



TRANSPORTATION ELEMENT TECHNICAL PAPER

This chapter includes a brief review of the existing transportation network in the Town of Blandford. Major routes were identified in order to identify travel patterns throughout the Town. All sidewalks in Town were inventoried to identify gaps in the existing pedestrian system. This chapter also provides an outlook of the existing safety concerns and takes into consideration public input provided during the master plan survey process, Visioning Session and Focus Groups to shape goals and strategies that improve future transportation conditions in the Town of Blandford.

OVERVIEW

Blandford's transportation system is consistent with that of other rural communities in Western Massachusetts in that Blandford residents rely on automobiles for almost all activities. Blandford's rolling terrain and elevation (approximately 1,450 feet) creates an opportunity for the user to experience scenic beauty while traversing the transportation system. These same features can also create difficulties for those trying to navigate the transportation system using other modes of transportation such as bicycles. The few non-automobile related amenities in Blandford are found in the town center due to its higher density of development.

The Town by itself does not have any major trip generators but traffic volumes are comparatively higher on some major roads because of commuter traffic patterns which use the local roadway network to access Route 23, North Street and Russell Stage Road. Most local trips are destined for the Town Center at the convergence Otis Stage Road, North Road, Russell Stage Road and Woronoco Road. Destinations in this area include the Post Office, Town Offices, Porter Memorial Library, and Blandford Country Store. This section of Blandford has the highest density of residential dwellings. In the transportation visioning session during the master plan development process, residents expressed concerns related the lack of pedestrian amenities in the Town Center.

Major Roads

Otis Stage Road (Route 23) – Otis Stage Road is classified as a rural major collector, the roadway falls under the maintenance jurisdiction of the MassDOT Highway Division 1. Otis Stage Road provides access to the southwestern section of Blandford from the center of town as well as to towns west of Blandford eventually intersecting with Route 8 in Otis. Otis Stage Road is characterized by its winding and rolling terrain, consistent lane width and rural characteristics.

Woronoco Road (Route 23) – Woronoco Road is classified as a rural major collector roadway under the maintenance jurisdiction of the MassDOT Highway District 1. Oriented in an east/west direction, Route 23 intersects with Route 20 and ultimately Routes 10/202 as well as the MassTurnpike in Westfield. This section of Route 23 was observed to have a sidewalk on the northern side of the road with paved shoulders in the vicinity of the town center. Terrain on Woronoco Road can be classified as hilly with many curves.

North Street / Chester Road – North Street and Chester Road are classified as rural major collectors. North Street falls under the maintenance jurisdiction of the MassDOT Highway District 1 while Chester Road falls under the jurisdiction of the town. The North Street / Chester Road corridor

