



BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

Monica Tibbits-Nutt, MPO Chair | Secretary and CEO, Massachusetts Department of Transportation
Tegin Leigh Teich, Executive Director, MPO Staff

TECHNICAL MEMORANDUM

DATE: September 20, 2024
TO: Town of Wrentham
FROM: Shravanthi Gopalan Narayanan
Boston Region MPO Staff
RE: FFY 2024 Community Transportation Technical Assistance
Program: Hawes Street Traffic Study in Wrentham

1 INTRODUCTION

The Community Transportation Technical Assistance (CTTA) Program within the Boston Region Metropolitan Planning Organization (MPO) provides municipalities with technical assistance on local transportation issues. The Town of Wrentham requested that MPO staff study truck traffic volumes and vehicular traffic patterns on Hawes Street based on concerns raised by residents living on Hawes Street, Indian Head Road, and Arrowhead Road. We analyzed existing conditions, traffic volumes, and vehicle travel speeds to determine the extent of cut-through traffic on Hawes Street. While the data suggest that truck volumes are quite low, vehicles have been speeding and there is cut-through traffic.

Based on our analysis, we suggest both short-term and long-term improvements to improve safety for all road users, to reduce speeding, and to improve sight distance. Our recommendations include (1) proposed safety improvements to Hawes Street; (2) signage for better wayfinding and to improve safety; (3) enhancements to the Hawes Street and Thurston Street intersection; and (4) considerations for the Hawes Street and Washington Street intersection.

2 ISSUES AND CONCERNS

The Town of Wrentham reported receiving complaints from residents of Hawes Street and the side roads (Indian Head Road and Arrowhead Road) about cut-through traffic, including truck traffic, and speeding. Town staff considered dead-ending Hawes Street north of commercial properties on Hawes Street to create two dead ends (one for residential access from Thurston Street and another for commercial access from Washington Street) or establishing a truck exclusion zone, and MPO staff were asked to evaluate the options. Town staff requested technical assistance from the MPO to study these issues and recommend potential solutions.

Civil Rights, nondiscrimination, and accessibility information is on the last page.

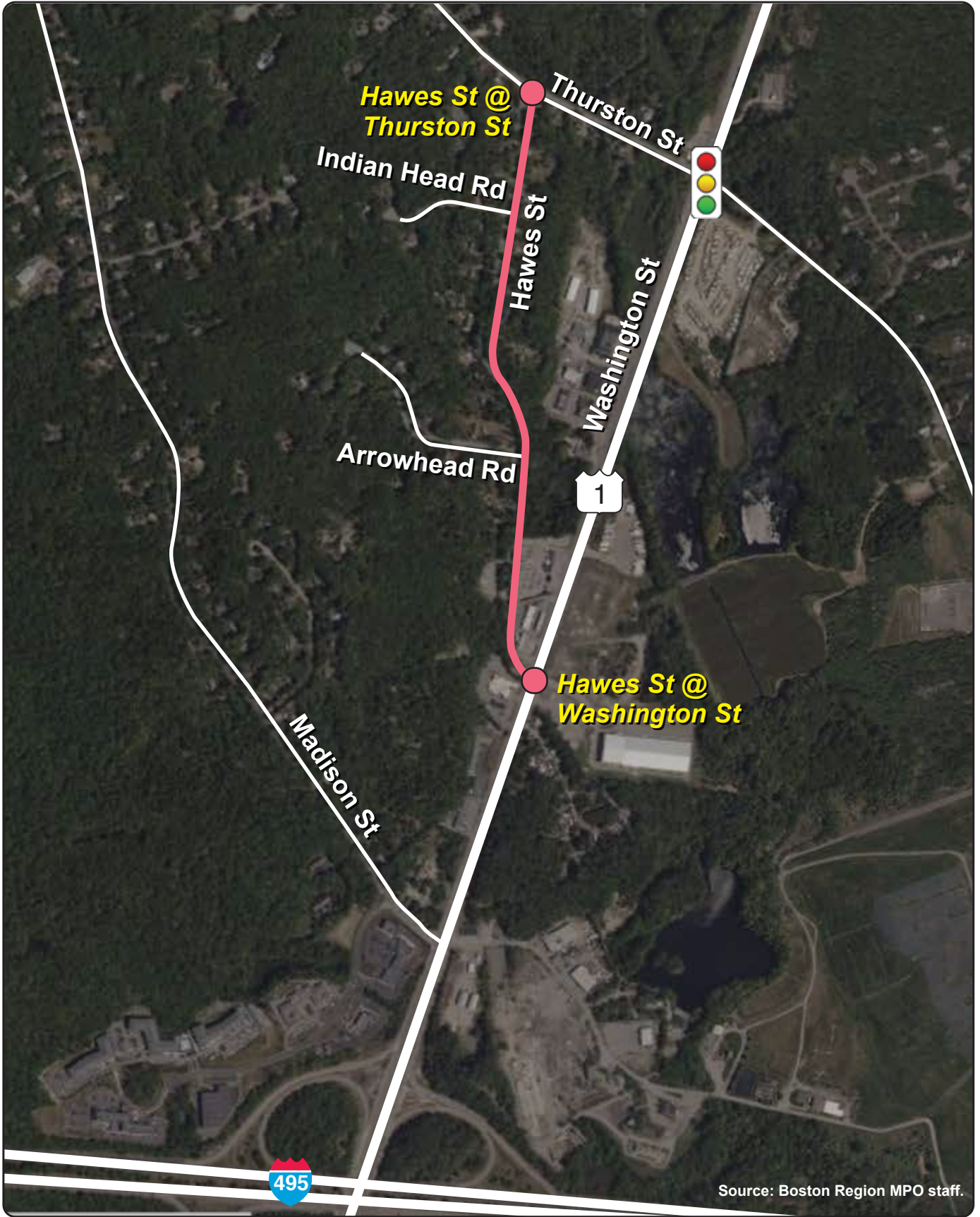
3 STUDY AREA

3.1 Roadways

Figure 1 shows the roadways and intersections in the study area. Washington Street (Route 1) is a state-owned urban principal arterial and part of the National Highway System, which runs north-south. It is a two-way, four-lane, undivided roadway with a posted speed limit of 55 miles per hour (mph) in each direction. There are no sidewalks or bike lanes on Washington Street in the study area. Roadway shoulders are present on each side, which vary between two to eight feet wide due to the presence of turn lanes at the intersections. Washington Street connects to Interstate 495 in the south and multiple arterial roadways and business developments to the north. The area surrounding Washington Street is zoned as the Route 1 South District, which is currently attracting multiple commercial businesses.

Thurston Street is a town-accepted urban minor arterial that connects to Wrentham Center via East Street (Route 140). It is a two-way, two-lane street that runs east-west and has a posted speed limit of 30 mph except eastbound (east of Thurston Street) which is 25 mph. There are no sidewalks, bike lanes, or shoulders on Thurston Street within the study area. The surrounding land use is primarily residential.

Hawes Street is a town-accepted local street that connects Washington Street to the south and Thurston Street to the north. It is a two-way, two-lane street with a posted speed limit of 30 mph and is approximately 0.7 miles in length. There are no sidewalks, bike lanes, or shoulders on Hawes Street in the study area. The land uses surrounding Hawes Street are mostly residential; however, there are a few properties owned for commercial purposes on Hawes Street near the Washington Street intersection.



Source: Boston Region MPO staff.

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Figure 1
Wrentham–Study Area

*Community Transportation
Technical Assistance Program*

3.2 Intersections

Washington Street, Hawes Street, and Commerce Boulevard Intersection

Hawes Street and Commerce Boulevard intersect Washington Street to form an unsignalized four-leg intersection. It is a two-way stop-controlled intersection, with Hawes Street under stop control. The intersection has two lanes in each direction of Washington Street: a shared left-and-through lane and a shared through-and-right lane. There are no left turn lanes on Washington Street to turn onto Hawes Street, which increases the risk for people driving vehicles turning left onto Hawes Street because of the high speeds and volumes on Washington Street.

Figure 2
Intersection of Hawes Street and Washington Street



Note: Westbound view (top). Eastbound view (bottom).
Source: Google Street View (September 2019).

Thurston Street and Hawes Street Intersection

Hawes Street intersects Thurston Street to form an unsignalized T-intersection. It is a two-way, stop-controlled intersection, with Hawes Street under stop control. The intersection has one lane on each approach serving all traffic. Drivers on Washington Street heading to Thurston Street have two options: via Hawes Street intersection (unprotected left turn) or Thurston Street intersection (protected left turn).

While traveling on Hawes Street from the Washington Street intersection towards the Thurston Street intersection, there is an elevation and grade difference. Additionally, Hawes Street is narrow near the Washington Street intersection and widens closer to Thurston Street intersection.

Figure 3
Intersection of Hawes Street and Thurston Street



Source: Google Street View (October 2023).

Washington Street and Thurston Street Intersection

Thurston Street intersects Washington Street to form a four-leg, signalized intersection. The intersection has an exclusive left-turn lane and two through lanes on each approach to Washington Street, one lane serving all traffic on each approach to Thurston Street. The left turns on Washington Street have protected phases for turning onto Thurston Street. Due to expected new developments on Washington Street, two traffic impact assessments have been

conducted by consultants: one for the Washington Street and Hawes Street intersection, and one for the Thurston Street intersection.^{1, 2}

The focus of this study is Hawes Street and the intersections of Hawes Street with Thurston Street and Washington Street.

4 COMMUNITY ENGAGEMENT

At the initial scoping meeting on January 4, 2024, MPO staff and staff from the Town of Wrentham discussed the concerns and scope of the study. Following this initial meeting, MPO staff and Town staff arranged a field visit on January 9, 2024, to observe the existing conditions in the study area. Our site visit suggested the following possible reasons for the cut-through traffic on Hawes Street.

- Residents and frequent travelers to Wrentham Center could use Hawes Street as a cut-through to get to Thurston Street or Wrentham Town Center from Washington Street to avoid the signal delays at the Washington Street and Thurston Street intersection.
- Hawes Street may be recommended as a short-cut route for drivers who follow navigation applications (such as Google Maps, Apple Maps, or Waze).

During the site visit, we observed that most of the vehicles that travelled through the intersection of Washington Street at Hawes Street had Rhode Island license plates.

On April 16, 2024, MPO staff met with Town staff to share the preliminary findings of this study based on analyzing existing conditions and traffic count data. We continued to develop the study building on the discussion and comments received from the town.

Additionally, we received a phone call from a resident of the study area. The resident shared concerns related to cut-through traffic and visibility issues. This person also highlighted the bus stop signage and mentioned that children wait for the school bus on Hawes Street. We noted these concerns and considered them in our study.

¹ Traffic Impact Study, Proposed Gas Station & Convenience Store, Commerce Boulevard, Wrentham, Massachusetts. Prepared for Edgewood Development Company, LLC, May 2023.

² Transportation Impact Assessment, Proposed Warehouse, Washington Street, Wrentham, Massachusetts. Prepared for Bluewater Property Group, New York, New York, September 2021.

5 EXISTING CONDITIONS

We collected traffic data on the existing conditions in the study area during the week of January 29, 2024. The count data include the following:

- (1) average weekday traffic volumes (including truck volumes) for Hawes Street
- (2) turning movement counts (TMCs) at Hawes Street and Thurston Street
- (3) speed data for Hawes Street

The count locations and raw count data are included in Appendix A.

We also analyzed the crash reports and incident reports available for the study area to better understand the causes of these crashes.

5.1 Traffic Volumes

Traffic volume data were collected at two locations in Hawes Street: south of Thurston Street and south of Arrowhead Road. We observed more traffic traveling southbound at both locations compared to northbound. The combined average weekly traffic volume south of Thurston Street is higher than south of Arrowhead Road, which could be because traffic volumes in this stretch of Hawes Street will also include residents.

Figure 4 shows the average weekday traffic volumes with both directional and combined average week volumes.

The combined average weekday traffic volumes in Hawes Street are reported below:

- Hawes Street (south of Thurston Street): 990 vehicles with a split of 525 vehicles (53 percent) southbound and 463 vehicles (47 percent) northbound
- Hawes Street (south of Arrowhead Road): 900 vehicles with a split of 473 vehicles (53 percent) southbound and 425 vehicles (47 percent) northbound

During the site visit, we observed a delivery vehicle entering Hawes Street from Thurston Street and exiting Hawes Street through Thurston Street. Such kinds of trips, where vehicles both enter and exit through Thurston Street, could explain the extra 90 vehicle trips south of Thurston Street (but not south of Arrowhead Road). These trips are likely generated from residential properties or are school-

related trips, but these trips could be mischaracterized as cut-through traffic if both the entry and exit points are not observed in tandem.

Trucks

Truck traffic on Hawes Street was raised as a major concern by residents. However, the traffic data we collected did not provide evidence to support this concern. Based on the traffic volume and classification data (recorded for 48 hours), we observed only two trucks travelling northbound on Hawes Street and continuing westbound onto Thurston Street.

To justify a truck exclusion zone, trucks need to account for at least five percent of the total vehicular traffic on a roadway. However, trucks make up only 0.2 percent of total traffic on Hawes Street. Therefore, the current volume of trucks in Hawes Street is not sufficient to justify a truck exclusion zone for Hawes Street.

