the speed, volume and classification of vehicles during the period beginning May 6, 2019 and ending May 9, 2019. The tubes were installed across the roadway at Station 9+34 located in front of #79 Upland Road.

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

Table 1 – Traffic Data Station 9+34

Direction of Traffic	***ADT***	***Peak Hour Volume***	***Peak Volume Time***	***Speed Limit***	***85th Percentile Speed***	***Average Speed***
Westbound	446 (73%)	40	3 - 4 pm	25 mph[a]	31 mph	26 mph
Eastbound	168 (27%)	23	7 - 8 am	25 mph[a]	32 mph	25 mph
Combined	614	55	3 - 4 pm	25 mph[a]	32 mph	26 mph

[a] – Prima Facie Speed Limit

The combined average speed for both directions was found to be 26 mph for Upland Road. The combined 85th percentile speed for both directions was found to be 32 mph. 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, the 85th percentile speed is 7 mph over the speed limit with approximately 57% of the vehicles driving at speeds greater than 25 mph and approximately 22% driving at speeds greater than 30 mph.

The volume and classification of the heavy commercial vehicles traveling on Upland Road at the time of the study is shown below in Table 2:

Table 2 – Heavy Commercial Vehicles Station 9+34

Direction of Traffic	***ADT***	***Heavy Commercial Vehicle Pct. (Classes 5 thru 13)***	***2 Axle - 6 Tire Pct. (Class 5)***	***Class 6 and Greater Pct.***
Westbound	446	7.4	6.7	0.7
Eastbound	168	4.7	4.6	0.1
Combined	614	6.7	6.1	0.6

The Federal Highway Administration classifies vehicles into 13 classes. Classes 1 through 4 consists of vehicles such as motorcycles and passenger cars. Classes 5 through 13 are all considered heavy commercial vehicles ranging from two axle, six tire single units (Class 5) to seven or more axle, multi-trailer units (Class 13). The largest class vehicle observed on Upland Road during the time of the study was Class 9 (5-Axle tractor semitrailer). There was one Class 9 vehicle observed.

When considering a public roadway for a Heavy Commercial Vehicle Exclusion, typically Class 5 vehicles are not included in the analysis since they are usually comprised of delivery and service vehicles (i.e. FedEx, UPS, Uhaul, Furniture trucks, etc.) which need access for the purposes of making deliveries of goods, materials or merchandise on these roadways and are considered exempt from any exclusion.

Crash (Traffic Collisions) & Traffic Enforcement Data

The Engineering Department analyzed crash data utilizing the most recent 2016-2019 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***
Upland Road	1	0.3

The one crash report was due to icy road conditions. The one crash also did not involve a pedestrian and/or bicyclist. Based upon this data, there are no overriding roadway geometric safety issues.

The Police Department issued a total of 24 speeding citations on Upland Road over the past 5 years (2015 through 2019). The citations issued per year are shown in the table below.

Table 3 – Speeding Citations

Timeframe	***# of Citations Issued***
01/01/15 – 12/31/15	0
01/01/16 – 12/31/16	2
01/01/17 – 12/31/17	0
01/01/18 – 12/31/18	15
01/01/19 - Present	7

Affected Area

Traffic calming measures not only affect those that directly abut the public right-of-way where a measure is proposed to be installed but can also potentially affect any side streets that intersect the roadway where the measures are to be installed.

Certain types of traffic calming measures are more drastic in changing drivers driving habits than others. When traffic calming measures are severe, it can sometimes push traffic from the roadway that has the measures installed onto the side streets that intersect this roadway in an attempt to avoid the traffic calming measures. Certain types of traffic calming measures can also be considered a nuisance to those that live in the neighborhood that must negotiate the installed measure(s) on a daily basis. Based upon the Town's Traffic Calming Policy, the TAC is required to acknowledge these potentially affected areas and allow them the opportunity to comment on any proposed measures to be installed.

For Upland Road, it appears that the potentially affected side streets would be Hermaine Avenue, Walters Avenue and Pine Grove Avenue (See attached Affected Roadways Map). The Engineering Department recommends to the TAC that these roadways be considered the "affected area" as they proceed through the needs assessment process.

CONCLUSIONS/RECOMMENDATIONS

Based upon the information provided in this report and our study of Upland Road and the affected area, we have development the following conclusions:

- Upland Road is a viable candidate for traditional traffic calming measures.
- The 85th percentile speed based upon our study is approximately 7 mph over the prima facie speed limit of 25 mph.
- There is an obvious lack of continuous sidewalks and safe crossing locations for pedestrians and neighborhood residents to utilize to safely access the existing sidewalks on either side of the road.