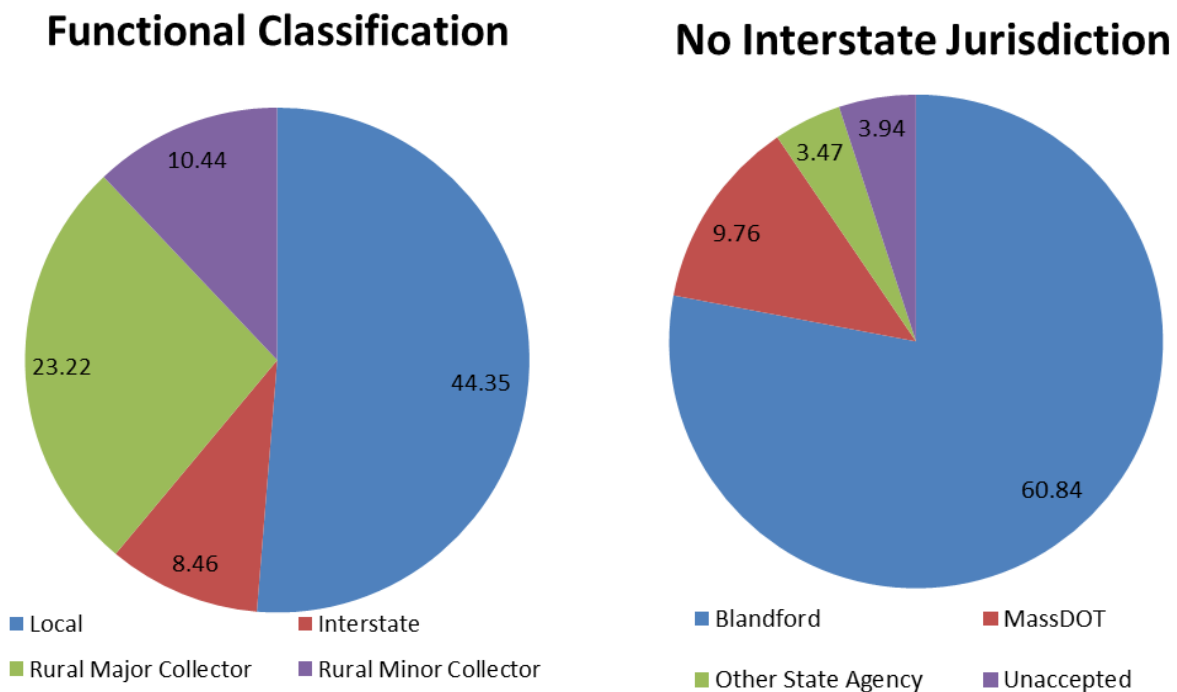
provides access to the northwestern part of Blandford and to Route 20 in Chester. North Street can be described as a residential road with narrow travel lanes that provides employee access to Massachusetts Turnpike Service Areas. Chester Road can be characterized as a rural road primarily used by residents.

Russell Stage Road – Russell Stage Road is classified as a rural major collector roadway under local jurisdiction. Russell Stage Road provides access to Russell to the northeast, intersecting with Route 20 and eventually Route 112 in Huntington. Principally a residential road, particularly near the town center, it becomes hillier with more curves as you travel northeast towards Russell.

Roadway Miles and Ownership

Blandford is a rural community with a roadway network of approximately 86.47 centerline miles. Nearly 71% (60.84 miles) of all roadway miles are locally maintained by the Blandford Highway Department. The MassDOT Highway Division maintains 18.22 miles of roadway in Blandford, including Interstate 90(8.5 miles), Route 23, and North Street. Approximately 31.68 miles are eligible for federal aid including Interstate 90. Over 50% (44 miles) of roads are categorized as non-paved surfaces according to the MassDOT Roadway Inventory File.

Figure 1 Roadway Functional Classification and Jurisdiction



Non Motorist Infrastructure

In 2019 MassDOT released [The Statewide Bicycle Plan](#) and [The Statewide Pedestrian Plan](#). These plans include guides introducing Cities and Towns to core concepts as well as providing additional resources to improve bicycle and pedestrian infrastructure. The objective of these plans is to improve safety, reduce fatalities, and increase the use of non-motorized modes of transportation for short trips.



Sidewalks

Sidewalks are present on the north side Route 23 from North Street east to South Street. This section of sidewalk was observed to be in good condition and has been upgraded to meet current MassDOT ADA standards. It was noted during the Walk Audit that several of the crosswalks locations should be moved to improve visibility of the crosswalks by drivers, additionally sidewalk ramps and detectable pads at several locations were observed to be out of compliance with current MassDOT Walks and Wheelchair Ramp standards. A short section of sidewalk was observed on the west side of Russell Stage Road from Route 23 to the Town Offices. This section of sidewalk was observed to be in poor condition and does not meet current ADA standards.

Bike lanes

Blandford does not have any designated bike amenities. Woronoco Road was observed to have adequate paved shoulders to support on road bike lanes. The majority of the roadway network in town lacks paved shoulders and pavement markings that could accommodate bike lanes.

Shared Use Paths and Trails

Currently Blandford does not have any official off-road, shared use paths. Residents expressed concerns over the lack of locations with smooth surfaces in town that would be safe to walk on. There are several locations in town ideal for hiking including the Blandford/Chester State Forest and Knittel Conservation Area Trails. During the Implementation Workshop, participants expressed interest in exploring opportunities to develop a Rail Trail on the old “Huckleberry” Trolley line between Blandford and Huntington.