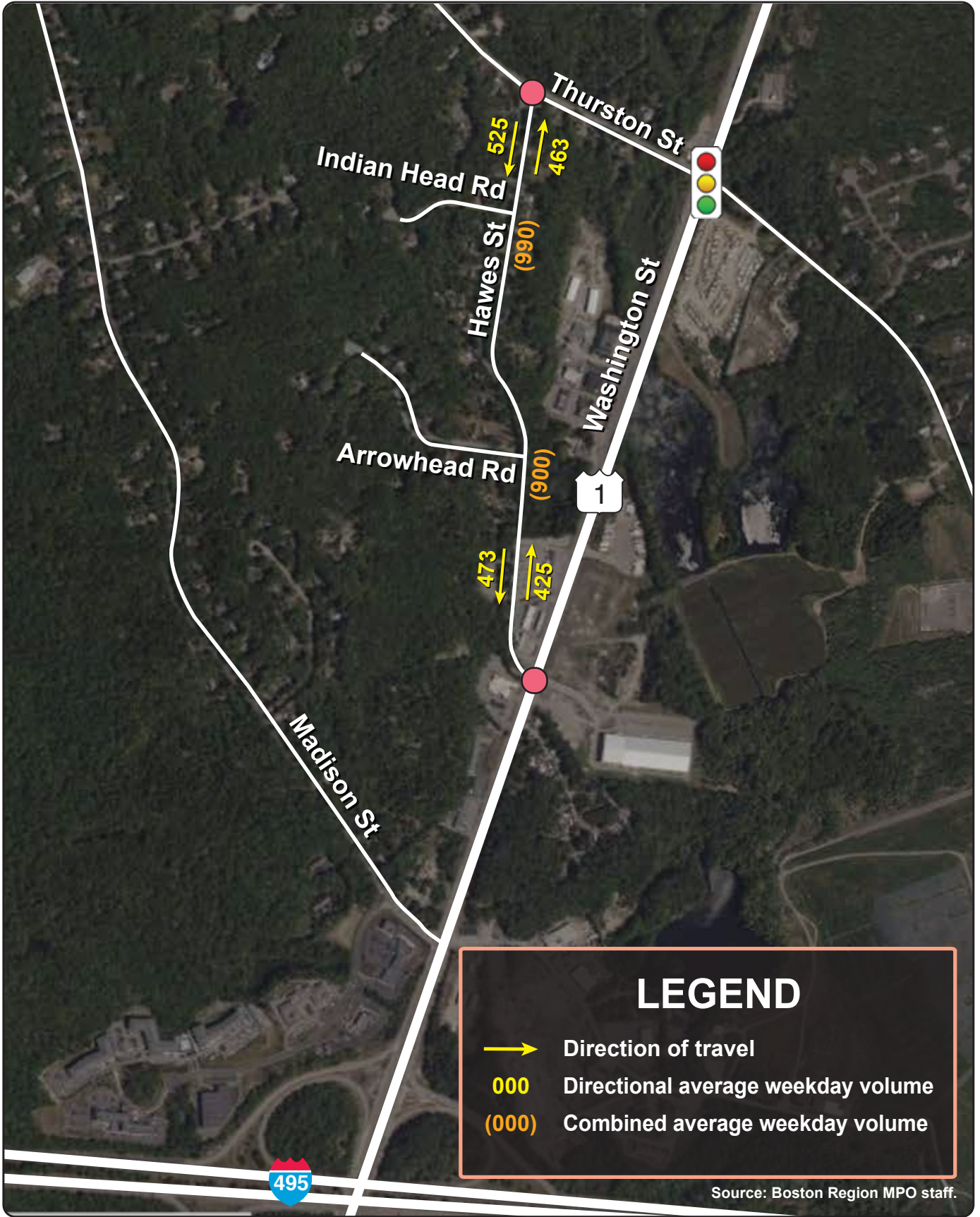


Figure 4
Wrentham—Average Annual Daily Traffic (AADT)

5.2 Turning Movement Counts

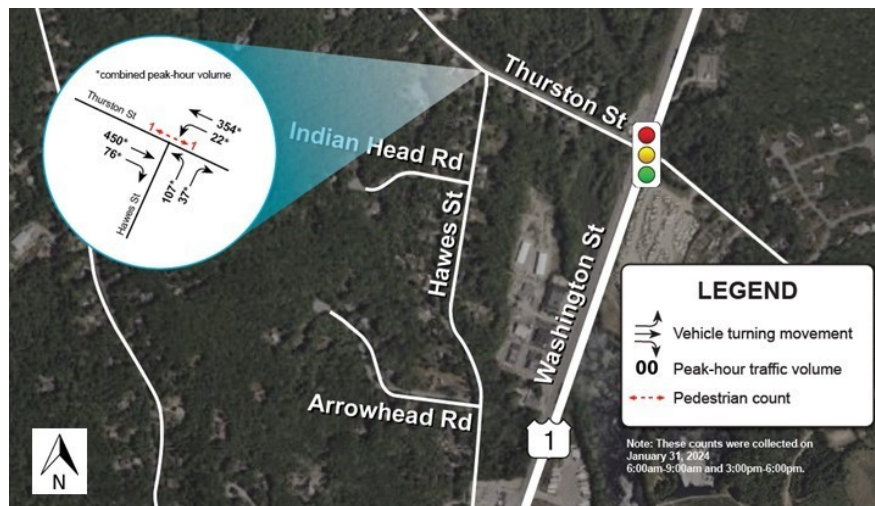
Turning movement count data were collected for the Hawes Street and Thurston Street intersection at 15-minute intervals. TMC data account for passenger cars, trucks and buses, pedestrians, and bicycles travelling through the intersection. These data are recorded for the morning peak period between 6:00 AM and 9:00 AM as well as the evening peak period between 3:00 PM and 6:00 PM. Figure 5 shows the combined morning peak-hour and evening peak-hour volume at the intersection.

The combined peak-hour traffic volume data collected indicates that Hawes Street is used as a cut-through by people driving cars from Washington Street to Thurston Street, quite likely to avoid the traffic signal at the intersection of Thurston Street and Washington Street.³ Most vehicles on Hawes Street travel northbound and continue westbound on Thurston Street. We also observed considerable reverse traffic entering Hawes Street from Thurston Street. These data suggest that Hawes Street is being used as a cut-through by a significant number of drivers. Of the 144 vehicles we recorded on Hawes Street northbound, 107 vehicles (74 percent of vehicles) continued westbound on Thurston Street, while only 37 vehicles (26 percent of vehicles) continued eastbound on Thurston Street.

Only one pedestrian was observed walking east-west near the intersection of Hawes Street and Thurston Street when the count data were recorded.

³ The peak-hour volume is the total traffic volume recorded during the hour with the highest traffic flow (i.e., four consecutive 15-minute intervals). The combined peak-hour volume is the sum of peak-hour volumes from both AM and PM peak periods combined.

Figure 5
Turning Movement Counts for Hawes Street at Thurston Street



Source: Boston Region MPO staff.

5.3 Vehicle Speeds

Speeding was also noted as a matter of concern on Hawes Street, especially the cut-through traffic that was speeding through this residential street.

Similar to traffic volumes, we also collected vehicle speed data at two locations on Hawes Street: (1) south of Thurston Street; and (2) south of Arrowhead Road. Figure 6 shows the average speed, 85th percentile speed, 10 mph pace speed, and speed limit zones for Hawes Street.⁴

Table 1 summarizes the posted speed limit on Hawes Street, the average speeds at the two count locations on Hawes Street, the percentage of vehicles traveling within the posted speed limit, and the percentage of vehicles travelling over the speed limit (speeding).

⁴ According to the Federal Highway Administration (FHWA), “The 10 mph pace is the 10 mph range encompassing the greatest percentage of all the measured speeds in a spot speed study.” See the FHWA’s Methods and Practices for Setting Speed Limits: An Informational Report, https://safety.fhwa.dot.gov/speedmgt/ref_mats/fhwasa12004/fhwasa12004.pdf.

**Table 1
Summary of Speed Data**

| Roadway | Posted Speed Limit | Average Speed | Percent of vehicles within PSL | Percent of Vehicles Speeding |
|---|---------------------------|----------------------------|---------------------------------------|-------------------------------------|
| Hawes Street (south of Thurston Street) | 30 mph | NB: 30 mph SB*: No data | NB: 53% SB*: No data | NB: 47% SB*: No data |
| Hawes Street (south of Arrowhead Road) | 30 mph | NB: 28 mph SB: 28 mph | NB: 64% SB: 65% | NB: 36% SB: 35% |

*Speed data are not reported for Hawes Street southbound, south of Thurston Street, because of errors in the data.

mph = miles per hour. NB = northbound. PSL = posted speed limit. SB = southbound.

Source: Boston Region MPO staff.

We observed the average speed of vehicles travelling on Hawes Street (for the directions with available data) to be within the current posted speed limit (30 mph). However, there is considerable speeding along the roadway (refer to the last column of Table 1 where the percentage of vehicles speeding is shown). The difference in grade and width along Hawes Street could be potential factors contributing to speeding. One approach to counteracting this behavior could be to reduce the speed limit to 25 mph as Hawes Street is a local residential street.

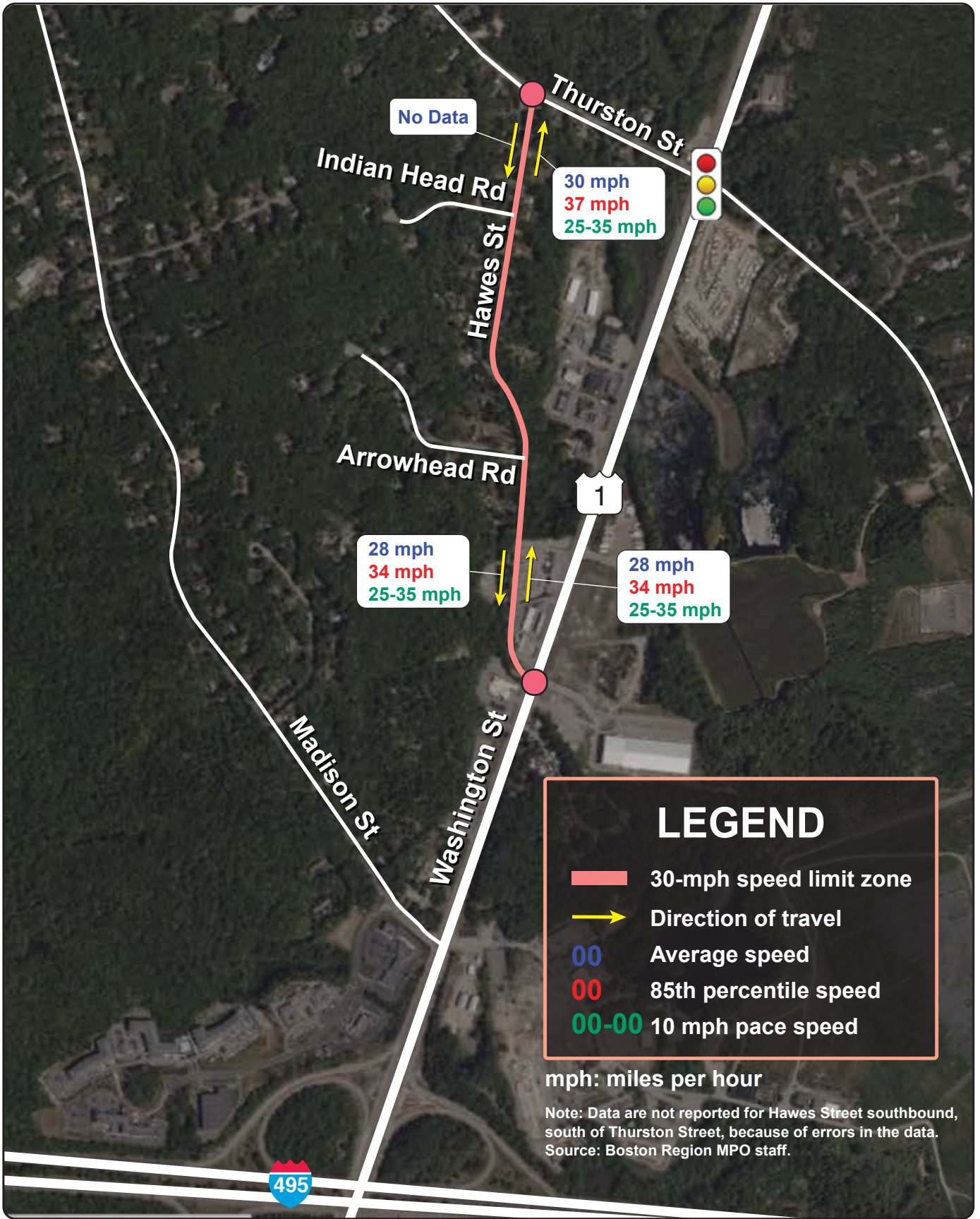


Figure 6
Wrentham—Speed Measurements

5.4 Crashes

We reviewed the crash reports and incident reports for the study area from 2019 to 2023 and did not find any reported crashes on Hawes Street. However, there were some crashes near the intersections of Hawes Street at Thurston Street and Washington Street. The crashes relevant to this study location are discussed below. We are not discussing crashes on Washington Street in this memorandum for two reasons: (1) it is out of the scope of this study; and (2) the Massachusetts Department of Transportation (MassDOT) is currently working on an improvement project on Washington Street.

Crashes at Hawes Street

Although there were no reported crashes on Hawes Street from 2019 to 2023, some crashes have occurred at the intersections of Hawes Street at Thurston Street and Washington Street. Data on these crashes are reported below in Tables 2 and 3. A detailed summary of crashes (from Tables 2 and 3) is discussed in Appendix F.

**Table 2
Crashes near Hawes Street at Thurston Street (2019–23)**

| Statistics Period | | 2019 | 2020 | 2021 | 2022 | 2023 |
|----------------------------------|-------------------------------|-------------|-------------|-------------|-------------|-------------|
| Total number of relevant crashes | | 0 | 0 | 1 | 0 | 0 |
| Severity | Property damage only | 0 | 0 | 1 | 0 | 0 |
| | Non-fatal injury | 0 | 0 | 0 | 0 | 0 |
| | Fatality | 0 | 0 | 0 | 0 | 0 |
| Not reported/unknown | | 0 | 0 | 0 | 0 | 0 |
| Collison type | Single vehicle | 0 | 0 | 1 | 0 | 0 |
| | Rear-end | 0 | 0 | 0 | 0 | 0 |
| | Angle | 0 | 0 | 0 | 0 | 0 |
| | Sideswipe, same direction | 0 | 0 | 0 | 0 | 0 |
| | Sideswipe, opposite direction | 0 | 0 | 0 | 0 | 0 |
| | Head-on | 0 | 0 | 0 | 0 | 0 |
| | Rear-to-rear | 0 | 0 | 0 | 0 | 0 |
| | Not reported/unknown | 0 | 0 | 0 | 0 | 0 |
| Involved pedestrian | | 0 | 0 | 0 | 0 | 0 |
| Involved bicyclist | | 0 | 0 | 0 | 0 | 0 |
| Involved animal | | 0 | 0 | 1 | 0 | 0 |

Note: Crashes discussed in the memo were filtered to only include crashes relevant to the study location.
Source: Town’s crash and incident records.

**Table 3
Crashes near Hawes Street at Washington Street (2019–23)**

| Statistics Period | | 2019 | 2020 | 2021 | 2022 | 2023 |
|----------------------------------|-------------------------------|-------------|-------------|-------------|-------------|-------------|
| Total number of relevant crashes | | 0 | 1 | 1 | 2 | 1 |
| Severity | Property damage only | 0 | 1 | 0 | 1 | 1 |
| | Non-fatal injury | 0 | 0 | 0 | 1** | 0 |
| | Fatality | 0 | 0 | 0 | 0 | 0 |
| | Not reported/unknown | 0 | 0 | 0 | 0 | 0 |
| Collison type | Single vehicle | 0 | 0 | 1 | 0 | 0 |
| | Rear-end | 0 | 1 | 0 | 1 | 1 |
| | Angle | 0 | 0 | 1* | 0 | 0 |
| | Sideswipe, same direction | 0 | 0 | 0 | 0 | 0 |
| | Sideswipe, opposite direction | 0 | 0 | 0 | 0 | 0 |
| | Head-on | 0 | 0 | 0 | 0 | 0 |
| | Rear-to-rear | 0 | 0 | 0 | 0 | 0 |
| | Not reported/unknown | 0 | 1 | 0 | 1** | 0 |
| Involved pedestrian | 0 | 0 | 0 | 1** | 0 | |
| Involved bicyclist | 0 | 0 | 0 | 0 | 0 | |
| Involved motorcycle | 0 | 0 | 1* | 0 | 0 | |
| Involved animal | 0 | 0 | 1 | 0 | 0 | |

Note: Crashes discussed in the memo were filtered to only include crashes relevant to the study location.

* This 2021 crash involved a motorcycle.

** This 2022 crash is a non-fatal injury (pedestrian) crash with unknown collision type.

Source: Town’s crash and incident records.

