

CENTRAL MASSACHUSETTS METROPOLITAN PLANNING ORGANIZATION (CMMPO)

Holden - Paxton - Spencer Route 31 Corridor Profile



**INCLUDES
EXCERPTS
RELEVANT TO
MEADOW ROAD,
SPENCER ONLY**

Prepared by the transportation staff of the



September 2014

Prepared in cooperation with the Massachusetts Department of Transportation and the U.S. Department of Transportation – Federal Highway Administration and the Federal Transit Administration. The views and opinions of the Central Massachusetts Regional Planning Commission expressed herein do not necessarily reflect those of the Massachusetts Department of Transportation or the U.S. Department of Transportation.

Other concerns

- General heavy vehicle (truck) traffic volumes using Route 31.
- Automotive carrier trucks, many originating in Spencer/East Brookfield. *(Reference NEAG operator observations from earlier meeting.)*

1.9 Town of Spencer

Intersection Congestion

- At the Route 9/Meadow Road/South Spencer Road intersection, northbound vehicle queuing lanes are of insufficient length. It is suggested to expand/lengthen the South Spencer Road northbound approach vehicle queuing lanes. This improvement is necessary to accommodate FLEXcon generated traffic, especially during peak flow periods. Currently, vehicles have been observed to drive over the existing roadway curbing. In addition, the community has requested an access and accident study for Big Y plaza. *(This location is outside the CMMPO established CP study area.)*

Intersection Safety

- The Route 31 (North Spencer Road)/Route 31 (Pleasant Street)/Meadow Road/Wire Village Road study intersection has caused safety concerns due to its recent crash history. In late 2013, this intersection completed FHWA-funded “STOP” sign improvements that feature new signs and advanced warning on all approaches. These improvements were screened and approved by MassDOT. *(A statewide summary of this work has been obtained for the Technical Appendix.)* Supplemental advisory signs noting street names have also been installed on the Route 31 approaches to this study location. One of the new signs is obstructed by S-12-002 bridge posting. This just happens to be the highest speed approach.

Roadway Condition

- Deteriorating pavement conditions worsen on Spencer’s northern most segments of Route 31. Along these northerly segments approaching the Paxton town line, the magnitude and extent of severe alligator cracking and rutting becomes increasingly larger.

~~Roadway Geometry~~

- ~~Address the sharp curve in Route 31 just south of the Spencer/Paxton town line. Substandard roadway geometry, can it be *moderated or straightened* in some manner? This site exhibits low travel speeds due to the extremely limited lines of sight.~~

Vegetation is also encroaching upon the roadway. Potential improvement options include:

- Do nothing
 - Spot improvement
 - Structure relocation
 - Roadway realignment, short and long. *Need to examine parcel map.*
- The Meadow Road vertical approach to Route 31 needs to be raised to improve visibility approaching and at the intersection.

Access Management

- Curb cut consolidation and other Access Management improvements suggested for local roads and abutting private properties along length of Spencer study section.

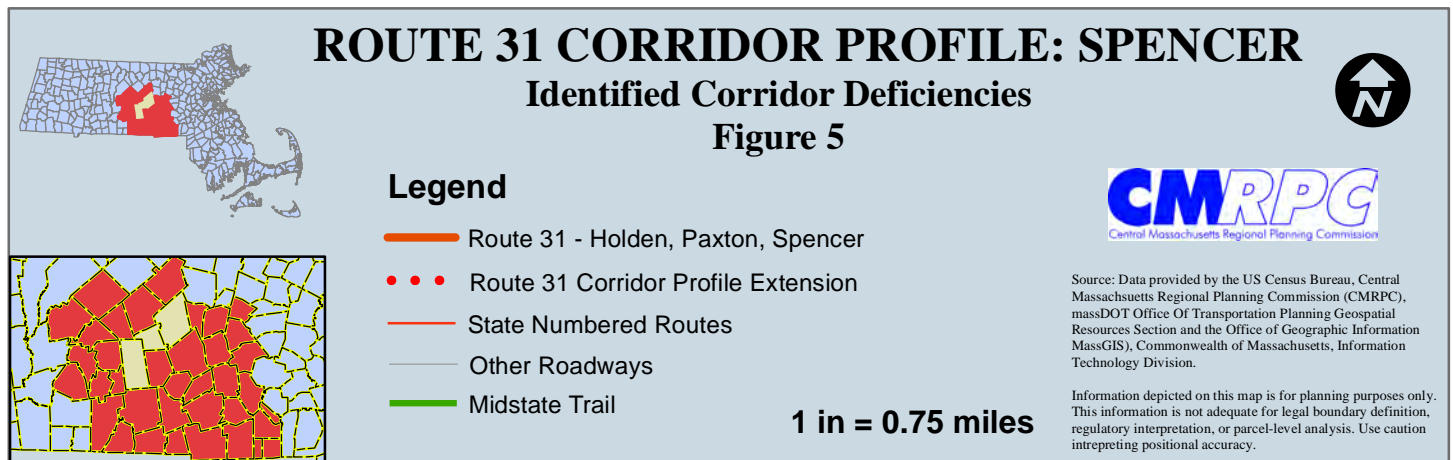
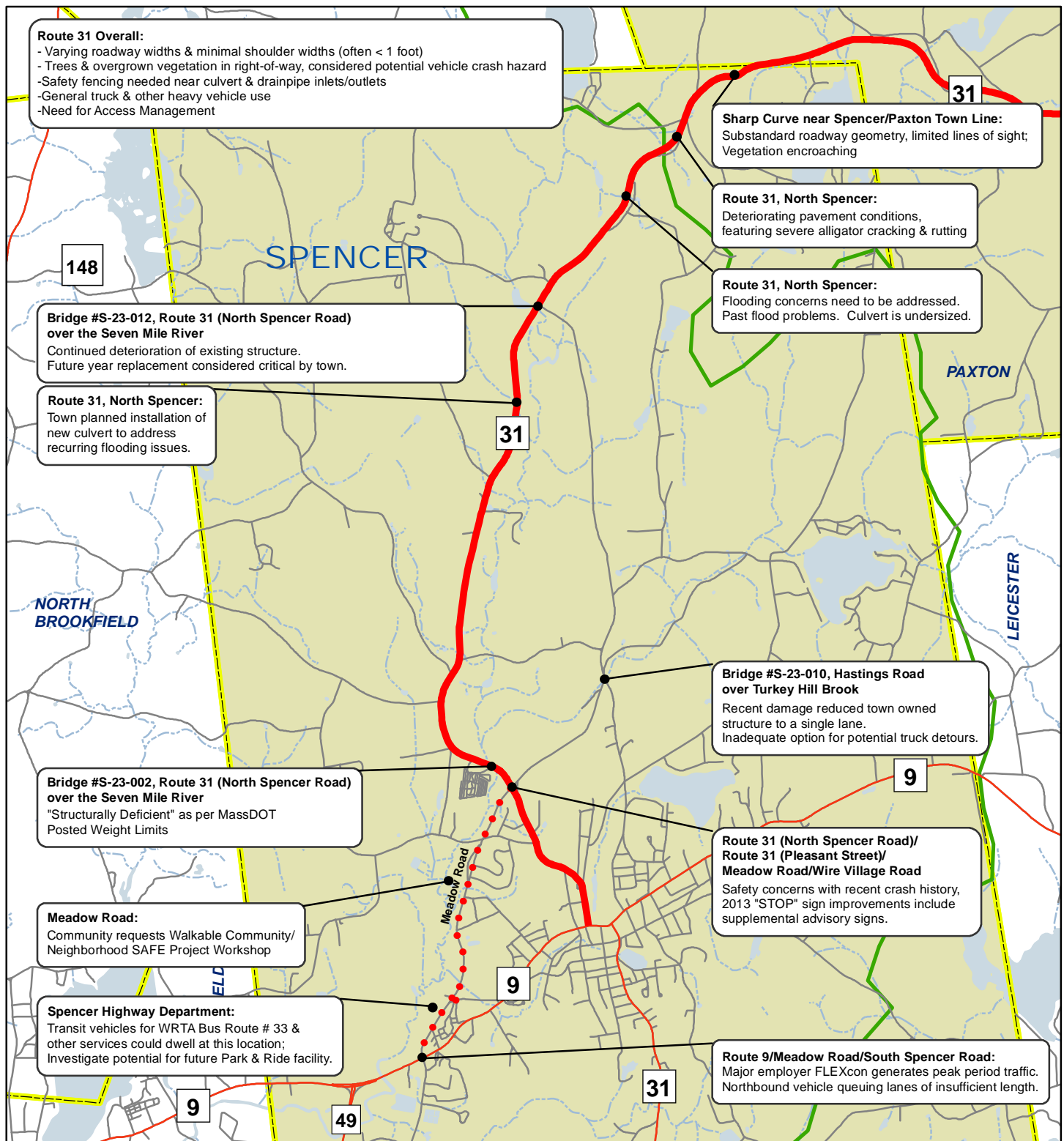
Bridge