Complete Streets

The Town of Blandford is currently not part of the [MassDOT Complete Streets program](#). A Complete Street is one that provides safe and accessible options for all travel modes – walking, biking, transit, and motorized vehicles – for people of all ages and abilities. Designing streets with these principles contribute toward the safety, health, economic viability, and quality of life in a community by improving the pedestrian and vehicular environments and providing safer, more accessible and comfortable means of travel between home, school, work, recreation, and retail destinations. More broadly, embedding Complete Streets principles in policy and practice help promote more livable communities.

In addition, the creation of Complete Streets encourages an active transportation lifestyle and is supported by the United States Centers for Disease Control and the Massachusetts Department of Public Health to decrease obesity and reduce risk for chronic diseases (heart disease, arthritis, diabetes, etc.). Also inherent in the development of a Complete Street is meeting the most current accessibility guidelines.

Complete Streets improvements may be large scale, such as corridor-wide improvements that include a separated bicycle lane or new crosswalks. Other Complete Street project examples include improved streetlighting, a median refuge island. The design of a Complete Street should be context sensitive and incorporate improvements or treatments that fit with the need and within the character of a community.

The Massachusetts Department of Transportation (MassDOT) recognizes the importance of supporting projects that provide context-sensitive, multimodal transportation options on appropriate roadways. In 2013 MassDOT issued its own Healthy Transportation Policy Directive to



ensure that all MassDOT projects are designed and implemented in a way that all our customers have access to safe and comfortable healthy transportation options at all MassDOT facilities and in all the services we provide.

MassDOT also recognizes the importance of supporting Complete Streets on local roads for the benefits they provide, and to assist in closing critical gaps in transportation networks. MassDOT initiated the Complete Streets Funding Program to further the development of Complete Streets on local roads across the Commonwealth. MassDOT provides Complete Streets Funding Program Guidance document describes the full requirements of the program, including guidance on best practices in Complete Streets Policy development and implementation.

Briefly, the reward for municipalities that choose to participate is:

1. Funding for technical assistance to analyze their community needs and develop a Complete Streets Prioritization Plan, and
2. Funding for construction of Complete Streets infrastructure projects.

To be eligible for technical assistance a municipality must attend training and pass a Complete Streets Policy. Once these steps are completed, a municipality must complete a Complete Streets Prioritization Plan, which is a targeted investment strategy to be eligible for project funding.

Walk Audit

A walking audit was held on April 30, 2021 in the Town of Blandford. This audit will be conducted by WalkBoston in collaboration with the Hilltown CDC. The audit identified areas where there are opportunities to advance improvements to facilitate more pedestrian activity. As part of the Walk Audit the intersection of Otis Stage Road (Route 23) at North Street was discussed as a potential to be reconfigured to accommodate a crosswalk to improve access to the Historical Society. Additionally the Town Administrator expressed interest in reconfiguring the Otis Stage Road (Route 23) at North Blandford Road intersection into a tradition “T” intersection. This would result in the town connecting the Veterans Memorial with Town Common. The walking audit can be found [here](#).

Senior Van Service

Currently there are two options for Senior Van Service available to the residents of Blandford. Blandford is a member of the Franklin Regional Transit Authority (FRTA), FRTA provides two day per week Demand Response service for residence 60 years of age and older, residents of nursing homes, and veterans with a disability rating of 70% or greater. Demand Response fares range from \$1.25 for an in town one-way trip to \$2.25 for one-way trip to non-adjacent towns within FRTA’s service area. Eligible riders are required to call the Huntington Council on Aging (COA) by 6PM the prior day to schedule the service. Residents that participated in the Transportation Focus Group expressed their concern about the consistency and future viability of this service.

