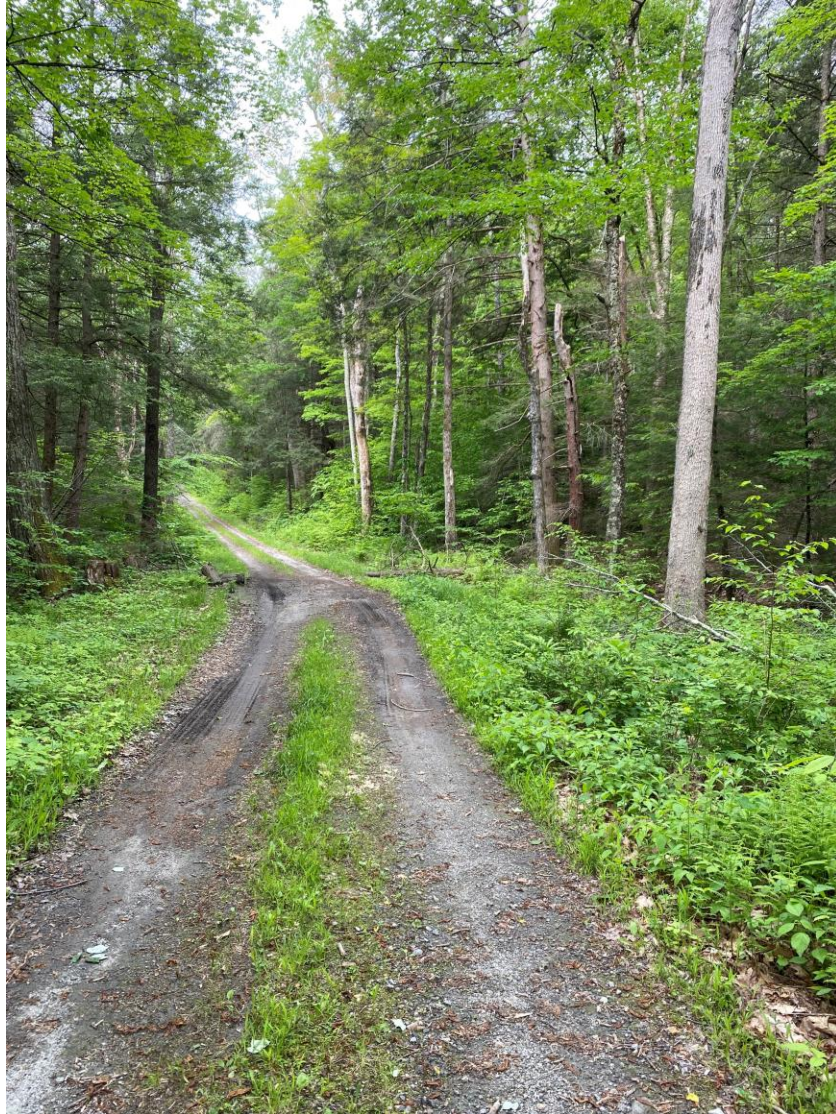


BLANDFORD UNPAVED ROADS DRAFT REPORT

Evaluation and Forecast of Roadway Conditions and Maintenance Requirements

June 2023



prepared by the
Pioneer Valley Planning Commission

Contents

I. Introduction.....	1
II. Methodology.....	2
III. Existing Condition Evaluation.....	4
IV. Summary.....	11
Figure 1 – Existing Overall Condition Index for Unpaved Roadways	5
Figure 2 Flood Zones and Culverts Map.....	7
Figure 3 Wetlands and Culverts Map.....	8
Figure 4 Slope Stability Map.....	9
Table 1 Existing Unpaved Roads in Blandford.....	1
Table 2 – Existing Roadway Condition	4
Table 3 – Roadway Sensitivity Score	6
Table 4 – Roadway Criticality Scores	10
Table 5 - Recommended Repair Activities.....	11
Table 6 - Prioritization Score	12

I. Introduction

The Town of Blandford received funding as part of the Municipal Vulnerability Preparedness (MVP) grant program to assess the vulnerability of all Town-accepted unpaved roads. This report summarizes the findings of exposure to natural disturbance such as rainfall and designed features of an unpaved roadway and how that affects the functionality of the roadway and potential for its vulnerability to severe events such as erosion, flooding and severe weather events.

This study assesses existing roadway vulnerability while providing an analysis of existing roadway conditions and recommendations for short term roadway maintenance. To do this, the PVPC has selected the prepackaged Roadway Management software program “Operations Management Software (OMS)” developed by Cartegraph Systems. The OMS can be customized to apply roadway management techniques to each municipality's specific roadway needs and priorities. This report summarizes the findings of Blandford's present unpaved roadway condition survey. This understanding of how unpaved roadways are currently performing and what they are requiring for ongoing maintenance, is an essential piece of the picture and lays important groundwork to assess roadway vulnerability with respect to climate change. PVPC's existing conditions study in this report is accompanied by additional criteria and data namely for “sensitivity/vulnerability” and “criticality,” both of which were used in the [BSC's Rural Dirt Road Assessment and Recommendations Report from June 2021](#). PVPC's unpaved road vulnerability data collection is modeled after the BSC's study.

Blandford's Unpaved Roads Network

PVPC staff met with the Blandford Highway Superintendent David Waldron on May 19, 2023. This meeting provided important information on the current mileage of unpaved roads in Blandford, existing roadway characteristics, current maintenance practices, and existing concerns. This information is summarized in the table below. All of the unpaved roads are also highlighted in Figure 1. Roadway length and width information was provided by the Blandford Highway Department.