- Bridge Number S-23-002, Route 31 (North Spencer Road) over Seven Mile River: Identified by MassDOT as “Structurally Deficient”, weight limits are posted for this bridge. *(Refer to 4/5/2012 MassDOT bridge inspection report.)*
- Bridge Number S-23-012, Route 31 (North Spencer Road) over Seven Mile River: Continued deterioration of existing structure; will require future year replacement, considered critical by town.
- A related topic, the recently damaged Bridge Number S-23-010, Hastings Road over Turkey Hill Brook has caused that crossing to be reduced to a single lane and therefore is now an even worse option for an alternate truck detour (including NEAG generated trucks) when more significant deterioration and loading problems eventually occur on the Route 31 bridges. *The need to use limited town funds to repair this structure further reduces the likelihood that the town could address deterioration on the above summarized Route 31 bridges.*
- Route 31 North Spencer, undersized culvert structures with past flooding issues; there exists potential for future flooding occurrences. At one location, town plans the installation of a new culvert to address recurring flooding issues. *(See plan provided by community.)*

Public Transit

- It has been suggested that Spencer Highway Department property on Meadow Road could be used for a long-term future “Fastcharger” location for electric buses or

potential Park & Ride facility. The Worcester Regional Transit Authority (WRTA) Bus Route #33 could serve such a PNR lot. Further, WRTA buses and other transit vehicles could dwell, or wait between trips, at this location away from residential areas. At a minimum, the Meadow Road improvement project should include revised transit accommodations





ROUTE 31 CORRIDOR PROFILE: SPENCER

Environmental Profile

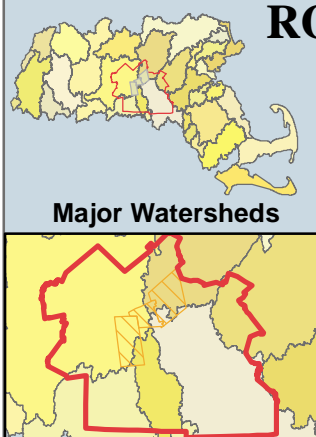
Figure 12

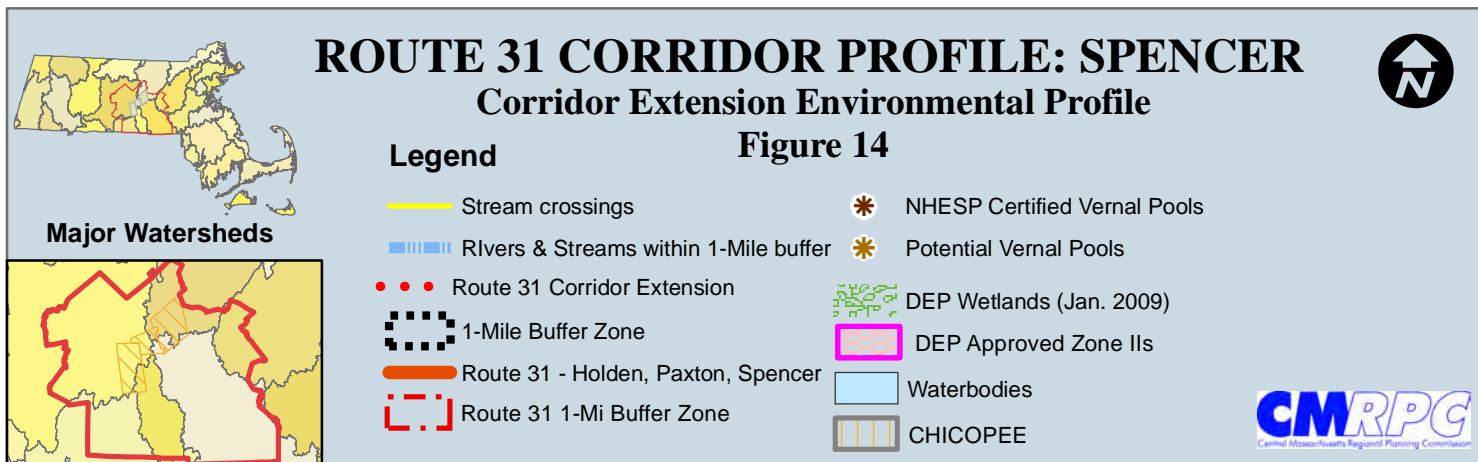
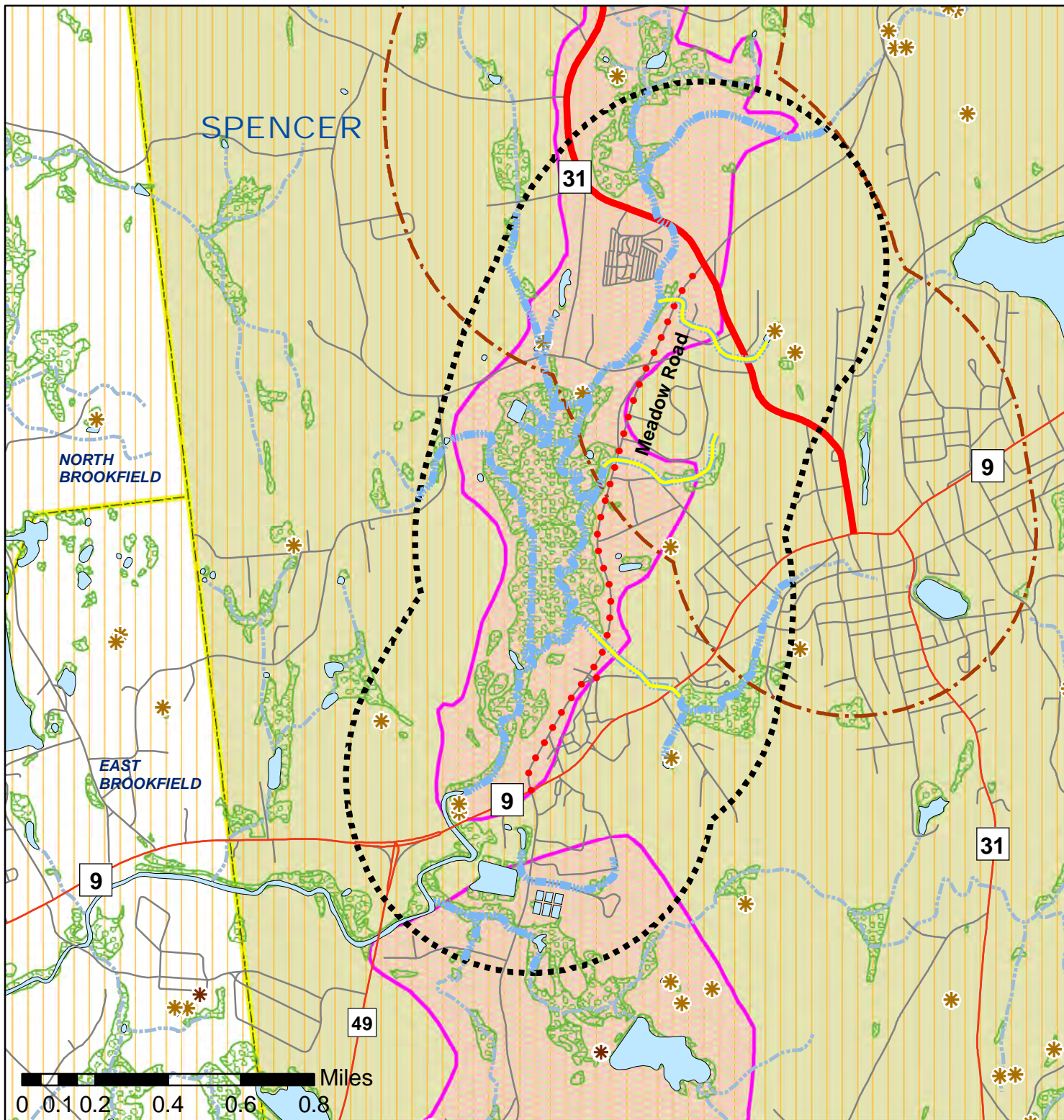