Several rear-end crashes have occurred on Washington Street due to vehicles waiting to turn left to access businesses along the street. As there are no dedicated left-turn lanes or center-turn lanes for these vehicles to wait safely, this results in a conflict and/or rear-end crashes. A number of those crashes may be due to vehicles entering and exiting the Interstate Plaza gas station and truck stop on Washington Street. However, proper turning lanes from this property onto Washington Street are absent. Additionally, safety concerns have been raised about pedestrians and drivers from the truck parking lot trying to approach the Interstate Plaza.⁵

6 ONGOING STUDIES IN THE AREA

The MassDOT District 5 team is currently working on a corridor improvement project on Washington Street (US Route 1) that includes the intersection where Hawes Street meets Washington Street. This project explores conceptual improvements on Route 1 in Wrentham, including safety, access, and accommodations for pedestrians and bicyclists. The project extends on Route 1 from the Foxborough town line (north extent) and the Interstate 495 (I-495) interchange (south extent), which is approximately 2.5 miles long. As of March 2024, this project is in the preliminary design phase.⁶

MassDOT is reviewing several improvement projects along the Route 1 corridor because of safety and operational issues as well as expected new developments. Presently, these projects have not been finalized or received approvals. These projects are intended to provide corridor improvements, which may include adding or reducing travel lanes, the construction of a median barrier, auxiliary turning lanes, driveway consolidation, pedestrian accommodations, and a separated bicycle facility along Route 1 to meet current MassDOT Complete Street standards to a practical extent.

The conceptual proposed improvements considered for the Hawes Street intersection at Route 1 include installing a new traffic signal and adding an exclusive northbound and southbound left-turn lanes on Washington Street for turning onto Hawes Street and Commerce Boulevard, respectively. Additional improvements may include pedestrian crossings across Washington Street and Commerce Boulevard.

⁵ The Sun Chronicle, https://www.thesunchronicle.com/news/local_news/wrentham-man-charged-in-route-1-accident-that-left-taunton-man-dead/article_1448b9a7-07f1-52ce-bb3b-8311a8dce297.html.

⁶ MassDOT Project Information, Wrentham—Corridor improvements on Route 1, https://hwy.massdot.state.ma.us/ProjectInfo/Main.asp?ACTION=ViewProject&PROJECT_NO=608497.

The proposed improvements to Thurston Street would add exclusive left-turn lanes on both approaches to Route 1.

MassDOT is also evaluating cross-section designs for the Washington Street Corridor between I-495 and the Foxborough town line in the north, including the intersections in the study area. These designs may include a median along Washington Street.

7 RECOMMENDED IMPROVEMENTS

After having evaluated the existing conditions, we propose the following recommendations.

7.1 Recommended Safety Improvements to Hawes Street

Short-term Recommendations

- Consider lowering the speed limit on Hawes Street to 25 mph and installing speed limit signs at suitable locations. The speed data we collected show that the average vehicle speed is within the posted speed limit. Reducing the posted speed limit further could encourage people driving to reduce their average speed to less than 25 mph, making it safer for all road users.
- Coordinate with the navigation applications to potentially remove Hawes Street as an option to get to Thurston Street from Washington Street and help reduce cut-through traffic.
- Clear outgrown vegetation from the sides of road to maintain visibility and provide good sight distances. A resident told MPO staff about witnessing many near miss conflicts, even though there may not be any reported crashes on Hawes Street. These near miss conflicts can stem from sight distance issues.
- Improve visibility on side roads: Install “Right T Intersection” (W2-20) signs to alert vehicles approaching the three-leg intersections on Arrowhead Road and Indian Head Road to indicate the presence of an intersection and the possibility of turning vehicles. (See Figure 7.)
- Consider striping excess pavement and stop bars and replacing the stop signs with a flashing stop sign (with an LED border) at both the Indian Head Road and Arrowhead Road intersections to improve visibility. (See Figures 8, 9, and 10.)
- Trim and maintain the vegetation around the “School Bus Stop Ahead” sign on Hawes Street southbound. Currently, the signage is difficult to see due to the overgrown vegetation (Figure 11a).
- Update the “School Bus Stop Ahead” signage on Hawes Street southbound as per the Manual on Uniform Traffic Control Devices

(MUTCD) standard (Figure 11b). Additionally, in the event of dead-ending Hawes Street, the school buses can turn around at the Arrowhead Road intersection. If this were to be implemented, a “School Bus Turn Ahead” (S3-2) sign (Figure 11c) needs to be installed. Additional accommodations for children to safely wait for the bus or return home would also be necessary.

- Consider installing speed tables (MUTCD Section 3B-26), as shown in Figure 12. Speed tables are an effective way to control speeding on residential roadways. However, speed bumps or tables may hinder snowplowing activities, as mentioned by Town staff during one of our meetings.
 - It is important to note that the Select Board recently approved the addition of three speed tables on Hawes Street in the following locations:
 - 130 Hawes Street
 - 97 Hawes Street
 - 40 Hawes Street
- Add road markings, such as highly visible and retroreflective edge and center lines, on Hawes Street to demarcate the travel lanes in both directions and to guide the vehicles along the curved roadway. Rumble strips and/or reflectors can also be added for enhanced safety and to improve driver attentiveness, especially during the night.

Figure 7
Recommended “Right T Intersection” (W2-2) Sign



Source: Manual on Uniform Traffic Control Devices.

Figure 8
Recommended “Flashing Stop” Sign with LED Border



Source: Manual on Uniform Traffic Control Devices. Section 2A.11, page 48.

Figure 9
Existing Sight Distances at Indian Head Road



Note: Southbound view (top). Northbound view (bottom)
Source: Google Street View (September 2023).

Figure 10
Existing Sight Distances at Arrowhead Road



Note: Southbound view (top). Northbound view (bottom)
Source: Google Street View (September 2023).

Figure 11a
Existing “School Bus Stop Ahead” (S3-1) Sign in Hawes Street



Source: Google Street View (September 2023).

Figure 11b
Recommended “School Bus Stop Ahead” (S3-1) Sign



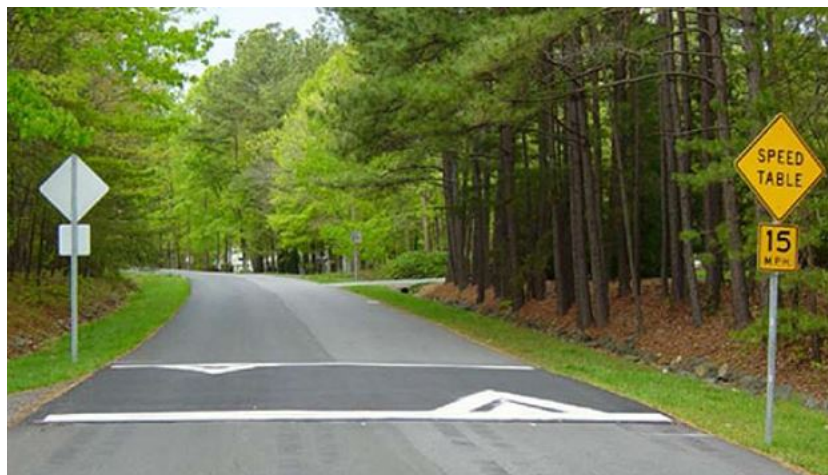
Source: Manual on Uniform Traffic Control Devices.

Figure 11c
Recommended “School Bus Turn Ahead” (S3-2) Sign



Source: Manual on Uniform Traffic Control Devices.

Figure 12
Sample Speed Table on Local Roadway



Source: Federal Highway Administration, Module 3: Toolbox of Individual Traffic Calming Measures Part 2.

Long-term Recommendations

Assessing Roadway Width and Drainage

Hawes Street has varying widths along different sections. We suggest assessing and maintaining a uniform width throughout. Existing drains along the roadway should also be considered as part of this assessment.

Figure 13
Existing Drains and Infrastructure in Hawes Street



Source: Google Street View (September 2023).

Dead-ending Hawes Street

Dead-ending Hawes Street is a good option to reduce the cut-through traffic speeding through the street. However, the resulting impact of dead-ending on emergency and rescue services needs to be considered. We recommend going forward with the Town’s consideration to block Hawes Street with a vegetative buffer north of the commercial properties, creating two dead ends (one for residential access from Thurston Street and another for commercial access from Washington Street) as indicated in Figure 16. This change would provide a safer environment for residents of Hawes Street, Arrowhead Road, and Indian Head Road to walk and bike on these roadways.

7.2 Recommendations Related to Hawes Street at Thurston Street

We recommend the following actions:

- Consider striping excess pavement and the stop bar and replacing the existing stop sign with a flashing stop sign (with an LED Border) for better visibility.

- Assess whether an animal crossing sign needs to be installed on Thurston Street eastbound from Hawes Street. (See Figure 14.)
- Consider aligning the posted speed limit (of 25 mph) on Thurston Street eastbound (east of Hawes Street) to other posted speed limit signs on Thurston Street (of 30 mph) or vice versa.
- Install a “Left Turn Must Turn Left” (R3-7L) sign at the intersection of Washington Street at Thurston Street. (See Figure 15.) There is a dedicated left-turn lane and shared through-and-right lane, however there is no signage to alert drivers in advance.

**Figure 14
Animal Crossing Sign**



Source: Manual on Uniform Traffic Control Devices, Figure 2c-15.

**Figure 15
“Left Turn Must Turn Left” (R3-7L) Sign**



Source: Manual on Uniform Traffic Control Devices.

7.3 Recommendations Related to Hawes Street at Washington Street and Considerations for Washington Street

We recommend that Town staff work with MassDOT on the Washington Street Corridor project to address concerns of residents and businesses. Since MassDOT is currently working on a project on Washington Street that includes the intersection with Hawes Street, we outline a few considerations for the Washington Street project below.

Signalize the Intersection of Hawes and Washington Streets

It is important to analyze and identify whether signalizing the intersection of Hawes Street at Washington Street could attract more traffic to Hawes Street.

If this intersection were to be signalized, we strongly suggest installing a northbound left-turn restriction. When signalized, this will provide protected left turns onto Hawes Street and Commerce Boulevard. A portion of the northbound, left-turning vehicles and eastbound, right-turning vehicles at the Washington Street and Thurston Street intersection may instead choose to turn at the Hawes Street intersection, increasing traffic volumes on Hawes Street. More detailed analysis (perhaps using a regional travel model) would be required to assess future impacts of such an intervention, which is beyond the scope of this study.

If the intersection of Hawes Street at Washington Street is signalized, we recommend retaining the pedestrian-activated signal between the Interstate Plaza and truck parking (on the east side of Washington Street). Additional safety improvements may be necessary to provide safe crossing opportunities for truck drivers to access the Interstate Plaza from additional parking. Alerting vehicles about the upcoming signal near Interstate Plaza (that is activated by pedestrians) can be helpful to caution people driving about a potential need to come to a stop when the signal is activated by a pedestrian.

Reconfigure Traffic Flow at Interstate Plaza

Even though the Interstate Plaza complex is a private property, we recommend reconfiguring the traffic flow pattern at the complex as a one-way entry with the other way being the exit. In addition to this, installing proper turning lanes and additional pedestrian safety measures from this property onto Washington Street may help reduce the number of rear-end crashes.

Similarly, even other privately-owned businesses can be encouraged to install stop signs near the exit as there are many crashes on Washington Street that involve exiting vehicles conflicting with vehicles that are already on Washington Street.

Add Trucking Amenities in Wrentham Business Center Development

A 4,500 square foot convenience store, a gas station with six refueling pumps (a total of 12 fueling spots), and 25 parking spaces are being proposed at the vacant lot of 10 Commerce Boulevard. This project is part of the third phase of development of the Wrentham Business Center that was initially permitted in 2001. If this project were to include truck parking, it could potentially reduce the number of trucks (1) turning left from Washington Street to Interstate Plaza and (2) turning left onto Washington Street from Interstate Plaza.

An alternative if truck parking is not provided could be (1) to connect with the nearby truck parking lot (opposite 560 Washington Street) or (2) to install signage indicating the upcoming gas station and convenience store at 500 Thurston Street. These measures can be considered to provide clear directions to available convenience stores and gas stations in the area and provide easier navigation for large trucks.

Reexamine the Height of Traffic Lights

Ensure that the height of traffic lights meet the latest standards since, in 2022, a truck was recorded hitting the traffic lights at Washington Street. If necessary, indicate any height restrictions for trucks as Washington Street is a corridor with heavy truck traffic.

All of our proposed recommendations on Hawes Street and the adjacent intersections are summarized in Figure 16.



Source: Boston Region MPO staff.

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Figure 16
Wrentham
Improvements to Hawes St

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8 Conclusion

Staff from the Town of Wrentham requested that MPO staff investigate concerns raised by residents about truck traffic, cut-through traffic, and speeding on Hawes Street, a residential street in Wrentham, Massachusetts. In addition to Hawes Street, we also studied its adjacent intersections (Hawes Street at Thurston Street and Washington Street) and evaluated them to address these issues and safety concerns. Since MassDOT is currently working on an improvement project on Washington Street (which includes the Hawes Street at Washington Street intersection), our recommendations in this study are focused on Hawes Street. We also assessed the extent to which Hawes Street is being used as a cut-through. Our recommendations and the considerations discussed are based on our observations from a site visit and inferences from analyzing traffic data we collected in the study area.

Our suggested improvements include both short-term and long-term recommendations. Short-term recommendations include safety improvements that are relatively easy to install and do not require significant time or resources to plan, design, and implement—such as pavement markings and signage—while improving safety for all road users. Our long-term recommendations include interventions that are more permanent, may have an extensive permitting process, and may require planning, designing, and coordination with others (such as agencies with roadway jurisdiction, residents, businesses, and property owners) throughout the process. Chapter 90 Funds can be used to fund short-term improvements.⁷ For implementing long-term recommendations, Town staff can coordinate with MassDOT on locations that are under MassDOT's jurisdiction. A detailed summary of potential safety enhancements is outlined in Appendix G. MassDOT's project development process and schematic timetable are attached in Appendix H.

⁷ Chapter 90 Funds. <https://www.mass.gov/chapter-90-program>.