Table 1 Existing Unpaved Roads in Blandford

Roadway	Length (ft)	Width (ft)	Work (if any)	Major Culvert Issues
Beulah Land Road	2640	12	Needs maintance	Obstruction from beavers
Blair Road	13826	12	Minor drainage and canopy work needed	Replacement needed, obstruction from beavers
Gibbs Road	14527	12	minor drainage and canopy work needed	Replacement needed, obstruction from beavers
Haight's Road	2164	12	minor drainage and canopy work needed	Replacement needed
Julius Hall Road	2640	12	major drainage and canopy work needed	Replacement needed
Hayden Road	5322	12	minor drainage and canopy work needed	Replacement needed
Hiram Blair Road	7392	12	minor drainage and canopy work needed	Replacement needed
Huntington Road	4898	20	major drainage and canopy work needed	Replacement needed
JJ Cross Road	1584	10	major drainage and canopy work needed	None
Millard Road	4200	12	minor drainage and canopy work needed	Replacement needed
Miller Swamp Road	1100	12	minor drainage and canopy work needed	None
Old Chester Road	6336	12	minor drainage and canopy work needed	Replacement needed
Sanderson Brook Road	528	8	minor drainage and canopy work needed	None
Schoolhouse Hill Road	1844	12	reconstruction needed	Replacement needed
Shepard Road	2059	16	major drainage and canopy work needed	Large gavl, culvert undersized
South Street	1278	14	minor drainage and canopy work needed	None
Virgil Lloyds Road	5300	12	minor drainage and canopy work needed	Replacement needed

II. Methodology

The PVPC staff collected roadway inventory and distress data for selected unpaved roadways in Blandford in the month of May 2023. The PVPC uses the Massachusetts Road Inventory File (RIF) for segmentation and mapping purposes. In the RIF, Gibbs Road and Huntington Road are listed as two-segment roadways. All data was applied to the roadway management software package, the OMS.

The OMS uses a Road Condition Index (RCI) as a measurement of roadway serviceability and as a method to establish performance criteria. RCI is derived from controlled measurements of conditions, including: pavement surface, rideability, drainage, safety, utility, traffic control, sidewalk, and roadside maintenance. There are a total of seven individual condition indices for unpaved roads. The extent of deterioration of each condition index is inputted into the OMS software based on the results of the roadway survey. These seven condition indices or distress conditions are summarized below.

1. Corrugations/Distortion – Washboarding and undulations in the road surface that adversely impact the comfort of the ride.
2. Loose Aggregate – The separation of smaller aggregates from larger aggregates, often resulting in a collection of aggregate particles along the edges and centerline of the road.
3. Dust – Loose particles and aggregate that spread into the air as vehicles drive along the road at speeds of at least 25 mph.
4. Improper Cross Section – The cross section or grade of a road is the degree of slope measured down the centerline. Very flat or very steep cross sections adversely affect performance.
5. Potholes – Potholes are bowl shaped depressions on the road surface less than 3 feet in diameter.
6. Inadequate Drainage - An unsurfaced road should have a crown with enough slope from the centerline to the shoulder to drain all water from the road's surface. The cross-slope drainage is deficient when it does not carry water off the road shoulders. Improper drainage on the side of the road causes water to pond and contribute to roadway deterioration.
7. Rutting – Depressions in the wheelpaths along the road that run parallel with the centerline. Deep rutting makes it difficult to drive outside of the established ruts.

Culverts were also included in the assessment, but examination was limited to a visual evaluation of the type, location, general condition, and extent of blockage. Each culvert was photographed and mapped.

An Overall Condition Index (OCI) was generated for each inventoried roadway segment in Blandford using the distress data collected by PVPC staff. Deduct values assigned to each type of distress based on severity and extent were applied by the OMS software to generate an OCI for each roadway segment. OCI is measured from 0 to 100, with 100 being an excellent condition and zero being very poor condition. The OCI categories are broken down as follows: an OCI greater than 80 is considered good, an OCI 55 to 80 is considered fair, and an OCI less than 55 is poor. The OCI values generated are grouped into OCI category ranges, which are defined by the user depending on the type and functional class of each segment.

In evaluating the sensitivity and criticality of the accepted gravel roads in town, a number of key factors were identified. As summarized in the Rural Dirt Road Assessment and Recommendations Report from June 2021, the methodology relied on an assessment of 11 criteria:

1. Grade/Slope of Road – Steeper grades/hills are more vulnerable to deterioration as a result of erosion and water flow.
2. Adjacency to Steep Slopes – Runoff water from adjacent property is more likely to be redirected onto the road when adjacent to areas with a steep slope angled toward the roadway.
3. Floodplain – The proximity to the road to the 100 year and 500 year flood zones increases the likelihood of roadway washout during extreme weather events and floods. The 100 and 500 Year Flood Zones in the Town of Blandford are shown on Figure 2.
4. Entrenched Road – An entrenched road lies at a lower height than the terrain on either side leading to a higher potential for water to be trapped on the roadway surface.
5. Wetlands – The proximity of a road to existing wetland areas can increase the rate of deterioration. The existing areas of wetlands in the Town of Blandford are shown on Figure 3.
6. Intersections with paved roads or driveways – The intersection of paved and unpaved surfaces result in increased opportunity for deterioration and roadway distress.
7. Constructed Drainage – The lack of roadside drainage results in areas where water can collect and accelerate the deterioration of the road.
8. Culverts – Blocked or damage culverts do not allow water to flow under the road. All culverts on the existing unpaved roads in Blandford are shown on Figures 2 and 3.
9. Road Surface Shape – The condition of the existing grade or crown on the road that allows water to flow off to the side into roadside drainage.
10. Slope Stability – An indication of the existing stability of the soil in the vicinity of the road. Less stable areas are more prone to erosion and washout. This information is based on the Massachusetts Geological Survey Slope Stability Map. <http://mgs.geo.umass.edu/biblio/slope-stability-map-massachusetts>. Areas of unstable slope in the Town of Blandford are shown on Figure 4.
11. Susceptible Tree Canopy – Trees adjacent to the roadway are more susceptible to being knocked over into the roadway by high winds.