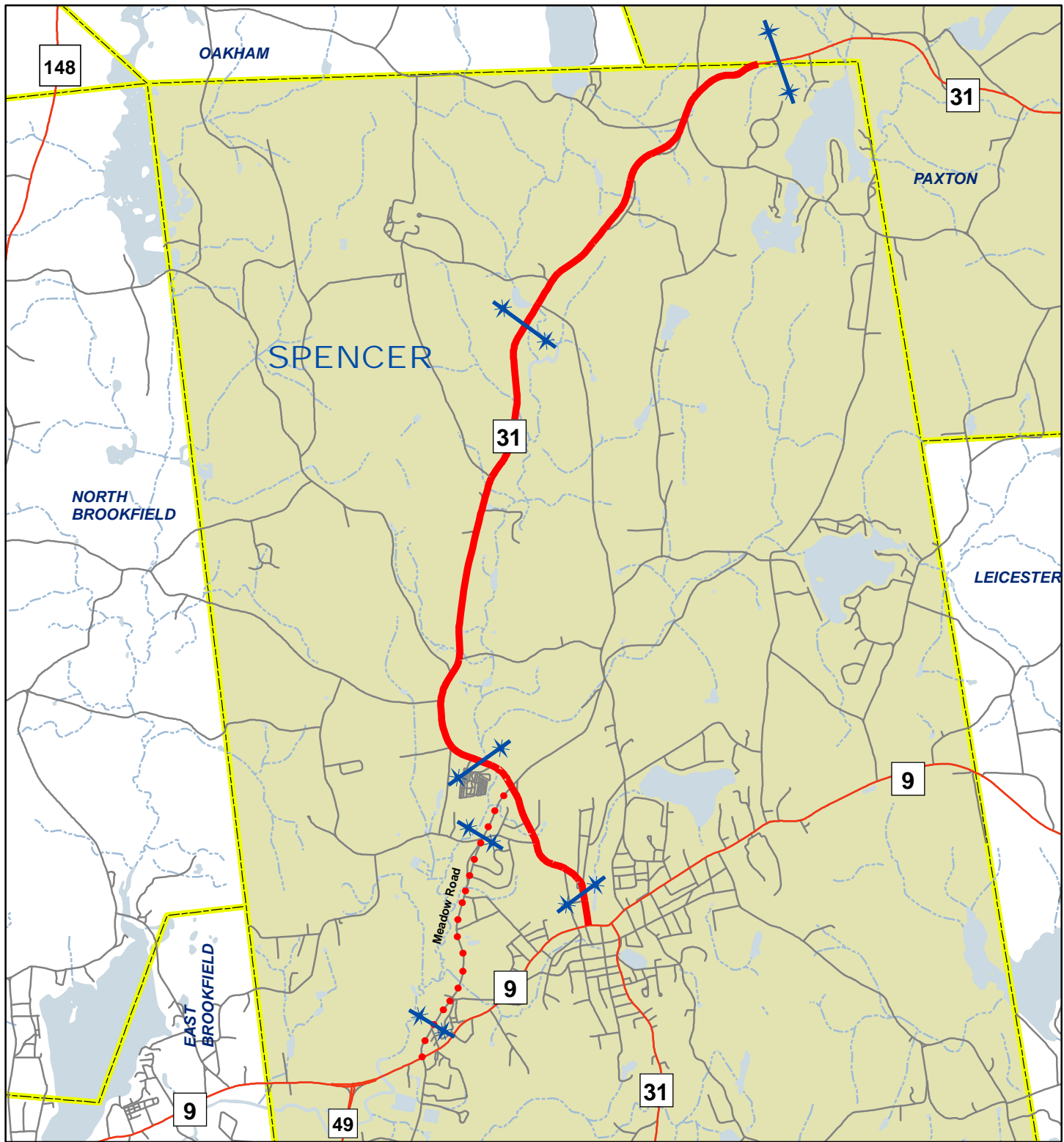
Legend

- Route 31 - Holden, Paxton, Spencer
- - - Route 31 1-Mi Buffer Zone
- Streams Intersecting Rt 31
- Rivers & Streams
- * NHESP Certified Vernal Pools
- * Potential Vernal Pools

- DEP Approved Zone IIs
- DEP Wetlands (Jan. 2009)
- Waterbodies Intersecting Rt 31
- Waterbodies
- CHICOPEE
- FRENCH
- Towns







ROUTE 31 CORRIDOR PROFILE: SPENCER

Traffic Count Locations

Figure 17

Legend

★ — ★ ATR

— Route 31 - Holden, Paxton, Spencer

• • • Route 31 Corridor Extensions

— Roads

— State Route

1 in = 0.75 miles



Source: Data provided by the US Census Bureau, Central Massachusetts Regional Planning Commission (CMRPC), massDOT Office Of Transportation Planning Geospatial Resources Section and the Office of Geographic Information MassGIS), Commonwealth of Massachusetts, Information Technology Division.

