

**Transportation Element**  
**Huntington Community Development Plan**

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Prepared for:  
Town of Huntington

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## I. INTRODUCTION

This study was conducted according to guidelines established as part of Executive Order 418 and is intended to serve as the transportation element of the Huntington Community Development Plan. The goal of this project is to provide a detailed analysis of the existing and anticipated traffic demands and assess the impacts of current and planned land uses along the Route 20 and Route 112 corridors in the Town of Huntington. This study will identify opportunities to improve the safety of the main highway corridors which serve Huntington and the surrounding region. The study is designed to identify current and future transportation deficiencies to assist the Town of Huntington in the development of projects and strategies to improve safety and improve travel conditions for both vehicles and pedestrians throughout the study area.

### A. Study Area

The study area consists of the Route 20 and Route 112 corridors within the Town of Huntington. The entire Town of Huntington will be used as the study area for the preparation of required maps for the “Putting It All Together” component of Executive Order 418.

### B. Functional Classification

Functional classification groups streets and highways according to the character of service they are intended to provide. Because urban and rural areas have different characteristics in regard to density and types of land use, the functional classification for rural roads in the Town of Huntington is different than an urbanized area such as the City of Springfield. Roadways can be classified as Interstate, arterial, collector, and local streets.

In the Town of Huntington, there are four separate roadway classification schemes: Rural Minor Arterial, Rural Major Collector, Rural Minor Collector, and Local Street. Minor arterials roadways link the community with larger cities and towns as well as major traffic generators such as a large shopping plaza. Conversely, a rural major collector links to the arterial system to provide access to neighboring communities not directly served by the arterial system, and serves land uses of local or regional importance such as schools. Rural minor collectors link the locally important traffic generators with the remaining smaller communities and local streets serve primarily to link the immediate land uses along the roadway to the functionally classified system.

All roadways classified as a Rural Major Collector or higher are eligible for federal aid in a rural area such as Huntington. A map of the current roadway functional classification scheme for the Town of Huntington is shown in Figure I-1.

Based on the information shown in Figure I-1, Blandford Hill Road is currently classified as a Rural Major Collector from its intersection with Route 20 to the Blandford Town Line. This roadway is currently posted as a “Dead End” and no longer serves through traffic. Therefore, it is recommended that the Board of Selectmen in the Town of Huntington request that this roadway be redesignated as a local street.

The functional classification of a roadway may be upgraded or downgraded based on changes in land use, population, and vehicular volume. Communities can request a change in the functional classification through a written request to the Pioneer Valley Planning Commission (PVPC). If PVPC concurs, that a change is warranted, the request is submitted to the Massachusetts Highway Department (MassHighway) for their approval. Once approved by MassHighway, the change requires endorsement by both the Pioneer Valley Metropolitan Planning Organization and finally the Federal Highway Administration (FHWA) before the functional classification can be officially changed.

## **II. EXISTING TRANSPORTATION CONDITIONS**

This section provides a technical evaluation of the transportation components throughout the study area. It includes a presentation of the data collected, analysis of traffic operations, and a series of short term recommendations to improve overall performance and safety.

### **A. Data Collection**

Comprehensive data collection activity was conducted for this study to identify existing deficiencies. This activity consisted of obtaining traffic volumes, crash data, and summaries of previous transportation studies conducted for the Town. PVPC staff collected a large portion of the data used in this report. Additional data was obtained from the Massachusetts Highway Department (MassHighway).

#### *1. Daily Vehicle Volume*

Vehicle volume data was collected for use in the transportation analysis in order to measure the travel demands on an average weekday. Average Daily Traffic (ADT) volumes were compiled for a total of seven days at various mid-block locations within the study area using Automatic Traffic Recorders (ATRs). All ADT weekday volumes were factored to represent Average Annual Daily Traffic (AADT) levels. The average weekend traffic volumes are the actual traffic volumes counted during the month of June, 2003. Two additional traffic counts were also conducted on Route 66 and Montgomery Road at the request of the Huntington EO 418 advisory committee. These counts were performed for a duration of 48 hours on an average weekday during September of 2003. The 2003 average weekday and weekend traffic counts conducted by the PVPC are shown in Table II-1 and Figure II-1.

**Figure I-1 – Roadway Functional Classification**



**Table II-1 - Average Annual Daily Traffic**

| Location                                    | Average Weekday |       |       | Average Weekend |       |       |
|---|-----------------|-------|-------|-----------------|-------|-------|
|   | NB/EB           | SB/WB | Total | NB/EB           | SB/WB | Total |
| Route 112 at the Worthington Town Line      | 564             | 651   | 1,215 | 499             | 575   | 1,074 |
| Route 112 north of Route 66                 | 741             | 788   | 1,529 | 838             | 819   | 1,657 |
| Route 112 south of County Road              | 1,565           | 1,505 | 3,070 | 1,370           | 1321  | 2,691 |
| Route 20 east of Route 112                  | 2,250           | 2,241 | 4,176 | 2,368           | 2,387 | 4,755 |
| Route 20 west of Route 112                  | 1,960           | 1,655 | 3,615 | 2,020           | 1,751 | 3,771 |
| Route 66 at the Westhampton Town Line       | 930             | 902   | 1,832 |                 |       |       |
| Montgomery Road at the Montgomery Town Line | 889             | 1,034 | 1,923 |                 |       |       |

2. *Vehicle Classification*

Vehicle classification data is used to identify the percentage of heavy vehicles and passenger cars on the roadway. Heavy vehicles include trucks, recreational vehicles and buses. The percent of heavy vehicles in the traffic flow is an important component in calculating the serviceability of a corridor or intersection. Trucks impact traffic flow because they occupy more roadway space than passenger cars and have poorer operating capabilities with respect to acceleration, deceleration and maneuverability.

Classification counts were conducted at all of the daily traffic count locations. Vehicles are classified based on the number of axles and the distance between each axle. Two axle, six tire vehicles and vehicles with three or more axles are classified as a “truck” or heavy vehicle. The percentage of heavy vehicle traffic on a roadway is important as large vehicles have different operating characteristics than normal passenger vehicles. Heavy vehicles have a larger turning radius than a typical passenger vehicle, require more time to accelerate to operating speeds, and require a greater braking distance to come to a complete stop. This information is also an important factor in the pavement design of a roadway. This information is shown in Table II-2.

**Table II-2 – Vehicle Classification Data**

|                                   |            | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | >3 Axles | % Heavy Vehicles |
|-----------------------------------|------------|-------|-----------------|-------------|-------|---------------|---------------|----------|------------------|
| Route 112 at the Worthington Line | Northbound | 0.4%  | 61.9%           | 30.0%       | 2.1%  | 3.7%          | 0.4%          | 1.4%     | 7.6%             |
|                                   | Southbound | 0.6%  | 49.6%           | 16.9%       | 11.0% | 19.9%         | 0.8%          | 1.1%     | 22.0%            |
| Route 112 north of Route 66       | Northbound | 1.3%  | 71.6%           | 21.0%       | 1.4%  | 2.9%          | 0.5%          | 1.3%     | 6.0%             |
|                                   | Southbound | 1.9%  | 75.8%           | 17.2%       | 0.9%  | 1.1%          | 1.6%          | 1.4%     | 5.1%             |
| Route 112 south of County Road    | Northbound | 1.0%  | 61.1%           | 29.0%       | 1.3%  | 5.1%          | 0.3%          | 2.2%     | 8.9%             |
|                                   | Southbound | 7.7%  | 49.9%           | 26.6%       | 1.3%  | 6.5%          | 6.2%          | 1.8%     | 15.8%            |
| Route 20 east of Route 112        | Eastbound  | 0.4%  | 71.6%           | 20.7%       | 1.6%  | 2.7%          | 0.4%          | 2.6%     | 7.3%             |
| Route 20 west of Route 112        | Westbound  | 0.5%  | 77.4%           | 16.0%       | 1.3%  | 1.6%          | 0.3%          | 2.9%     | 6.2%             |
|                                   | Eastbound  | 1.3%  | 78.1%           | 15.0%       | 1.1%  | 1.4%          | 0.4%          | 2.8%     | 5.6%             |
|                                   | Westbound  | 1.6%  | 77.8%           | 14.8%       | 0.9%  | 1.2%          | 0.9%          | 2.7%     | 5.8%             |

### 3. Vehicle Travel Speeds

Travel Speed data was collected to establish the ranges in which vehicles were measured to be traveling. This data was used to establish “bins” of data to summarize the ranges in which vehicles were measured to be traveling. The “Pace Speed” consists of the range in which most vehicles were recorded to travel. Speed data was also used to calculate the “85<sup>th</sup> Percentile” Speed for each direction on the roadway. The 85<sup>th</sup> Percentile Speed is defined as the speed that 85 percent of all traffic is traveling at or below. This method is typically used to establish the posted speed limit on a roadway. By comparing the 85<sup>th</sup> Percentile Speed to the posted speed limit a community can determine how well traffic is complying with the current posted speed limits and if increased enforcement of the posted speed limits is necessary. Speed data is summarized in Tables II-3 and II-4.

Based on the speed data, most vehicles appear to be driving slightly faster than the posted speed limits. Along Route 20 this could be a function of the width of the roadway which was measured to be 43 feet in the vicinity of the Town Common. In the Town Center higher speeds could also be a result of the higher posted travel speeds along the approaching segments of the Route 20 corridor.