A windshield survey was conducted for all of the unpaved roads and each factor was assessed based on a ranking of 1-4 with 4 being the most severe. A Sensitivity Score is calculated by totaling the ranking score for each roadway. A second Criticality Score is also developed based on the roadway for the following 4 categories:

1. Maintenance/Cost
2. Community Access
3. Impact on Public Health and Safety
4. Impact on Local Economy

Each criticality category is ranked on a scale of 1 – 3 with 3 being the most severe. The four Criticality Scores are totaled for each roadway and added to the Sensitivity Score to develop a Prioritization Index Score for each roadway. PVPC staff met with the Blandford Highway Superintendent Dave Waldron to review the results of the Criticality scoring. These sources of vulnerability in terms of sensitivity and criticality are summarized in Tables 3 and 4 respectively.

III. Existing Condition Evaluation

The PVPC staff surveyed 14.4 miles of unpaved roadways, which constitute 19 roadway segments. This assessment relied on both a windshield survey as well as in-field measurements to evaluate roads based on seven distress criteria such as potholes, distortions, rutting, corrugations, dust, roadside/cross slope drainage, and loose aggregate. The average OCI for the spring of 2023 was rated at 59, which indicates that the roadways are, on average, in fair to poor condition.

Table 2 reflects a listing of the existing condition of the rated roadway segments. These segments are also shown on Figure 1. Please note, existing weather events after the date of the field survey may have resulted in additional deterioration of all unpaved roadways. Gibbs and Huntington Road appear as 2 segments in Table 2 consistent with the Massachusetts Roadway Inventory File.

Table 2 – Existing Roadway Condition

Roadway	From	To	OCI
Beulah Land Road	Chester Road	Sanderson Brook Road	52
Blair Road	North Blandford Road	Otis Stage Road	55
Gibbs Road	Otis Stage Road	2.3 Miles	77
Gibbs Road	2.3 Miles	Long Pond Road	61
Hights Road	Huntington Road	Dead End	58
Hall Road	Unnamed Road	Beech Hill Road	73
Hayden Road	Birch Hill Road	Cobble Mountain Road	55
Hiram Blair Road	Otis Stage Road	Dead End	68
Huntington Road	Chester Road	0.32 Miles	51
Huntington Road	0.32 Miles	Hights Road	56
JJ Cross Road	North Blandford Road	Dead End	46
Millard Road	North Blandford Road	Dead End	62
Miller Swamp Road	Otis Town Line	Dead End	64
Old Chester Road	North Blandford Road	Chester Road	61
Sanderson Brook Road	Chester Town Line	Chester Road	56
Schoolhouse Hill Road	Second Division Road	Russell Road	45
Shepard Road	Lloyds Road	Dead End	54
South Street	Dead End	Blandford Turnpike	57
Virgil Lloyds Road	Shepard Road	Otis Stage Road	17