The second option for seniors is Blandford’s free van service. This service is operated by volunteers and uses a vehicle donated to the town. The service relies on donations for the upkeep of the vehicle but the Town of Blandford currently provides funding for fuel to operate the service. Seniors in town prefer to use this service over the FRTA due to the expanded availability of this service however this vehicle is not equipped with a wheelchair lift like the FRTA service.



Participants in the Transportation Focus Group expressed interest in improving the viability of this service.

Traffic Volume

Traffic volumes can be used to evaluate the current performance characteristics of existing roadways, identify the need for additional transportation facilities to reduce existing congestion, and as a gauge of the effectiveness of new businesses that rely on pass by traffic (i.e. convenience stores, gas stations, and retail establishments)

Average Annual Daily Traffic (AADT)

AADT is the calculated traffic volume that represents the average for a typical day of the year. A limited amount of historic data is available for the Town of Blandford. Unfortunately new traffic volume data was not collected as part of this Master Plan as a result of lower traffic volumes and different travel patterns experienced during the COVID 19 Pandemic. Table 1 shows the historic count data available for the Town. The most recent counts were completed in 2019 as part of MassDOT’s I-90 Interchange study that was completed in 2020. As can be seen in the Table, the highest volume of traffic is located south of Russell Stage Road. Traffic is dispersed between Russel Stage Road, North Street and Otis Stage Road (second highest AADT).

Table 1 Traffic Count Locations -AADT

Roadway	Location	AADT
Blandford Road (Route 23)	South of Cobble Mountain Road	2930
Otis Stage Road (Route 23)	Between North Street and North Blandford Road	2477
Woronoco Road (Route 23)	South of North Street	1845
North Street	North of Woronoco Road (Route 23)	845

Source: MassDOT 2019

Safety

PVPC utilized crash data downloaded from the Impact Crash Data Portal (<https://apps.impact.dot.state.ma.us/cdv/>) developed by MassDOT. PVPC used the most recent three years of final data available (2015-2017) to identify the number of crashes that occurred in Blandford. It was determined the crashes that occurred on Interstate 90 in Blandford should be removed from this analysis as only 54 of the 197 crashes recorded between 2015 and 2017 for the town were located on the non-interstate system. The breakdown of those 54 crashes can be seen in the table below.

Table 2 Crash Summary 2015 - 2017

Type of Crash	Total 2015 - 2017
Fatal injury	1
Non-fatal injury	17
Not Reported	3
Property damage only (none injured)	33
Grand Total	54



As can be seen in the table, 2 crash resulted in a fatality while 17 resulted in an injury to at least 1 person involved in the crash. The fatal crash occurred on Otis Stage Road just east of Shepard Road and involved a pedestrian. Of the 54 crashes, 44 (82%) were listed as single vehicle crashes, this could indicate that factors such as driver inattention, speeding and inclement weather may have been contributing factors to the crash.

A total of five crashes were identified to have occurred on a curved section of Otis Stage Road (Route 23) just east of Beach Hill Road. All five crashes involved a single vehicle lane departure crash, one of the crashes resulted in a second vehicle being side swiped. It is recommended that a more in depth study be considered for this section of Otis Stage Road to identify potential contributing factors to single vehicle crashes in this area.

Participants in the Transportation Visioning Session identified Beach Hill Road as an area of concern due to both higher travel speeds and limitations to site distance. While the historic crash data reviewed for this Master Plan does not currently show crashes in this area, it is recommended that safety data be monitored for Beach Hill Road to determine if these problems begin to contribute to crashes in the future.



Pioneer Valley SafetyCompass (2015-2017)

BLANDFORD



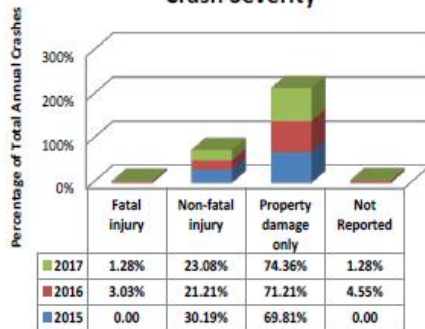
Legend

- Fatal Crashes
- Intersection Crashes
- Non Motorist Crashes
- All Crashes (2015-2017)
- Open Water Bodies