Information depicted on this map is for planning purposes only. This information is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis. Use caution interpreting positional accuracy.

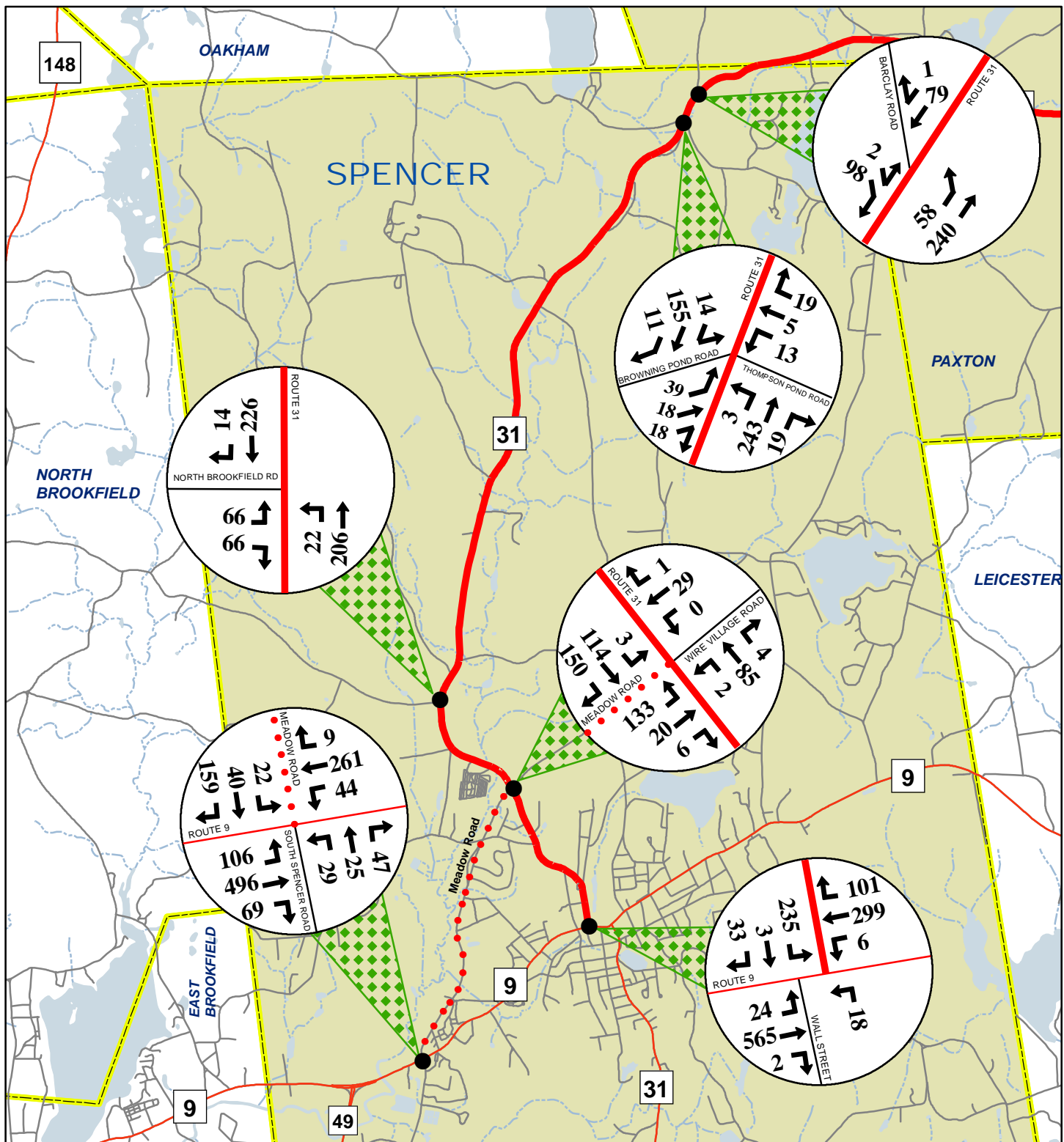
Table 2
Route 31 Corridor Profile
Existing Daily Traffic Volumes

<u>Town</u>	<u>ATR Location</u>	<u>Date</u>	<u>Volume*</u>
Holden	Manning Street @ West Boylston Town Line**	5/2/2013	7,050
	Route 31 north of Route 122A	5/2/2013	7,950
	Route 31 south of Route 122A	5/2/2013	12,550
	Route 31 north of Reservoir Street	5/7/2013	7,750
	Route 31 @ Paxton Town Line	5/7/2013	5,575
Paxton	Route 31 (Grove Street) between Holden Rd & Maple St	5/7/2013	6,375
	Route 31 east of Route 56	5/7/2013	3,950
	Route 31 west of Route 122	5/7/2013	5,925
	Route 31 west of Route 122***	4/9/2013	5,900
	Route 31 @ Spencer Town Line	5/21/2013	3,525
Spencer	Route 31 south of Hastings Road	6/6/2013	5,450
	Route 31 north of Wire Village Road	5/21/2013	7,000
	Route 31 north of Wire Village Road***	4/9/2013	6,925
	Route 31 north of Route 9	5/23/2013	5,900
	Meadow Road south of Route 31**	5/23/2013	4,600
	Meadow Road north of Route 9**	5/23/2013	5,825

*Vehicles Per Day (VPD)

**Additional ATR Locations Requested By Host Communities

***Recent MassDOT Conducted Counts - Statewide Traffic Monitoring Effort



ROUTE 31 CORRIDOR PROFILE: SPENCER

Existing Traffic Flows
AM Peak Hour Period
Figure 30



Legend

- Route 31 - Holden, Paxton, Spencer
- ... Route 31 Corridor Profile Extension
- State Numbered Routes
- Other Roadways



Source: Data provided by the US Census Bureau, Central Massachusetts Regional Planning Commission (CMRPC), massDOT Office Of Transportation Planning Geospatial Resources Section and the Office of Geographic Information MassGIS), Commonwealth of Massachusetts, Information Technology Division.

Information depicted on this map is for planning purposes only. This information is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis. Use caution interpreting positional accuracy.

