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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: May 27, 2021

SUBJECT: Traffic Calming Request #2021-002 – Colburn Street

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**Purpose**

The Transportation Advisory Committee (TAC), at their 04/13/21 meeting, reviewed the Initial Evaluation for the traffic calming request for Colburn Street (#2021-001) submitted by Jean Connally of 299 Colburn Street. Based upon the results of the initial evaluation, the TAC voted unanimously that the Colburn Street 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.

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**Primary Roadway**

*Colburn Street (Curve St to Maverick St.):*

Colburn Street is a north/south residential/local roadway within a thickly settled residential area. The pavement width along this section of Colburn Street is consistently around 23 feet. This section of Colburn Street is approximately 1,280 feet (0.24 miles) in length. There is one continuous sidewalk on the easterly side of the street that extends for the entire length and a non-continuous sidewalk along the westerly side that is located sporadically along its length.

There is an existing “No Parking Anytime” parking restriction along the easterly side of Colburn Street from Curve Street to Maverick Street.

There are 17 properties that abut Colburn Street along the westerly side of the roadway. Of those 17 properties, 6 of them do not have driveways associated with them. Those properties are primarily located on the southerly half of Colburn Street. Therefore, the residents at these properties must utilize Colburn Street for on-street parking. It is not uncommon for the residents of the other properties with driveways to also park along the westerly side of Colburn Street. Most properties, when originally constructed, were constructed with a driveway for 2 cars because that

was as many as a family would have decades ago. Today it is not uncommon for a property to have 3 or 4 cars per household. As a result, more vehicles are utilizing on-street parking. This is a common issue across the eastern half of the Commonwealth. Too many vehicles and not enough space to park them on private property.

With vehicles having to use Colburn Street for on-street parking, it reduces the width of the roadway since there is not enough Right-Of-Way to accommodate for a shoulder wide enough to park vehicles completely off the roadway. All vehicles parking along Colburn Street must have a portion of their vehicles within the roadway. This results in a reduction of the roadway width ranging from 3 to 4 feet providing an overall roadway width ranging from 19 to 20 feet for travel.

The statutory speed limit on this section of Colburn Street is 25 mph. A statutory 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

### Primary Roadway - Observations (Speed & Volume)

The Town of Dedham utilized a Jamar radar recorder to log the speed and volume of vehicles during the period beginning March 8, 2021 and ending March 11, 2021. The radar was installed on a utility pole across from #285 Colburn Street at approximate Station 34+00 (See Attached Locus Map).

The combined average speed for both directions was found to be 26.2 mph. The combined 85<sup>th</sup> percentile speed for both directions was found to be 31.9 mph. The 85<sup>th</sup> 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 85<sup>th</sup> percentile speed is about 7 mph over the speed limit with approximately 77% of the vehicles driving at speeds greater than 25 mph and approximately 21% driving at speeds greater than 30 mph.

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

Table 1 – Traffic Data Station 34+00

<i>Direction of Traffic</i>	<i>ADT</i>	<i>Peak Hour Volume</i>	<i>Peak Volume Time</i>	<i>Speed Limit</i>	<i>85<sup>th</sup> Percentile Speed</i>	<i>Average Speed</i>
Northbound	630 (45%)	78	5 - 6 pm	25 mph	31 mph	26 mph
Southbound	770 (55%)	70	3 - 4 pm	25 mph	32 mph	26 mph
Combined	1,441	130	3 - 4 pm	25 mph	32 mph	26 mph

Colburn Street does experience a higher-than-normal volume of vehicles for a residential/local roadway as compared to others with similar characteristics. Colburn Street is being utilized as a cut through for those seeking to avoid the signalized intersection in East Dedham Square.

### Primary Roadway - Crash (Traffic Collisions) & Traffic Enforcement Data

The Engineering Department analyzed crash data utilizing the most recent 2018-2021 data available from the Dedham Police Department to determine if the subject area was experiencing a higher than normal rate of accidents.

Table 2 – Crash Data

<b>Road</b>	<b>Total # of Crashes</b>	<b>Crashes Per Year</b>
Colburn Street	3	1

None of the crashes involved a pedestrian and/or bicyclist. The crashes above involved hitting parked cars which lends itself to being a possible issue with the width of the roadway with on-street parking and/or speeds at which vehicles travel.