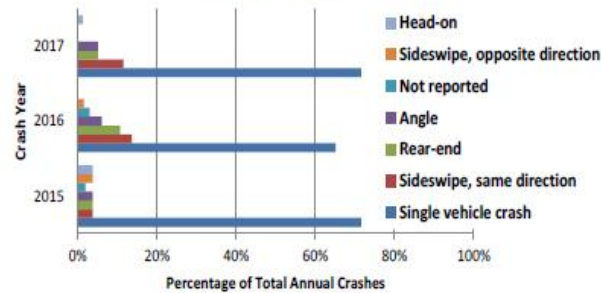
Zoom-in for best crash data point clarity

Map Not to Scale

Crash Severity



Manner of Collision



ANNUAL CRASHES

2015 – 53

2016 – 66

2017 – 78

ANNUAL CRASHES PER 1000 POPULATION

(Census 2019) 52.44

TOTAL FATAL CRASHES - 3

TOTAL NON- MOTORIST CRASHES - 2

INTERSECTION CRASHES

Four intersection crashes were reported in Blandford (all property damage only) within the analysis period. Three of those crashes were geocoded. The locations of those crashes are depicted in the map and listed below:

1. Otis Stage Road (Route 23) and North Street

2. North Blandford Road and a Private Driveway

3. Otis Tolland Road and Westerly Road

4. (Not Geocoded Location)
At an unknown Y-intersection along Otis Tolland Road

*EPDO – Equivalent Property Damage Only (Fatal and Injury Crashes = 21, Property Damage Crashes = 1)



KEY FINDINGS

- The total number of reported crashes in Blandford has increased each year within the three year analysis period.
- A total of 2 non-motorist crashes were recorded in Blandford between 2015 and 2017, one of which resulted in the fatality of a pedestrian.
- The other two fatal crashes occurred when drivers exceeded the authorized speed limit along Interstate I-90.
- Almost 80% of all collisions were single vehicle crashes.
- Almost all the reported crashes (190) were non intersection crashes, the majority of which (144) occurred along Interstate I-90.
(Y- intersection – 2, driveway and T-intersection – 1 each)

FIRST HARMFUL EVENT SUMMARY

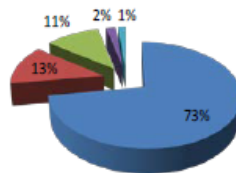
Collision with guardrail or median barrier	65
Collision with motor vehicle in traffic	51
Collision with animal	23
Collision with tree	14
Collision with ditch	8
Collision with other	8
Overturn/rollover	8
Collision with embankment	4
Collision with other light pole or other post/support	4
Collision with parked motor vehicle	4
Collision with other movable object	2
Jackknife	2
Collision with bridge overhead structure	1
Collision with curb	1
Collision with pedestrian	1
Other non-collision	1

DRIVER CONTRIBUTION CODES FOR ALL DRIVERS

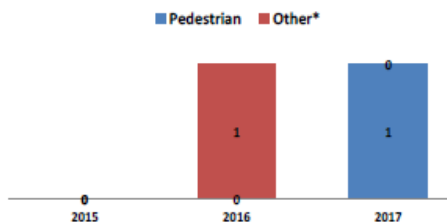
No improper driving	121
Driving too fast for conditions	33
Unknown	16
Other improper action	15
Failure to keep in proper lane or running off road	14
Inattention	10
Over-correcting/over-steering	10
Exceeded authorized speed limit	6
Fatigued/asleep	6
Operating vehicle in erratic, careless, negligent or aggressive manner	5
Operating defective equipment	3
Visibility obstructed	3
Distracted	2
Followed too closely	2

Roadway Classification

- Interstate
- Not Reported
- Urban minor arterial or rural major collector
- Local
- Urban collector or rural minor collector



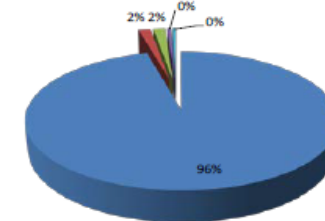
Non-motorist Crashes by Type and Year



* Skater, wheelchair, unicycle, tricycle, etc.