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Welcome. Bem Vinda. Bienvenido. Akeyi. 欢迎. 歡迎



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To request this information in a different language or format, please contact:

Boston Region MPO Title VI Specialist

10 Park Plaza, Suite 2150

Boston, MA 02116

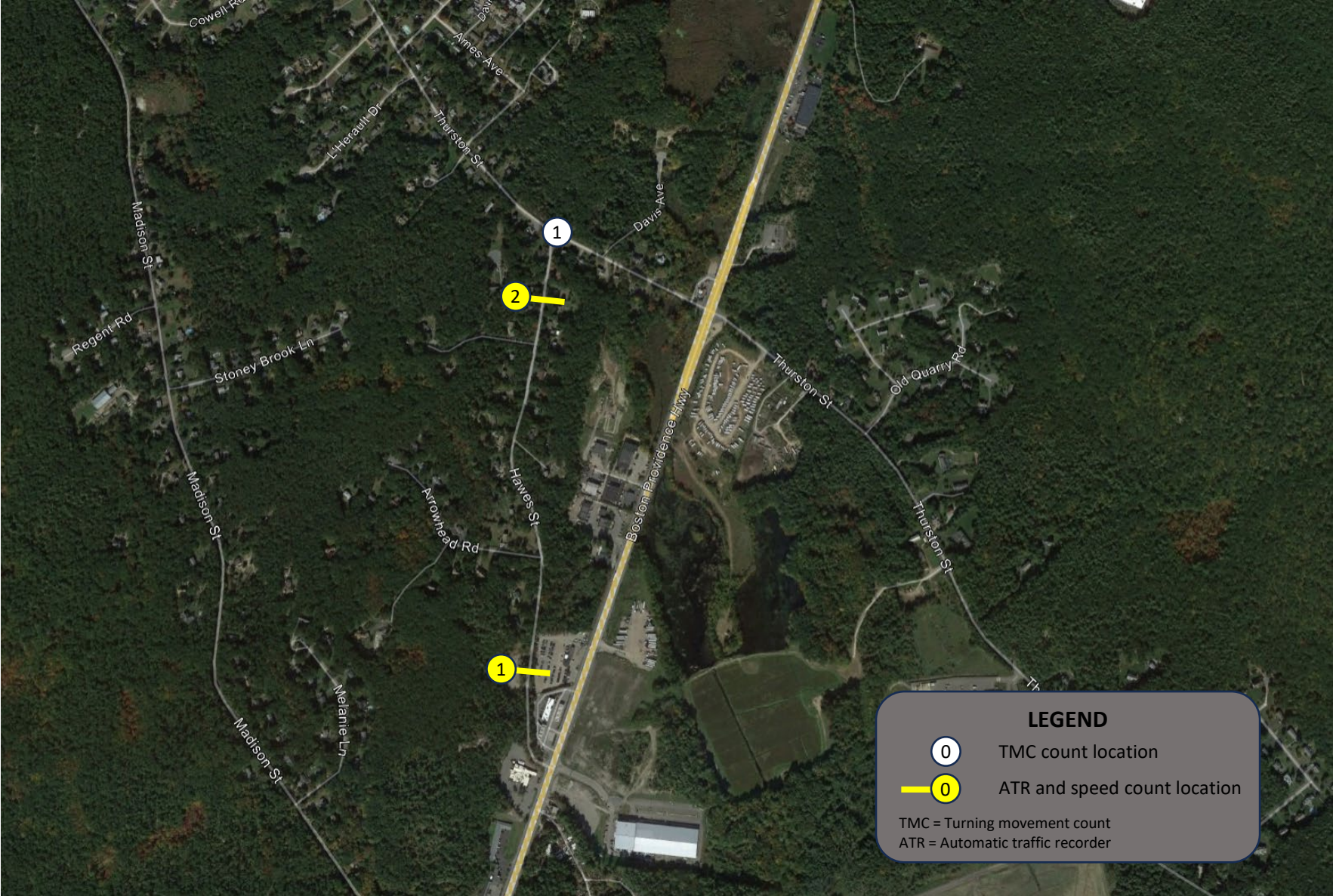
Phone: 857.702.3700

Email: civilrights@ctps.org

For people with hearing or speaking difficulties, connect through the state MassRelay service, www.mass.gov/massrelay. Please allow at least five business days for your request to be fulfilled.

Appendix A
Requested Automatic Traffic Recorder and Turning Movement Count
Locations

Wrentham ATR and TMC Count Locations



List of Turning Movement Count Locations

| Location ID | Intersection | Weekday Morning Period | Weekday Afternoon Period | Traffic Control |
|--------------------|---------------------------------|-------------------------------|---------------------------------|------------------------|
| 1 | Hawes Street at Thurston Street | 6 AM - 9 AM | 3 PM - 6 PM | Unsignalized |

List of Automatic Traffic Recorder, Classification, and Spot Speed Count Locations

| Location ID | Location | Count Type |
|--------------------|---------------------------------------|--------------------------------|
| 1 | Hawes Street south of Thurston Street | ATR, classification, and speed |
| 2 | Hawes Street south of Arrowhead Road | ATR classification, and speed |

Appendix B
Automatic Traffic Recorder Data

Mass Highway Department

WEEKLY SUMMARY FOR LANE 1
Starting: 1/30/2024

Page: 1

Station #: 240010000136
Site ID: 000000000101
Location: Hawes St. NB, south of Arrowhead Rd.
Direction: NORTH

STA. 1 NB

File: D0130007.prn
City: Wrentham
County: class

| TIME | MON | TUE | WED | THU | FRI | WKDAY | SAT | SUN | WEEK | TOTAL |
|------------|-----|-------|-------|-------|-------|-------|-----|-------|------|-------|
| | | 30 | 31 | 1 | 2 | AVG | | | AVG | |
| 01:00 | | | 8 | 8 | 4 | 7 | | | 7 | 20 |
| 02:00 | | | 0 | 1 | 2 | 1 | | | 1 | 3 |
| 03:00 | | | 2 | 2 | 0 | 1 | | | 1 | 4 |
| 04:00 | | | 3 | 2 | 0 | 2 | | | 2 | 5 |
| 05:00 | | | 1 | 1 | 0 | 1 | | | 1 | 2 |
| 06:00 | | | 8 | 9 | 7 | 8 | | | 8 | 24 |
| 07:00 | | | 14 | 13 | 13 | 13 | | | 13 | 40 |
| 08:00 | | | 30 | 29 | 25 | 28 | | | 28 | 84 |
| 09:00 | | | 31 | 33 | 30 | 31 | | | 31 | 94 |
| 10:00 | | | 19 | 39 | 24 | 27 | | | 27 | 82 |
| 11:00 | | 17 | 24 | 21 | 18 | 20 | | | 20 | 80 |
| 12:00 | | 13 | 15 | 15 | | 14 | | | 14 | 43 |
| 13:00 | | 19 | 21 | 21 | | 20 | | | 20 | 61 |
| 14:00 | | 17 | 15 | 16 | | 16 | | | 16 | 48 |
| 15:00 | | 23 | 24 | 27 | | 25 | | | 25 | 74 |
| 16:00 | | 30 | 33 | 35 | | 33 | | | 33 | 98 |
| 17:00 | | 35 | 36 | 35 | | 35 | | | 35 | 106 |
| 18:00 | | 35 | 16 | 41 | | 31 | | | 31 | 92 |
| 19:00 | | 28 | 21 | 35 | | 28 | | | 28 | 84 |
| 20:00 | | 21 | 28 | 27 | | 25 | | | 25 | 76 |
| 21:00 | | 30 | 17 | 17 | | 21 | | | 21 | 64 |
| 22:00 | | 14 | 15 | 22 | | 17 | | | 17 | 51 |
| 23:00 | | 13 | 10 | 16 | | 13 | | | 13 | 39 |
| 24:00 | | 10 | 6 | 9 | | 8 | | | 8 | 25 |
| TOTALS | | 305 | 397 | 474 | 123 | 425 | | | 425 | 1299 |
| % AVG WKDY | | 71.8 | 93.4 | 111.5 | 28.9 | | | | | |
| % AVG WEEK | | 71.8 | 93.4 | 111.5 | 28.9 | | | | | |
| AM Times | | 11:00 | 09:00 | 10:00 | 09:00 | 09:00 | | 09:00 | | |
| AM Peaks | | 17 | 31 | 39 | 30 | 31 | | 31 | | |
| PM Times | | 17:00 | 17:00 | 18:00 | | 17:00 | | 17:00 | | |
| PM Peaks | | 35 | 36 | 41 | | 35 | | 35 | | |

U7

Tph = 7%

Tad = 3%

NB 425

SB 473

COMB AND 898

FAC 1.00

COMB ADT 900

Mass Highway Department

WEEKLY SUMMARY FOR LANE 1
Starting: 1/30/2024

Page: 1

Station #: 240010000076
Site ID: 000000000102
Location: Hawes St. SB, south of Arrowhead Rd.
Direction: SOUTH

STA. 1 SB

File: D0130011.prn
City: Wrentham
County: speed

| TIME | MON | TUE | WED | THU | FRI | WKDAY | SAT | SUN | WEEK | TOTAL |
|------------|-----|-------|-------|-------|-------|-------|-----|-------|------|-------|
| | | 30 | 31 | 1 | 2 | AVG | | | AVG | |
| 01:00 | | | 0 | 1 | 2 | 1 | | | 1 | 3 |
| 02:00 | | | 2 | 2 | 0 | 1 | | | 1 | 4 |
| 03:00 | | | 3 | 2 | 0 | 2 | | | 2 | 5 |
| 04:00 | | | 1 | 1 | 0 | 1 | | | 1 | 2 |
| 05:00 | | | 9 | 9 | 7 | 8 | | | 8 | 25 |
| 06:00 | | | 13 | 13 | 12 | 13 | | | 13 | 38 |
| 07:00 | | | 34 | 31 | 27 | 31 | | | 31 | 92 |
| 08:00 | | | 36 | 34 | 39 | 36 | | | 36 | 109 |
| 09:00 | | | 21 | 42 | 28 | 30 | | | 30 | 91 |
| 10:00 | | 19 | 27 | 24 | | 23 | | | 23 | 70 |
| 11:00 | | 14 | 15 | 16 | | 15 | | | 15 | 45 |
| 12:00 | | 21 | 24 | 21 | | 22 | | | 22 | 66 |
| 13:00 | | 20 | 20 | 22 | | 21 | | | 21 | 62 |
| 14:00 | | 26 | 25 | 30 | | 27 | | | 27 | 81 |
| 15:00 | | 36 | 41 | 41 | | 39 | | | 39 | 118 |
| 16:00 | | 42 | 42 | 36 | | 40 | | | 40 | 120 |
| 17:00 | | 40 | 17 | 40 | | 32 | | | 32 | 97 |
| 18:00 | | 30 | 24 | 40 | | 31 | | | 31 | 94 |
| 19:00 | | 23 | 29 | 32 | | 28 | | | 28 | 84 |
| 20:00 | | 29 | 20 | 19 | | 23 | | | 23 | 68 |
| 21:00 | | 15 | 14 | 24 | | 18 | | | 18 | 53 |
| 22:00 | | 13 | 12 | 19 | | 15 | | | 15 | 44 |
| 23:00 | | 12 | 8 | 10 | | 10 | | | 10 | 30 |
| 24:00 | | 7 | 7 | 3 | | 6 | | | 6 | 17 |
| TOTALS | | 347 | 444 | 512 | 115 | 473 | | | 473 | 1418 |
| % AVG WKDY | | 73.4 | 93.9 | 108.2 | 24.3 | | | | | |
| % AVG WEEK | | 73.4 | 93.9 | 108.2 | 24.3 | | | | | |
| AM Times | | 12:00 | 08:00 | 09:00 | 08:00 | 08:00 | | 08:00 | | |
| AM Peaks | | 21 | 36 | 42 | 39 | 36 | | 36 | | |
| PM Times | | 16:00 | 16:00 | 15:00 | | 16:00 | | 16:00 | | |
| PM Peaks | | 42 | 42 | 41 | | 40 | | 40 | | |

Mass Highway Department

WEEKLY SUMMARY FOR LANE 1
Starting: 1/30/2024

Page: 1

Station #: 240010000029
Site ID: 000000000201
Location: Hawes St. NB, south of Thurston St.
Direction: NORTH

STA. 2 NB

File: D0130001.prn
City: Wrentham
County: class

| TIME | MON | TUE | WED | THU | FRI | WKDAY | SAT | SUN | WEEK | TOTAL |
|------------|-----|-------|-------|-------|-------|-------|-----|-------|------|-------|
| | | 30 | 31 | 1 | 2 | AVG | | | AVG | |
| 01:00 | | | 2 | 1 | 1 | 1 | | | 1 | 4 |
| 02:00 | | | 0 | 1 | 0 | 0 | | | 0 | 1 |
| 03:00 | | | 1 | 2 | 0 | 1 | | | 1 | 3 |
| 04:00 | | | 3 | 1 | 1 | 2 | | | 2 | 5 |
| 05:00 | | | 9 | 10 | 8 | 9 | | | 9 | 27 |
| 06:00 | | | 13 | 12 | 11 | 12 | | | 12 | 36 |
| 07:00 | | | 42 | 40 | 37 | 40 | | | 40 | 119 |
| 08:00 | | | 41 | 32 | 38 | 37 | | | 37 | 111 |
| 09:00 | | | 22 | 34 | 29 | 28 | | | 28 | 85 |
| 10:00 | | 25 | 29 | 21 | | 25 | | | 25 | 75 |
| 11:00 | | 19 | 20 | 18 | | 19 | | | 19 | 57 |
| 12:00 | | 24 | 24 | 18 | | 22 | | | 22 | 66 |
| 13:00 | | 27 | 23 | 20 | | 23 | | | 23 | 70 |
| 14:00 | | 26 | 28 | 36 | | 30 | | | 30 | 90 |
| 15:00 | | 38 | 36 | 29 | | 34 | | | 34 | 103 |
| 16:00 | | 32 | 37 | 32 | | 34 | | | 34 | 101 |
| 17:00 | | 27 | 26 | 43 | | 32 | | | 32 | 96 |
| 18:00 | | 26 | 33 | 33 | | 31 | | | 31 | 92 |
| 19:00 | | 20 | 32 | 24 | | 25 | | | 25 | 76 |
| 20:00 | | 20 | 16 | 18 | | 18 | | | 18 | 54 |
| 21:00 | | 12 | 13 | 16 | | 14 | | | 14 | 41 |
| 22:00 | | 12 | 12 | 15 | | 13 | | | 13 | 39 |
| 23:00 | | 12 | 7 | 9 | | 9 | | | 9 | 28 |
| 24:00 | | 5 | 6 | 1 | | 4 | | | 4 | 12 |
| ----- | | | | | | | | | | |
| TOTALS | | 325 | 475 | 466 | 125 | 463 | | | 463 | 1391 |
| ----- | | | | | | | | | | |
| % AVG WKDY | | 70.2 | 102.6 | 100.6 | 27.0 | | | | | |
| % AVG WEEK | | 70.2 | 102.6 | 100.6 | 27.0 | | | | | |
| ----- | | | | | | | | | | |
| AM Times | | 10:00 | 07:00 | 07:00 | 08:00 | 07:00 | | 07:00 | | |
| AM Peaks | | 25 | 42 | 40 | 38 | 40 | | 40 | | |
| ----- | | | | | | | | | | |
| PM Times | | 15:00 | 16:00 | 17:00 | | 15:00 | | 15:00 | | |
| PM Peaks | | 38 | 37 | 43 | | 34 | | 34 | | |

U7

NB 463
SB 525

COMB AWD 988
FAC 1.00
COMB ADT 990

Mass Highway Department

WEEKLY SUMMARY FOR LANE 1
Starting: 1/30/2024

Page: 1

Station #: 240010000135
Site ID: 000000000202
Location: Hawes St. SB, south of Thurston St.
Direction: SOUTH

