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Memorandum

To: Mr. Steve Fogg, PE
Town Engineer

Date: November 18, 2019

Project #: 14567.01

From: Laura Castelli
VHB

Re: Chestnut Street

At the request of the Town of Weston, VHB has been retained to review traffic volume and speed data along Chestnut Street between Highland Street and Wellesley Street. VHB reviewed 24 hours of traffic volume and speed data collected in September 2019 along with previous data collected and summarized by the Weston Police Department for a full week in May 2019. Overall, the data collected by VHB along the corridor in September identifies a higher traffic volume along Chestnut Street than the summary data provided by the Police Department. VHB has asked Town engineering staff to contact the police to determine if raw data is available for comparison purposes. Since the data sets are not comparable at this time, this memo focuses on the data collected in September 2019 only.

Existing Conditions

Chestnut Street is a local roadway roughly 5,000 feet in length connecting Highland Street to the west with Wellesley Street to the east. The roadway varies in width, but is generally about 25 feet wide, with mature trees, stone walls, and utility poles located along the roadway's edge. The traffic data collected in September 2019 show 1,990 vehicles along Chestnut Street during the day – 880 southbound vehicles and 1110 northbound vehicles. Volumes were collected in 15-minute time intervals and for most of the day, were found to be less than 20 vehicles per interval per direction; or just about one car per direction per minute.

A directional increase in peak period traffic was noted in both directions. In the southbound direction, volumes were found to be between 30 and 65 vehicles per 15-minute interval between 7:15 and 9:15 AM. Overall, during this two-hour time period, 413 of the 880 daily southbound vehicles (47 percent) travel the corridor. Conversely, in the northbound direction between 30 and 80 vehicles per hour were observed between 3:30 and 6:30 PM. Overall, during this three-hour time period, 620 of the 1110 daily northbound vehicles (56 percent) travel the corridor. It is important to note that this includes resident traffic. At its peak, this translates into about 4 to 6 vehicles traveling the peak direction per minute along Chestnut Street. It is noted that approximately 95 percent of all vehicles are passenger vehicles, with the balance being primarily box delivery trucks (FedEx, UPS, etc.). There were seven heavy trucks (i.e. tractor trailer) observed on Chestnut Street during the day, one of which traveled during peak commuting hours).

Although the data collection did not include identification of Chestnut Street residents, the data is consistent with commuter flows and higher than would be expected to be generated by the neighborhood (including Chadwick Road, Walker Street, Baldwin Circle, Davenport Road, and Chandler Circle), indicating some level of "cut-through" traffic is present and may possibly be avoiding congestion along Route 20, primarily during the evening when volumes are higher over a longer duration. Proximity of Chestnut Street to Regis College, and the Weston elementary and middle/high school campuses may contribute to the early portion of peak afternoon activity.



Travel speeds were also collected along Chestnut Street, with the 85th percentile travel speed registering at 32 mph in the southbound direction and 35 mph in the northbound direction. Given the width of the roadway, the geometry along the corridor, and the residential nature of Chestnut Street, travel speeds are well in excess of what should be expected.

The attachments to this memorandum provide the raw traffic and speed data.

Considerations

There are several options to alleviate concerns about speeding and traffic volume along Chestnut Street that the town can consider. In addition to the options discussed below, VHB suggests the town contact MassDOT to request they address potential safety and congestion issues at the intersection of Route 20 and Highland Street that may be contributing to the conditions along Chestnut Street. The town should also continue to work with MassDOT to progress improvements at Route 20/Wellesley Street and potential traffic signal improvements at Route 20/School Street. Route 20 is designated state highway and maintaining access and operations along this facility will be critical in mitigating potential traffic issues along the local roadway network as traffic volumes in the region continue to grow. The town may also consider working with Waze to eliminate Chestnut Street from their service application. However, it is noted that once drivers discover a route, they are not likely to depart from that route solely because it is eliminated from the application.

Option 1 – Discontinuing Chestnut Street

The most effective solution for addressing traffic volume and speed would be to discontinue Chestnut Street in the vicinity of 88 Chestnut Street. This would split Chestnut Street into two smaller cul-de-sacs, similar to other streets located throughout the town. The southern portion of Chestnut Street and Chadwick Road would have access via Wellesley Street, while the northern portion of Chestnut Street, Chandler Circle, and Davenport Road would have access via Highland Street to Route 20. In this scenario, the town may want to consider whether one portion of Chestnut Street should be renamed. If this option is chosen, the closure should be constructed of a mountable material to facilitate emergency response, as the primary response route would be via Route 20.

Option 2 – Time-of-Day Turn Restrictions

The town can consider time-of-day turn restrictions to/from Chestnut Street along both Wellesley Street and Highland Street. Turn restrictions may include:

- No right-turn 7 AM to 9 AM posted on Highland Street northbound at Chestnut Street
- No left-turn 7 AM to 9 AM posted on Highland Street southbound at Chestnut Street
- No right-turn 7 AM to 9 AM posted on Chestnut Street at Wellesley Street
- No left-turn 3 PM to 6 PM posted on Wellesley Street northbound at Chestnut Street



- No right-turn 3 PM to 6 PM posted on Wellesley Street southbound at Chestnut Street
- No left-turn 4 PM to 6 PM posted on Chestnut Street at Highland Street

Time-of-day turning restrictions, if followed, could reduce the magnitude of volume along Chestnut Street during peak periods but not would address the higher rates of speed that were observed. Time-of-day restrictions are enforceable for all drivers, including those that live on Chestnut Street, Chadwick Road, Baldwin Circle, Walker Street, Davenport Road, and Chandler Circle. They are often difficult for the police department to enforce and may be ignored if not enforced. However, restrictions can be implemented more easily for a short-term or trial period to determine whether they can successfully address the concern.

Given Chestnut Street's proximity to Route 20 and the regional connectivity provided by both Highland Street and Wellesley Street, the town may need to consider additional signage or modifications to certain turn-restrictions after a trial period. Additional restrictions are not currently proposed because of the impact they will have on neighborhood residents.

Option 3 – Speed Tables

Speed tables placed at pre-determined intervals along Chestnut Street would successfully reduce travel speeds if placed appropriately and with the correct frequency. While speed tables do not address the residents' concerns regarding volume, over time drivers may be less likely to travel along Chestnut Street due to perceived inconvenience of the route. A preliminary analysis of Chestnut Street shows that six speed tables could be placed at roughly 400' intervals; two on the northern side and four on the southern side of the roadway curve.

Speed tables would be placed such that they would not require modification to driveways. However, they could require drainage changes along the corridor, with catch basins installed to collect runoff that would otherwise be trapped by the speed table. They could also be constructed to allow for runoff on either side, but further evaluation of the roadway is required to determine if this solution would be sufficient. Initial discussions with the town, including emergency response personnel, indicate that they would not support the construction of speed tables.

Findings

Given the initial push back received over the possibility of speed tables, the options for addressing resident concerns over traffic and volume and speeds are limited to roadway closures or time-of-day turn restrictions; both of which have associated benefits and impacts. While it is reasonable to install turn restrictions and determine what level of relief they provide prior to making a decision on roadway closure, the town should work with affected residents to determine the improvement option that residents can best support.