Location of Crashes

- Not at junction
- Not reported
- Y-intersection
- Driveway
- T-intersection



Transportation Resiliency

The Federal Highway Administration (FHWA) defines resiliency as the ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions. ¹ In the case of the Blandford this means identifying those transportation features that need to be protected from manmade and natural disasters. PVPC identified pavement condition, bridges, culverts and non-paved roadways as the biggest threats for transportation resiliency.

Bridge and Culverts

MassDOT maintains the majority of bridges in Massachusetts, including the 24 structures located in Blandford. According to the [MassDOT municipal data dashboard](#) Blandford has three structures in town evaluated as poor indicating the bridges are considered structurally deficient. During the development of this document the Town Administrator of Blandford indicated the two of the three structures had been replaced as part of [DER's Culvert Replacement Municipal Assistance Grant Program](#). Based on this information Blandford should work with MassDOT to get the third structure located on Otis Stage Road (Route 23) replaced. Also of concern are the nine structures identified as being in fair condition. Although these structures are not considered to be in danger of failing, natural or other types of disasters could accelerate the rate of deterioration resulting in failure.

Severe weather events can have negative impacts on structures such as culverts and bridge. In 2011, Tropical Storm Irene caused more than \$25 million of roadway damage in the Pioneer Valley region, including many culvert wash outs. Culverts are usually built to carry a road, rail line or path over a small body of water. The PVPC mapped the location of all regional culverts as part of the update to the 2020 Regional Transportation Plan (RTP). The top 5% of culverts deemed most ecologically vulnerable or sensitive to extreme weather and heavy rain were prioritized in the RTP. A total of 74 culverts) were identified in Blandford as part of the RTP Update. Ten of these culverts were included as part of this vulnerability ranking.

Local Pavement Management

The Blandford Highway Department utilizes the principles of pavement management for all paved roadways. The PVPC prepared a complete pavement management report for the Town in November 2020 in cooperation with the DPW. This report provides a tool to the Town for prioritizing future local roadway improvement projects based on projected available funds. The Town of Blandford should continue to identify opportunities to advance its pavement management program and update the pavement condition inventory on a regular basis in order to advance improvement projects that both repair roads in poor condition while maintaining the roads in good condition.

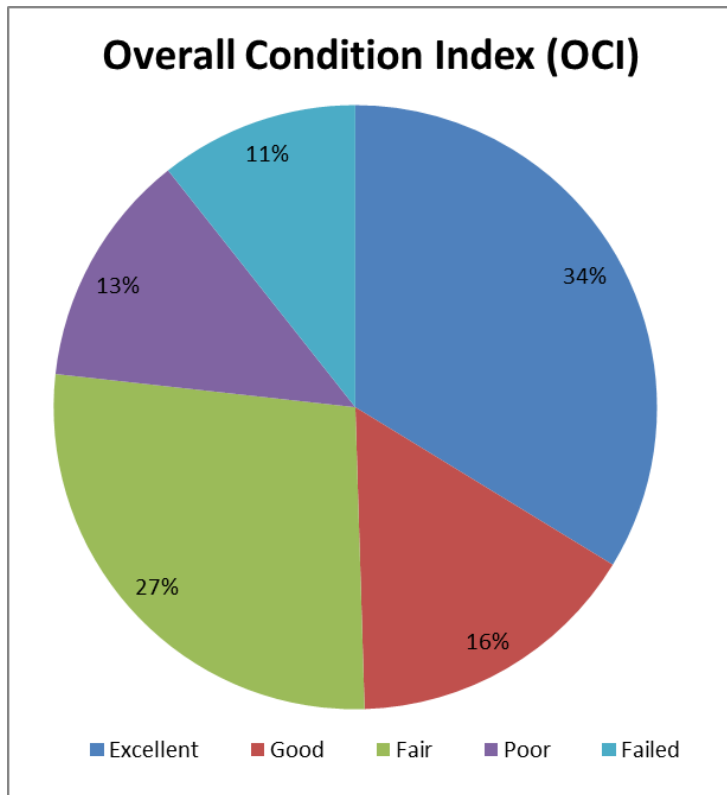
Pavement inventory and distress data was collected for all paved roadways in Blandford in the summer 2020 and analyzed using the Cartegraph software. The data was used to calculate the Overall Condition Index (OCI) which measures the serviceability of the road on a scale from 0 – 100. An OCI value approaching 100 indicates excellent pavement conditions where no improvements are warranted. A value in the range of 68 to 88 indicates good pavement conditions that may only require preventive maintenance treatments such as crack sealing. A “fair” pavement condition is