STA. 2 SB

File: D0130003.prn
City: Wrentham
County: class

| TIME | MON | TUE | WED | THU | FRI | WKDAY | SAT | SUN | WEEK | TOTAL |
|------------|-----|-------|-------|-------|-------|-------|-----|-------|------|-------|
| | | 30 | 31 | 1 | 2 | AVG | | | AVG | |
| 01:00 | | | 2 | 3 | 2 | 2 | | | 2 | 7 |
| 02:00 | | | 0 | 0 | 0 | 0 | | | 0 | 0 |
| 03:00 | | | 1 | 2 | 0 | 1 | | | 1 | 3 |
| 04:00 | | | 3 | 1 | 1 | 2 | | | 2 | 5 |
| 05:00 | | | 11 | 11 | 9 | 10 | | | 10 | 31 |
| 06:00 | | | 17 | 15 | 11 | 14 | | | 14 | 43 |
| 07:00 | | | 45 | 46 | 28 | 40 | | | 40 | 119 |
| 08:00 | | | 44 | 41 | 29 | 38 | | | 38 | 114 |
| 09:00 | | | 26 | 43 | 26 | 32 | | | 32 | 95 |
| 10:00 | | 26 | 32 | 29 | | 29 | | | 29 | 87 |
| 11:00 | | 20 | 22 | 20 | | 21 | | | 21 | 62 |
| 12:00 | | 30 | 25 | 20 | | 25 | | | 25 | 75 |
| 13:00 | | 27 | 26 | 14 | | 22 | | | 22 | 67 |
| 14:00 | | 34 | 33 | 32 | | 33 | | | 33 | 99 |
| 15:00 | | 40 | 49 | 35 | | 41 | | | 41 | 124 |
| 16:00 | | 38 | 50 | 44 | | 44 | | | 44 | 132 |
| 17:00 | | 43 | 33 | 37 | | 38 | | | 38 | 113 |
| 18:00 | | 36 | 38 | 33 | | 36 | | | 36 | 107 |
| 19:00 | | 27 | 35 | 19 | | 27 | | | 27 | 81 |
| 20:00 | | 30 | 26 | 18 | | 25 | | | 25 | 74 |
| 21:00 | | 15 | 18 | 11 | | 15 | | | 15 | 44 |
| 22:00 | | 13 | 12 | 15 | | 13 | | | 13 | 40 |
| 23:00 | | 13 | 8 | 13 | | 11 | | | 11 | 34 |
| 24:00 | | 7 | 8 | 4 | | 6 | | | 6 | 19 |
| TOTALS | | 399 | 564 | 506 | 106 | 525 | | | 525 | 1575 |
| % AVG WKDY | | 76.0 | 107.4 | 96.4 | 20.2 | | | | | |
| % AVG WEEK | | 76.0 | 107.4 | 96.4 | 20.2 | | | | | |
| AM Times | | 12:00 | 07:00 | 07:00 | 08:00 | 07:00 | | 07:00 | | |
| AM Peaks | | 30 | 45 | 46 | 29 | 40 | | 40 | | |
| PM Times | | 17:00 | 16:00 | 16:00 | | 16:00 | | 16:00 | | |
| PM Peaks | | 43 | 50 | 44 | | 44 | | 44 | | |

Appendix C
Turning Movement Counts: Hawes Street at Thurston Street

249819-A (Hawes Street at Thurston Street) T... - TMC

Wed Jan 31, 2024

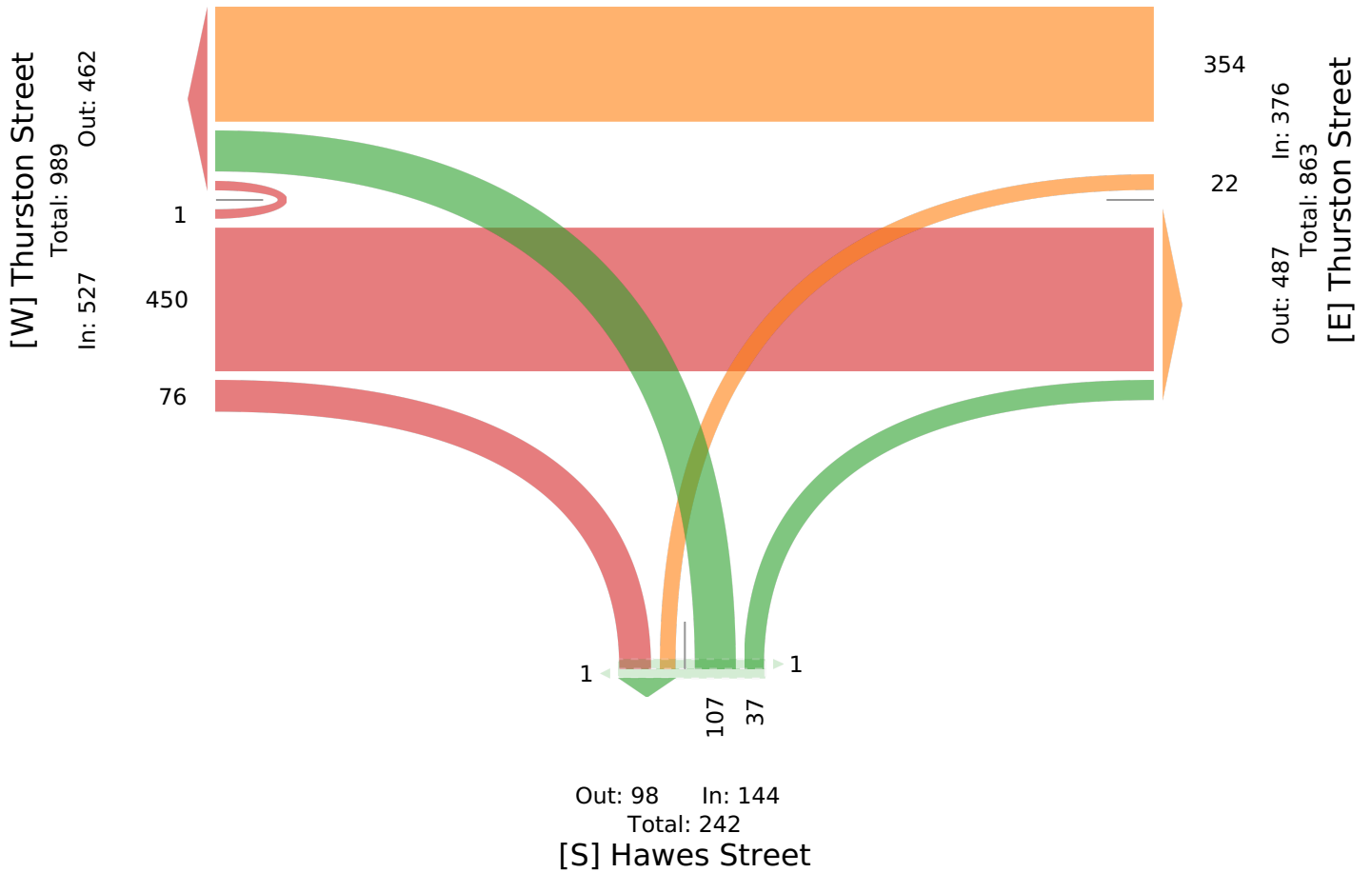
Full Length (6 AM-9 AM, 3 PM-6 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

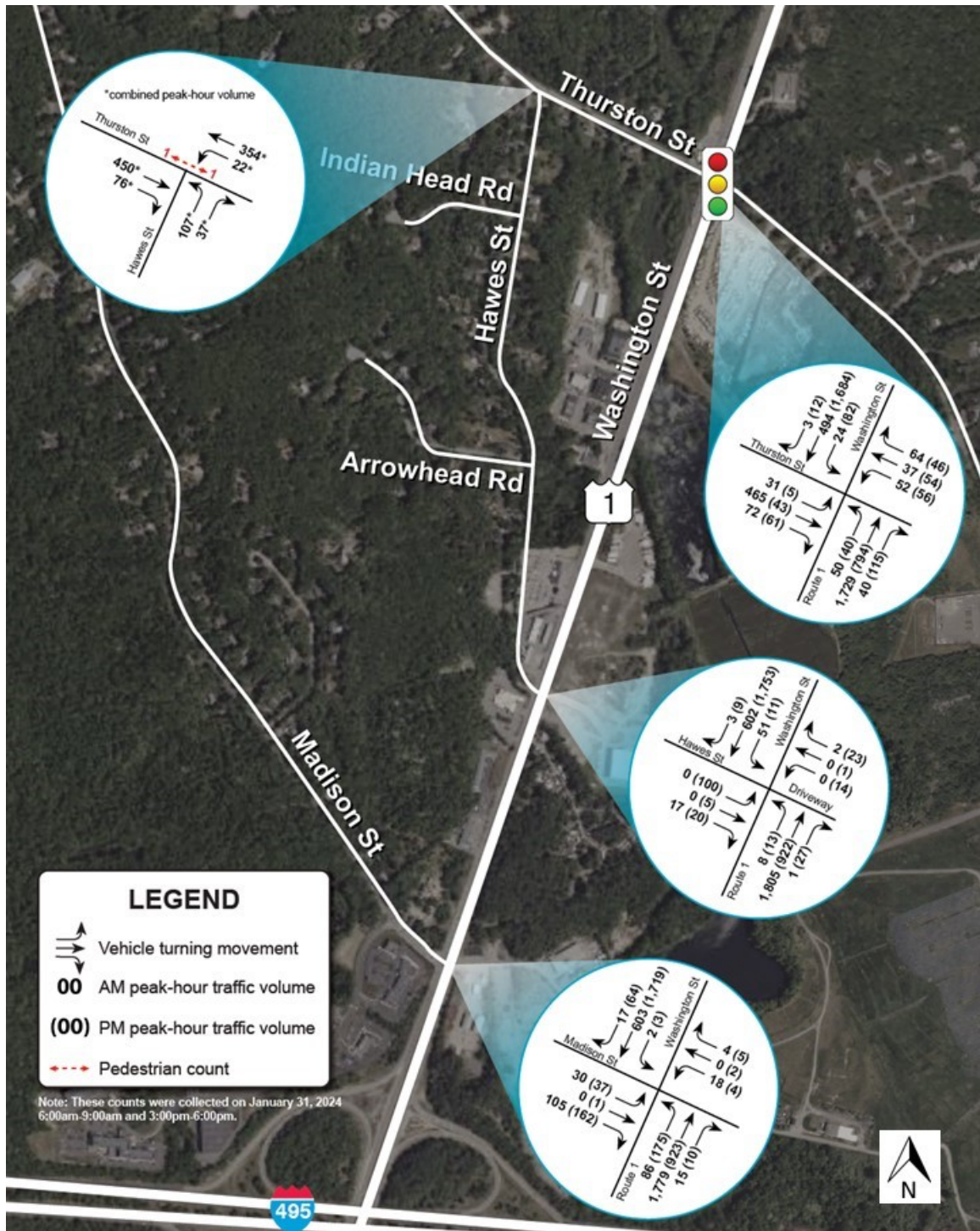
All Movements

ID: 1148439, Location: 42.056056, -71.302783

Provided by: Precision Data Industries, LLC (PDI)
157 Washington Street, 2,
Hudson, MA, 01749, US



Appendix D Turning Movement Counts: Hawes Street at Thurston Street and Adjacent Intersections



Note: Boston Region MPO staff collected the TMCs for Hawes Street at Thurston Street. TMCs for other locations are from another 2022 report by McMahon Associates. Both of these counts are combined in this figure for comparison.

Source: Boston Region MPO staff and McMahon Associates. Edited by MPO staff.

Appendix E Speed Data

Mass Highway Department

SPEED SUMMARY
Tue 1/30/2024

Page: 1

STA. 1NB

Station #: 240010000136
Site ID: 000000000101
Location: Hawes St. NB, south of Arrowhead Rd.
Direction: NORTH
Lane: 1

File: D0130008.prn
City: Wrentham
County: speed

| TIME | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 250 | Total |
|-----------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|--------|
| 11:00 | 0 | 0 | 3 | 6 | 2 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| 12:00 | 0 | 0 | 2 | 4 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 13:00 | 0 | 1 | 4 | 6 | 4 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| 14:00 | 0 | 0 | 1 | 2 | 11 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| 15:00 | 1 | 1 | 1 | 5 | 12 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 |
| 16:00 | 0 | 0 | 4 | 11 | 6 | 5 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 30 |
| 17:00 | 0 | 0 | 6 | 10 | 13 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 |
| 18:00 | 4 | 1 | 1 | 5 | 10 | 13 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 |
| 19:00 | 0 | 0 | 1 | 4 | 13 | 8 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 |
| 20:00 | 0 | 0 | 2 | 5 | 5 | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| 21:00 | 0 | 3 | 3 | 4 | 12 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 |
| 22:00 | 0 | 0 | 1 | 5 | 6 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| 23:00 | 0 | 0 | 0 | 1 | 9 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 13 |
| 24:00 | 0 | 0 | 1 | 1 | 5 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| DAY TOTAL | 5 | 6 | 30 | 69 | 114 | 62 | 16 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 305 |
| PERCENTS | 1.6% | 2.0% | 9.8% | 22.6% | 37.4% | 20.3% | 5.2% | 0.7% | 0.3% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 100.0% |

Statistical Information...

15th Percentile Speed
20.7 mph

85th Percentile Speed
32.9 mph

Median Speed
27.0 mph

Average Speed
26.8 mph

10 MPH Pace Speed
20 mph to 30 mph
183 vehicles in pace
Representing 61.0% of the total vehicles

Vehicles > 65 MPH
0
0.0%

Mass Highway Department

SPEED SUMMARY
Wed 1/31/2024

Station #: 240010000136
Site ID: 000000000101
Location: Hawes St. NB, south of Arrowhead Rd.
Direction: NORTH
Lane: 1

File: D0130008.prn
City: Wrentham
County: speed

| TIME | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 250 | Total |
|-----------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|--------|
| 01:00 | 0 | 0 | 0 | 1 | 2 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 02:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 03:00 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 04:00 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 05:00 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 06:00 | 0 | 0 | 0 | 2 | 1 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 07:00 | 0 | 0 | 0 | 0 | 6 | 5 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| 08:00 | 1 | 0 | 3 | 4 | 11 | 7 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 |
| 09:00 | 2 | 1 | 0 | 5 | 10 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31 |
| 10:00 | 0 | 0 | 4 | 2 | 6 | 5 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| 11:00 | 0 | 1 | 1 | 6 | 10 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| 12:00 | 0 | 0 | 2 | 5 | 5 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| 13:00 | 0 | 0 | 2 | 5 | 2 | 9 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| 14:00 | 0 | 0 | 0 | 2 | 6 | 5 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| 15:00 | 1 | 0 | 4 | 6 | 7 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| 16:00 | 0 | 0 | 0 | 7 | 9 | 9 | 4 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 33 |
| 17:00 | 3 | 0 | 1 | 6 | 16 | 8 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36 |
| 18:00 | 0 | 1 | 0 | 3 | 6 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| 19:00 | 2 | 1 | 0 | 0 | 16 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| 20:00 | 1 | 0 | 1 | 5 | 11 | 9 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 |
| 21:00 | 0 | 0 | 0 | 3 | 7 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| 22:00 | 0 | 0 | 0 | 2 | 11 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| 23:00 | 0 | 0 | 0 | 1 | 6 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 24:00 | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| DAY TOTAL | 10 | 4 | 18 | 66 | 153 | 107 | 33 | 4 | 0 | 0 | 0 | 2 | 0 | 0 | 397 |
| PERCENTS | 2.5% | 1.0% | 4.5% | 16.6% | 38.5% | 27.0% | 8.3% | 1.0% | 0.0% | 0.0% | 0.0% | 0.5% | 0.0% | 0.0% | 100.0% |

Statistical Information...