The Police Department issued a total of 2 speeding citations on Colburn St over the past 5 years (2016 through 2020). The citations issued per year are shown in the table below and consist of both written warnings and civil.

Table 3 – Speeding Citations

<b>Timeframe</b>	<b># of Citations Issued</b>
2016	0
2017	1
2018	0
2019	0
2020	1

### 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 this section of Colburn Street, it appears that the potentially affected side streets would be Curve Street (Colburn St to Maverick St), Maverick Street (Colburn St to Curve St), Denmark Street, Waldo Street, Gould Street and Hirsch Terrace (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.

### Affected Roadways - Observations (Speed & Volume)

Should traditional traffic calming measures be installed on Colburn Street, it is very likely that the alternate route of travel to avoid Colburn Street would be Curve Street from Colburn Street to Maverick Street and Maverick Street from Curve Street to Colburn Street.

Curve Street is east/west residential/local roadway within a thickly settled residential area. The pavement width along this section of Curve Street ranges from 22 feet to 28 feet. There is a continuous sidewalk on both sides of the roadway that extends for the entire segment length. Vehicles utilize on-street parking on both sides of the roadway. Due to the width of Curve Street, vehicles usually mount the existing sidewalks as to avoid being hit by traveling vehicles. Vehicles that utilize on-street parking, typically mount the sidewalk not leaving enough room for pedestrians. Pedestrians are then forced to enter the street to get around these parked vehicles creating potentially unsafe situations and increasing their exposure to collisions.

Maverick Street is north/south residential/local roadway within a thickly settled residential area. The pavement width along this section of Maverick Street is approximately 20 feet. There is a continuous sidewalk on both sides of the roadway that extends for the entire segment length. Vehicles utilize on-street parking on both sides of the roadway. Due to the width of Maverick Street, vehicles usually mount the existing sidewalks as to avoid being hit by traveling vehicles. Vehicles that utilize on-street parking, typically mount the sidewalk not leaving enough room for pedestrians. Pedestrians are then forced to enter the street to get around these parked vehicles creating potentially unsafe situations and increasing their exposure to collisions.

To understand the current conditions on these segments of roadways, the Town utilized Jamar Radar recorders to log the speed and volume of vehicles during the period beginning April 5, 2021 and ending April 8, 2021. The radars were installed on the utility poles in front of #86 Curve Street and between #42 & #48 Maverick Street.

The volume of traffic expressed as average daily traffic (ADT) and the speed data collected for Curve Street and Maverick Street are shown below in the following tables:

Table 4 – Curve Street - Traffic Data Station 8+23

<i>Direction of Traffic</i>	<i>ADT</i>	<i>Speed Limit</i>	<i>85<sup>th</sup> Percentile Speed</i>	<i>Average Speed</i>
Eastbound	388 (30%)	25 mph	27 mph	21 mph
Westbound	919 (70%)	25 mph	29 mph	24 mph
Combined	1,352	25 mph	28 mph	23 mph

Table 5 – Maverick Street - Traffic Data Station 8+23

<i>Direction of Traffic</i>	<i>ADT</i>	<i>Speed Limit</i>	<i>85<sup>th</sup> Percentile Speed</i>	<i>Average Speed</i>
Northbound	504 (48%)	25 mph	29 mph	23 mph
Southbound	548 (52%)	25 mph	29 mph	24 mph
Combined	1,076	25 mph	29 mph	24 mph

Based upon this initial data, it appears Curve Street and Maverick Street experience typical volumes of vehicles for a residential/local roadway as compared to others with similar characteristics. It may have some cut-through traffic, but not at the magnitude as Colburn Street. Curve Street and Maverick Street are feeder roadways to the residential areas located north of the Curve Street/Maverick Street intersection due to the limited access to this area of Town. Although the 85<sup>th</sup> percentile speed is 3 to 4 mph above the statutory speed limit of 25 mph it does not appear to have a significant speeding issue.

According to the Chief of the Fire Department, Maverick Street and Curve Street are considered emergency response routes. As such, any traffic calming that is proposed cannot affect their ability/response time when traveling on the road during an emergency and is subject to the approval of the Fire Chief.