Figure 1 – Existing Overall Condition Index for Unpaved Roadways

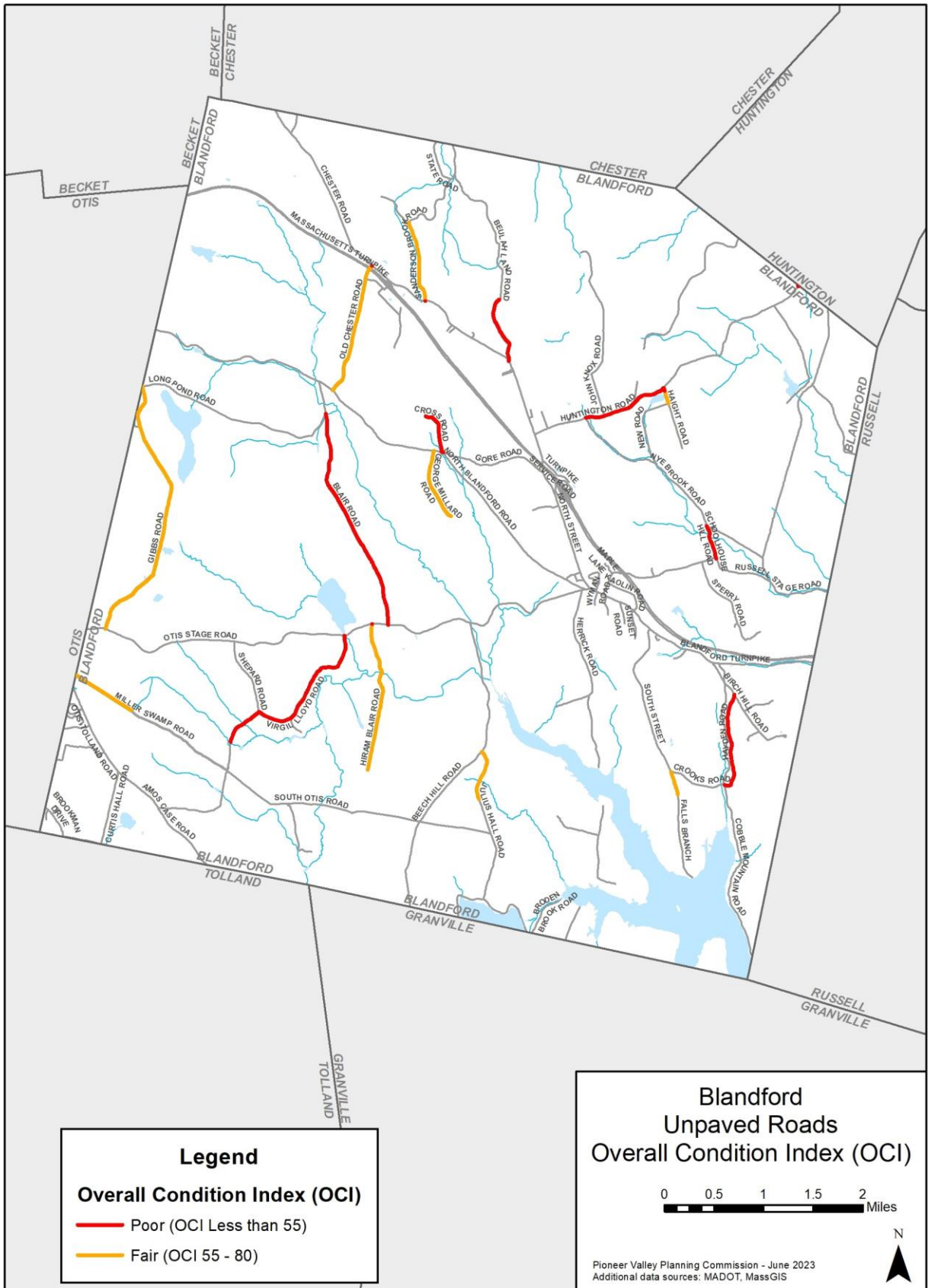


Table 3 reflects each roadway segment’s sensitivity scores, a measure of a roadway’s functionality when exposed to a source of disturbance. Segments were given a ranking for their number of intersections with paved driveways; they were ranked 0 for none and 2 for 1-10 paved driveways. All segments have been given an entrenched road ranking either 1 for ‘no’ or 4 for ‘yes’. All segments have been given an adjacency to steep slopes ranking of 3, indicating the presence of trees and shrubs. For susceptible tree canopy, segments were given a ranking of 2 for slight, a 3 for moderate and a ranking of 4 for significant. The tree canopy is evaluated in terms of susceptibility to falling and causing both roadway blockages and damage. All segments were given a culvert rating of either 2, indicating that they are compromised or 1, indicating they are either intact or none exist on that segment. Road slopes were ranked 1 for flat, 3 for slightly steep, and 4 for steep. All segments were given a ranking of 1 for constructed drainage, indicating adequate drainage or 3 indicating poor or no drainage at all. Road crowns were ranked 1 for crowned, and 3 for flat with no crown. Roads that are adjacent to areas of existing wetlands or were scored 1 for no wetlands, 2 for 0 to 25% wetland areas, 3 for 26 to 50% wetland areas and 4 for > than 50% wetlands. A road was scored as 1 for not being in a flood zone, 3 for lying within a 500-year flood zone and 4 for lying within a 100-year flood zone. Slope stability scores were based on the extent of the road that lied adjacent to unstable areas. Highly unstable areas were scored a 4, moderately unstable areas were scored a 3, low unstable areas were scored a 2 and very low unstable areas were scored a 1.

Table 3 – Roadway Sensitivity Score

Roadway	From	To	Intersections	Entrenched Road	Adjacency to Steep Slopes	Susceptible Tree Canopy	Culverts	Grade/Slope of Road	Constructed Drainage	Floodplain	Slope Stability Score	Crown	Wetlands	Total Score
Beulah Land Road	Chester Road	Sanderson Brook Road	2	4	3	2	2	4	3	4	2	3	2	31
Blair Road	North Blandford Road	Otis Stage Road	2	4	3	3	2	4	1	4	2	3	2	30
Gibbs Road	Otis Stage Road	2.3 Miles	2	1	3	2	2	3	1	4	1	1	3	23
Gibbs Road	2.3 Miles	Long Pond Road	1	4	3	3	2	4	3		1	3	2	26
Hights Road	Huntington Road	Dead End	1	4	3	3	2	4	1	4	1	3	1	27
Hall Road	Unnamed Road	Beech Hill Road	2	4	3	3	2	4	1	1	2	1	2	25
Hayden Road	Birch Hill Road	Cobble Mountain Road	2	4	3	4	2	4	3	4	2	3	3	34
Hiram Blair Road	Otis Stage Road	Dead End	2	4	3	3	2	4	1	4	3	3	2	31
Huntington Road	Chester Road	0.32 Miles	2	4	3	3	2	3	1	1	2	3	1	25
Huntington Road	0.32 Miles	Hights Road	2	4	3	4	2	3	3	4	3	3	2	33
JJ Cross Road	North Blandford Road	Dead End	2	4	3	3	2	4	3	1	1	3	2	28
Millard Road	North Blandford Road	Dead End	2	4	3	3	2	3	3	1	2	3	1	27
Miller Swamp Road	Otis Town Line	Dead End	2	4	3	2	2	1	3	4	1	3	2	27
Old Chester Road	North Blandford Road	Chester Road	2	4	3	3	2	4	3	1	2	1	1	26
Sanderson Brook Road	Chester Town Line	Chester Road	2	4	3	2	1	1	3	1	2	3	2	24
Schoolhouse Hill Road	Second Division Road	Russell Road	2	4	3	4	2	4	3	4	3	3	1	33
Shepard Road	Lloyds Road	Dead End	2	4	3	3	2	4	1	4	1	3	2	29
South Street	Dead End	Blandford Turnpike	2	4	3	4	1	1	3	1	1	3	1	24
Virgil Lloyds Road	Shepard Road	Otis Stage Road	2	4	3	4	2	4	3	4	2	3	1	32