**Table II-3 – Travel Speed Breakdown**

|                                   |    | 0-15 mph | 16-20 mph | 21-25 mph | 26-30 mph | 31-35 mph | 36-40 mph | 41-45 mph | 46-50 mph | 51-55 mph | 56-60 mph | 61-65 mph | > 65 mph |
|-----------------------------------|----|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|
| Route 112 at the Worthington Line | NB | 0.1%     | 0.0%      | 0.0%      | 0.2%      | 0.2%      | 0.8%      | 7.7%      | 24.5%     | 35.5%     | 22.2%     | 5.3%      | 3.5%     |
|                                   | SB | 2.7%     | 0.2%      | 0.1%      | 0.2%      | 0.5%      | 2.0%      | 9.9%      | 30.8%     | 33.5%     | 14.8%     | 4.1%      | 1.2%     |
| Route 112 north of Route 66       | NB | 1.8%     | 0.9%      | 0.7%      | 2.2%      | 5.6%      | 17.2%     | 30.5%     | 27.5%     | 10.7%     | 2.3%      | 0.3%      | 0.2%     |
|                                   | SB | 3.6%     | 1.7%      | 1.1%      | 1.5%      | 5.7%      | 21.5%     | 36.3%     | 21.4%     | 5.3%      | 1.2%      | 0.3%      | 0.3%     |
| Route 112 south of County Road    | NB | 0.5%     | 0.2%      | 0.3%      | 0.5%      | 2.0%      | 18.1%     | 42.4%     | 27.9%     | 6.1%      | 1.2%      | 0.2%      | 0.7%     |
|                                   | SB | 0.6%     | 0.2%      | 0.1%      | 0.1%      | 1.9%      | 14.4%     | 39.0%     | 31.5%     | 9.2%      | 1.8%      | 0.5%      | 0.7%     |
| Route 20 east of Route 112        | EB | 0.7%     | 0.1%      | 0.7%      | 6.3%      | 31.7%     | 42.4%     | 14.9%     | 1.8%      | 0.3%      | 0.1%      | 0.1%      | 0.9%     |
|                                   | WB | 0.7%     | 0.2%      | 2.0%      | 17.4%     | 45.8%     | 28.1%     | 4.3%      | 0.4%      | 0.1%      | 0.1%      | 0.1%      | 0.9%     |
| Route 20 west of Route 112        | EB | 5.3%     | 14.4%     | 35.0%     | 31.2%     | 10.9%     | 1.7%      | 0.3%      | 0.1%      | 0.0%      | 0.1%      | 0.1%      | 0.9%     |
|                                   | WB | 5.7%     | 6.6%      | 25.4%     | 38.8%     | 18.5%     | 3.1%      | 0.5%      | 0.1%      | 0.1%      | 0.1%      | 0.0%      | 1.0%     |

**Table II-4 – 85<sup>th</sup> Percentile Speeds (in mph)**

| Location                               | NB/EB | SB/WB | Posted Speed |
|--|-------|-------|--------------|
| Route 112 at the Worthington Town Line | 58    | 50    | 50           |
| Route 112 north of Route 66            | 50    | 49    | 50           |
| Route 112 south of County Road         | 49    | 50    | 35           |
| Route 20 east of Route 112             | 42    | 39    | 30           |
| Route 20 west of Route 112             | 30    | 33    | 30           |

### B. Peak Hour Traffic

Manual turning movement counts were performed by PVPC staff at the intersection of Route 20 with Route 112 during the morning (7-9 AM) and afternoon (4-6 PM) in the months of May and June, 2003. Copies of all traffic counts are attached to this document.

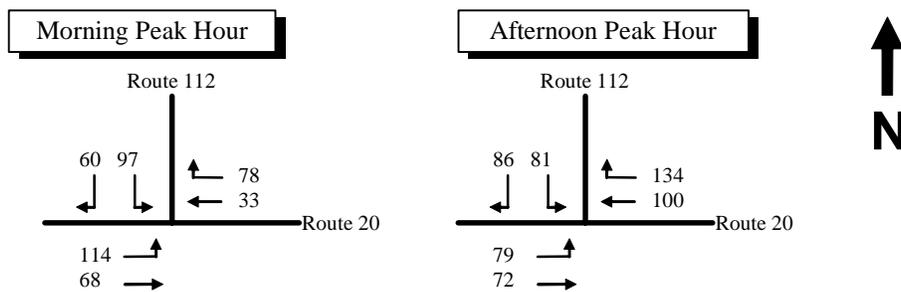


**Figure II-1 – Average Daily Traffic Volumes**



The Massachusetts Highway Department (MassHighway) develops traffic volume adjustment factors to reflect monthly variations, as traffic volumes tend to fluctuate over the course of the year. These factors were examined to determine how traffic conditions during the different months compare to average month conditions. For example, based on the MassHighway data, traffic volumes during the months of May and June were found to be slightly higher than the annual average. Therefore, all traffic count volumes were adjusted to reflect average month conditions. The adjusted weekday morning and afternoon peak hour traffic volumes are shown in Figure II-2.

**Figure II-2 - Morning and Afternoon Peak Hour Traffic Volumes**



Source: PVPC

The efficiency of traffic operations at an unsignalized location is determined by the average total delay which is defined as the total elapsed time from when a vehicle stops at the end of a queue to when the same vehicle departs from the stop line. These conditions are measured using the nationally accepted standard methodology outlined in the 2000 Highway Capacity Manual (HCM). The HCM's measure of efficiency is quantified in terms of "Level Of Service" (LOS). The LOS refers to the quality of traffic flow along roadways and intersections. It is described in terms of "A" through "F", where "A" represents the best possible conditions and "F" represents forced-flow or failing conditions. The basic assumption at an unsignalized intersection is that through moving traffic on the major street is not hindered by other movements. In reality, as minor street delays increase, vehicles are more likely to accept smaller gaps in the traffic stream causing through moving vehicles to reduce speed and suffer some delay. The left turn movement off the minor street approach is the most heavily opposed movement and typically suffers the greatest delay. Therefore this movement is used as a gauge to determine the overall operations at an unsignalized intersection. Table II-5 lists the level of service criteria for unsignalized intersections. The calculated level of service for the intersection of Route 20 with Route 112 is shown in Table II-6.

**Table II-5- Level Of Service (LOS) Designations - Unsignalized Intersections**

| Average Control Delay (s/veh) | LOS | Expected Delay To Minor Street |
|-------------------------------|-----|--------------------------------|
| 0.0 to 10.0                   | A   | Little or no delay             |
| >10.0 to 15.0                 | B   | Short traffic delays           |
| >15.0 to 25.0                 | C   | Average traffic delays         |
| >25.0 to 35.0                 | D   | Long traffic delays            |
| >35.0 to 50.0                 | E   | Very long delays               |
| >50.0                         | F   | Extreme delays                 |

**Table II-6- Level of Service of Unsignalized Intersections**

|                              | AM Peak Hour |         | PM Peak Hour |         |
|------------------------------|--------------|---------|--------------|---------|
|                              | LOS*         | Delay** | LOS*         | Delay** |
| <b>Route 20 at Route 112</b> |              |         |              |         |
| Route 20 EB Left Turns       | A            | 7.8     | A            | 7.9     |
| Route 112 All Movements      | B            | 13.0    | B            | 12.6    |

\* Level of Service

\*\* In Seconds

### C. Crash Experience

Crash history was used to estimate the safety conditions throughout the study area. Crash information was gathered for the entire community based on information provided by the Massachusetts Highway Department. Table II-7 summarizes the number of crashes by location and type for a period of three years (1999- 2001) to identify any common conditions and possible causes.

**Table II-7 - Crash History Summary**

| Year | # of Crashes | Severity        |    | Type         |    |
|------|--------------|-----------------|----|--------------|----|
| 1999 | 29           | Property Damage | 48 | Angle        | 22 |
| 2000 | 31           | Personal Injury | 30 | Rear End     | 9  |
| 2001 | 19           | Fatality        | 1  | Head On      | 5  |
|      |              |                 |    | Pedestrian   | 0  |
|      |              |                 |    | Fixed Object | 29 |
|      |              |                 |    | Other        | 14 |

A total of 79 crashes were reported over the 3 year period in the Town of Huntington. Nearly 38% of all crashes resulted in a personal injury and almost 37% involved a vehicle striking a fixed object such as a pole or tree. Crash data from the Massachusetts Highway Department could be lower than actual conditions as many minor crashes are often not reported and as a result are not logged into the MassHighway crash database.

Nearly one third of all crashes occurred along the Route 112 corridor as opposed to only 10 percent along the Route 20 corridor. There was one fatal crash over the three year period which occurred at the intersection of Route 112 with Route 66.

#### **D. Pedestrian Amenities**

The PVPC staff conducted an inventory of pedestrian facilities along the Route 20 and Route 112 corridors. The inventory identified sidewalks, crosswalks, and pedestrian signals. Sidewalks are provided along both sides of Route 20 in the vicinity of its intersection with Route 112. The sidewalks run to approximately its intersection with Upper Russell Road on the northern side of the roadway and for approximately another 0.5 miles on the southern side of the roadway. Sidewalks are provided along both sides of Route 112 from its intersection with Route 20 to its intersection with Mill Street at which point the sidewalk ends on the eastern side of the road. The sidewalk on the western side continues to the north directly into the Gateway Regional Middle School and High School. Sidewalks are also provided on two small bridges on Route 112 in the vicinity of Knightville Road.

Crosswalks are provided across Route 20 in the vicinity of its intersection with Main Street and across Route 112 in the vicinity of the Murrayfield School. All crosswalks are identified by a pedestrian crossing sign. Many vehicles were observed to park along Route 20 in close proximity to the existing crosswalks thus reducing the visibility of pedestrians attempting to cross in this area. It is recommended that the Town of Huntington consider petitioning the MassHighway District 1 office to permit on-street parking in this area as the roadway has nine foot shoulders and can easily accommodate parking. Marked on-street parking spaces would assist in creating buffer zones by the existing crosswalks to increase the visibility of pedestrians attempting to cross the roadway. Crosswalks could also be further highlighted by requesting an alternative design such as the use of paint or other materials compliant with the requirements of the Americans with Disabilities Act (ADA) to highlight the crossing area and the need for vehicles to yield the right of way to pedestrians.

In the vicinity of the Murrayfield School, the existing crosswalks would benefit from the use of an alternative design to improve visibility. Advance warning signs should be considered for the crosswalks in addition to the pedestrian crossing signs posted at the crosswalks.

#### **E. Transit**

Door-to-door accessible van service (paratransit) for elderly and disabled residents is provided in the Town of Huntington by the Franklin Regional Transit Authority (FRTA). There is not currently any fixed route transit service provided in the Town of Huntington.

Requests for new transit service are handled by the regional transit authority (RTA) of which the community is a member (FRTA in the case of Huntington). The RTA will assess the potential for ridership along the proposed new route and may conduct a feasibility study to determine the cost to provide service and estimate potential route alternatives and their effect on ridership. The community is typically expected to bear 25% of the costs to provide the transit service on an annual basis. Due to current funding constraints, most RTAs are not expanding their existing transit services unless the cost to provide service can be funded 100% by the member community or an alternative source of funds.