Due to the limited width of the Right-of-Way (40'), the existing geometry of the intersections and the locations of existing driveways, there are only a few options for traffic calming measures that would not require land takings or reconfiguration of residents driveways resulting in a significant cost to the Town but also inconvenience to the residents. Therefore, the Engineering Department recommends the following traffic calming measures to mitigate speeds and the volume of heavy commercial vehicles on Upland Road:

- Installation of speed humps. Speed humps are typically recommended for use on residential streets where the desired operating speed is 25 mph. Speed humps are typically installed across both travel lanes and have a length of 12 to 14 feet and a height of 3 inches. Both the Police and Fire chiefs have stated that they are not opposed

to speed humps on Upland Road since it is not considered an emergency response route.

As with any traffic calming measure there are pros and cons. The pros are they reduce vehicular speeds and are relatively inexpensive to install and maintain. The cons are they can create noise from trucks driving over them or increased engine noise from motorists trying to make up for perceived lost time, slow down emergency response vehicles, create cut throughs onto other residential streets trying to avoid them and can be considered a nuisance to residents in the affected area.

Before permanent speed humps are installed, the Engineering Department would recommend that temporary speed humps be installed. The DPW owns 2 temporary speed humps that could be utilized for this study. As discussed above, traffic calming measures can sometimes move an existing problem onto another roadway. Should permanent speed humps be installed on Upland Road, it is possible that vehicles would use either Tophill Avenue or Hermaine Avenue as a cut through to avoid the speed humps. Therefore, I would recommend that one temporary speed hump be installed on Upland Road and one installed on Tophill Avenue (See Attached Proposed Temporary Speed Humps map).

I would recommend utilizing the temporary speed humps for a minimum of 6 months on Upland Road and Tophill Avenue. During this time, we would be able to perform another traffic study to determine if the speed humps are effectively reducing speeds. It will also allow the neighborhood the opportunity to experience what it is like to live with speed humps in their neighborhood. Should the traffic study conducted after 6 months show that it has successfully reduced the 85th percentile speed, we would then ballot Upland Road and the affected roadways in accordance with the Town's Traffic Calming Policy to determine if they would like to have the permanent speed humps installed.

Prior to the temporary speed humps being installed, the Engineering Department would perform a traffic study on Tophill Avenue and Hermaine Avenue to gather baseline information on existing conditions.

- The Engineering Department recommends the installation of the marked crosswalk, access ramps and appropriate signage as discussed in the initial evaluation on Upland Road at the intersection with Hermaine Avenue. The installation of the marked crosswalk with signage will not only provide a safe crossing location for pedestrians, but should also serve as a visual instrument to alert motorists to slow down.

- As for reducing the amount of heavy commercial vehicles traveling on Upland Road, this can only be accomplished by applying to MassDOT for a heavy commercial vehicle exclusion.

  According to the Massachusetts Amendments to the latest version of the Manual on Uniform Traffic Control Devices (MUTCD), in order to apply to MassDOT for an exclusion, one or more of the following warrants must be met.

1. A volume of heavy commercial vehicles, which usually is the range of 5 to 8%, reduces the utilization of the facility and is cause for a substantial reduction in capacity or safety.
2. The condition of the pavement structure of the route to be excluded indicates that further repeated heavy wheel loads will result in severe deterioration or the roadway (subject to MassDOT review)
3. Not withstanding the foregoing, in certain instances where the land use is primarily residential in nature and a municipality has requested exclusion only during hours of darkness, a specific night exclusion may be granted.

It should be noted that there is an exemption to heavy commercial vehicles exclusions. Exclusions shall not apply to heavy commercial vehicles going to or coming from places upon said streets for the purpose of making deliveries of goods, materials or merchandise to or similar collections from abutting land or buildings or adjacent streets or ways to which access cannot be otherwise be gained.

Although the initial traffic study determined that Upland Road experienced approximately 7% of the average daily traffic volume to be heavy commercial vehicles, approximately 6% of those heavy commercial vehicles could be categorized as the types of heavy commercial vehicles described in the exemption above.

Based upon this information, the Engineering Department does not believe we meet MassDOT's warrants for a heavy commercial vehicle exclusion. However, should the TAC feel that the amount of heavy commercial vehicles traveling on this roadway is creating a significant impact on the lives and safety of the residents in the neighborhood, then the Engineering Department could still apply to MassDOT for the exclusion in hopes that there is something in the data supplied that allows for an exclusion.

Should the TAC agree with any or all of the recommendations as presented in this assessment, before anything can be implemented, the TAC's recommendations must be provided to the Select Board for their approval.

Cc: Select Board

Attachments: Affected Roadways Map
Proposed Temporary Speed Humps Map

TCR #2019-02 UPLAND ROAD
AFFECTED ROADWAYS MAP
SEPTEMBER 2019

DEDHAM GIS

TOWN OF DEDHAM, MASSACHUSETTS

TCR #2019-002 UPLAND ROAD
PROPOSED TEMPORARY SPEED HUMP LOCATIONS
SEPTEMBER 2019

DEDHAM GIS

TOWN OF DEDHAM, MASSACHUSETTS