15th Percentile Speed
22.7 mph

85th Percentile Speed
34.1 mph

Median Speed
28.5 mph

Average Speed
28.6 mph

10 MPH Pace Speed
25 mph to 35 mph
260 vehicles in pace
Representing 67.2% of the total vehicles

Vehicles > 65 MPH
0
0.0%

Mass Highway Department

SPEED SUMMARY
Thu 2/1/2024

Station #: 240010000136
Site ID: 000000000101
Location: Hawes St. NB, south of Arrowhead Rd.
Direction: NORTH
Lane: 1

File: D0130008.prn
City: Wrentham
County: speed

| TIME | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 250 | Total |
|-----------|------|------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|--------|
| 01:00 | 0 | 0 | 1 | 0 | 2 | 3 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 8 |
| 02:00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 03:00 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 04:00 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 05:00 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 06:00 | 0 | 0 | 1 | 1 | 2 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 07:00 | 0 | 0 | 0 | 1 | 6 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 08:00 | 0 | 0 | 3 | 5 | 11 | 9 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 |
| 09:00 | 0 | 0 | 3 | 4 | 7 | 11 | 5 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 33 |
| 10:00 | 0 | 0 | 4 | 7 | 15 | 7 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 39 |
| 11:00 | 0 | 1 | 2 | 5 | 2 | 4 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| 12:00 | 0 | 2 | 1 | 1 | 7 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| 13:00 | 1 | 2 | 3 | 5 | 6 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| 14:00 | 0 | 0 | 2 | 4 | 5 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| 15:00 | 0 | 1 | 5 | 9 | 7 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 |
| 16:00 | 0 | 0 | 3 | 9 | 9 | 10 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 |
| 17:00 | 0 | 0 | 5 | 8 | 11 | 8 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 35 |
| 18:00 | 0 | 0 | 1 | 6 | 20 | 11 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 41 |
| 19:00 | 0 | 6 | 6 | 4 | 13 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 |
| 20:00 | 0 | 1 | 5 | 1 | 15 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 |
| 21:00 | 0 | 0 | 1 | 2 | 7 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| 22:00 | 0 | 0 | 4 | 3 | 10 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 |
| 23:00 | 0 | 1 | 1 | 3 | 8 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| 24:00 | 0 | 0 | 2 | 1 | 2 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| DAY TOTAL | 1 | 14 | 53 | 81 | 165 | 112 | 38 | 4 | 1 | 5 | 0 | 0 | 0 | 0 | 474 |
| PERCENTS | 0.2% | 3.0% | 11.2% | 17.1% | 34.8% | 23.6% | 8.0% | 0.8% | 0.2% | 1.1% | 0.0% | 0.0% | 0.0% | 0.0% | 100.0% |

Statistical Information...

15th Percentile Speed
20.3 mph

85th Percentile Speed
34.0 mph

Median Speed
27.7 mph

Average Speed
27.5 mph

10 MPH Pace Speed
25 mph to 35 mph
277 vehicles in pace
Representing 58.6% of the total vehicles

Vehicles > 65 MPH
0
0.0%

Mass Highway Department

SPEED SUMMARY
 Fri 2/2/2024

Station #: 240010000136
 Site ID: 00000000101
 Location: Hawes St. NB, south of Arrowhead Rd.
 Direction: NORTH
 Lane: 1

File: D0130008.prn
 City: Wrentham
 County: speed

| TIME | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 250 | Total |
|-----------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|--------|
| 01:00 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 02:00 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 03:00 | 0 | 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 | 0 |
| 05:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:00 | 0 | 0 | 0 | 0 | 3 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 07:00 | 0 | 0 | 0 | 0 | 8 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 08:00 | 0 | 0 | 0 | 4 | 9 | 8 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 25 |
| 09:00 | 3 | 0 | 0 | 6 | 7 | 10 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 30 |
| 10:00 | 0 | 0 | 1 | 4 | 9 | 9 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| 11:00 | 4 | 1 | 2 | 1 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 18 |
| DAY TOTAL | 7 | 1 | 3 | 15 | 41 | 37 | 11 | 3 | 0 | 0 | 0 | 0 | 0 | 5 | 123 |
| PERCENTS | 5.7% | 0.8% | 2.4% | 12.2% | 33.3% | 30.1% | 8.9% | 2.4% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 4.1% | 100.0% |

Statistical Information...

15th Percentile Speed
 24.2 mph

85th Percentile Speed
 34.7 mph

Median Speed
 29.5 mph

Average Speed
 29.5 mph

10 MPH Pace Speed
 25 mph to 35 mph
 78 vehicles in pace
 Representing 70.3% of the total vehicles

Vehicles > 65 MPH
 0
 0.0%

Mass Highway Department

SPEED SUMMARY
Tue 1/30/2024

STA. 1 SB

Station #: 240010000076
Site ID: 000000000102
Location: Hawes St. SB, south of Arrowhead Rd.
Direction: SOUTH
Lane: 1

File: D0130012.prn
City: Wrentham
County: speed

| TIME | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 250 | Total |
|-----------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|--------|
| 10:00 | 0 | 0 | 2 | 8 | 3 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| 11:00 | 0 | 1 | 4 | 3 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| 12:00 | 0 | 1 | 4 | 7 | 5 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| 13:00 | 0 | 0 | 1 | 4 | 12 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| 14:00 | 1 | 1 | 1 | 7 | 12 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 |
| 15:00 | 0 | 1 | 3 | 12 | 7 | 8 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36 |
| 16:00 | 0 | 2 | 6 | 11 | 13 | 9 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 42 |
| 17:00 | 4 | 0 | 1 | 8 | 18 | 6 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 |
| 18:00 | 0 | 0 | 2 | 6 | 11 | 9 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 |
| 19:00 | 0 | 0 | 3 | 5 | 7 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 |
| 20:00 | 0 | 3 | 2 | 6 | 7 | 10 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 |
| 21:00 | 0 | 0 | 1 | 5 | 6 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| 22:00 | 0 | 0 | 0 | 1 | 6 | 4 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 23:00 | 0 | 0 | 1 | 2 | 2 | 4 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 24:00 | 0 | 0 | 0 | 0 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| DAY TOTAL | 5 | 9 | 31 | 85 | 118 | 72 | 24 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 347 |
| PERCENTS | 1.4% | 2.6% | 8.9% | 24.5% | 34.0% | 20.7% | 6.9% | 0.9% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 100.0% |

Statistical Information...

15th Percentile Speed
20.7 mph

85th Percentile Speed
33.3 mph

Median Speed
27.0 mph

Average Speed
26.9 mph

10 MPH Pace Speed
20 mph to 30 mph
203 vehicles in pace
Representing 59.4% of the total vehicles

Vehicles > 65 MPH
0
0.0%

Mass Highway Department

SPEED SUMMARY
Wed 1/31/2024

Station #: 240010000076
Site ID: 000000000102
Location: Hawes St. SB, south of Arrowhead Rd.
Direction: SOUTH
Lane: 1

File: D0130012.prn
City: Wrentham
County: speed

| TIME | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 250 | Total |
|-----------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|--------|
| 01:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02:00 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 03:00 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 04:00 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 05:00 | 0 | 0 | 0 | 3 | 2 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 06:00 | 0 | 0 | 0 | 0 | 5 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 07:00 | 1 | 0 | 3 | 4 | 11 | 11 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 34 |
| 08:00 | 3 | 0 | 1 | 6 | 17 | 7 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36 |
| 09:00 | 0 | 0 | 2 | 4 | 10 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| 10:00 | 2 | 1 | 1 | 7 | 14 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 |
| 11:00 | 0 | 0 | 1 | 3 | 8 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| 12:00 | 1 | 0 | 2 | 4 | 9 | 6 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| 13:00 | 0 | 0 | 1 | 1 | 10 | 6 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| 14:00 | 1 | 0 | 3 | 6 | 9 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 25 |
| 15:00 | 0 | 0 | 6 | 3 | 11 | 14 | 5 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 41 |
| 16:00 | 5 | 1 | 0 | 8 | 13 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 42 |
| 17:00 | 0 | 1 | 0 | 4 | 5 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| 18:00 | 2 | 1 | 0 | 4 | 12 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| 19:00 | 0 | 0 | 2 | 7 | 10 | 9 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 |
| 20:00 | 0 | 0 | 0 | 5 | 6 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| 21:00 | 0 | 0 | 1 | 2 | 6 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| 22:00 | 0 | 0 | 0 | 0 | 7 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 23:00 | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 24:00 | 0 | 0 | 1 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| DAY TOTAL | 15 | 4 | 24 | 72 | 171 | 118 | 28 | 10 | 2 | 0 | 0 | 0 | 0 | 0 | 444 |
| PERCENTS | 3.4% | 0.9% | 5.4% | 16.2% | 38.5% | 26.6% | 6.3% | 2.3% | 0.5% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 100.0% |

Statistical Information...

15th Percentile Speed
22.5 mph

85th Percentile Speed
34.0 mph

Median Speed
28.4 mph

Average Speed
28.4 mph

10 MPH Pace Speed
25 mph to 35 mph
289 vehicles in pace
Representing 67.4% of the total vehicles

Vehicles > 65 MPH
0
0.0%

Mass Highway Department

SPEED SUMMARY
Thu 2/1/2024

Station #: 240010000076
Site ID: 000000000102
Location: Hawes St. SB, south of Arrowhead Rd.
Direction: SOUTH
Lane: 1

File: D0130012.prn
City: Wrentham
County: speed

| TIME | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 250 | Total |
|-----------|------|------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|--------|
| 01:00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 02:00 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 03:00 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 04:00 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 05:00 | 0 | 0 | 1 | 0 | 4 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 06:00 | 0 | 0 | 0 | 5 | 3 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 07:00 | 0 | 0 | 2 | 5 | 10 | 11 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31 |
| 08:00 | 0 | 1 | 2 | 6 | 11 | 8 | 3 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 34 |
| 09:00 | 0 | 0 | 4 | 12 | 14 | 10 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 42 |
| 10:00 | 0 | 1 | 1 | 7 | 6 | 5 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| 11:00 | 0 | 1 | 2 | 1 | 9 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| 12:00 | 1 | 2 | 5 | 1 | 8 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| 13:00 | 0 | 1 | 2 | 6 | 6 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 |
| 14:00 | 0 | 0 | 6 | 10 | 10 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 |
| 15:00 | 0 | 1 | 3 | 8 | 16 | 6 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 41 |
| 16:00 | 0 | 0 | 6 | 8 | 15 | 5 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 36 |
| 17:00 | 0 | 0 | 0 | 13 | 14 | 10 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 |
| 18:00 | 0 | 3 | 9 | 7 | 8 | 11 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 |
| 19:00 | 2 | 2 | 4 | 3 | 10 | 9 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 |
| 20:00 | 0 | 0 | 2 | 3 | 7 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| 21:00 | 0 | 0 | 6 | 2 | 7 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| 22:00 | 2 | 1 | 1 | 5 | 7 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| 23:00 | 0 | 0 | 2 | 1 | 2 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 24:00 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| DAY TOTAL | 5 | 13 | 58 | 104 | 171 | 115 | 39 | 6 | 0 | 0 | 1 | 0 | 0 | 0 | 512 |
| PERCENTS | 1.0% | 2.5% | 11.3% | 20.3% | 33.4% | 22.5% | 7.6% | 1.2% | 0.0% | 0.0% | 0.2% | 0.0% | 0.0% | 0.0% | 100.0% |

Statistical Information...

15th Percentile Speed
20.3 mph

85th Percentile Speed
33.7 mph

Median Speed
27.3 mph

Average Speed
27.1 mph

10 MPH Pace Speed
25 mph to 35 mph
286 vehicles in pace
Representing 56.4% of the total vehicles

Vehicles > 65 MPH
0
0.0%

Mass Highway Department

SPEED SUMMARY
 Fri 2/2/2024

Station #: 240010000076
 Site ID: 000000000102
 Location: Hawes St. SB, south of Arrowhead Rd.
 Direction: SOUTH
 Lane: 1

File: D0130012.prn
 City: Wrentham
 County: speed

| TIME | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 250 | Total |
|-----------|------|------|------|-------|-------|-------|-------|------|------|------|------|------|------|------|--------|
| 01:00 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 02:00 | 0 | 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 | 0 |
| 04:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 | 0 | 0 | 0 | 0 | 3 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 06:00 | 0 | 0 | 0 | 1 | 5 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 07:00 | 0 | 0 | 0 | 3 | 9 | 6 | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 27 |
| 08:00 | 2 | 0 | 1 | 5 | 11 | 16 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 39 |
| 09:00 | 0 | 0 | 2 | 3 | 20 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 |
| DAY TOTAL | 2 | 0 | 3 | 12 | 49 | 28 | 17 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 115 |
| PERCENTS | 1.7% | 0.0% | 2.6% | 10.4% | 42.6% | 24.3% | 14.8% | 3.5% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 100.0% |

Statistical Information...

15th Percentile Speed
 25.2 mph

85th Percentile Speed
 36.2 mph

Median Speed
 29.2 mph

Average Speed
 30.0 mph

10 MPH Pace Speed
 25 mph to 35 mph
 77 vehicles in pace
 Representing 68.1% of the total vehicles

Vehicles > 65 MPH
 0
 0.0%

Mass Highway Department

SPEED SUMMARY
Tue 1/30/2024

Page: 1

STA. 2 NB

Station #: 240010000029
Site ID: 000000000201
Location: Hawes St. NB, south of Thurston St.
Direction: NORTH
Lane: 1

File: D0130002.prn
City: Wrentham
County: speed

| TIME | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 250 | Total |
|-----------|------|------|------|-------|-------|-------|-------|------|------|------|------|------|------|------|--------|
| 10:00 | 2 | 1 | 1 | 1 | 8 | 4 | 5 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 25 |
| 11:00 | 0 | 1 | 3 | 3 | 7 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| 12:00 | 1 | 3 | 3 | 2 | 6 | 7 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| 13:00 | 1 | 2 | 3 | 8 | 1 | 6 | 2 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 27 |
| 14:00 | 2 | 1 | 0 | 5 | 10 | 6 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 26 |
| 15:00 | 4 | 0 | 1 | 3 | 10 | 10 | 7 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 38 |
| 16:00 | 1 | 0 | 4 | 9 | 4 | 10 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 32 |
| 17:00 | 0 | 0 | 2 | 3 | 13 | 5 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 |
| 18:00 | 0 | 0 | 0 | 6 | 3 | 12 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 26 |
| 19:00 | 3 | 0 | 1 | 0 | 5 | 10 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| 20:00 | 1 | 0 | 2 | 1 | 9 | 3 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| 21:00 | 2 | 0 | 1 | 1 | 1 | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 22:00 | 0 | 0 | 0 | 1 | 3 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 23:00 | 0 | 0 | 0 | 0 | 1 | 5 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 24:00 | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| DAY TOTAL | 17 | 8 | 21 | 43 | 82 | 96 | 40 | 14 | 3 | 1 | 0 | 0 | 0 | 0 | 325 |
| PERCENTS | 5.2% | 2.5% | 6.5% | 13.2% | 25.2% | 29.5% | 12.3% | 4.3% | 0.9% | 0.3% | 0.0% | 0.0% | 0.0% | 0.0% | 100.0% |

Statistical Information...