#### Affected Roadways - Crash (Traffic Collisions) & Traffic Enforcement Data

The Engineering Department analyzed crash data utilizing the most recent 2018-2021 data available from the Dedham Police Department and MassDOT to determine if the subject area was experiencing a higher than normal rate of accidents.

Table 6 – Crash Data

<i>Road</i>	<i>Total # of Crashes</i>	<i>Crashes Per Year</i>
Curve Street (Colburn St to Maverick St)	4	1.3
Maverick Street (Curve St to Colburn St)	0	0

None of the crashes involved a pedestrian and/or bicyclist. Based upon the limited information pertaining to the incidents, it cannot be determined if the accidents could have been avoided with a geometric alteration of the roadway.

The Police Department issued a total of 73 speeding citations on Curve St and Maverick St over the past 5 years (2016 through 2020). The citations issued per year are shown in the table below and consist of both written warnings and civil.

Table 7 – Speeding Citations

<i>Timeframe</i>	<i># of Citations Issued – Curve Street</i>	<i># of Citations Issued – Maverick Street</i>
2016	30	0
2017	26	0
2018	9	0
2019	6	3
2020	0	0

## CONCLUSIONS/RECOMMENDATIONS

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

- Colburn Street is a viable candidate for traditional traffic calming measures.
- The 85<sup>th</sup> percentile speed based upon our study is approximately 7 mph over the statutory speed limit of 25 mph.
- Based upon the types of crashes that were experienced along this section of Colburn Street there is an issue with the available roadway width when on-street parking is being utilized.
- Any proposed traffic calming measures utilized for Colburn Street will likely result in a significant increase in volume (500 to 1,000 VPD) on Curve Street and Maverick Street as a result of vehicles avoiding Colburn Street. It is likely that speeding will increase along these roadways as well due to driver frustration. Traffic calming should be considered along these roadways to mitigate these issues.
- Based upon discussions with the Fire Chief, certain traffic calming measures cannot be used along Maverick Street and Curve Street as they will have a significant impact on their emergency response. Those traffic calming measures include any type of consistent vertical deflection, (i.e. speed humps, speed table) and one-way restrictions.

Due to the limited width of the Right-of-Way (40'), the existing geometry of the intersections, the locations of existing driveway, the lack of driveways for the southerly half of Colburn Street and the amount of vehicles per household, there are only a few options for traffic calming measures that should mitigate the speeds and accidents experienced along this section of Colburn Street. Therefore, the Engineering Department recommends the following traffic calming measures:

- 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 Colburn Street since it is not considered an emergency response route. To adequately keep vehicles near the statutory speed limit of 25 mph, we are

recommending 3 speed humps be installed at the locations as shown on the attached plans.

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 times, create cut throughs onto other residential streets trying to avoid them and can be considered a nuisance to residents in the affected area. It typically costs about \$8,000 to install a speed hump. For the 3 proposed speed humps the approximate cost would be \$24,000.

- As discussed earlier, it is likely that with speed humps being installed on Colburn Street, vehicles will likely avoid Colburn Street and use Curve Street and Maverick Street as a result. To mitigate the possible increase in speeding and volumes that could result from this cut through traffic, we are recommending speed cushions being installed along these roadways.

Speed cushions have comparable dimensions as speed humps. The primary difference is that a speed cushion has gaps between the raised areas to enable a vehicle with a wide track, such as a fire engine, to pass through the feature without any vertical deflection. Speed cushions have the same pros and cons as speed humps with the exception that they do not slow down emergency response times for fire engines or other wide track vehicles.

Maverick Street and Curve Street are considered emergency response routes. However, both the Police and Fire chiefs have stated that they are not opposed to speed cushions on Maverick Street or Curve Street since they should not affect their response times. The placement of speed cushions will however take away from on-street parking in the immediate area of the speed cushions. This is required to make sure there are no accidents by motorists trying to place their wheels in the gap along the curb line and parked cars and to provide unimpeded access to negotiate the speed cushions by emergency response vehicles.