## F. Sign Inventory

A comprehensive sign inventory was conducted by PVPC staff along the Route 20 and Route 112 corridors. A global positioning system (GPS) unit was used to capture the coordinate information to assist in mapping the location of all regulatory, warning and guide signs along both roadways. Information was also collected on the type of sign, the current condition of the sign, the type of sign post, and the ability to view the sign due to existing vegetation or poor positioning. No private signs were included as part of the sign inventory.

The location and type of signs included in the inventory are shown in Figure II-3. A complete database of all information collected as part of the sign inventory will be given to the Town of Huntington and MassHighway District 1 Office at the conclusion of the transportation study. This inventory will be useful in identifying the need for future warning and regulatory signage as well as when replacement signs are necessary.

## G. Proposed Transportation Improvement Projects

The Transportation Improvement Program (TIP) database and MassHighway District 1 were consulted to determine the status of any transportation improvement projects planned for the Town of Huntington. Several projects are currently scheduled for construction in the future which are likely to have a positive impact on traffic flow in the study area. A summary of these projects is listed in Table II-8.

**Table II-8 – Proposed Transportation Improvement Projects**

| <b>Community</b>   | <b>Project Name</b> | <b>Project Description</b>                      | <b>Project Status</b>        |
|--------------------|---------------------|---|------------------------------|
| Chester/Huntington | Skyline Trail       | Rehabilitation: Middlefield TL to Cook Hill Rd. | To be advertised in FY 2004  |
| Chester/Huntington | Rte. 20             | Resurface: Baystate Rd. to Russell TL           | Scheduled for FY 2005 in TIP |
| Huntington         | Rte. 112 Bridge     | Replace: Bridge # H-27-006 over Westfield River | In early design (pre 25%)    |

A small portion of the Skyline Trail (Cook Hill Road) is scheduled for complete rehabilitation in Federal Fiscal Year 2004. The resurfacing of the entire Route 20 corridor in the Town of Huntington is currently programmed for Federal Fiscal Year 2005 in the Pioneer Valley TIP. This project consists of resurfacing the roadway and reconstruction of all existing sidewalks.

The Route 112 bridge over the CSX railroad and the Westfield River is in preliminary design stages. As currently proposed, the Old Stage Road bridge in Chester would first be replaced and Old Stage Road would serve as the detour route while the Route 112 bridge is under construction. There is also the possibility to build a pedestrian bridge over the Westfield River in the vicinity of the Town Center as part of this project. A public hearing will be scheduled to solicit public input on this project at the 25% design stage.

**Figure II-3 – Roadway Sign Inventory**



## H. Short Term Recommendations

Based on the results of the existing transportation conditions analysis, a series of short term recommendations were developed to address existing deficiencies. Short term recommendations are meant to be low-cost, "quick-fix" solutions that can be implemented over a 2-3 year timeframe. No recommendations were developed for areas in which transportation improvements are currently planned, as these improvements can be expected to correct the existing deficiencies at these locations. A summary of proposed roadway improvements is shown on Figure II-4.

Both Route 20 and Route 112 fall under the jurisdiction of the Massachusetts Highway Department District 1 Office. The Town of Huntington should consult with MassHighway District 1 prior to the implementation of any improvements along the Route 20 or Route 112 corridor.

- a) Pavement markings were noted to be faded in several areas. Pavement markings serve as a way to provide regulatory and warning information to the driver without diverting his/her attention from the roadway. It is important to maintain pavement markings on a regular basis to ensure that maximum visibility is maintained.
- b) Traffic volumes along key town roadways should be monitored periodically to determine changes in travel patterns as a result of growth along the corridor. PVPC has an annual traffic counting program and performs traffic counts at the request of member communities. Each community is allowed up to 2 free traffic counts per calendar year upon receipt of a written request by the chief locally elected official. Additional traffic counts are billed for at PVPC's actual cost.

The PVPC has committed to performing 3 additional traffic counts for the Town of Huntington in the near future. Daily traffic counts have been requested by the Board of Selectmen for County Road, Pond Brook Road (Route 66), and Bromley Road.

- c) The Town of Huntington should consider the development of a pavement management program to incorporate all of the town-accepted roadways. Currently the PVPC conducts pavement management along all federal-aid eligible roadways. A local pavement management program covering all roadways and sidewalks in the community would allow for the prioritization of new roadway improvement projects and more efficiently utilize the town's transportation improvement funds.
- d) Blandford Hill Road is currently classified as a Rural Major Collector from its intersection with Route 20 to the Blandford Town Line. This roadway does not currently connect with Huntington Road in Blandford and should be reclassified as a local roadway. It is recommended that the Huntington Board of Selectman initiate this process by requesting the change in writing from the Pioneer Valley Planning Commission.
- e) An exclusive left turn lane should be considered for the eastbound approach of Route 20 at its intersection with Route 112. The southbound approach of Route 112 should also be repainted to provide one exclusive left turn lane and one exclusive right turn lane. Traffic from this approach was observed to drive the

roadway in this manner, however the designation of actual turning lanes would assist in improving traffic flow along this approach and to guide left turning traffic from Route 20 around the existing median. Pedestrian crosswalks should also be considered at this intersection to connect the existing sidewalks in the vicinity of the intersection. Sight distance from Route 112 to the east could also be improved by removing the existing vegetation along the guardrail.

- f) Many of the existing traffic signs along the Route 112 corridor were observed to be obscured by vegetation at the time of the field inventory. Vegetation along the entire Route 112 corridor should be maintained on a periodic basis to ensure that good visibility is maintained for all traffic signs.

Maintenance of existing vegetation at local intersections and access driveways is critical to ensure that adequate sight distance is maintained from the minor street approaches. In some instances it may be necessary to approach property owners to request that existing vegetation be trimmed or removed to provide adequate sight distance.

- g) The existing painted island at the intersection of Route 112 with Route 66 should be converted to a raised median. This would ensure that left turning vehicles from Route 112 remain on the proper side of the roadway and assist in reducing the speed at which this maneuver is currently performed. Sight distance is also limited for Route 66 looking to the south. This could be improved by reducing the existing embankment along Route 112. The existing “STOP Ahead” sign on the Route 66 approach to the intersection should be move approximately 100 to 200 feet back to give more advance warning of the approaching intersection.
- h) A “Reduced Speed Ahead” sign (R2-5a) should be considered for the westbound approach of Route 20 prior to the reduction in speed from 45 mph at the Russell Town Line to 30 mph near the intersection of Route 20 with Route 112. The addition of “Reduced Speed Ahead” sign may assist in alerting motorists of the impending change in speed and help increase compliance with the posted speed limit. Advance notice of the change in speed limit should also be considered on Route 112 in the southbound direction prior to its intersection with Montgomery Road.
- i) A “STOP” sign should be placed on Basket Street at its intersection with Route 112.
- j) The existing scenic overlook for the Knightville Dam off of Route 112 is not identified by any guide signs. The Town of Huntington should request MassHighway District 1 to erect guide signs in the vicinity of this area to notify tourists of its location.
- k) Some roadways along the Route 112 corridor currently intersect at severe angles or have sight distance restrictions due to existing land uses and structures. It is the opinion of the PVPC that non-standard intersection alignments and unidentified sight distance restriction could contribute to future safety problems as traffic continues to grow along the Route 112 corridor.

**Figure II-4 – Proposed Roadway Improvements**



This opinion was not supported by some of the residents of Huntington at a public meeting on the transportation component of the community development plan held on October 30, 2003. It is recommended that the Town of Huntington discuss this issue at a future Town Meeting to determine the public sentiment towards future geometric improvements and the installation of warning devices such as flashing warning beacons at problematic locations along the Route 112 corridor. Specific locations of concern to the PVPC include:

- (1) County Road currently intersects with Route 112 at a severe angle and contributes to sight distance restrictions for vehicles attempting to exit onto Route 112. As traffic continues to grow along the Route 112 corridor this could contribute to future safety problems as vehicles attempting to exit County Road were observed to pull partially into the northbound lane of Route 112 in order to view opposing traffic. The Town of Huntington should request that this intersection be considered for redesign as part of any future roadway improvement projects along the Route 112 corridor.
  - (2) There are sight distance issues looking to the north due to an existing house at the intersection of Route 112 with Littleville Road. This location should be considered for the installation of a flashing warning beacon to alert drivers of the intersection.
  - (3) The intersection of Route 112 with Bromley Road should be considered for redesign as part of a future roadway improvement project along the Route 112 corridor. This intersection currently is set up in a “Y” configuration with two way traffic flow permitted on both legs of the Bromley Road approaches to Route 112. Conversion to a standard “T” alignment would assist in increasing sight distance from Bromley Road and increasing safety at this location. This conversion would need to be done in cooperation with the Country Store which could have an access driveway that is impacted by this change.
- l) Advance warning signs (W11-2 with the legend “AHEAD”) should be considered on both approaches of Route 112 prior to the existing crosswalks in the vicinity of the Murrayfield School and Library. The Town of Huntington may also wish to consider requesting an alternative crosswalk treatment in this area such as a painted crosswalk or an alternative design using materials that are ADA compliant from MassHighway District 1 to increase the visibility of the pedestrian crossing areas.
  - m) The Town of Huntington should consider petitioning the MassHighway Department to allow on-street parking along Route 20 in the vicinity of the Town Common. The installation of marked parking spaces in this area would assist in providing adequate clearance from the existing crosswalks to increase pedestrian visibility. The Town may also wish to consider requesting an alternative crosswalk treatment in this area such as a painted crosswalk or an alternative design using materials that are ADA compliant to increase the visibility of the pedestrian crossing areas.
  - n) Route 20 should be signed as a “No Parking” zone in the front of the Post Office to discourage vehicles from parking on the existing crosswalk in this area. The designation of some of the parking spaces along Main Street for short-term use