<https://ops.fhwa.dot.gov/publications/fhwahop15025/index.htm>¹



indicated by an OCI with a value between 25 and 68. Roadways in this range begin to require more substantial improvements such as resurfacing to improve the roadway. An OCI below 25 indicates “failed” pavement conditions that will likely require the complete reconstruction of the roadway.

Figure 2 Overall Condition Index (OCI) of Road ways



The PVPC staff surveyed 34 miles of improved roadways which constitutes 43 roadway segments. The average OCI as of November 2020 was rated at 80, which indicates that a majority of the roadway network is considered to be in good condition. The surveyed roadway segments are broken down as follows: 34% of the roadways are rated excellent, 16% are good, 27% are fair, 13% are poor and 11% are rated as failed. The PVPC surveyed 7 miles of arterial roads, 13 miles of collector roads, 10 miles of residential (local) roads and 4 miles of no outlet (local) roads.

Non-paved Roadways

At the time of completion of the Pavement Management Report Blandford was estimated to have over 40 miles of non-paved roadways. Non-paved roadways not only cost more to maintain on a yearly basis but also lack storm water management infrastructure. This makes non-paved roadways more vulnerable to weather related impacts.

Local Evacuation Routes

The [Western Massachusetts Regional Evacuation Plan](#) completed in 2013 identifies Route 23, Chester Road, North Street and Russell Stage Road as evacuation routes out of town. The Massachusetts Highway Department and Massachusetts State Police would be responsible for the use of the Massachusetts Turnpike (Interstate 90) in the event of a large scale evacuation.



During the transportation visioning session residents expressed their concerns with traffic being detoured off Interstate 90 due to an unanticipated closure of the Interstate. Residents stated that when MassDOT is forced to detour traffic off Interstate 90 due to unforeseen circumstances, many of those drivers travel through Blandford to access the next exit. Many of these drivers are not familiar with the roads and area which adds to the potential for additional incidents.

Previous Studies

MassDOT – I-90 Interchange Study

MassDOT was commissioned to study the feasibility of a new interchange along the 30 mile section of interstate 90 between Exit 2 (Now Exit 10) and Exit 3 (Now Exit 41). The complete study can be found ([Here](#)). The primary goal of the study was to improve access to Interstate 90 at or near the midpoint and to mitigate traffic accessing I-90 at Exit 2 and Exit 3.

The study involved significant outreach, data analysis, and modeling and developed a number of concepts to add access to Interstate 90 in the study area. Three Alternatives were advanced for more in-depth study for a new Interstate 90 interchange:

1. Algeria Road in Otis
2. Blandford Maintenance Facility on Chester Road
3. Blandford Service Plaza on North Road

The Algeria Road option officially removed from further consideration during the public participation process. This was determined based on travel time impacts, environmental impacts, cost of construction, and strong public opposition.

In order for one of the remaining alternatives to advance to the project development phase, local and regional shareholders would need to actively work together with elected officials to initiate a project and secure funding for the both the design and construction of the project. The Town of Blandford voted down the proposed addition of one of these proposed interchanges at town meeting, indicating the project does not have local support at this time. Similarly no funding has been identified at this time by MassDOT for either the design or construction of this project. The project would also need to be included as part of the Pioneer Valley Regional Transportation Plan in order to be eligible for federal funding in the future.