Figure 2 Flood Zones and Culverts Map

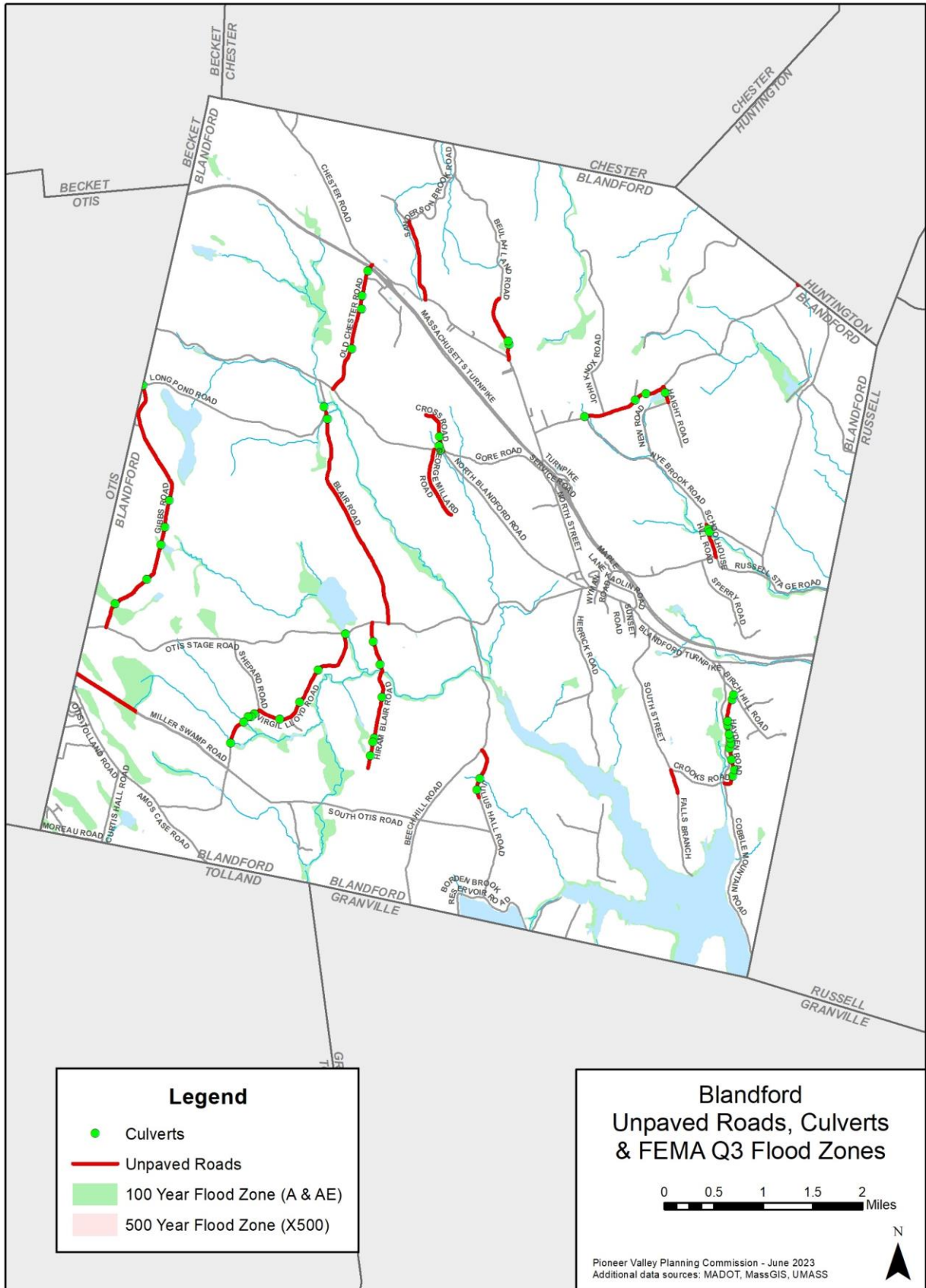


Figure 3 Wetlands and Culverts Map

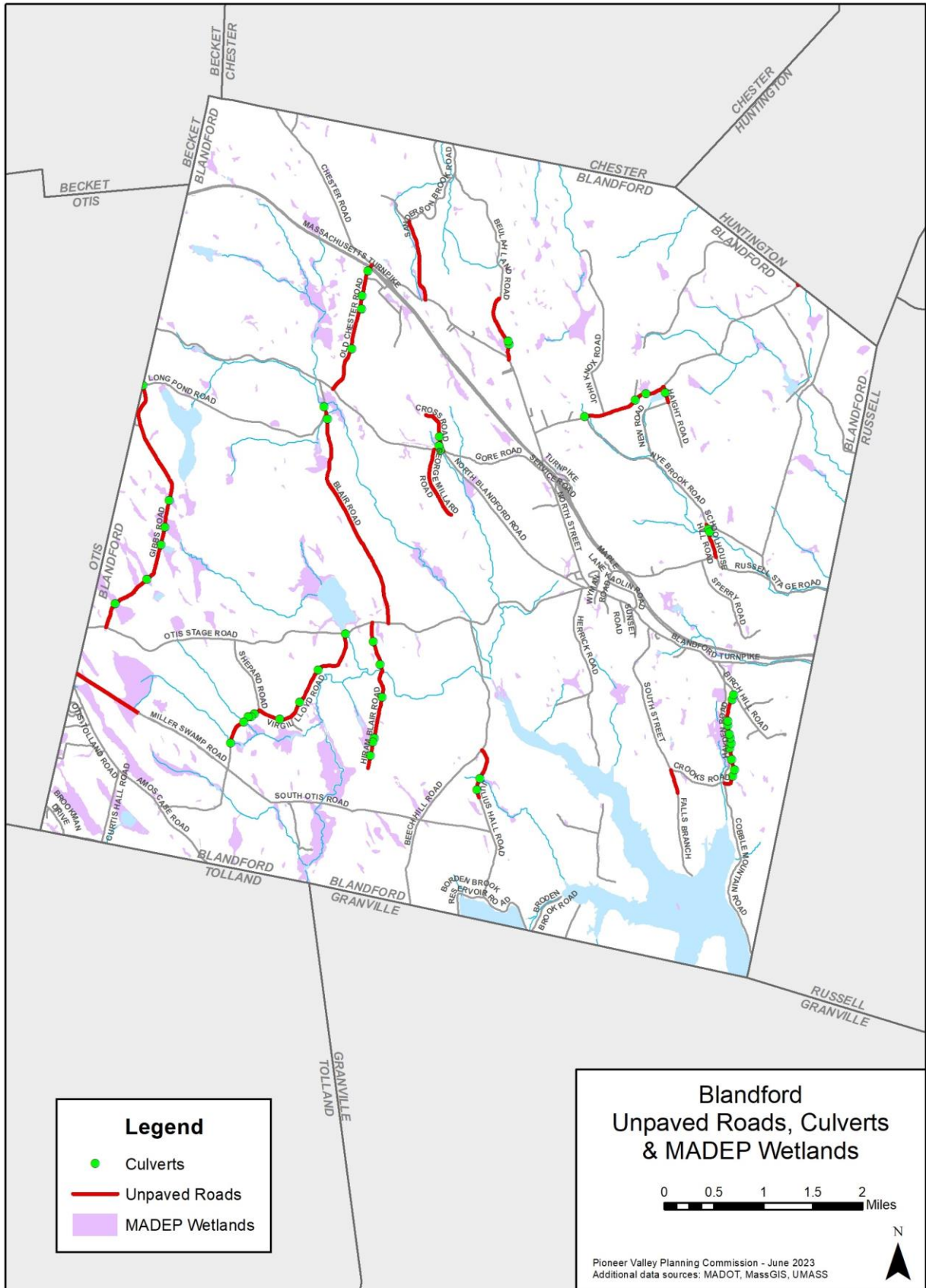
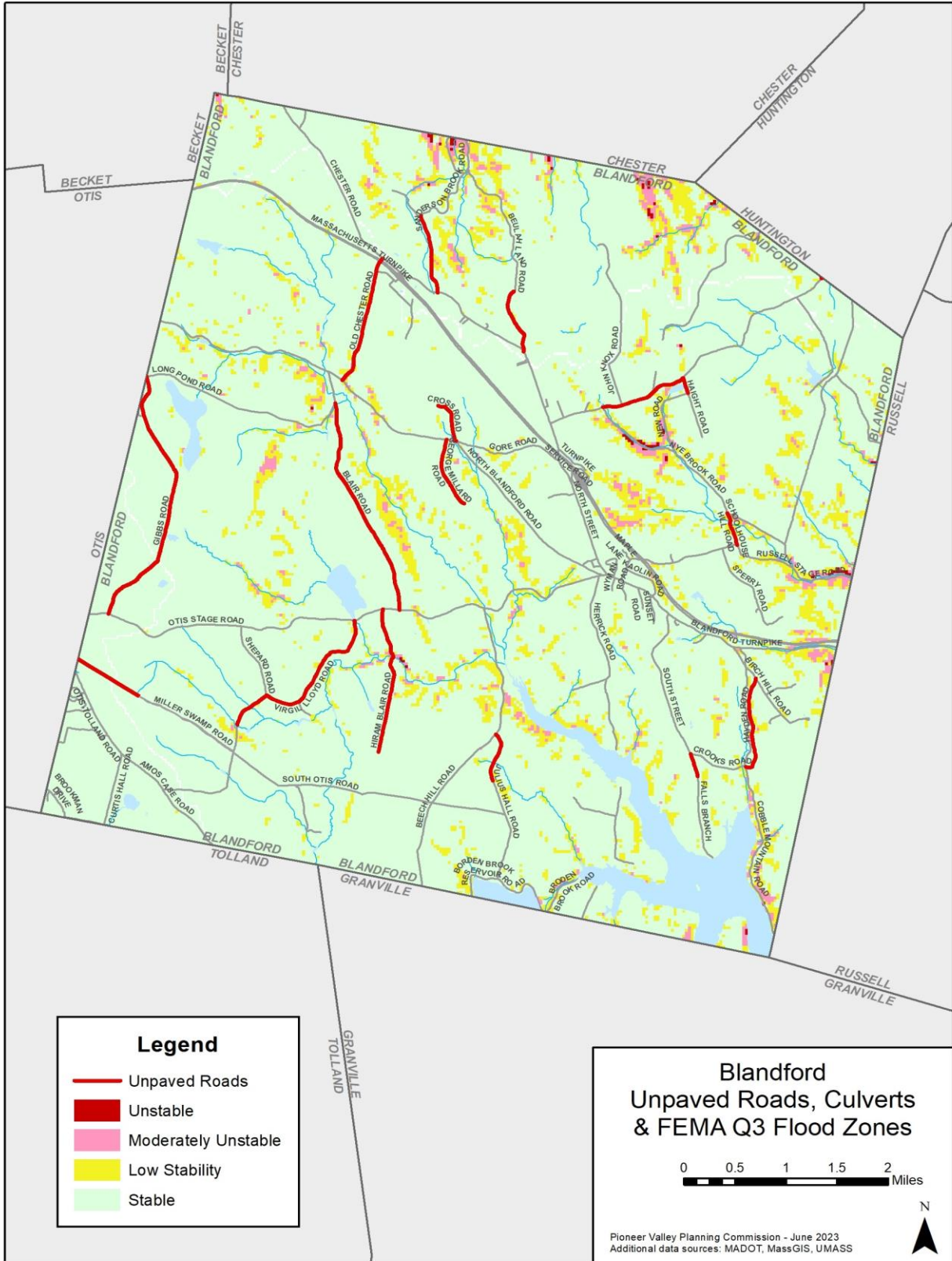


Figure 4 Slope Stability Map



Source: <http://mgs.geo.umass.edu/biblio/slope-stability-map-massachusetts>

Table 4 reflects the criticality score of each roadway segment. Criticality score is a measure of a roadway's impact on social factors such as cost to repair and maintain, community access, impact on public health and safety, and economic impact.

1. Maintenance - Considers if a roadway is a source for a recurring need of repair due to weather-related impacts.
2. Community Access – The level of access the roadway provides. This considers: (1) bus routes and locations of schools, (2) recreational area access, and (3) municipal resource access, such as fire department locations.
3. Impact on Public Health and Safety - Considers factors such as: (1) emergency evacuation routes, (2) known vulnerable populations living on the road, and (3) if there are a considerably high number of residents living on the road away from these public resources. The number of these conditions that are met impacts this score.
4. Impact on Local Economy – The existing number of local businesses, farms, and other employers that are located on the dirt or gravel roadway.