- (i.e. 30 minute parking) could assist in reducing the number of short term parking problems along Route 20. It is recommended that a parking study be conducted along Main Street to confirm that the parking supply would not be adversely effected by this change.
- o) Main Street is designated as a “ONE WAY” roadway inbound beginning at its intersection with Route 20 in the vicinity of Blandford Road and follows a circular alignment behind the Town Hall to re-intersect with Route 20 just west of Route 112. The existing “ONE WAY” and “DO NOT ENTER” signs at the intersections of Main Street with Route 20 are difficult to see from Route 20 and many motorists enter the roadway going the wrong direction, or exit from the entrance. The Town of Huntington should develop a new signing plan for this area to add additional “ONE WAY” signs along Main Street to clearly define the direction of travel in this area. Additional or larger “DO NOT ENTER” signs should also be considered at the easternmost intersection with Route 20. Residents and business owners in attendance at the public meeting also requested that an additional sign be added to the “ONE WAY” sign that directs traffic to the Town Hall, Stanton Hall, and parking areas.
  - p) The Town of Huntington should consider developing a School Speed Zone on Littleville Road in the vicinity of the Gateway Middle School. It may be possible to relocate the existing sign on Route 112 in the vicinity of the Murrayfield School which has been deactivated.
  - q) Snow removal was cited as a problem by many residents at the public meeting. Piles of snow that accumulates in the vicinity of the intersection of Route 20 with Main Street restrict sight distance in this area and present safety problems due to the existing school bus stop in this area. Snow removal is also a concern on the Route 112 bridge as the sidewalk on the bridge is not plowed by MassHighway District 1 due to environmental concerns. The Town of Huntington should develop a winter maintenance agreement with MassHighway District 1 to determine how pedestrian access across the Route 112 bridge can be maintained during winter months. The Town should also try to remove accumulated snow from the intersection of Route 20 with Main Street to ensure that visibility is maintained in this area.
  - r) The Town of Huntington should consider requesting additional signs from MassHighway District 1 at the following locations:
    - (1) Advance guide signs to the Gateway Regional High School along Route 112.
    - (2) A school bus stop ahead sign on the eastbound approach of Route 20 prior to its intersection with Main Street.
    - (3) Guide signs and “Welcome to Huntington” signs along the Route 20 corridor.
    - (4) Guide signs directing traffic to the Town parking areas.
  - s) The Town of Huntington should address the existing gap between the sidewalks on Littleville Road to maintain connectivity and increase the safety of students walking to the Gateway Regional Schools.

- t) It is recommended that the Town of Huntington meet with the MassHighway District 1 office to discuss their concerns regarding proposed transportation improvement projects such as the resurfacing of Route 20 and the replacement of the Route 112 bridge. Issues such as the existing drainage problem at the intersection of Blandford Hill Road and Route 20 should be discussed to determine if they could be included as part of the improvement project.

### **III. FUTURE BUILD-OUT**

It is important to consider the impact of zoning regulations and future growth in employment, population and residential development on the existing transportation system. Zoning regulations may permit large developments with high trip generation rates in primarily residential areas. Site specific developments can be expected to impact the existing flow of traffic and add to delay throughout the study area. Growth in surrounding communities can also result in an increase in commuter traffic through the Town of Huntington. Many potential future deficiencies and problem areas can be eliminated by identifying the problem before it happens.

#### **A. Future Forecasts**

The Bureau of Transportation Planning and Development (MassHighway Planning) developed the future forecasts of population, households and employment for the state of Massachusetts and each regional planning agency. Their procedures and preliminary estimates were reviewed by the Pioneer Valley Planning Commission and modifications were made based on our comments. A complete summary of the forecasts for population, households, and employment data for the Town of Huntington is shown in Table III-1.

**Table III-1 – Population, Household and Employment Forecast Data**

|            | <b>1990</b> | <b>2000</b> | <b>2005</b> | <b>2010</b> | <b>2015</b> | <b>2020</b> | <b>2025</b> |
|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Population | 1,987       | 2,192       | 2,244       | 2,293       | 2,341       | 2,391       | 2,440       |
| Households | 703         | 813         | 829         | 835         | 841         | 846         | 851         |
| Employment | 352         | 442         | 451         | 461         | 459         | 457         | 453         |

MassHighway Planning utilized several sources, such as the Massachusetts Institute for Social and Economic Research (MISER), Woods & Poole Economics (WPE), and the U.S. Census to forecast population for the state. To determine the number of households at the state and regional level, population in households is divided by average household size. This data was estimated for the Town of Huntington based on past trends.

Both population and households are projected to steadily increase in the Town of Huntington from 2000 to 2025. The total population increases by 11% from 2000 to 2025 and the total number of households increases by 5% over the same time period. The average occupancy per household is expected to increase slightly from 2.70 residents in 2000 to 2.87 residents in 2025.

Total employment is defined as the number of employed residents plus non-residents who commute into the community to work minus residents who commute out of the community to work. Employed residents are forecast by multiplying persons 16 years and over by the labor force participation rate. Employment was allocated at the community level by regressing past decades with a non-linear growth function, then the proportion of jobs to population is examined as a check for reasonableness.

Employment has been forecast to increase in the Town of Huntington from 2000 to 2010 and then begin to decline slightly from 2010 to 2025. The projected increase is due in part to past trends reflected in the 1990 and 2000 Census data, however the anticipated decreases are a result of the retirement of the baby-boomer generation from the work force.

*1. Maximum Build-out*

In 1999, The Executive Office of Environmental Affairs (EOEA) commissioned a build-out analysis for every community in Massachusetts. The build-out analysis provided a preview of the type and location of the maximum future development that could be expected under current zoning. While it is unlikely that maximum build-out will ever be attained, this information is useful to analyze the impact of developing every piece of available land under current regulations on population, demands on public services, and consumption of resources. The estimated impact of a complete build-out of the Town of Huntington on population, households and employment is shown in Table III-2.

**Table III-2 – Projected Maximum Build-out Levels**

|            | <b>2025</b> | <b>Maximum Build-out</b> | <b>Net Increase</b> |
|------------|-------------|--------------------------|---------------------|
| Population | 2,440       | 10,794                   | 8,354               |
| Households | 851         | 3,761                    | 2,910               |
| Employment | 453         | 7,726                    | 7,273               |

As can be seen from Table III-2 the complete build-out of every piece of currently undeveloped or underutilized land has a huge impact on population, household and employment data. It should be noted that this Maximum Build-Out scenario assumes complete development of all available land regardless of existing constraints. This exercise is important to show the need for controls on development and to protect open space and conservation land. The effect of this increase on traffic will be documented in a later section of this report.

**B. Travel Demand Model**

Travel demand models are developed to simulate actual travel patterns and existing transportation conditions. Traffic is generated using socioeconomic data such as household size, automobile availability and employment data. Once the existing conditions are evaluated and adjusted to satisfactorily replicate actual travel patterns and vehicle roadway volumes, the model is then altered to project future year conditions. The

preparation of a future year socioeconomic database is the last step in the travel demand forecast process. Forecasts of population and socioeconomic data are used to determine the number of trips that will be made in the future.

Travel demand forecasting is a major step in the transportation planning process. By simulating the current roadway conditions and the travel demand on those roadways, deficiencies in the system are identified. This is an important tool in planning future network enhancements and analyzing currently proposed projects. The Pioneer Valley Planning Commission (PVPC) uses the TransCAD software to perform transportation forecasts for its base year of 2000 and analysis years of 2010, 2020, and 2025. All 43 communities within the boundaries of Hampden and Hampshire Counties are included in the PVPC regional transportation model. Roadway networks are constructed using current information for the higher classified roads. Most local streets are not included in the travel demand model and are represented by centroid connectors that link the major routes to areas of traffic activity.

**C. Future Volumes**

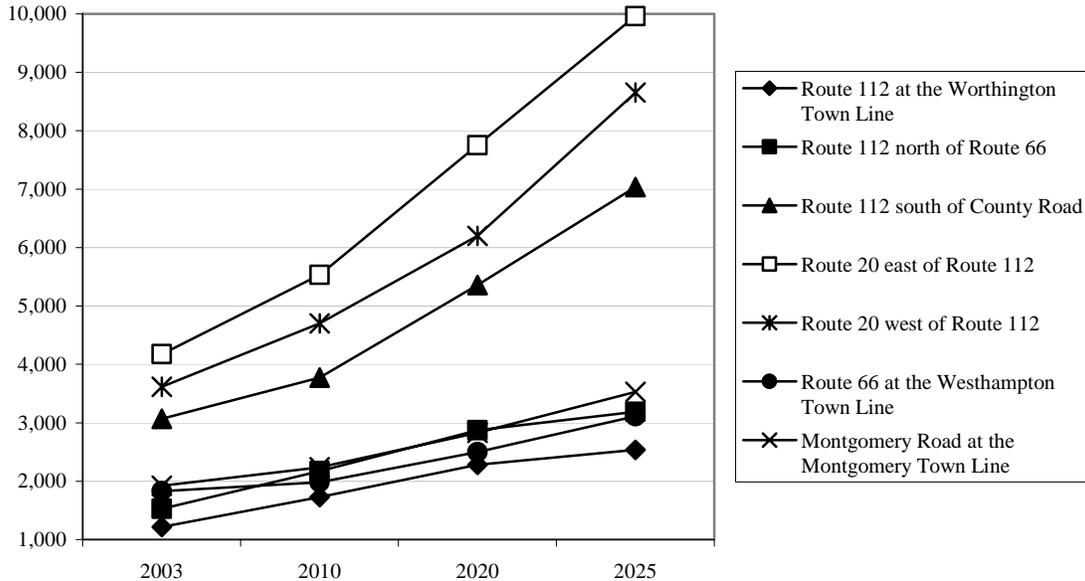
Estimates of average weekday traffic volumes were obtained from the PVPC regional transportation model for each of the analysis years and are presented in Table III- 3.