1 in = 0.75 miles

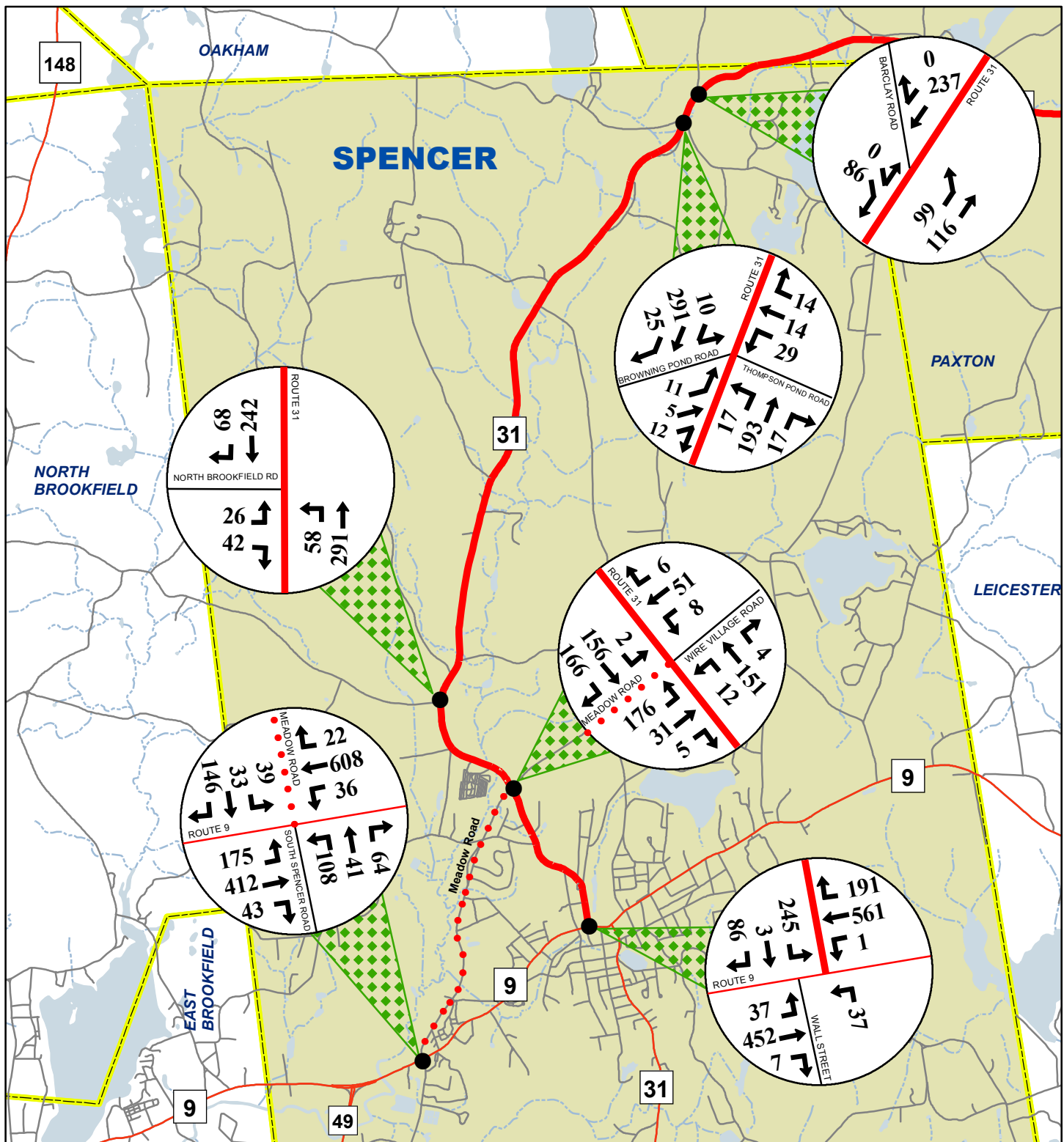
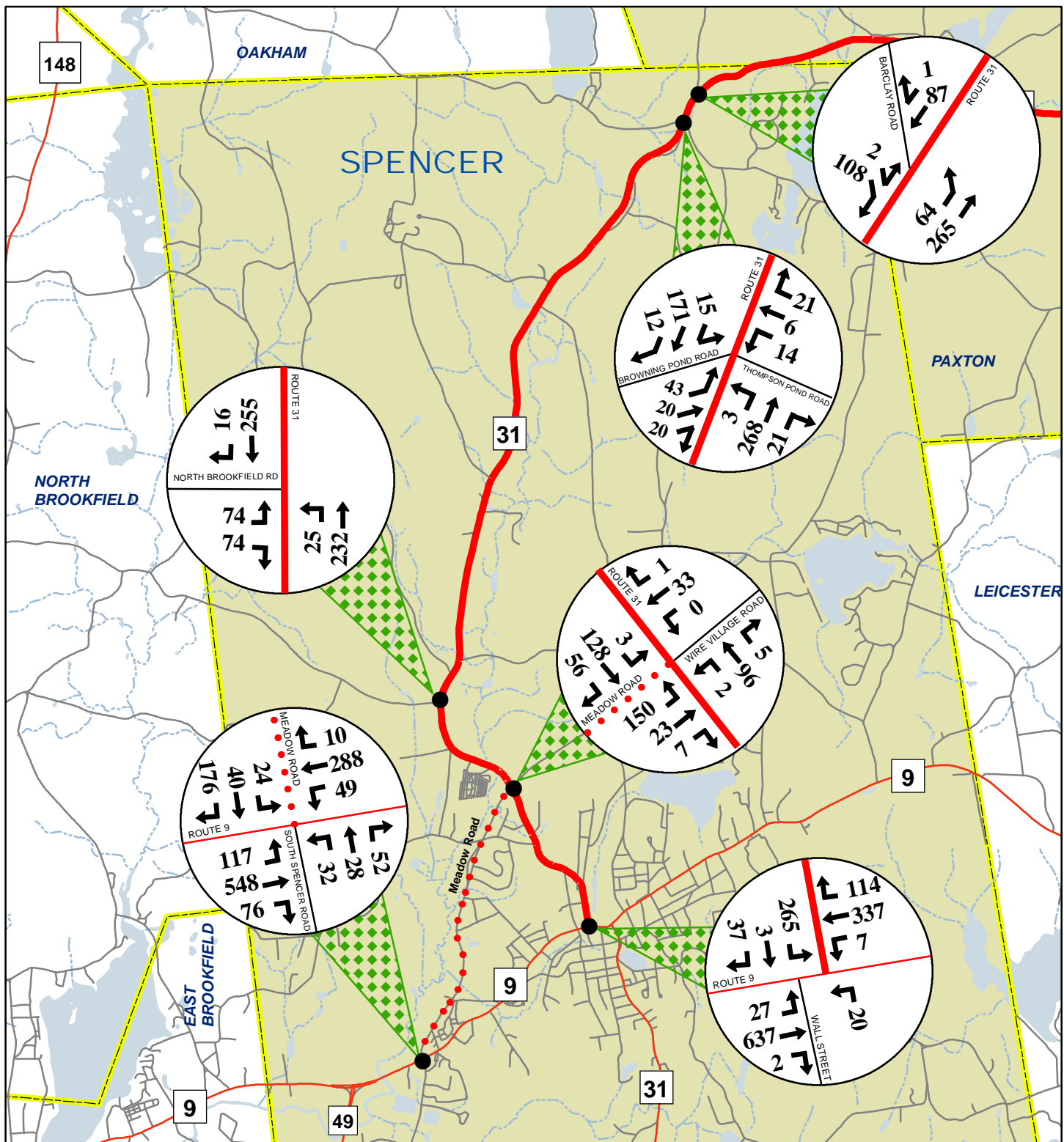