To adequately keep vehicles near the statutory speed limit of 25 mph for these roadways, we are recommending speed cushions to be installed at 2 different locations along each roadway as shown on the attached plans. These locations will consist of either 2 or 3 module cushion setups depending upon roadway width, driveway locations and intersecting street locations. Speed cushions cost approximately \$2,000 per module. The proposed design recommends a total of 11 speed cushion modules to be installed yielding a cost of approximately \$22,000.

The removal of on-street parking around the immediate area of the speed cushions will be addressed by “No Parking” restrictions. We also recommend installing vertical granite curbing with a 6” reveal along with the appropriate “No Parking” signage to discourage vehicles from parking in these areas. Portions of the existing sidewalks would have to be removed and replaced to accommodate the granite curbing. The “No Parking” restrictions would need to extend 25 feet on either side of the speed cushion.



- The Engineering Department recommends the widening of Colburn Street to increase the width available for two-way traffic. To accomplish this, we would remove the existing grass strip located between the granite curbing and sidewalk that exists on the easterly side of the roadway. The grass strip is approximately 4 feet in width. By removing the grass strip. The roadway could be widened when on-street parking is being utilized from 19 feet to 23 feet. This should mitigate the amount of crashes with parked cars. To accomplish this, the 9 existing utility poles currently located within the grass strip would have to be relocated to the back of sidewalk, the granite curbing would have to be removed and reset against the existing concrete sidewalk and any concrete panels that needed to be removed for the relocation of the utility poles would have to be replaced. There may be concrete sidewalk panels that need to be removed and replaced also when resetting the granite curbing.

The pros to this option is that it will widen the roadway enough to hopefully mitigate the amount of crashes with parked cars while maintaining a safe sidewalk for pedestrians and students walking to and from school. The cons are the removal of the buffer area (grass strip) between the pedestrian and the roadway and the cost and time associated with the relocation of the existing utility poles. The relocation of utility poles could take a couple of years and could cost approximately \$30,000 per pole.

- To implement the proposed design would cost approximately \$500,000. This would require funding through a capital improvement request. However, should TAC and the Select Board approve of the design, the Engineering Department would recommend first that the proposed speed humps and speed cushions be installed for a 3 to 6 month study period. The DPW would install the speed humps using traditional asphalt and they would purchase and install the proposed speed cushions. During this time, we would be able to perform another traffic study to determine if the speed cushions are effectively reducing speeds. It will also allow the neighborhood the opportunity to experience what it is like to live with speed humps and speed cushions in their neighborhood. Should the traffic study conducted after 3 to 6 months show that it has successfully reduced the 85<sup>th</sup> percentile speed, we would then ballot Colburn Street and the affected roadways in accordance with the Town's Traffic Calming Policy to determine if they would like to have the speed humps and speed cushions permanently. At that point we would seek funding for the complete design as outlined earlier and shown on the plans. We would recommend only using 2 speed cushion module setups for the study period to keep costs down. We would have to increase the area of "No Parking" to 50 feet on either side of the speed cushions to allow the 40' long fire engines to safely negotiate the speed cushions during the study period. This would be reduced to 25 feet should the final design be implemented. The cost to install the temporary speed humps and speed cushions would cost approximately \$40,000. This would also require funding through a capital request as the DPW does not have an allowance of this amount to purchase the materials needed. If approved, the Engineering Department would recommend that the \$40,000 be requested by the DPW on behalf of the TAC and Select Board through a capital request for FY2023.
- Should the TAC and Select Board agree to these recommendations, it is recommended, if and when available, for the police department to establish as presence along this