**Table III-3- Future Traffic Volume Forecast**

| <b>Location</b>                             | <b>2003</b> | <b>2010</b> | <b>2020</b> | <b>2025</b> |
|---|-------------|-------------|-------------|-------------|
| Route 112 at the Worthington Town Line      | 1,215       | 1,727       | 2,283       | 2,534       |
| Route 112 north of Route 66                 | 1,529       | 2,173       | 2,873       | 3,189       |
| Route 112 south of County Road              | 3,070       | 3,775       | 5,357       | 7,036       |
| Route 20 east of Route 112                  | 4,176       | 5,533       | 7,753       | 9,961       |
| Route 20 west of Route 112                  | 3,615       | 4,703       | 6,202       | 8,656       |
| Route 66 at the Westhampton Town Line       | 1,832       | 1,984       | 2,496       | 3,112       |
| Montgomery Road at the Montgomery Town Line | 1,923       | 2,237       | 2,832       | 3,532       |

As can be seen from the Table, traffic volumes are expected to continue to steadily increase as based upon the forecasted increases in population for the Town of Huntington. Future traffic volume information is shown graphically by geographic area in Figure III-1.

**Figure III-1 – Future Traffic Volumes Increases**



Traffic volumes along Route 20 east of Route 112 are projected to approach 10,000 vehicles per day in the 2025 analysis year. This is an increase of 139% over current levels. As traffic volumes and congestion continue to increase, vehicles will seek alternate routes in order to try and reduce travel times. As the hilltowns continue to grow in the future the Route 20 corridor can be expected to begin to bear the brunt of future traffic increase and begin to operate as more of a principal arterials roadway connecting the rural communities to the more urbanized areas.

*1. Regionally Significant Projects*

Major roadway improvement projects such as the widening of an arterial roadway from two lanes to four lanes of travel can have a significant impact on future traffic volumes in the region. Improvements identified in the Short and Long Range Elements of the current Regional Transportation Plan for the Pioneer Valley Metropolitan Planning Organization (RTP) were incorporated into PVPC’s regional transportation model. The roadway projects for each analysis year are listed in Table III-4.

No site specific major transportation improvement projects in the Town of Huntington are currently identified in the RTP. However, major roadway improvement projects in surrounding communities such as the rehabilitation and widening of the Great River Bridge in Westfield will have regional impacts that will influence current travel patterns for commuter traffic in the Town of Huntington.

**Table III-4 - Projects Included in the Regional Transportation Model**

| Analysis Year | Community                       | Project Description   |
|---------------|---------------------------------|---|
| 2003          | Hadley, Northampton             | Calvin Coolidge Bridge widening from 3 lanes to 4 lanes   |
| 2003          | Hadley                          | Route 9 widening to four lanes - from Calvin Coolidge Bridge to West Street   |
| 2003          | Springfield                     | Reversal of 4 existing I-91 ramps   |
| 2003          | Chicopee                        | Memorial Drive signal coordination  |
| 2003          | Hadley                          | Route 9 signal coordination   |
| 2003          | Westfield                       | Route 20 signal coordination  |
| 2003          | Springfield                     | Reconstruction, widening, and signal coordination on Parker Street  |
| 2003          | Holyoke, W. Springfield         | Route 5 signal coordination. Construct a new collector road to showcase cinema.   |
| 2010          | Chicopee                        | Deady Memorial Bridge – widen to 5 lanes.   |
| 2010          | Chicopee                        | Traffic coordination and improvements along Broadway  |
| 2010          | Holyoke                         | Improvements to Commercial Street corridor  |
| 2010          | Westfield                       | Route 10/202 Great River Bridge - two bridges acting as one-way pairs.  |
| 2010          | Springfield                     | New slip ramp from I-291 to East Columbus Avenue  |
| 2010          | Northampton                     | Road widening on Damon Road from Rte 9 to King St.  |
| 2010          | Chester                         | Maple Street bridge restoration as a one-way bridge.  |
| 2010          | E. Longmeadow                   | Improvements to the East Longmeadow Rotary.   |
| 2020          | Agawam                          | Route 57 Phase II new limited access highway from Route 187 to Southwick Line.  |
| 2020          | Holyoke                         | Elmwood Bypass - new roadway from I-391 to Lower Westfield Road, Holyoke  |
| 2020          | Agawam, Longmeadow, Springfield | Improve the South End Bridge, construct a direct ramp from the South End Bridge to Route 57, fix existing lane reduction problem on I-91 between Exits 1-3. |
| 2025          | Northampton                     | Connector roadway between Route 10 and Route 66 from Old South Street.  |
| 2025          | Ludlow, Springfield             | Route 21 bridge reconstruction (possible to be widened as well)   |

2. *Maximum Build-out*

The results of the maximum build out scenario were input into the regional transportation model to determine the effect on future traffic. This information is summarized in Table III-5.

**Table III-5 - Transportation Impacts of Maximum Build-Out**

| Location                                    | 2025  | Max    |
|---|-------|--------|
| Route 112 at the Worthington Town Line      | 2,534 | 10,824 |
| Route 112 north of Route 66                 | 3,189 | 12,265 |
| Route 112 south of County Road              | 7,036 | 21,136 |
| Route 20 east of Route 112                  | 9,961 | 34,006 |
| Route 20 west of Route 112                  | 8,656 | 32,137 |
| Route 66 at the Westhampton Town Line       | 3,112 | 12,516 |
| Montgomery Road at the Montgomery Town Line | 3,532 | 8,806  |

As expected, traffic volumes increased significantly on all roadways under the maximum build-out scenario. Again it is extremely unlikely that the maximum build-out scenario could ever be realized or that these traffic volumes could be supported by the existing roadway infrastructure. However, it is important to see where the largest increases in traffic occur in the town. Some of the largest increases occurred along the Route 20 corridor and along the southern section of Route 112. This is largely a function of where the undeveloped land exists in the Town of Huntington, but also reflects the importance of Route 20 as a regional east-west highway link.

The maximum build-out scenario demonstrates the importance of community planning and other controls on how a community develops in the future. The volume of traffic generated by a land use is directly related to the type and size of the development. The maximum build out scenario presents the worst-case scenario of how uncontrolled future development can dramatically increase existing traffic volumes and why it is important to plan for future growth to balance its anticipated impact on the local economy, community resources, and the existing transportation system.

# **APPENDIX**

**To the Transportation Element of the  
Huntington Community Development Plan**

# Traffic Count Data





## Route 20 and Route 112 Sign Inventory

| POINT_ID | LATITUDE     | LONGITUDE     | Route Location            | Sign Legend                  | Post Type   | Sign Condition | Field Notes  | MUTCD_CODE       |
|----------|--------------|---------------|---------------------------|------------------------------|-------------|----------------|--|------------------|
| 91       | 42.224202971 | -72.870027234 | route 20 wb               | rec rest area                | breakaway   | good           | slightly bent/warped                                 | D5-2/D5-5a       |
| 92       | 42.224689907 | -72.870516943 | route 20 wb               | rec rest area                | square      | good           |  | D5-2/D5-5a       |
| 93       | 42.225230174 | -72.871027578 | route 20 wb               | 45 mph                       | breakaway   | excellent      |  | R2-1             |
| 94       | 42.225557691 | -72.871306988 | route 20 wb               | no passing zone              | breakaway   | excellent      |  | W14-3            |
| 95       | 42.227213285 | -72.872688382 | route 20 wb               | do not pass                  | breakaway   | excellent      |  | R4-1             |
| 96       | 42.227998786 | -72.873174104 | route 20 wb               | turn ahead indicated         | square      | excellent      | left curve turn ahead                                | W1-2             |
| 97       | 42.228610983 | -72.873610848 | route 20 wb               | school bus turn ahead        | breakaway   | fair           | school bus stop ahead, starting to fade              | S3-1             |
| 98       | 42.230598963 | -72.876344982 | route 20 wb               | right curve ahead            | square      | good           | not standing up straight, starting to fade           | W1-2             |
| 99       | 42.231204148 | -72.877482949 | route 20 wb               | 30 mph                       | breakaway   | good           | tilted to the right                                  | W13-1            |
| 100      | 42.232176230 | -72.878590075 | route 20 wb               | route 112 right / state park | round       | good           | state park take right, starting to fade              | M1-4/W1-6/D      |
| 101      | 42.232458472 | -72.878859990 | route 20 wb               | jct 112 right                | breakaway   | good           | tilted to the right                                  | R2-1             |
| 102      | 42.232645570 | -72.879049064 | route 20 wb - near center | "T" intersection ahead       | square      | good           | tilted to the right and forward                      | W2-2             |
| 103      | 42.233600289 | -72.879651314 | route 20 wb - near center | rte 112 n right huntington   | round       | good           |  | M1-4/M3-1/W1-6/M |
| 104      | 42.233971632 | -72.879916697 | route 20 wb - center      | rte 20 w / 30 mph            | both square | excellent      |  | M1-4/M3-4/R2-1   |
| 105      | 42.234606575 | -72.880191225 | route 20 wb - center      | ped crosswalk                | breakaway   | good           | tilted to right/forward little, partially obstructed | W11A-2           |
| 106      | 42.235225026 | -72.880732889 | route 20 wb - past center | children                     | square      | good           |  |                  |
| 107      | 42.235969658 | -72.882216717 | route 20 wb - past center | rte 20 bear left             | breakaway   | good           | arrow beginning to fade                              | M1-4/M6-2        |
| 108      | 42.236091988 | -72.883433304 | route 20 wb - past center | 50 mph                       | square      | good           | somewhat low   | R2-1             |
| 109      | 42.235959170 | -72.888514167 | route 20 wb - past center | 50 mph                       | breakaway   | good           | somewhat low, tilted forward                         | R2-1             |
| 110      | 42.235410566 | -72.891608812 | route 20 wb - past center | right curve                  | square      | good           | tilted to right, post rusted                         | W1-2             |
| 111      | 42.235537131 | -72.896464242 | route 20 wb - past center | no passing zone              | breakaway   | good           | twisted not directly facing traffic                  | W14-3            |
| 112      | 42.235691748 | -72.896967107 | route 20 wb - past center | 50 mph                       | square      | excellent      | somewhat low   | R2-1             |
| 113      | 42.236157713 | -72.898168120 | route 20 wb - past center | do not pass                  | breakaway   | excellent      |  | R4-1             |
| 114      | 42.236758179 | -72.899666080 | route 20 wb - past center | left curve ahead             | square      | good           | post rusted, somewhat low                            | W1-2             |
| 115      | 42.238238083 | -72.904854023 | route 20 wb - past center | no passing zone              | breakaway   | good           |  | W14-3            |
| 116      | 42.238858330 | -72.907538848 | route 20 wb - past center | do not pass                  | breakaway   | excellent      |  | R4-1             |
| 117      | 42.238953768 | -72.907950357 | route 20 wb - past center | right curve ahead            | breakaway   | good/excellent | low, some dents                                      | W1-2             |
| 118      | 42.239433698 | -72.910057995 | route 20 wb - past center | 50 mph                       | breakaway   | good           | slightly bent/warped                                 | R2-1             |