TABLE 4

**Percentage of Heavy Vehicles
Utilizing Route 31 Focus Intersections**

	<u>Study Intersection</u>	<u>Date of Count</u>	<u>Morning Peak Hour %</u>	<u>Evening Peak Hour %</u>
Holden	Route 31 / Route 122A	May '13	5.7%	1.1%
	Route 31 / Holden Commons	June '13	2.5%	1.0%
	Route 31 / Mixer Rd / Reservoir St	May '13	4.3%	1.5%
Paxton	Route 31(Holden Rd) / Grove St	May '13	3.4%	2.7%
	Route 31(Maple St) / Grove St	May '13	2.8%	1.7%
	Route 31 / Route 56	August '12	3.9%	1.9%
	Route 31 / Route 122	August '12	1.7%	1.6%
	Route 31 / Suomi St	June '13	2.7%	1.8%
Spencer	Route 31 / Barclay Rd	June '13	3.5%	2.0%
	Route 31 / Browning Pond Rd / Thompson Pond Rd	June '13	4.5%	2.5%
	Route 31 / North Brookfield Rd	July '11	3.5%	0.4%
	Route 31 / Meadow Rd / Wire Village Rd	July '11	3.5%	0.4%
	Route 31 / Route 9 / Wall St	April '11	6.8%	1.5%
<u>Additional Town Requested Locations</u>				
Holden	Route 31 / Manning St	May '13	4.8%	2.6%
Spencer	Route 31 / Route 9 / South Spencer Rd	August '13	5.4%	1.5%
Peak Hour Averages			3.9%	1.6%



ROUTE 31 CORRIDOR PROFILE: SPENCER

Projected 2023 Traffic Flows

AM Peak Hour Period

Figure 36



Legend

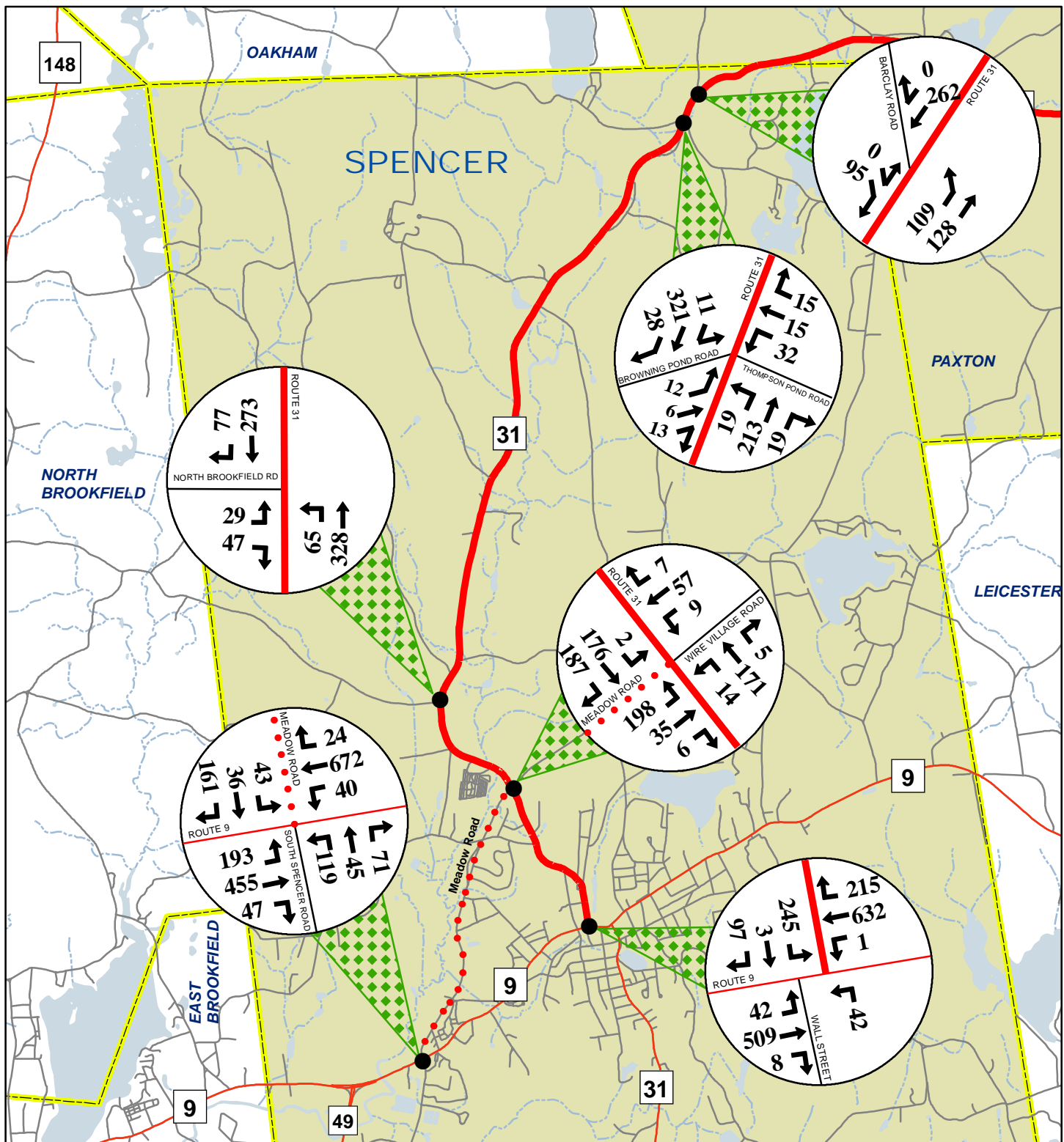
- Route 31 - Holden, Paxton, Spencer
- Route 31 Corridor Profile Extension
- State Numbered Routes
- Other Roadways



Source: Data provided by the US Census Bureau, Central Massachusetts Regional Planning Commission (CMRPC), massDOT Office Of Transportation Planning Geospatial Resources Section and the Office of Geographic Information MassGIS), Commonwealth of Massachusetts, Information Technology Division.

Information depicted on this map is for planning purposes only. This information is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis. Use caution interpreting positional accuracy.

1 in = 0.75 miles



ROUTE 31 CORRIDOR PROFILE: SPENCER

Projected 2023 Traffic Flows

PM Peak Hour Period

Figure 37

Legend

- Route 31 - Holden, Paxton, Spencer
- ... Route 31 Corridor Profile Extension
- State Numbered Routes
- Other Roadways



Source: Data provided by the US Census Bureau, Central Massachusetts Regional Planning Commission (CMRPC), massDOT Office Of Transportation Planning Geospatial Resources Section and the Office of Geographic Information MassGIS), Commonwealth of Massachusetts, Information Technology Division.

Information depicted on this map is for planning purposes only. This information is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis. Use caution interpreting positional accuracy.

1 in = 0.75 miles

4.4 Town of Spencer Additional Study Segment: Meadow Road

Requested from the town of Spencer, Meadow Road was an additional roadway segment that was studied for the Route 31 Corridor Profile. Similar to Route 31, vehicle crash records were analyzed for a three-year period. All crashes along Meadow Road from Route 31 to Route 9 were tabulated. However, crashes at the Route 31/Meadow Road/Wire Village Road were not included as part of this additional analysis as they have been already analyzed elsewhere. Crashes on minor streets that were close to or at Meadow Road were also included. All important information from the crash reports was organized and included in the various tables and figures that follow.