Table 4 – Roadway Criticality Scores

Roadway	From	To	Total Score	Maintenance / Cost	Community Access	Impact on Public Health and Safety	Impact on Local Economy
Beulah Land Road	Chester Road	Sanderson Brook Road	8	3	2	2	1
Blair Road	North Blandford Road	Otis Stage Road	9	3	2	3	1
Gibbs Road	Otis Stage Road	2.3 Miles	8	3	2	2	1
Gibbs Road	2.3 Miles	Long Pond Road	8	3	2	2	1
Hights Road	Huntington Road	Dead End	8	3	2	2	1
Hall Road	Unnamed Road	Beech Hill Road	8	3	2	2	1
Hayden Road	Birch Hill Road	Cobble Mountain Road	8	3	2	2	1
Hiram Blair Road	Otis Stage Road	Dead End	7	2	2	1	2
Huntington Road	Chester Road	0.32 Miles	8	3	2	2	1
Huntington Road	0.32 Miles	Hights Road	8	3	2	2	1
JJ Cross Road	North Blandford Road	Dead End	5	2	1	1	1
Millard Road	North Blandford Road	Dead End	8	2	2	2	2
Miller Swamp Road	Otis Town Line	Dead End	7	2	2	2	1
Old Chester Road	North Blandford Road	Chester Road	7	2	2	1	2
Sanderson Brook Road	Chester Town Line	Chester Road	7	2	2	2	1
Schoolhouse Hill Road	Second Division Road	Russell Road	12	3	3	3	3
Shepard Road	Lloyds Road	Dead End	9	3	2	3	1
South Street	Dead End	Blandford Turnpike	7	2	2	2	1
Virgil Lloyds Road	Shepard Road	Otis Stage Road	10	3	3	3	1
			1 =	Rarely/Never	None of these	None of these	None
			2 =	Sometimes	One of these	One of these	Moderate
			3 =	Frequent	Two or more	Two or more	Significant

IV. Summary

The assessment of existing unpaved roadway distress data using the Cartegraph OMS software indicates that the majority of the Town-accepted unpaved roadways in Blandford were in fair to poor condition at the time of the field inventory. Table 5 presents the recommended repair activity for each assessed roadway. It is important to note that this information reflects the conditions in the field at the time of data collection and the type of repairs typically performed by the Blandford Highway Department. Recommended repairs are also based on the entire roadway segment condition. More extensive repairs may be necessary along sections of steep slopes and in proximity to existing culverts. The recommended repair activities are meant to be used in combination with the Criticality and Sensitivity Scores to assist in prioritizing lower cost, short term improvements with higher cost long term improvements.

Table 5 - Recommended Repair Activities

Roadway	From	To	Recommended Repair
Beulah Land Road	Chester Road	Sanderson Brook Road	New Gravel
Blair Road	North Blandford Road	Otis Stage Road	New Gravel
Gibbs Road	Otis Stage Road	2.3 Miles	Grade
Gibbs Road	2.3 Miles	Long Pond Road	New Gravel
Hights Road	Huntington Road	Dead End	New Gravel
Hall Road	Unnamed Road	Beech Hill Road	Grade
Hayden Road	Birch Hill Road	Cobble Mountain Road	New Gravel
Hiram Blair Road	Otis Stage Road	Dead End	Grade
Huntington Road	Chester Road	0.32 Miles	New Gravel
Huntington Road	0.32 Miles	Hights Road	New Gravel
JJ Cross Road	North Blandford Road	Dead End	New Gravel
Millard Road	North Blandford Road	Dead End	New Gravel
Miller Swamp	Otis Town Line	Dead End	New Gravel
Old Chester Road	North Blandford Road	Chester Road	New Gravel
Sanderson Brook Road	Chester Town Line	Chester Road	New Gravel
Schoolhouse Hill Road	Second Division Road	Russell Road	Gravel & Drain improvement
Shepard Road	Lloyds Road	Dead End	New Gravel
South Street	Dead End	Blandford Turnpike	New Gravel
Virgil Lloyds Road	Shepard Road	Otis Stage Road	Base Rehabilitation

Investment in smaller routine maintenance projects is often a more fiscally responsible method of managing the deterioration of a roadway. In short, the cost of maintenance improvements to keep a road in fair to good condition is less expensive than the cost to reconstruct a road in poor condition back to new condition. As a result, it is important to have a balanced approach to the development of an annual maintenance plan that addresses roads in poor condition while still providing preventive maintenance to keep roads in fair to good condition.

The final step in the vulnerability assessment is to calculate a Prioritization Score which combines the criticality score and the sensitivity score to help Blandford prioritize their improvement efforts. Table 6 reflects the prioritization score for each Town-accepted unpaved roadway. As can be seen from the table,

the variation between prioritization scoring is not large which is an indication that the roadways are in similar condition with respect to both distress and vulnerability based on existing conditions at the time of the field inventory.

Table 6 - Prioritization Score

Roadway	From	To	Criticality Score	Sensitivity Score	Prioritization Score
Beulah Land Road	Chester Road	Sanderson Brook Road	8	31	39
Blair Road	North Blandford Road	Otis Stage Road	9	30	39
Gibbs Road	Otis Stage Road	2.3 Miles	8	23	31
Gibbs Road	2.3 Miles	Long Pond Road	8	26	34
Hights Road	Huntington Road	Dead End	8	27	35
Hall Road	Unnamed Road	Beech Hill Road	8	25	33
Hayden Road	Birch Hill Road	Cobble Mountain Road	8	34	42
Hiram Blair Road	Otis Stage Road	Dead End	7	31	38
Huntington Road	Chester Road	0.32 Miles	8	25	33
Huntington Road	0.32 Miles	Hights Road	8	33	41
JJ Cross Road	North Blandford Road	Dead End	5	28	33
Millard Road	North Blandford Road	Dead End	8	27	35
Miller Swamp Road	Otis Town Line	Dead End	7	27	34
Old Chester Road	North Blandford Road	Chester Road	7	26	33
Sanderson Brook Road	Chester Town Line	Chester Road	7	24	31
Schoolhouse Hill Road	Second Division Road	Russell Road	12	33	45
Shepard Road	Lloyds Road	Dead End	9	29	38
South Street	Dead End	Blandford Turnpike	7	24	31
Virgil Lloyds Road	Shepard Road	Otis Stage Road	10	32	42

A higher Prioritization Score is another factor a community can use to assist in developing a plan to improve the resiliency of a road. All unpaved roads in Blandford can be expected to deteriorate at a different rate based on a variety of factors. A road with a higher sensitivity score has the potential to be more vulnerable in certain areas based on the extent of certain features such as the impact of wetlands and adjacency to steep slopes. Further, severe rain events can greatly impact the condition of a road and increase the Criticality Score results. It is recommended the Town of Blandford develop a process to regularly update this assessment of their unpaved roads to advance maintenance improvements that maximize the resiliency of their unpaved roads based on current conditions.