|     |              |               |                            |                            |                     |                |  |                |
|-----|--------------|---------------|----------------------------|----------------------------|---------------------|----------------|--|----------------|
| 119 | 42.239402693 | -72.910315061 | route 20 eb                | 50 mph                     | breakaway           | excellent      |  | R2-1           |
| 120 | 42.238172919 | -72.904847095 | route 20 eb                | do not pass                | breakaway           | good           |  | R4-1           |
| 121 | 42.238026492 | -72.904292023 | route 20 eb                | right curve ahead          | breakaway           | good           | tilted back and right                        | W1-2           |
| 122 | 42.236094805 | -72.898355043 | route 20 eb                | no passing zone            | breakaway           | excellent      |  | W14-3          |
| 123 | 42.235606469 | -72.897057122 | route 20 eb                | 50 mph                     | breakaway           | fair           | some cracking, somewhat low                  | R2-1           |
| 124 | 42.235443163 | -72.896437702 | route 20 eb                | do not pass                | breakaway           | good           | somewhat low                                 | R4-1           |
| 125 | 42.235213134 | -72.895263145 | route 20 eb                | left curve ahead           | breakaway           | good           |  | W1-2           |
| 126 | 42.235787705 | -72.888997602 | route 20 eb                | 40 mph                     | breakaway           | good           |  | R2-1           |
| 127 | 42.236094240 | -72.886483680 | route 20 eb                | 30 mph ahead               | square              | good           |  | R2-5a          |
| 128 | 42.236106508 | -72.884591711 | route 20 eb                | 30 mph                     | square              | good           |  | R2-1           |
| 129 | 42.236030115 | -72.883268196 | route 20 eb near center    | children                   | square              | good           |  |                |
| 130 | 42.235961441 | -72.882694106 | route 20 eb near center    | fire station ahead         | breakaway           | fair/good      |  |                |
| 131 | 42.235542434 | -72.881352864 | route 20 eb near center    | intersection ahead         | breakaway           | excellent      | intersection is at a right curve in the road | W1-10          |
| 132 | 42.234835952 | -72.880468097 | route 20 eb near center    | ped crossing               | square              | poor           | part of sign cut, bent, damaged, missing     | W11-A2         |
| 133 | 42.234214297 | -72.880150315 | route 20 eb town center    | "T" intersection           | breakaway           | good           |  | W2-2           |
| 134 | 42.234209692 | -72.880157481 | route 20 eb town center    | jct 112 left               | breakaway           | good           | arrow is fair/fading                         | M2-1/M1-4/M5-1 |
| 135 | 42.233590883 | -72.879826914 | route 20 eb town center    | 20 e left / 20 w right     | round               | good           | facing cars coming from route 112            | M6-4/M2-2      |
| 136 | 42.233052971 | -72.879518337 | route 20 eb town center    | 30 mph                     | breakaway           | good           | somewhat short                               | R2-1           |
| 137 | 42.232948925 | -72.879436304 | route 20 eb town center    | rte 20 east                | breakaway           | good           | word East sign little faded                  | M1-4/M3-2      |
| 138 | 42.232389466 | -72.878893154 | route 20 eb past center    | left curve ahead           | breakaway           | good           | far back and little obstructed by vegetation | W1-2           |
| 139 | 42.231150200 | -72.877565607 | route 20 eb past center    | 45 mph                     | breakaway           | good           | low and tilted back                          | R2-1           |
| 140 | 42.230665849 | -72.876676827 | route 20 eb past center    | school bus stop ahead      | breakaway           | fair/poor      | scuffed, some dents                          | S3-1           |
| 141 | 42.229816497 | -72.875228778 | route 20 eb before aldrich | right curve ahead          | square              | excellent      |  | W1-2           |
| 142 | 42.227587832 | -72.873052734 | route 20 eb                | rest area ahead            | breakaway           | good           | ahead 500 feet                               |                |
| 143 | 42.227179595 | -72.872787976 | route 20 eb                | no passing zone            | breakaway           | good           |  | W14-3          |
| 144 | 42.226440345 | -72.872239543 | route 20 eb                | rest area ahead left       | breakaway           | fair           | low, tilted forward                          | D5-2           |
| 145 | 42.225504615 | -72.871402056 | route 20 eb                | do not pass                | breakaway           | good           |  | R4-1           |
| 146 | 42.225195271 | -72.871127418 | route 20 eb                | 40 mph                     | breakaway           | good           |  | R2-1           |
| 147 | 42.224515281 | -72.870520727 | route 20 eb                | curves ahead               | breakaway           | excellent      |  | W1-5           |
| 148 | 42.224012742 | -72.869974381 | route 20 eb                | falling rock               | breakaway           | excellent      | somewhat low                                 | R-07           |
| 150 | 42.225571164 | -72.871193579 |                            |                            |                     |                |  |                |
| 151 | 42.233697416 | -72.879305683 | Route 112 NB               | trucks entering right / 25 | square, 2 breakaway | good/excellent |  | R2-1           |

|     |              |               |                            |                              |             |                      |   |                |
|-----|--------------|---------------|----------------------------|------------------------------|-------------|----------------------|---|----------------|
| 152 | 42.234851138 | -72.877462568 | rte 112 nb past bridge     | ped crossing                 | breakaway   | good/excellent       |   | W11-A2         |
| 153 | 42.235024264 | -72.876956210 | rte 112 nb past bridge     | school crossing / no parking | 2 breakaway | good/excellent,<br>g | no parking - facing 45 degrees angle to the road        | S2-1/R7-1      |
| 154 | 42.235055547 | -72.876556893 | rte 112 nb past bridge     | no parking                   | breakaway   | good                 | no parking anytime                                      | R8-3           |
| 155 | 42.235069031 | -72.876287911 | rte 112 nb past bridge     | school speed limit           | round       | poor                 | w/ flashing lights, rusted, paint missing, chipped      | S5-1           |
| 156 | 42.235071460 | -72.876069510 | rte 112 nb past bridge     | school ped crossing          | breakaway   | good                 | somewhat obstructed by vegetation                       | S2-1/R7-1      |
| 157 | 42.235087629 | -72.875570444 | rte 112 nb past bridge     | 25 mph                       | breakaway   | good                 | low due to vegetation, post rusted                      | R2-1           |
| 158 | 42.235149067 | -72.874270276 | rte 112 nb past school     | left curve ahead             | square      | good                 |   | W1-2           |
| 159 | 42.236718811 | -72.872124309 | rte 112 nb past school     | 35 mph                       | breakaway   | good                 | somewhat low  | R2-1           |
| 160 | 42.237384028 | -72.872015430 | rte 112 nb past school     | curve ahead                  | breakaway   | good                 | tilted to the right                                     | W1-3           |
| 161 | 42.240851285 | -72.871929471 | rte 112 nb past school     | do not pass /no passing zone | square      | good                 | small dent left side                                    | R4-1/W14-3     |
| 162 | 42.241221948 | -72.871899936 | rte 112 nb past school     | right curve ahead            | square      | fair                 | post rusted, stains on sign (possibly egging)           | W1-2           |
| 163 | 42.245870554 | -72.869318825 | rte 112 nb past school     | no passing zone              | breakaway   | good                 |   | W14-3          |
| 164 | 42.246626910 | -72.869128525 | rte 112 nb past school     | do not pass                  | breakaway   | good                 |   | R4-1           |
| 165 | 42.246712400 | -72.869111291 | rte 112 nb past school     | intersection ahead           | breakaway   | good                 | intersection at curve in road, sign tilted to the right | W1-10          |
| 166 | 42.246800950 | -72.869085525 | rte 112 nb past school     | 25 mph                       | square      | good                 | post rusted, tilted to left little                      | R2-1           |
| 167 | 42.247359972 | -72.868966256 | rte 112 nb past school     | 112 N left curve head        | breakaway   | good/fair            | low, arrow paint fading                                 | M1-4/M3-1/W1-2 |
| 168 | 42.247854247 | -72.868839777 | rte 112 nb past school     | school bus entering          | 2 breakaway | good                 |   | S3-1           |
| 169 | 42.249135188 | -72.867451199 | rte 112 nb past school     | curve at intersection ahead  | breakaway   | good                 |   | W1-10          |
| 170 | 42.249797215 | -72.866982304 | rte 112 nb past school     | rte 112 right curve          | breakaway   | good                 | facing other direction                                  | M1-4/W1-2      |
| 171 | 42.249831391 | -72.866845686 | rte 112 nb past school     | rte 112 left curve           | breakaway   | good                 |   | M1-4/W1-2      |
| 172 | 42.250392151 | -72.867100647 | rte 112 nb past school     | 35 mph                       | breakaway   | good                 |   | R2-1           |
| 173 | 42.250744733 | -72.867174258 | rte 112 nb past montgomery | rte 112 N                    | breakaway   | good                 | somewhat obstructed by vegetation                       | M1-4/M3-1      |
| 174 | 42.251338920 | -72.867249965 | rte 112 nb past montgomery | trucks entering right        | square      | good/fair            | some scratches, marks                                   | M4-4           |
| 175 | 42.251455496 | -72.867206462 | rte 112 nb past montgomery | no passing zone              | breakaway   | good                 |   | W14-3          |
| 176 | 42.253571812 | -72.867022640 | rte 112 nb past montgomery | do not pass                  | breakaway   | fair                 | stains on sign (egging?)                                | R4-1           |
| 177 | 42.254672854 | -72.866639062 | rte 112 nb past montgomery | curves ahead                 | breakaway   | excellent            |   | W1-5           |
| 178 | 42.257090837 | -72.865424924 | rte 112 nb past montgomery | "T" intersection ahead       | breakaway   | fair                 | egg? Stains   | W2-2           |
| 179 | 42.261816797 | -72.864125821 | rte 112 nb past montgomery | curves ahead                 | breakaway   | excellent            |   | W1-5           |
| 180 | 42.262040840 | -72.864243561 | rte 112 nb past            | no passing zone              | breakaway   | good                 |   | W14-3          |