As shown in **Table 14**, there were a total of 29 crashes reported during the three-year study period. The Route 9 intersection had the most with a total of 13. There were only three crashes that caused a personal injury and the rest was property damage only. Angle crashes were the most common occurrence with a total of nine, followed by sideswipes and rear-ends with five each. The crashes were evenly distributed between the four seasons with a range of six to nine crashes in each. The top two days that vehicle crashes occurred most frequently were Friday and Sunday. Both days accounted for at least 20% of the overall crashes. Only seven crashes occurred during the AM or PM peak periods, with the remaining 22 the rest of the time. The majority of crashes were during clear weather, during the daytime hours, with dry roadway conditions, but not always occurring at the same time.

Figure 43 is a crash diagram of the Meadow Road/Route 9/South Spencer Road intersection. This diagram displays the location of each of the 13 crashes that occurred at this location. There were four sideswipe crashes and three each of angle, rear-end, and cross movement crashes. Two of the angle crashes occurred at the Hess gas station at the southwest corner of the intersection. This could have happened when the exiting vehicle did not see the vehicle in the second travel lane while a vehicle in the first travel lane was stopped. The other angle crash was caused by a vehicle that drove through the red light. Fortunately, only one of the 13 crashes resulted in personal injury. All but three crashes were during the daylight hours and only three were not on a dry roadway surface.

In **Table 15**, all 29 of the Meadow Road crashes are listed. The crashes are ordered by the location starting with 100 Meadow Road and then heading south towards Route 9. The details about each crash are listed along with any violations or comments. Out of the 29 crashes, 19 occurred at intersecting streets and the remaining ten crashes happened between the minor streets. The lines shaded in gray are non-intersection crashes. There were 7 crashes that the driver of at least one of the vehicles involved was cited for a violation. Also, there were two vehicle crashes in which the driver lost control of the vehicle and hit a tree.

Table 14

**SUMMARY OF REPORTED VEHICLE CRASHES
ON MEADOW ROAD IN THE TOWN OF SPENCER
JULY 1, 2010 - JUNE 30, 2013**

<u>Meadow Rd Location</u>	<u>July '10-June '13</u>		<u>Day of the Week:</u>	
Smithville Road	3		Monday	4 14%
School Street	1		Tuesday	2 7%
Fourth Avenue	1		Wednesday	5 17%
Olde Main Street	1		Thursday	2 7%
Route 9	13		Friday	6 21%
Other Roadway Segments	10		Saturday	3 10%
Total	29		Sunday	7 24%
				29 100%
			<u>Time of Day:</u>	
<u>Severity:</u>			7 - 9 AM	4 14%
Property damage only	26	90%	4 - 6 PM	3 10%
Personal injury	3	10%	Remainder	22 76%
Fatality	0	0%		29 100%
	29	100%	<u>Weather Conditions:</u>	
<u>Crash Type:</u>			Clear	12 42%
Angle	9	31%	Cloudy	9 31%
Sideswipe	5	17%	Rain	5 17%
Rear End	5	17%	Snow	3 10%
Cross Move	3	10%		29 100%
Fixed Object	3	10%	<u>Light Conditions:</u>	
Hit Parked Car	2	7%	Daylight	20 68%
Hit Deer	1	4%	Dark	7 24%
Other	1	4%	Dusk	1 4%
	29	100%	Dawn	1 4%
				29 100%
<u>Season:</u>			<u>Road Conditions:</u>	
Winter	8	27%	Dry	15 51%
Spring	6	21%	Wet	12 42%
Summer	9	31%	Snow	2 7%
Fall	6	21%		29 100%
	29	100%		

(Bold text indicates crash diagram compiled)