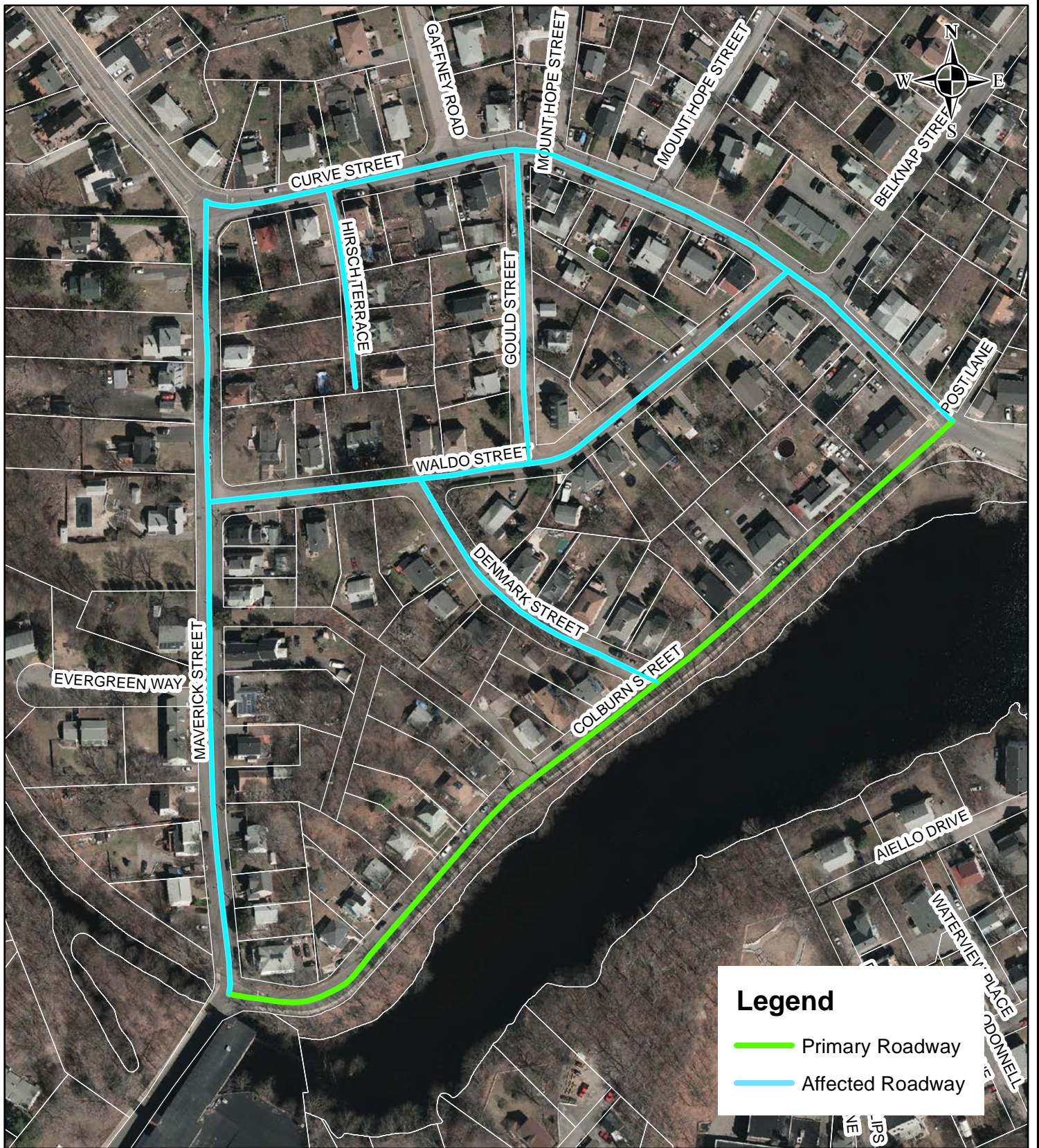
section of Colburn Street to assist in mitigating speeds until funding is approved for the installation of the temporary speed humps and speed cushions. Based upon the study performed as part of the initial evaluation, the best times for enforcement during the work week is from 8 AM to 11 AM and from 2 PM to 4 PM.

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 Speed Humps & Road Widening Map – Colburn Street  
Proposed Speed Humps & Road Widening (Close-Up) Map – Colburn Street  
Proposed Speed Cushions Map – Curve Street  
Proposed Speed Cushions Map – Maverick Street