Based on feedback received from the Town of Blandford, the current drainage on the majority of roads is inadequate leading to erosion in the middle and sides during heavy rain events. This is most prominent on the steeper sections of road. While there are existing ditches along the side of the road for drainage, the Town believes these require additional improvements alongside efforts to restore the crown of each roadway. A lack of adequate drainage material in the road also causes severe ruts to develop during “mud season” which typically occurs after the winter thaw. This can have a negative impact on service times for emergency services to reach vulnerable residents that live on unpaved roads year-round.

Similarly, the Town believes that many culverts are rotted and subject to clogging each year, replacing the undersized culverts with larger plastic ones remains a top priority of the Blandford Highway Department. It should be noted that PVPC only performed a visual assessment of each culvert as part of this analysis. All segments where a culvert was present were given a culvert rating of 2 as part of the sensitivity scoring, indicating that they are compromised based on visual assessment. A more detailed assessment of each culvert is recommended in order to accurately identify the extent of maintenance required for each culvert.

Blandford Hazard Mitigation Plan

Through the 2016 Hazard Mitigation Plan and the Municipal Vulnerability Preparedness Community Resiliency Building Workshop in 2019, the Town of Blandford has established a list of priorities in order to improve adaptability and mitigation efforts as severe weather due to climate change impacts the community and its infrastructure. These priorities and the Hazard Mitigation Plan laid out the plans that would best maintain and improve infrastructure and resilience to the impacts of climate change:

Indicated as a main area of concern according to residents in the Municipal Vulnerability Preparedness Community Resiliency Building Workshop, state-owned roads and road passability have proven to be significant infrastructure concerns. Cited as the main causes of these issues were lack of maintenance and non-functioning culverts. These transportation-related complications have become yearly occurrences for residents which cause issues as roads are necessary in cases of evacuation due to extreme weather. There is no maintenance of some roads in winter months which leads to impassable roads due to debris. Additionally, culverts with limited capacity can cause flooding on roads. Within the last two decades, Blandford's roads have experienced detrimental impacts due to extreme weather systems like "Snowtober" and Hurricane Irene in 2011, Superstorm Sandy in 2012, and a severe ice storm in 2019. In all of these cases, the storms caused severe road damage or inaccessible roads in the form of flooding causing washed-out roads and downed trees and power lines.

Roads impacted by undersized culverts according to the CRB workshop and HMP:

North Blandford Road
Russell Stage Road (near Nigh/Nye Brook)
Birch Hill Road
Hiram Blair Road
South Street
Cobble Mountain Road (closed since 2001 due to other concerns)
Chester Road
Gore Road

From the Municipal Vulnerability Preparedness Community Resiliency Building Workshop, high-priority recommendations to improve and maintain the infrastructural integrity of roads included surveying the entirety of the town's culvert system and the areas of highest concern of flooding within the system, and ensuring that the culverts and roads stay in functional condition. Medium priority recommendations included improving emergency response conditions on impassable roads, informing drivers of roads that lack winter maintenance through road signs, and adding municipal funding for road maintenance. Highlighted as a low-priority action was re-opening Cobble Mountain Road in partnership with Springfield Water and Sewer Commission amidst security concerns. In the Blandford HMP, planned mitigation efforts include collaborating with the City of Springfield to maintain the Cobble Mountain area roads to combat fire risks, completing a survey of the quality of roads, and establishing a budget to replace culverts and repair water drainage issues near Cobble Mountain Road and South Street. Finally, it was recommended for the town to collaborate with Eversource to ensure that trees do not canopy the road nor touch power lines.

The 2018 Massachusetts State Hazard Mitigation and Climate Adaptation Plan indicated the impact of increasingly extreme weather events on the built environment, including roads. According to the report,

weather events that pose the highest threat to roads and transportation infrastructure in the form of impassable or damaged roads in the state are snow and ice storms, hurricanes, flooding, severe weather, and tornadoes. Snow and ice storms can cause downed wires and which cause blocked roads. Landslides will cause a similar impact by causing road blockages. Hurricanes, flooding, and severe weather can lead to similar problems with an additional risk of washed-out or flooded roads. High levels of snow and cold temperatures can also increase the likelihood of flooding, and impacted roads, through large snow melts. If the ground is frozen and impenetrable, the melted snow cannot infiltrate the ground, which causes excess runoff and subsequent flooding of waterways. Cold temperatures also can cause pipes to burst which causes flooding. Tornadoes also have the potential to destroy bridges. The 2022 Massachusetts Climate Assessment emphasizes that these weather events not only pose a risk to the built environment but also to the safety of residents near roads as people need evacuation routes in emergency situations. Additionally, impassable or inaccessible roads due to weather events may lead to longer response times from emergency personnel. This will adversely impact vulnerable communities, specifically elderly and low income populations, those for whom English is not their primary language, people who suffer from life threatening illnesses, and those who live in isolated areas with limited or no access to main roads. Icy roads will also pose a threat as driving in these conditions increases the chance of car accidents. More events of road destruction and degradation will also increase the need for funding to repair and rebuild these roads. While progressively more frequent weather events on roadways due to climate change will cause these problems throughout the state, including the Pioneer Valley area, the Massachusetts Climate Change Assessment: Regional has indicated that residents of the region will incur higher costs of vehicle maintenance due to substandard quality roads as a result of increased precipitation and subsequent more frequent flooding along with extreme temperatures. As suggested by the assessment, culverts and bridges will also be impacted by these damaging weather conditions.