|     |              |               |                            |                               |             |           |  |                          |
|-----|--------------|---------------|----------------------------|-------------------------------|-------------|-----------|--|--------------------------|
|     |              |               | montgomery                 |                               |             |           |  |                          |
| 181 | 42.266702491 | -72.866576991 | rte 112 nb past montgomery | 35 mph                        | breakaway   | good      | somewhat tilted to right                               | R2-1                     |
| 182 | 42.266901663 | -72.866634077 | rte 112 nb past montgomery | school bus stop ahead         | square      | good      |  | S3-1                     |
|     |              |               | rte 112 nb past montgomery | left curve ahead              | square      | good      | *missing on GPS*                                       | W1-2                     |
| 184 | 42.269043688 | -72.865507889 | rte 112 nb past montgomery | state park on left            | 2 breakaway | good      |  |                          |
| 185 | 42.270415118 | -72.864988307 | rte 112 nb past montgomery | state park left / no parking  | breakaway   | good      |  | R8-3                     |
| 186 | 42.271051464 | -72.864623279 | rte 112 nb past montgomery | no parking                    | breakaway   | good      |  | R8-3                     |
| 187 | 42.271720538 | -72.864129871 | rte 112 nb past montgomery | no parking                    | breakaway   | good      |  | R8-3                     |
| 188 | 42.272244323 | -72.863553995 | rte 112 nb past montgomery | curves ahead                  | breakaway   | good      |  | W1-5                     |
| 189 | 42.272291315 | -72.863500495 | rte 112 nb past montgomery | no parking                    | breakaway   | good      |  | R8-3                     |
| 190 | 42.272641845 | -72.862595644 | rte 112 nb past montgomery | no parking                    | breakaway   | good      |  | R8-3                     |
| 191 | 42.274888634 | -72.861794834 | rte 112 nb past montgomery | 35 mph                        | square      | good/fair | scratched and slightly bent                            | R2-1                     |
| 192 | 42.275320068 | -72.862297859 | rte 112 nb past montgomery | curve at intersection ahead   | breakaway   | good      |  | W1-10                    |
| 193 | 42.275667136 | -72.862745289 | rte 112 nb past montgomery | jct 66 right turn             | 2 breakaway | good/fair | route 112 N straight, rte 66 right, some paint cracked | M2-2/M3-1,M6-3/M2-1,M6-1 |
| 194 | 42.276850754 | -72.863910090 | route 112 nb, past Rte 66  | rte 112                       | breakaway   | good      |  | M1-4/M3-1                |
| 195 | 42.277095099 | -72.864119897 | route 112 nb, past Rte 66  | 50 mph                        | square      | good      | somewhat low   | R2-1                     |
| 196 | 42.277717171 | -72.864686284 | route 112 nb, past Rte 66  | do not pass                   | square      | good      | do not pass - slightly tilted to right                 | R4-1/W14-3               |
| 197 | 42.278323992 | -72.865239774 | route 112 nb, past Rte 66  | curve ahead                   | breakaway   | good      |  | W1-5                     |
| 198 | 42.278689972 | -72.865565617 | route 112 nb, past Rte 66  | school bus stop ahead         | breakaway   | fair      | paint fading, chipped, dented                          | S3-1                     |
| 199 | 42.280218164 | -72.866227005 | route 112 nb, past Rte 66  | weight limit for trucks       | breakaway   | poor      | very faded, stained, dented                            |                          |
| 200 | 42.280614139 | -72.866294110 | route 112 nb, past Rte 66  | weight limit for trucks       | breakaway   | poor      | very faded, stained, dented                            |                          |
| 201 | 42.282519525 | -72.867640604 | route 112 nb, past Rte 66  | no parking on bridge          | breakaway   | good/fair | low, obstructed by vegetation branches                 | R8-3a                    |
|     |              |               | route 112 nb, past Rte 66  | Do Not pass/no passing zone   | square      | good/fair | *missing on GPS*                                       | R4-1/W14-3               |
| 203 | 42.289276979 | -72.870251536 | route 112 nb, past Rte 66  | left curve ahead              | square      | good      | GPS not at exact location                              | W1-2                     |
| 204 | 42.290821388 | -72.870763794 | route 112 nb, past Rte 66  | school bus stop ahead         | square      | good/fair |  | S3-1                     |
| 205 | 42.291315832 | -72.870780899 | route 112 nb, past Rte 66  | 40mph / curve at intersection | square      | good      | tilted to the back and right                           | R2-1/W1-10               |

|     |              |               |                                |                  |           |                |   |       |
|-----|--------------|---------------|--------------------------------|------------------|-----------|----------------|---|-------|
| 206 | 42.293460149 | -72.870006478 | route 112 nb, past Rte 66      | 50 mph           | square    | good/excellent |   | R2-1  |
| 207 | 42.293944820 | -72.869891375 | route 112 nb, past Rte 66      | curve ahead      | square    | good           | slightly facing to the right            | W1-5  |
| 208 | 42.297845035 | -72.868562621 | route 112 nb, past Rte 66      | right curve      | square    | fair           | paint chipping                          | W1-2  |
| 209 | 42.300526564 | -72.865582310 | route 112 nb, past Rte 66      | left curve       | breakaway | good/excellent |   | W1-2  |
| 210 | 42.302977032 | -72.862943383 | route 112 nb, past Rte 66      | curve ahead      | breakaway | good/excellent |   | W1-5  |
| 211 | 42.305255251 | -72.862417013 | route 112 nb, past Rte 66      | 50 mph           | square    | good           | not noticable until last second         | R2-1  |
| 212 | 42.310182260 | -72.863233397 | route 112 nb, past Rte 66      | no pass zone     | breakaway | excellent      | tilted to right                         | W14-3 |
| 213 | 42.311912574 | -72.863957175 | route 112 nb, past Rte 66      | do not pass      | breakaway | excellent      |   | R4-1  |
| 214 | 42.312932283 | -72.864495292 | route 112 nb, past Rte 66      | left curve       | breakaway | good/excellent | some tape on left lower side            | W1-2  |
| 215 | 42.315691590 | -72.866895258 | route 112 nb, past Rte 66      | right curve      | breakaway | good/excellent | dent/cut lower left side                | W1-2  |
| 216 | 42.319227521 | -72.869054453 | route 112 nb, past Rte 66      | no pass zone     | breakaway | good/excellent |   | W14-3 |
| 217 | 42.321533851 | -72.869993809 | route 112 nb, past Rte 66      | 50 mph           | breakaway | good/excellent |   | R2-1  |
| 218 | 42.321877908 | -72.870122695 | route 112 nb, past Rte 66      | do not pass      | breakaway | good           |   | R4-1  |
| 219 | 42.323784628 | -72.870689306 | route 112 nb, past Rte 66      | curve ahead      | breakaway | fair/good      | scuff mark in center                    | W1-5  |
| 220 | 42.326511693 | -72.872491783 | route 112 nb, past Rte 66      | left curve       | square    | fair/good      | tilted right, dents, post rusted        | W1-2  |
| 221 | 42.328672222 | -72.875110496 | route 112 nb, past Rte 66      | do not pass      | breakaway | good           |   | R4-1  |
| 222 | 42.330144000 | -72.877150833 | route 112 nb, past Rte 66      | 50 mph           | breakaway | good           |   | R2-1  |
| 223 | 42.332849140 | -72.881847448 | route 112 nb, past Rte 66      | no pass zone     | breakaway | good           |   | W14-3 |
| 224 | 42.333962340 | -72.882852187 | route 112 nb, past Rte 66      | do not pass      | breakaway | good           | tilted to the right                     | R4-1  |
| 225 | 42.334497709 | -72.883400520 | route 112 nb, past Rte 66      | right curve      | square    | fair           | scratches, scuffs, post rusted          | W1-2  |
|     |              |               | route 112 nb, past Rte 66      | curves ahead     | breakaway | good/excellent | *missing on GPS*                        | W1-5  |
|     |              |               | route 112 nb, past Rte 66      | left curve ahead | breakaway | fair/good      | *missing on GPS*, also egg stains?      | W1-2  |
| 228 | 42.333876721 | -72.882942766 | route 112 sb, worthington line | no passing zone  | breakaway | fair           | about 9 bullet holes                    | W14-3 |
|     |              |               | route 112 sb, worthington line | do not pass      | square    | good           | *missing on GPS* , tilted back a little | R4-1  |
| 230 | 42.332242739 | -72.881413210 | route 112 sb, worthington line | curves ahead     | breakaway | good/excellent |   | W1-5  |
| 231 | 42.330197301 | -72.877343385 | route 112 sb, worthington line | 50 mph           | breakaway | fair           | bent, scratch upper left corner         | R2-1  |
| 232 | 42.328681800 | -72.875203461 | route 112 sb                   | no pass zone     | breakaway | good/excellent |   | W14-3 |
| 233 | 42.327337294 | -72.873344370 | route 112 sb                   | curves ahead     | breakaway | good/excellent |   | W1-5  |
| 234 | 42.321799750 | -72.870200991 | route 112 sb                   | no pass zone     | breakaway | good/excellent |   | W14-3 |
| 235 | 42.321619868 | -72.870123646 | route 112 sb                   | 50 mph           | breakaway | good           | tilted to the left                      | R2-1  |
| 236 | 42.319076133 | -72.869093244 | route 112 sb                   | do not pass      | breakaway | good           |   | R4-1  |