**COLBURN STREET  
REQUEST #2021-001  
AFFECTED ROADWAYS MAP**





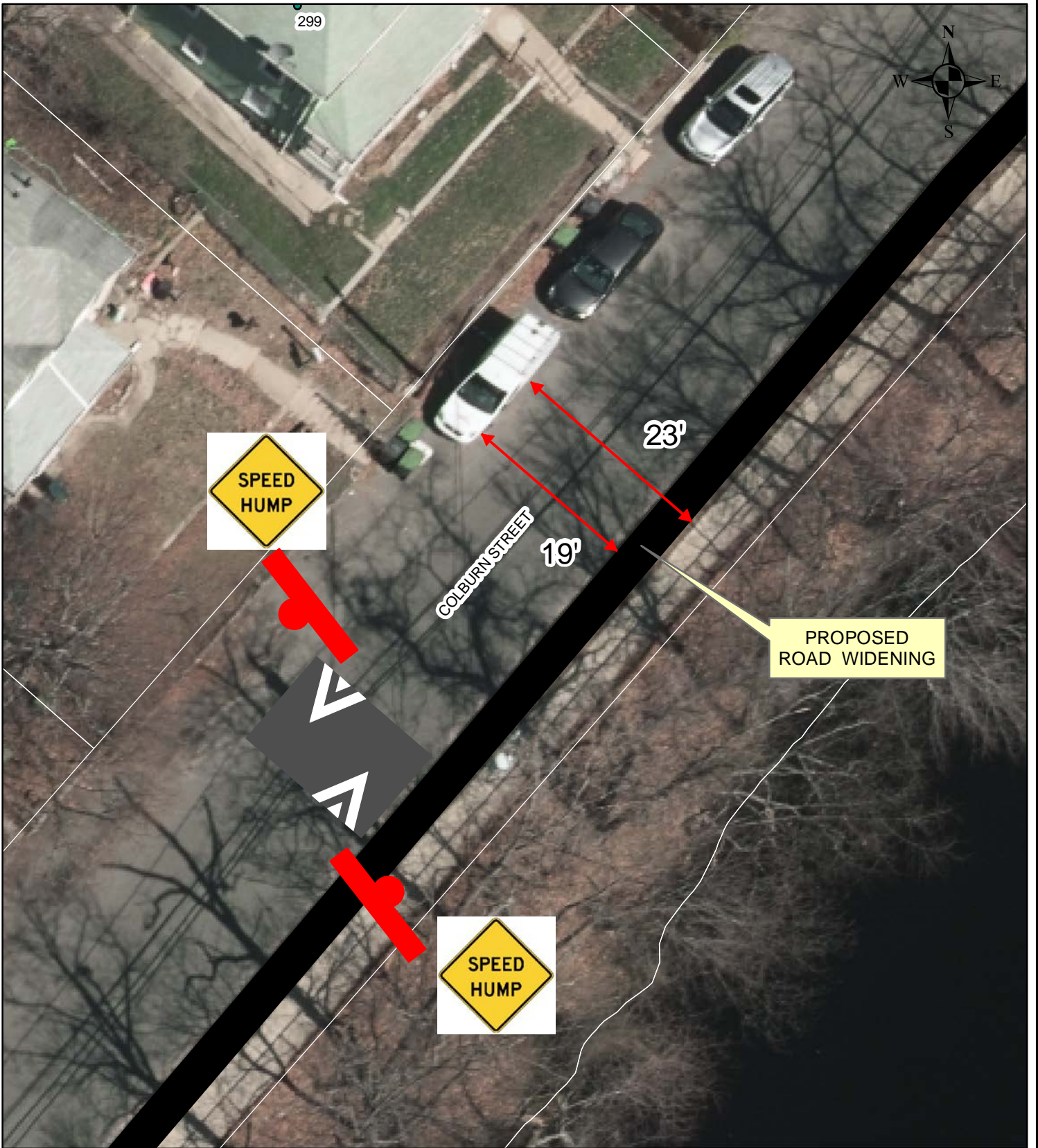


**PROPOSED SPEED HUMPS & ROAD WIDENING  
COLBURN STREET  
MAY 2021**



**TOWN OF DEDHAM, MASSACHUSETTS**



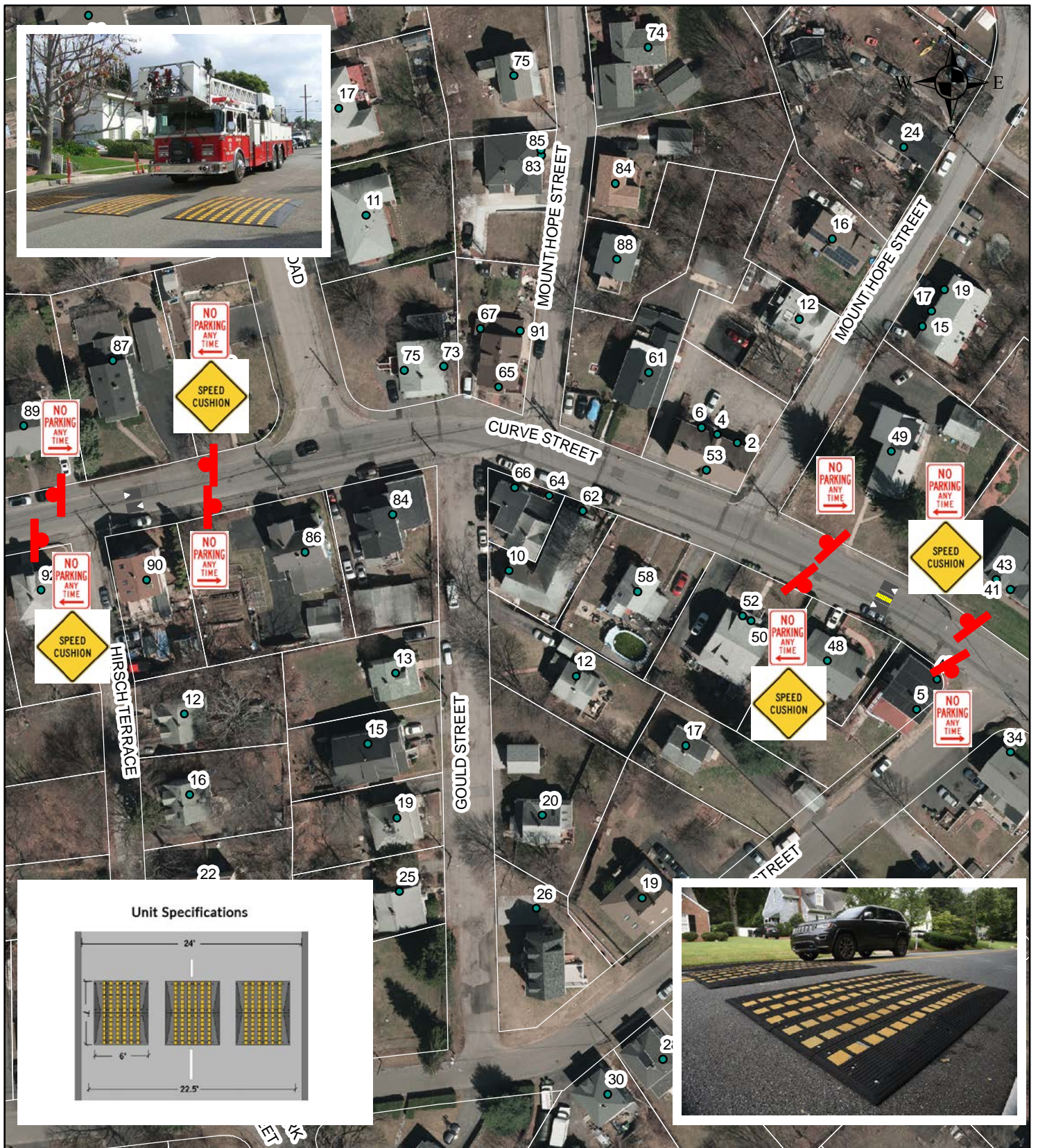