15th Percentile Speed
22.0 mph

85th Percentile Speed
36.5 mph

Median Speed
30.0 mph

Average Speed
29.6 mph

10 MPH Pace Speed
25 mph to 35 mph
178 vehicles in pace
Representing 57.8% of the total vehicles

Vehicles > 65 MPH
0
0.0%

Mass Highway Department

SPEED SUMMARY
Wed 1/31/2024

Station #: 240010000029
Site ID: 000000000201
Location: Hawes St. NB, south of Thurston St.
Direction: NORTH
Lane: 1

File: D0130002.prn
City: Wrentham
County: speed

| TIME | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 250 | Total |
|-----------|------|------|------|-------|-------|-------|-------|------|------|------|------|------|------|------|--------|
| 01:00 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 02:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 03:00 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 04:00 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 05:00 | 1 | 0 | 0 | 0 | 1 | 4 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 06:00 | 0 | 0 | 1 | 1 | 2 | 5 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 07:00 | 0 | 0 | 1 | 9 | 10 | 13 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 42 |
| 08:00 | 2 | 2 | 5 | 4 | 13 | 7 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 41 |
| 09:00 | 0 | 0 | 0 | 2 | 11 | 7 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 |
| 10:00 | 0 | 3 | 1 | 8 | 9 | 5 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 29 |
| 11:00 | 0 | 0 | 2 | 6 | 5 | 5 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| 12:00 | 1 | 1 | 1 | 2 | 9 | 6 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| 13:00 | 1 | 1 | 1 | 1 | 6 | 9 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 23 |
| 14:00 | 1 | 1 | 2 | 2 | 11 | 6 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 28 |
| 15:00 | 0 | 1 | 2 | 2 | 12 | 12 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36 |
| 16:00 | 4 | 0 | 1 | 5 | 10 | 10 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 37 |
| 17:00 | 3 | 1 | 0 | 4 | 7 | 7 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 26 |
| 18:00 | 3 | 3 | 1 | 3 | 15 | 3 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 |
| 19:00 | 3 | 0 | 2 | 2 | 10 | 9 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 32 |
| 20:00 | 2 | 0 | 1 | 1 | 4 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| 21:00 | 0 | 0 | 0 | 0 | 4 | 5 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 22:00 | 0 | 0 | 0 | 2 | 4 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 23:00 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 7 |
| 24:00 | 0 | 0 | 0 | 1 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| DAY TOTAL | 21 | 13 | 22 | 56 | 146 | 132 | 70 | 14 | 1 | 0 | 0 | 0 | 0 | 0 | 475 |
| PERCENTS | 4.4% | 2.7% | 4.6% | 11.8% | 30.7% | 27.8% | 14.7% | 2.9% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 100.0% |

Statistical Information...

15th Percentile Speed
23.0 mph

85th Percentile Speed
36.2 mph

Median Speed
29.7 mph

Average Speed
29.5 mph

10 MPH Pace Speed
25 mph to 35 mph
278 vehicles in pace
Representing 61.2% of the total vehicles

Vehicles > 65 MPH
0
0.0%

Mass Highway Department

SPEED SUMMARY
Thu 2/1/2024

Page: 3

Station #: 240010000029
Site ID: 000000000201
Location: Hawes St. NB, south of Thurston St.
Direction: NORTH
Lane: 1

File: D0130002.prn
City: Wrentham
County: speed

| TIME | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 250 | Total |
|-----------|------|------|------|-------|-------|-------|-------|------|------|------|------|------|------|------|--------|
| 01:00 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 02:00 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 03:00 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 04:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 05:00 | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 06:00 | 0 | 0 | 0 | 2 | 2 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 07:00 | 0 | 0 | 0 | 5 | 12 | 15 | 6 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 40 |
| 08:00 | 2 | 0 | 3 | 5 | 10 | 6 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 32 |
| 09:00 | 0 | 0 | 1 | 8 | 9 | 11 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 34 |
| 10:00 | 0 | 1 | 3 | 5 | 4 | 4 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| 11:00 | 0 | 0 | 0 | 6 | 2 | 7 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| 12:00 | 3 | 2 | 0 | 2 | 6 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| 13:00 | 1 | 0 | 2 | 1 | 9 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| 14:00 | 6 | 2 | 6 | 8 | 5 | 4 | 3 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 36 |
| 15:00 | 2 | 0 | 0 | 2 | 10 | 7 | 3 | 1 | 0 | 0 | 2 | 2 | 0 | 0 | 29 |
| 16:00 | 4 | 3 | 2 | 5 | 5 | 8 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 |
| 17:00 | 3 | 1 | 7 | 7 | 10 | 7 | 2 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 43 |
| 18:00 | 0 | 0 | 5 | 5 | 11 | 4 | 5 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 33 |
| 19:00 | 0 | 3 | 1 | 1 | 6 | 8 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| 20:00 | 2 | 1 | 2 | 0 | 2 | 7 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| 21:00 | 1 | 0 | 0 | 2 | 4 | 7 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| 22:00 | 1 | 0 | 1 | 3 | 6 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| 23:00 | 0 | 0 | 2 | 0 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 24:00 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| DAY TOTAL | 26 | 13 | 35 | 67 | 117 | 117 | 60 | 16 | 0 | 0 | 2 | 10 | 3 | 0 | 466 |
| PERCENTS | 5.6% | 2.8% | 7.5% | 14.4% | 25.1% | 25.1% | 12.9% | 3.4% | 0.0% | 0.0% | 0.4% | 2.1% | 0.6% | 0.0% | 100.0% |

Statistical Information...

15th Percentile Speed
21.4 mph

85th Percentile Speed
37.1 mph

Median Speed
29.5 mph

Average Speed
30.0 mph

10 MPH Pace Speed
25 mph to 35 mph
234 vehicles in pace
Representing 53.2% of the total vehicles

Vehicles > 65 MPH
3
0.7%

Mass Highway Department

SPEED SUMMARY
 Fri 2/2/2024

Page: 4

Station #: 240010000029
 Site ID: 000000000201
 Location: Hawes St. NB, south of Thurston St.
 Direction: NORTH
 Lane: 1

File: D0130002.prn
 City: Wrentham
 County: speed

| TIME | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 250 | Total |
|-----------|------|------|------|-------|-------|-------|-------|------|------|------|------|------|------|------|--------|
| 01:00 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 02:00 | 0 | 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 | 0 |
| 04:00 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 05:00 | 0 | 2 | 0 | 0 | 0 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 8 |
| 06:00 | 0 | 0 | 0 | 2 | 2 | 3 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 07:00 | 0 | 0 | 0 | 3 | 13 | 12 | 8 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 37 |
| 08:00 | 0 | 1 | 2 | 5 | 15 | 9 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 38 |
| 09:00 | 1 | 0 | 2 | 6 | 8 | 8 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 29 |
| DAY TOTAL | 1 | 3 | 4 | 17 | 38 | 36 | 18 | 4 | 1 | 0 | 0 | 2 | 1 | 0 | 125 |
| PERCENTS | 0.8% | 2.4% | 3.2% | 13.6% | 30.4% | 28.8% | 14.4% | 3.2% | 0.8% | 0.0% | 0.0% | 1.6% | 0.8% | 0.0% | 100.0% |

Statistical Information...

15th Percentile Speed
 23.4 mph

85th Percentile Speed
 37.1 mph

Median Speed
 30.0 mph

Average Speed
 30.6 mph

10 MPH Pace Speed
 25 mph to 35 mph
 74 vehicles in pace
 Representing 59.7% of the total vehicles

Vehicles > 65 MPH
 1
 0.8%

Mass Highway Department

SPEED SUMMARY
Tue 1/30/2024

STA. 2 SB

Station #: 240010000135
Site ID: 000000000202
Location: Hawes St. SB, south of Thurston St.
Direction: SOUTH
Lane: 1

File: D0130004.prn
City: Wrentham
County: speed

| TIME | * 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 | 90 | 250 | Total |
|-----------|-------|-------|-------|------|------|------|------|------|------|------|------|------|------|------|--------|
| 10:00 | 20 | 3 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 |
| 11:00 | 18 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| 12:00 | 21 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 |
| 13:00 | 12 | 4 | 10 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 |
| 14:00 | 29 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 34 |
| 15:00 | 27 | 7 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 |
| 16:00 | 17 | 18 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 38 |
| 17:00 | 29 | 8 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 |
| 18:00 | 13 | 21 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36 |
| 19:00 | 20 | 4 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 |
| 20:00 | 15 | 9 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 |
| 21:00 | 11 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| 22:00 | 0 | 5 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 23:00 | 1 | 6 | 2 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 24:00 | 1 | 2 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| DAY TOTAL | 234 | 104 | 44 | 12 | 2 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 399 |
| PERCENTS | 58.6% | 26.1% | 11.0% | 3.0% | 0.5% | 0.0% | 0.8% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 100.0% |

Statistical Information...

15th Percentile Speed
31.2 mph

85th Percentile Speed
39.1 mph

Median Speed
34.0 mph

Average Speed
35.2 mph

10 MPH Pace Speed
30 mph to 40 mph
148 vehicles in pace
Representing 89.7% of the total vehicles

Vehicles > 65 MPH
0
0.0%

* PROGRAM ERROR
STARTED @ 30 MPH

Mass Highway Department

SPEED SUMMARY
Wed 1/31/2024

Station #: 240010000135
Site ID: 00000000202
Location: Hawes St. SB, south of Thurston St.
Direction: SOUTH
Lane: 1

File: D0130004.prn
City: Wrentham
County: speed

| TIME | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 | 90 | 250 | Total |
|-----------|-------|-------|-------|------|------|------|------|------|------|------|------|------|------|------|--------|
| 01:00 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 02:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 03:00 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 04:00 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 05:00 | 6 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 06:00 | 2 | 9 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| 07:00 | 16 | 15 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45 |
| 08:00 | 30 | 1 | 9 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 44 |
| 09:00 | 21 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 |
| 10:00 | 24 | 6 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 |
| 11:00 | 13 | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 |
| 12:00 | 17 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 |
| 13:00 | 15 | 10 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 |
| 14:00 | 20 | 11 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 |
| 15:00 | 29 | 8 | 6 | 4 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 49 |
| 16:00 | 17 | 17 | 10 | 3 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 |
| 17:00 | 24 | 3 | 1 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 |
| 18:00 | 23 | 10 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 38 |
| 19:00 | 23 | 3 | 7 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 35 |
| 20:00 | 13 | 9 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 26 |
| 21:00 | 9 | 4 | 3 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| 22:00 | 7 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 23:00 | 3 | 2 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 24:00 | 3 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| DAY TOTAL | 320 | 134 | 77 | 12 | 3 | 0 | 10 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 564 |
| PERCENTS | 56.7% | 23.8% | 13.7% | 2.1% | 0.5% | 0.0% | 1.8% | 0.7% | 0.7% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 100.0% |

Statistical Information...

15th Percentile Speed
31.4 mph

85th Percentile Speed
39.8 mph

Median Speed
34.6 mph

Average Speed
36.9 mph

10 MPH Pace Speed
30 mph to 40 mph
211 vehicles in pace
Representing 86.5% of the total vehicles

Vehicles > 65 MPH
4
1.6%

Mass Highway Department

SPEED SUMMARY
Thu 2/1/2024

Station #: 240010000135
Site ID: 000000000202
Location: Hawes St. SB, south of Thurston St.
Direction: SOUTH
Lane: 1

File: D0130004.prn
City: Wrentham
County: speed

| TIME | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 | 90 | 250 | Total |
|-----------|-------|-------|------|------|------|------|------|------|------|------|------|------|------|------|--------|
| 01:00 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 02:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 03:00 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 04:00 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 05:00 | 2 | 5 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 06:00 | 4 | 6 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| 07:00 | 21 | 23 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 46 |
| 08:00 | 20 | 7 | 11 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 41 |
| 09:00 | 33 | 4 | 0 | 1 | 0 | 0 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 43 |
| 10:00 | 14 | 7 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 29 |
| 11:00 | 10 | 9 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| 12:00 | 16 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| 13:00 | 10 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| 14:00 | 22 | 8 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 |
| 15:00 | 22 | 4 | 2 | 4 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 35 |
| 16:00 | 26 | 7 | 5 | 2 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 44 |
| 17:00 | 30 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 37 |
| 18:00 | 24 | 2 | 5 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 |
| 19:00 | 12 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| 20:00 | 11 | 5 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| 21:00 | 7 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 22:00 | 11 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| 23:00 | 4 | 3 | 2 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 13 |
| 24:00 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| DAY TOTAL | 305 | 112 | 47 | 18 | 1 | 0 | 4 | 12 | 4 | 3 | 0 | 0 | 0 | 0 | 506 |
| PERCENTS | 60.3% | 22.1% | 9.3% | 3.6% | 0.2% | 0.0% | 0.8% | 2.4% | 0.8% | 0.6% | 0.0% | 0.0% | 0.0% | 0.0% | 100.0% |

Statistical Information...

15th Percentile Speed
31.4 mph

85th Percentile Speed
43.3 mph

Median Speed
34.5 mph

Average Speed
38.2 mph

10 MPH Pace Speed
30 mph to 40 mph
159 vehicles in pace
Representing 79.1% of the total vehicles

Vehicles > 65 MPH
7
3.5%

Mass Highway Department

SPEED SUMMARY
 Fri 2/2/2024

Station #: 240010000135
 Site ID: 000000000202
 Location: Hawes St. SB, south of Thurston St.
 Direction: SOUTH
 Lane: 1

File: D0130004.prn
 City: Wrentham
 County: speed

| TIME | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 | 90 | 250 | Total |
|-----------|-------|-------|-------|------|------|------|------|------|------|------|------|------|------|------|--------|
| 01:00 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 02:00 | 0 | 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 | 0 |
| 04:00 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 05:00 | 2 | 4 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 06:00 | 4 | 3 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 07:00 | 12 | 5 | 9 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 |
| 08:00 | 14 | 4 | 9 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 |
| 09:00 | 22 | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 26 |
| DAY TOTAL | 56 | 18 | 23 | 3 | 4 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 106 |
| PERCENTS | 52.8% | 17.0% | 21.7% | 2.8% | 3.8% | 0.0% | 0.0% | 1.9% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 100.0% |

Statistical Information...

15th Percentile Speed
 32.1 mph

85th Percentile Speed
 42.5 mph

Median Speed
 36.5 mph

Average Speed
 37.8 mph

10 MPH Pace Speed
 30 mph to 40 mph
 41 vehicles in pace
 Representing 82.0% of the total vehicles

Vehicles > 65 MPH
 0
 0.0%

Appendix F

Summary of Crashes in Tables 2 and 3

Crashes near Hawes Street at Thurston Street (n = 1)

- In 2021, a car travelling east on Thurston Street (around 7:20 PM) hit something near the Hawes Street intersection. Based on the available evidence, it was found that the car hit a deer.