|     |              |               |                                  |                            |             |                |   |                       |
|-----|--------------|---------------|----------------------------------|----------------------------|-------------|----------------|---|-----------------------|
| 237 | 42.318685514 | -72.868932713 | route 112 sb                     | left curve ahead           | breakaway   | good           |   | W1-2                  |
| 238 | 42.314847465 | -72.865952919 | route 112 sb                     | right curve ahead          | breakaway   | good           |   | W1-2                  |
| 239 | 42.311645743 | -72.864110109 | route 112 sb                     | no pass zone               | breakaway   | good           |   | W14-3                 |
| 240 | 42.310068691 | -72.863298230 | route 112 sb                     | do not pass                | square      | good           |   | R4-1                  |
| 241 | 42.308205434 | -72.862359740 | route 112 sb                     | curves ahead               | square      | good           | vegetation growing up post                              | W1-5                  |
| 242 | 42.305192570 | -72.862458766 | route 112 sb                     | 50 mph                     | square      | good           | not visible until last second                           | R2-1                  |
| 243 | 42.303610608 | -72.863006687 | route 112 sb                     | right curve                | breakaway   | fair           | some dents, scratches                                   | W1-2                  |
| 244 | 42.300216011 | -72.866311606 | route 112 sb                     | left curve ahead           | breakaway   | good/excellent |   | W1-2                  |
| 245 | 42.297501525 | -72.868482875 | rte 112 sb, near Knightville dam | curves ahead               | breakaway   | good/excellent | obstructed slightly by vegetation                       | W1-5                  |
| 246 | 42.293171101 | -72.870183875 | rte 112 sb, near Knightville dam | school bus stop ahead      | square      | fair           | scratches   | S3-1                  |
| 247 | 42.290697124 | -72.870861844 | rte 112 sb, near Knightville dam | right curve                | square      | good/excellent |   | W1-2                  |
| 248 | 42.289014378 | -72.870455945 | rte 112 sb, near Knightville dam | 50 mph                     | square      | fair           | scratches   | R2-1                  |
| 249 | 42.287354951 | -72.870796735 | rte 112 sb, near Knightville dam | do not pass / no pass zone | breakaway   | good           |   | R4-1                  |
| 250 | 42.286677076 | -72.870923543 | rte 112 sb, near Knightville dam | left curve                 | square      | fair           | some scratches  | W1-2                  |
| 251 | 42.283980242 | -72.870322222 | rte 112 sb, near Knightville dam | school bus stop ahead      | breakaway   | fair/poor      | scratches, some bullet holes?                           | S3-1                  |
| 252 | 42.283422398 | -72.869575534 | rte 112 sb, near bridge          | no parking bridge          | square      | good           | tilted to the right                                     | R8-3a                 |
| 253 | 42.282340066 | -72.867489750 | rte 112 sb, near bridge          | curve at intersection      | breakaway   | good           | not visible until last second                           | W1-10                 |
| 254 | 42.281229614 | -72.866544976 | rte 112 sb, near bridge          | truck weight limit         | square      | poor           | post rusted, paint chipped, tilted to the left          |                       |
| 255 | 42.280874147 | -72.866454529 | rte 112 sb, near bridge          | rte 112                    | breakaway   | fair           |   | M1-4, M6-4            |
| 256 | 42.280701374 | -72.866414406 | rte 112 sb, knightville          | truck weight limit         | breakaway   | poor           | paint chipped, tilted back                              |                       |
| 257 | 42.279160995 | -72.866040159 | route 112 sb                     | 35 mph ahead               | breakaway   | good/excellent |   | R2-1                  |
| 258 | 42.277980026 | -72.865068535 | route 112 sb                     | rte 66 left                | 2 breakaway | good           | also route 112 south straight, obstructed by vegetation | M2-2, M3-2 M6-1, M6-3 |
| 259 | 42.277774277 | -72.864884662 | route 112 sb                     | "T" intersection ahead     | breakaway   | good           |   | W2-2                  |
| 260 | 42.277650448 | -72.864770931 | route 112 sb                     | do not pass / no pass zone | breakaway   | good           |   | R4-1/W14-3            |
| 261 | 42.276775319 | -72.863975395 | route 112 sb                     | 35 mph                     | breakaway   | good           | low   | R2-1                  |
| 262 | 42.276418390 | -72.863659710 | route 112 sb @ route 66          | cluster of signs           | round/wood  | fair           | facing coming from route 66                             | M1-4                  |
| 263 | 42.276358083 | -72.863602527 | route 112 sb                     | state park left            | breakaway   | good           | facing coming from route 66                             |                       |
| 264 | 42.276267919 | -72.863514939 | route 112 sb                     | 112 south                  | breakaway   | good           |   | M1-4, M3-3            |
| 265 | 42.276152518 | -72.863424320 | route 112 sb                     | 35 mph                     | breakaway   | good           | low   | R2-1                  |

|     |              |               |                               |                            |             |                |   |            |
|-----|--------------|---------------|-------------------------------|----------------------------|-------------|----------------|---|------------|
| 266 | 42.275273047 | -72.862409786 | route 112 sb                  | curves ahead               | square      | fair           | dents, scratches                                | W1-5       |
| 267 | 42.272130028 | -72.863830219 | route 112 sb                  | state park                 | 2 breakaway | good           |   |            |
| 268 | 42.271898353 | -72.864096762 | route 112 sb                  | no parking                 | breakaway   | good           |   | R8-3       |
| 269 | 42.271448002 | -72.864464130 | route 112 sb                  | no parking                 | breakaway   | good           |   | R8-3       |
| 270 | 42.270253339 | -72.865099539 | route 112 sb                  | no parking                 | breakaway   | good           |   | R8-3       |
| 271 | 42.269787502 | -72.865236408 | route 112 sb                  | right curve                | breakaway   | good           |   | W1-2       |
| 272 | 42.268557978 | -72.866090345 | route 112 sb                  | school bus stop ahead      | square      | good/fair      |   | S3-1       |
| 273 | 42.266948185 | -72.866767540 | route 112 sb                  | no parking                 | breakaway   | good           | small, not visible to average driver            | R8-3       |
| 274 | 42.266737425 | -72.866687326 | route 112 sb                  | 35 mph                     | square      | good           | low   | R2-1       |
| 275 | 42.265991236 | -72.866288730 | route 112 sb                  | no parking                 | breakaway   | good           | low   | R8-3       |
| 276 | 42.262012856 | -72.864311383 | route 112 sb                  | do not pass                | breakaway   | good           |   | R4-1       |
| 277 | 42.261468835 | -72.864061331 | route 112 sb                  | curves ahead               | breakaway   | good           |   | W1-5       |
| 278 | 42.258657674 | -72.864298091 | route 112 sb                  | "T" intersectio ahead      | breakaway   | good           |   | W2-2       |
| 279 | 42.254729226 | -72.866712049 | route 112 sb                  | trucks entering left       | square      | fair/good      | obstructed by vegetation slightly               | M4-4       |
| 280 | 42.253612444 | -72.867107840 | route 112 sb                  | no pass zone               | breakaway   | good           |   | W14-3      |
| 281 | 42.251530455 | -72.867343897 | route 112 sb                  | do not pass                | square      | good           |   | R4-1       |
| 282 | 42.250786349 | -72.867287938 | route 112 sb                  | 25 mph                     | square      | good           | post rusted                                     | R2-1       |
|     |              |               | rte 112 sb, before montgomery | curve at intersection      | square      | good/excellent | post rusted                                     | W1-10      |
| 284 | 42.250332728 | -72.867163226 | rte 112 sb, before montgomery | school bus entering        | 2 breakaway | good/excellent |   | S?         |
| 285 | 42.249986326 | -72.867067976 | route 112 sb                  | rte112 / state park right  | 2 breakaway | good/excellent | facing from Montgomery Road                     | M1-4       |
| 286 | 42.249163791 | -72.867535181 | route 112 sb                  | curve at intersection      | square      | good           | post rusted,dent/chip on sign                   | W1-10      |
| 287 | 42.248126266 | -72.868778612 | route 112 sb                  | 112 bear left              | breakaway   | good/fair      | arrow scratched                                 | M1-4 ,M6-2 |
| 288 | 42.246935228 | -72.869143954 | route 112 sb                  | 35 mph                     | square      | good           | obstructed by vegetation                        | R2-1       |
| 289 | 42.246647548 | -72.869200886 | route 112 sb                  | no pass zone               | breakaway   | good           | bent slightly upper left                        | W14-3      |
| 290 | 42.245900707 | -72.869390647 | route 112 sb                  | do not pass                | breakaway   | good           |   | R4-1       |
| 291 | 42.245359704 | -72.869528352 | route 112 sb                  | right curve                | breakaway   | good           | tilted to the right, vegetation growing up post | W1-2       |
| 292 | 42.243628493 | -72.870656729 | route 112 sb                  | left curve ahead           | square      | fair/poor      | scratched, bent, cut                            | W1-2       |
| 293 | 42.240880646 | -72.871976865 | route 112 sb                  | do not pass / no pass zone | square      | good           |   | R4-1/W14-3 |
|     |              |               | route 112 sb                  | curves ahead               | breakaway   | good/excellent |   | W1-5       |
| 295 | 42.239631013 | -72.872103345 | route 112 sb                  | 112 s                      | breakaway   | good           |   | M1-4, M3-3 |
| 296 | 42.237199761 | -72.872106406 | route 112 sb                  | right curve                | square      | fair           | paint chipped                                   | W1-2       |

|     |              |               |                              |                                  |                     |                 |   |                         |
|-----|--------------|---------------|------------------------------|----------------------------------|---------------------|-----------------|---|-------------------------|
| 297 | 42.237062386 | -72.872097805 | route 112 sb                 | 25 mph                           | square              | fair/good       | tilted to the left, post rusted                         | R2-1                    |
| 298 | 42.235372033 | -72.873597650 | rte 112 sb, near town center | school crossing ahead            | breakaway           | good            |   | S2-1                    |
| 299 | 42.235180951 | -72.875501817 | rte 112 sb, near town center | school speed limit when flashing | round               | poor            | ...when flashing vegetation obstruction, faded, chipped | S5-1                    |
| 300 | 42.235173171 | -72.875965954 | rte 112 sb, near town center | school crossing                  | breakaway           | fair            | bent lower left corner, chipped paint                   | S2-1                    |
| 301 | 42.235162371 | -72.876321482 | rte 112 sb, near town center | 25 mph                           | breakaway           | good            |   | R2-1                    |
| 302 | 42.234978346 | -72.877484368 | route 112 sb @ bridge        | 3 signs at bridge                | 3 breakaways        | good/fair (112) |   | W11A-2, M4-4, M1-4 M6-2 |
| 303 | 42.234603357 | -72.878047980 | route 112 sb @ bridge        | 20 jct                           | on round light pole | good/fair       | chipped paint   | M2-2, M6-4              |