**PROPOSED SPEED HUMPS & ROAD WIDENING  
COLBURN STREET (CLOSE-UP)  
MAY 2021**

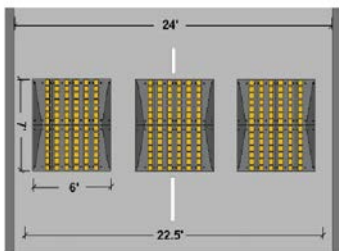


**TOWN OF DEDHAM, MASSACHUSETTS**





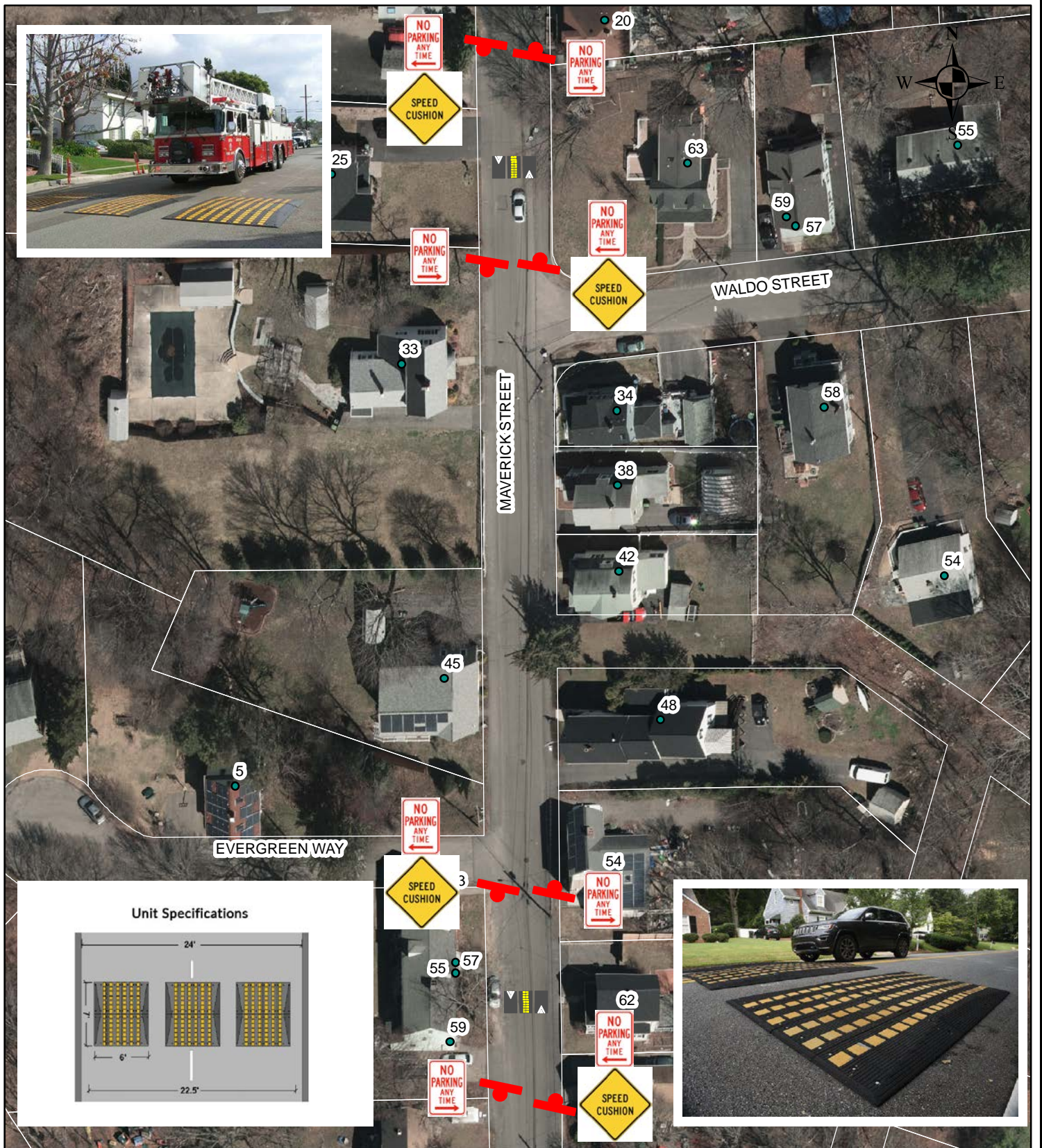
Unit Specifications



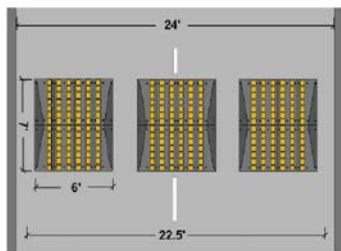
**PROPOSED SPEED CUSHIONS  
CURVE STREET  
MAY 2021**







Unit Specifications



**PROPOSED SPEED CUSHIONS  
MAVERICK STREET  
MAY 2021**



DEDHAM GIS

**TOWN OF DEDHAM, MASSACHUSETTS**