Crashes near Hawes Street at Washington Street (n = 6)

- In 2023, a crash involving two cars travelling northbound on Washington Street was reported. One vehicle stopped to execute a left turn into the parking lot of Luciano's Restaurant from the left northbound lane and was rear-ended by another vehicle behind.
- In 2022, a crash involving three cars travelling southbound on Washington Street was reported. Vehicle 1 stopped to allow a car travelling northbound into Luciano's parking lot. Vehicle 2, which was behind Vehicle 1, stopped as well. However, Vehicle 3, behind Vehicle 2, rear-ended Vehicle 2, which resulted in Vehicle 2 rear-ending Vehicle 1.
- In 2022, there was a crash involving a car and a pedestrian near Luciano's Restaurant. However, additional information about the crash was not available. It was not reported whether the crash was within the parking lot or at the intersection of Hawes Street at Washington Street.
- In 2021, a crash involving three cars, and a motorcycle was reported (around 7:09 PM). Vehicle 1 was travelling southbound on the right travel lane of Washington Street, while vehicle 2 was also travelling southbound on the left travel lane of Washington Street. A motorcycle trying to take a left lane came into conflict with the vehicles travelling southbound.
- In 2020, a crash involving two cars took place (around 7:15 PM) at the intersection of Hawes Street at Thurston Street. Vehicle 1 was stopped at the northbound left lane waiting to take a left onto Hawes Street. Vehicle 2 failed to stop and rear-ended Vehicle 1. The reported weather during the crash was light rain, which could have been a contributory factor.
- In 2020, a crash was reported near Supercharger at Washington Street (around 7:18 PM). Additional information is not available about this crash.

Appendix G
Summary of Potential Safety Enhancements

**Table G-1
Estimated Time Frame and Costs Breakdown**

| Time Frame | |
|-------------------|-----------------------|
| Short-term | Less than one year |
| Medium-term | One to three years |
| Long-term | More than three years |

| Costs | |
|--------------|-----------------------|
| Low | Less than \$10,000 |
| Medium | \$10,000 to \$50,000 |
| High | Greater than \$50,000 |

Source: Boston Region MPO staff.

**Table G-2
Potential Safety Enhancement Summary**

| Safety Issue | Potential Safety Enhancement | Jurisdiction | Safety Payoff | Time Frame | Cost | Next steps for the Town |
|---------------------|---|---------------------|----------------------|-------------------|-------------|--|
| Speeding | Reduction of Posted Speed Limit on Hawes Street to 25 mph and installation of speed limit signs at suitable locations | Town of Wrentham | Low | Short-term | Low | Town staff can submit a request to MassDOT Highway's Traffic and Safety Engineering Department . MassDOT will provide an approval or denial decision after review. |
| Cut-through traffic | Coordination with the navigation applications | Town of Wrentham | Low | Short-term | Low | Town staff can reach out to navigation |

| Safety Issue | Potential Safety Enhancement | Jurisdiction | Safety Payoff | Time Frame | Cost | Next steps for the Town |
|-----------------------|---|---|---------------|-------------------------------------|------|---|
| | to remove Hawes Street as a route to get to Thurston Street from Washington Street | | | | | companies requesting them to remove Hawes Street as a route suggestion. Staff could seek guidance from the City of Plainville since they already have experience with this. |
| Sight distance issues | Clearing outgrown vegetation from the sides of road | Town of Wrentham (requires coordination with property owners) | Medium | Short-term (needs to be maintained) | Low | Identify blind spots along Hawes Street and coordinate with property owners to trim vegetation and maintenance. |
| Inform drivers | Signage installation: <ul style="list-style-type: none"> ○ Left T intersection | Town of Wrentham | Low to High | Short-term | Low | Follow Town's procedure and install signage. |

| Safety Issue | Potential Safety Enhancement | Jurisdiction | Safety Payoff | Time Frame | Cost | Next steps for the Town |
|--|--|------------------|---------------|------------|--------|---|
| | signage in Hawes Street <ul style="list-style-type: none"> ○ School Bus Stop Ahead ○ School Bus Turn Ahead ○ Animal crossing signage on Thurston Street Eastbound ○ Left Turn Must Turn Left sign on Thurston Street Eastbound | | | | | |
| Roadway visibility | Replacement of stop signs with a flashing stop sign (with an LED border) | Town of Wrentham | Medium | Short-term | Medium | Follow Town's procedure and install signage. |
| Driver attentiveness and visibility at night | Addition of road markings such as highly visible and retroreflective | Town of Wrentham | Medium | Short-term | Low | Follow Town's procedure and add pavement markings, rumble |

| Safety Issue | Potential Safety Enhancement | Jurisdiction | Safety Payoff | Time Frame | Cost | Next steps for the Town |
|---|---|---|----------------------|-------------------|-------------|--|
| | Re-pave edge lines, center lines, rumble strips and/or reflectors on Hawes Street | | | | | Install rumble strips and reflectors. |
| Safety | Assessment and repavement of Hawes Street with uniform width. Assessment of existing drains along the roadway to be considered. | Town of Wrentham | High | Long-term | High | Town's Public Works Department can assess and repave Hawes Street. |
| Overall safety and reduction of cut-through traffic | Conversion of Hawes Street to a dead-end | Town of Wrentham (requires coordination with property owners) | High | Long-term | High | Coordinate with MassDOT and property owners |

Note: Improvements for Washington Street, although discussed in this memorandum as an inference from the analysis, were not the focus of this study.
Source: Boston Region MPO staff.

Appendix H
MassDOT Highway Division Project Development Process

**Appendix H:
MassDOT Highway Division
Project Development Process**

Overview of the Project Development Process

Transportation decision-making is complex and can be influenced by legislative mandates, environmental regulations, financial limitations, agency programmatic commitments, and partnering opportunities. Decision-makers and reviewing agencies, when consulted early and often throughout the project development process, can ensure that all participants understand the potential impact these factors can have on project implementation. Project development is the process that takes a transportation improvement from concept through construction.

The MassDOT Highway Division has developed a comprehensive project development process which is contained in Chapter 2 of the *MassDOT Highway Division's Project Development and Design Guide*. The eight-step process covers a range of activities extending from identification of a project need, through completion of a set of finished contract plans, to construction of the project. The sequence of decisions made through the project development process progressively narrows the project focus and, ultimately, leads to a project that addresses the identified needs. The descriptions provided below are focused on the process for a highway project, but the same basic process will need to be followed for non-highway projects as well.

1. Needs Identification

For each of the locations at which an improvement is to be implemented, MassDOT leads an effort to define the problem, establishes project goals and objectives, and defines the scope of the planning needed for implementation. To that end, it has to complete a Project Need Form (PNF), which states in general terms the deficiencies or needs related to the transportation facility or location. The PNF documents the problems and explains why corrective action is needed. For this study, the information defining the need for the project will be drawn primarily, perhaps exclusively, from the present report. Also, at this point in the process, MassDOT meets with potential participants, such as the Metropolitan Planning Organization (MPO) and community members, to allow for an informal review of the project.

The PNF is reviewed by the MassDOT Highway Division district office whose jurisdiction includes the location of the proposed project. MassDOT also sends the PNF to the MPO, for informational purposes. The outcome of this step determines whether the project requires further planning, whether it is already well supported by prior planning studies, and, therefore, whether it is ready to move forward into the design phase, or whether it should be dismissed from further consideration.

2. Planning

This phase will likely not be required for the implementation of the improvements proposed in this planning study, as this planning report should constitute the outcome of this step. However, in general, the purpose of this implementation step is for the project proponent to identify issues, impacts, and approvals that may need to be obtained, so that the subsequent design and permitting processes are understood.

The level of planning needed will vary widely, based on the complexity of the project. Typical tasks include: define the existing context, confirm project need, establish goals and objectives, initiate public outreach, define the project, collect data, develop and analyze alternatives, make recommendations, and provide documentation. Likely outcomes include consensus on the project definition to enable it to move forward into environmental documentation (if needed) and design, or a recommendation to delay the project or dismiss it from further consideration.

3. Project Initiation

At this point in the process, the proponent, MassDOT Highway Division, fills out a Project Initiation Form (PIF) for each improvement, which is reviewed by its Project Review Committee (PRC) and the MPO. The PRC is composed of the Chief Engineer, each District Highway Director, and representatives of the Project Management, Environmental, Planning, Right-of-Way, Traffic, and Bridge departments, and the MassDOT Federal Aid Program Office (FAPO). The PIF documents the project type and description, summarizes the project planning process, identifies likely funding and project management responsibility, and defines a plan for interagency and public participation. First the PRC reviews and evaluates the proposed project based on the MassDOT's statewide priorities and criteria. If the result is positive, MassDOT Highway Division moves the project forward to the design phase, and to programming review by the MPO. The PRC may provide a Project Management Plan to define roles and responsibilities for subsequent steps. The MPO review includes project evaluation based on the MPO's regional priorities and criteria. The MPO may assign project evaluation criteria score, a Transportation Improvement Program (TIP) year, a tentative project category, and a tentative funding category.

4. Environmental Permitting, Design, and Right-of-Way Process

This step has four distinct but closely integrated elements: public outreach, environmental documentation and permitting (if required), design, and right-of-way acquisition (if required). The outcome of this step is a fully designed and permitted project ready for construction. However, a project does not have to be fully designed in order for the MPO to program it in the TIP. The sections below provide more detailed information on the four elements of this step of the project development process.

Public Outreach

Continued public outreach in the design and environmental process is essential to maintain public support for the project and to seek meaningful input on the design elements. The public outreach is often in the form of required public hearings, but can also include less formal dialogues with those interested in and affected by a proposed project.

Environmental Documentation and Permitting

The project proponent, in coordination with the Environmental Services section of the MassDOT Highway Division, will be responsible for identifying and complying with all applicable federal, state, and local environmental laws and requirements. This includes determining the appropriate project category for both the Massachusetts Environmental Protection Act (MEPA) and the National Environmental Protection Act (NEPA). Environmental documentation and permitting is often completed in conjunction with the **Preliminary Design** phase described below.

Design

There are three major phases of design. The first is **Preliminary Design**, which is also referred to as the 25-percent submission. The major components of this phase include full survey of the project area, preparation of base plans, development of basic geometric layout, development of preliminary cost estimates, and submission of a functional design report. Preliminary Design, although not required to, is often completed in conjunction with the Environmental Documentation and Permitting. The next phase is **Final Design**, which is also referred to as the 75-percent and 100-percent submission. The major components of this phase include preparation of a subsurface exploratory plan (if required), coordination of utility relocations, development of traffic management plans through construction zones, development of final cost estimates, and refinement and finalization of the construction plans. Once Final Design is complete, a full set of **Plans, Specifications, and Estimates (PS&E)** is developed for the project.

Right-of-Way Acquisition

A separate set of Right-of-Way plans are required for any project that requires land acquisition or easements. The plans must identify the existing and proposed layout lines, easements, property lines, names of property owners, and the dimensions and areas of estimated takings and easements.

5. Programming (Identification of Funding)

Programming, which typically begins during the design phase, can actually occur at any time during the process, from planning to design. In this step, which is distinct from project initiation, the proponent requests that the MPO place the project in the region's Transportation Improvement Program (TIP). The proponent requesting the project's listing on the TIP can be the community or it can be one of the MPO member agencies (the Regional Planning Agency, MassDOT, and the Regional Transit Authority). The MPO then considers the project in terms of state and regional needs, evaluation criteria, and compliance with the regional Transportation Plan and decides whether to place it in the draft TIP for public review and then in the final TIP.

6. Procurement

Following project design and programming of a highway project, the MassDOT Highway Division publishes a request for proposals. It then reviews the bids and awards the contract to the qualified bidder with the lowest bid.

7. Construction

After a construction contract is awarded, MassDOT Highway Division and the contractor develop a public participation plan and a management plan for the construction process.

8. Project Assessment

The purpose of this step is to receive constituents' comments on the project development process and the project's design elements. MassDOT Highway Division can apply what is learned in this process to future projects.

Project Development Schematic Timetable

| Description | Schedule Influence | Typical Duration |
|--|--|---|
| <p>Step I: Problem/Need/Opportunity Identification The proponent completes a Project Need Form (PNF). This form is then reviewed by the MassDOT District office which provides guidance to the proponent on the subsequent steps of the process.</p> | <p>The Project Need Form has been developed so that it can be prepared quickly by the proponent, including any supporting data that is readily available. The District office shall return comments to the proponent within one month of PNF submission.</p> | <p>1 to 3 months</p> |
| <p>Step II: Planning Project planning can range from agreement that the problem should be addressed through a clear solution to a detailed analysis of alternatives and their impacts.</p> | <p>For some projects, no planning beyond preparation of the Project Need Form is required. Some projects require a planning study centered on specific project issues associated with the proposed solution or a narrow family of alternatives. More complex projects will likely require a detailed alternatives analysis.</p> | <p>Project Planning Report: 3 to 24+ months</p> |
| <p>Step III: Project Initiation The proponent prepares and submits a Project Initiation Form (PIF) and a Transportation Evaluation Criteria (TEC) form in this step. The PIF and TEC are informally reviewed by the Metropolitan Planning Organization (MPO) and MassDOT District office, and formally reviewed by the PRC.</p> | <p>The PIF includes refinement of the preliminary information contained in the PNF. Additional information summarizing the results of the planning process, such as the Project Planning Report, are included with the PIF and TEC. The schedule is determined by PRC staff review (dependent on project complexity) and meeting schedule.</p> | <p>1 to 4 months</p> |
| <p>Step IV: Design, Environmental, and Right of Way The proponent completes the project design. Concurrently, the proponent completes necessary environmental permitting analyses and files applications for permits. Any right of way needed for the project is identified and the acquisition process begins.</p> | <p>The schedule for this step is dependent upon the size of the project and the complexity of the design, permitting, and right-of-way issues. Design review by the MassDOT district and appropriate sections is completed in this step.</p> | <p>3 to 48+ months</p> |
| <p>Step V: Programming The MPO considers the project in terms of its regional priorities and determines whether or not to include the project in the draft Regional Transportation Improvement Program (TIP) which is then made available for public comment. The TIP includes a project description and funding source.</p> | <p>The schedule for this step is subject to each MPO's programming cycle and meeting schedule. It is also possible that the MPO will not include a project in its Draft TIP based on its review and approval procedures.</p> | <p>3 to 12+ months</p> |
| <p>Step VI: Procurement The project is advertised for construction and a contract awarded.</p> | <p>Administration of competing projects can influence the advertising schedule.</p> | <p>1 to 12 months</p> |
| <p>Step VII: Construction The construction process is initiated including public notification and any anticipated public involvement. Construction continues to project completion.</p> | <p>The duration for this step is entirely dependent upon project complexity and phasing.</p> | <p>3 to 60+ months</p> |
| <p>Step VIII: Project Assessment The construction period is complete and project elements and processes are evaluated on a voluntary basis.</p> | <p>The duration for this step is dependent upon the proponent's approach to this step and any follow-up required.</p> | <p>1 month</p> |

Source: MassDOT Highway Division Project Development and Design Guide