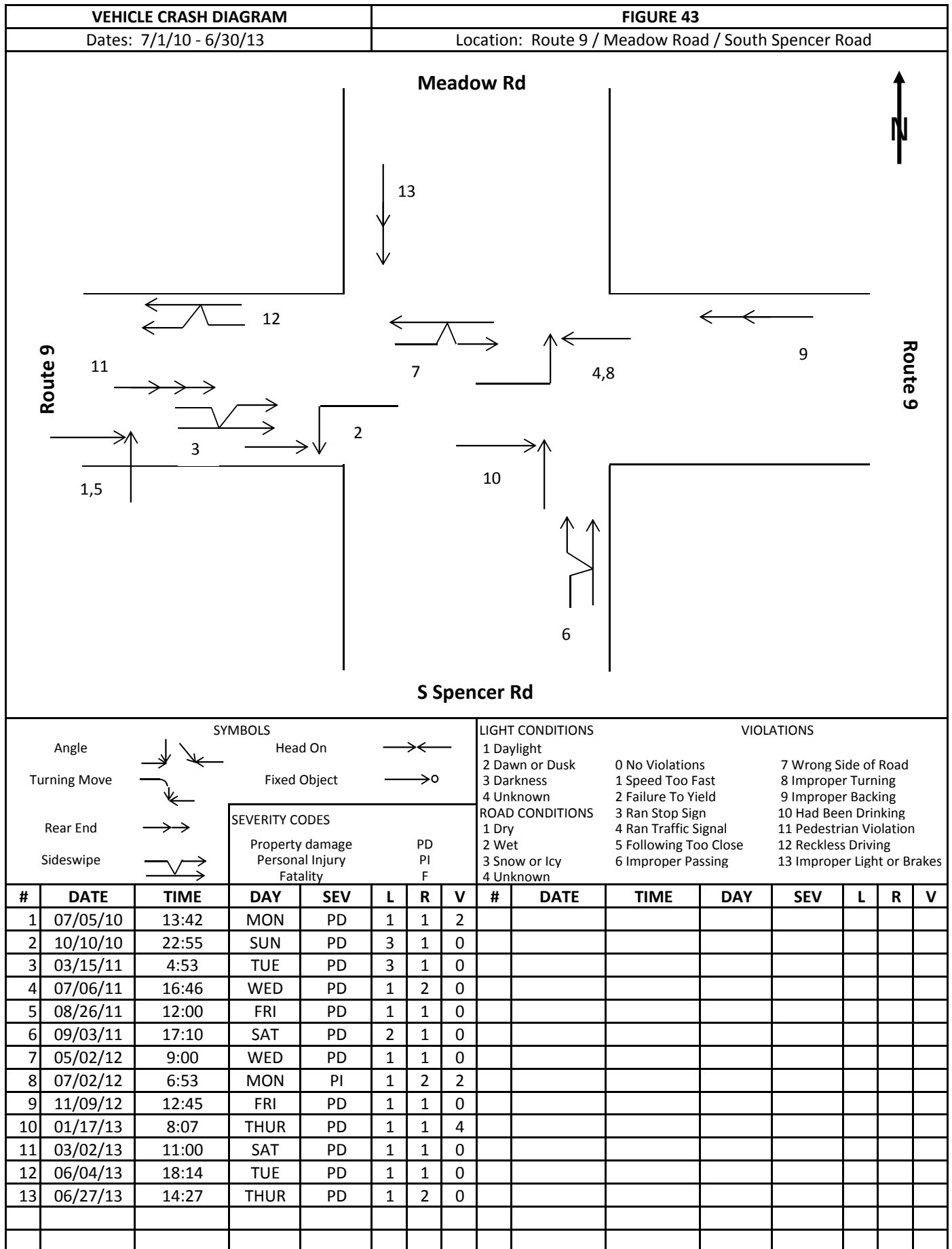


TABLE 15 Spencer - Meadow Road Vehicle Crash Inventory

#	SPD ID #	Meadow Road Location	Date	Day of Week	Time of Day	Type	Severity	Conditions			
								Weather	Light	Road	Violations/Comments
1	459078	100 Meadow Rd	03/09/13	Saturday	18:40	Fixed Object	Property Damage	Clear	Dark	Dry	Hit Pole
2	411283	97 Meadow Rd	10/04/10	Monday	7:00	Angle	Property Damage	Cloudy	Daylight	Wet	Car Backing Out of Driveway
3	418672	91 Meadow Rd	02/21/11	Monday	10:19	Hit Parked Car	Property Damage	Snow	Daylight	Wet	None
4	463737	90 Meadow Rd	06/02/13	Sunday	23:03	Hit Parked Car	Property Damage	Cloudy	Dark	Wet	Hit and Run Accident
5	437626	Meadow Rd/Smithville Rd	02/01/12	Wednesday	20:29	Angle	Personal Injury	Cloudy	Dark	Wet	Ran Stop Sign
6	449954	Meadow Rd/Smithville Rd	09/16/12	Sunday	20:30	Angle	Property Damage	Clear	Dark	Dry	None
7	456414	Meadow Rd/Smithville Rd	01/16/13	Wednesday	8:49	Angle	Property Damage	Snow	Daylight	Snowy	Slid Thru Stop Sign
8	425003	Meadow Rd/School St	06/17/11	Friday	9:56	Angle	Property Damage	Rain	Daylight	Wet	Failure to Yied Right of Way
9	415163	Meadow Rd/Fourth Ave	12/15/10	Wednesday	18:10	Hit Deer	Property Damage	Cloudy	Dark	Wet	None
10	449917	Near Sewer Pumping Station	09/16/12	Sunday	6:45	Hit Sewer Station	Property Damage	Clear	Dawn	Dry	None
11	457626	34 Meadow Rd	02/08/13	Friday	14:52	Fixed Object	Personal Injury	Snow	Daylight	Snowy	Lost Control & Hit Tree
12	416466	30 Meadow Rd	01/09/11	Sunday	9:22	Fixed Object	Property Damage	Cloudy	Daylight	Wet	Lost Control & Hit Tree
13	456103	Meadow Rd/Olde Main St	01/11/13	Friday	14:15	Angle	Property Damage	Rain	Daylight	Wet	Failure to Yield Right of Way
14	422362	1 Meadow Rd	05/01/11	Sunday	11:58	Rear End	Property Damage	Clear	Daylight	Dry	None
15	422718	1 Meadow Rd	05/08/11	Sunday	10:30	Sideswipe	Property Damage	Rain	Daylight	Wet	None
16	426688	Meadow Rd/Big Y Plaza Entrance	07/15/11	Friday	17:20	Rear End	Property Damage	Clear	Daylight	Dry	None
17	405649	Meadow Rd/Route 9	07/05/10	Monday	13:42	Angle	Property Damage	Clear	Daylight	Dry	Failure to Yield Right of Way
18	411606	Meadow Rd/Route 9	10/10/10	Sunday	22:55	Cross Move	Property Damage	Clear	Dark	Dry	None
19	419897	Meadow Rd/Route 9	03/15/11	Tuesday	4:53	Sideswipe	Property Damage	Cloudy	Dark	Dry	None
20	425068	Meadow Rd/Route 9	07/06/11	Wednesday	16:46	Cross Move	Property Damage	Rain	Daylight	Wet	None
21	428867	Meadow Rd/Route 9	08/26/11	Friday	12:00	Angle	Property Damage	Clear	Daylight	Dry	None
22	429453	Meadow Rd/Route 9	09/03/11	Saturday	17:10	Sideswipe	Property Damage	Clear	Dusk	Dry	None
23	442287	Meadow Rd/Route 9	05/02/12	Wednesday	9:00	Sideswipe	Property Damage	Cloudy	Daylight	Dry	None
24	445682	Meadow Rd/Route 9	07/02/12	Monday	6:53	Cross Move	Personal Injury	Cloudy	Daylight	Wet	Failure to Yield While Turning
25	452875	Meadow Rd/Route 9	11/09/12	Friday	12:45	Rear End	Property Damage	Clear	Daylight	Dry	None
26	456468	Meadow Rd/Route 9	01/17/13	Thursday	8:07	Angle	Property Damage	Clear	Daylight	Dry	Ran Red Light
27	458688	Meadow Rd/Route 9	03/02/13	Saturday	11:00	Rear End	Property Damage	Cloudy	Daylight	Dry	None
28	463888	Meadow Rd/Route 9	06/04/13	Tuesday	18:14	Sideswipe	Property Damage	Clear	Daylight	Dry	None
29	465150	Meadow Rd/Route 9	06/27/13	Thursday	14:27	Rear End	Property Damage	Rain	Daylight	Wet	None

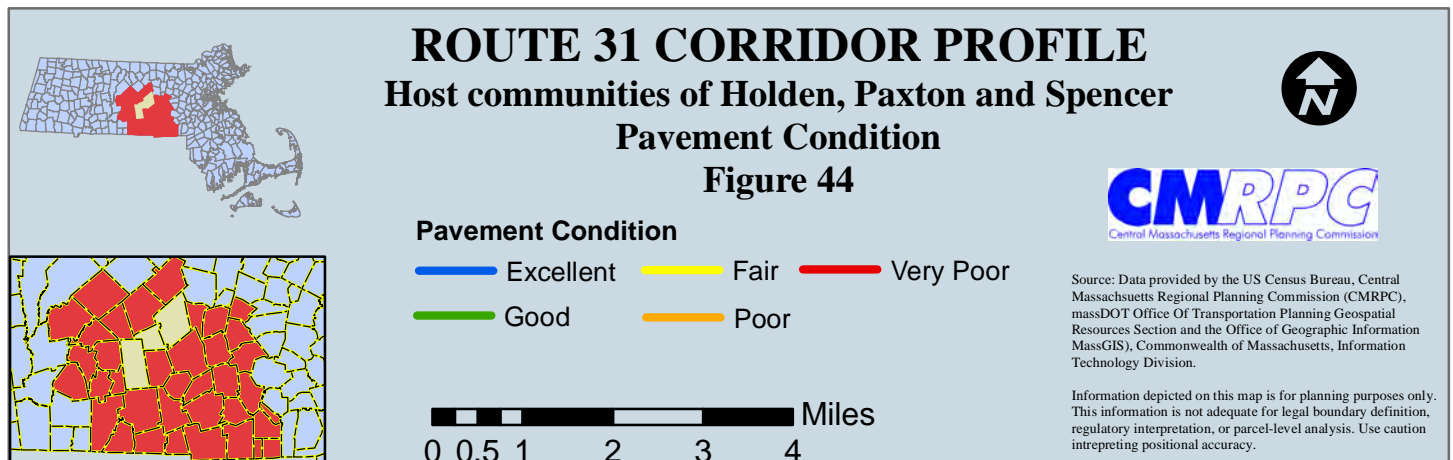
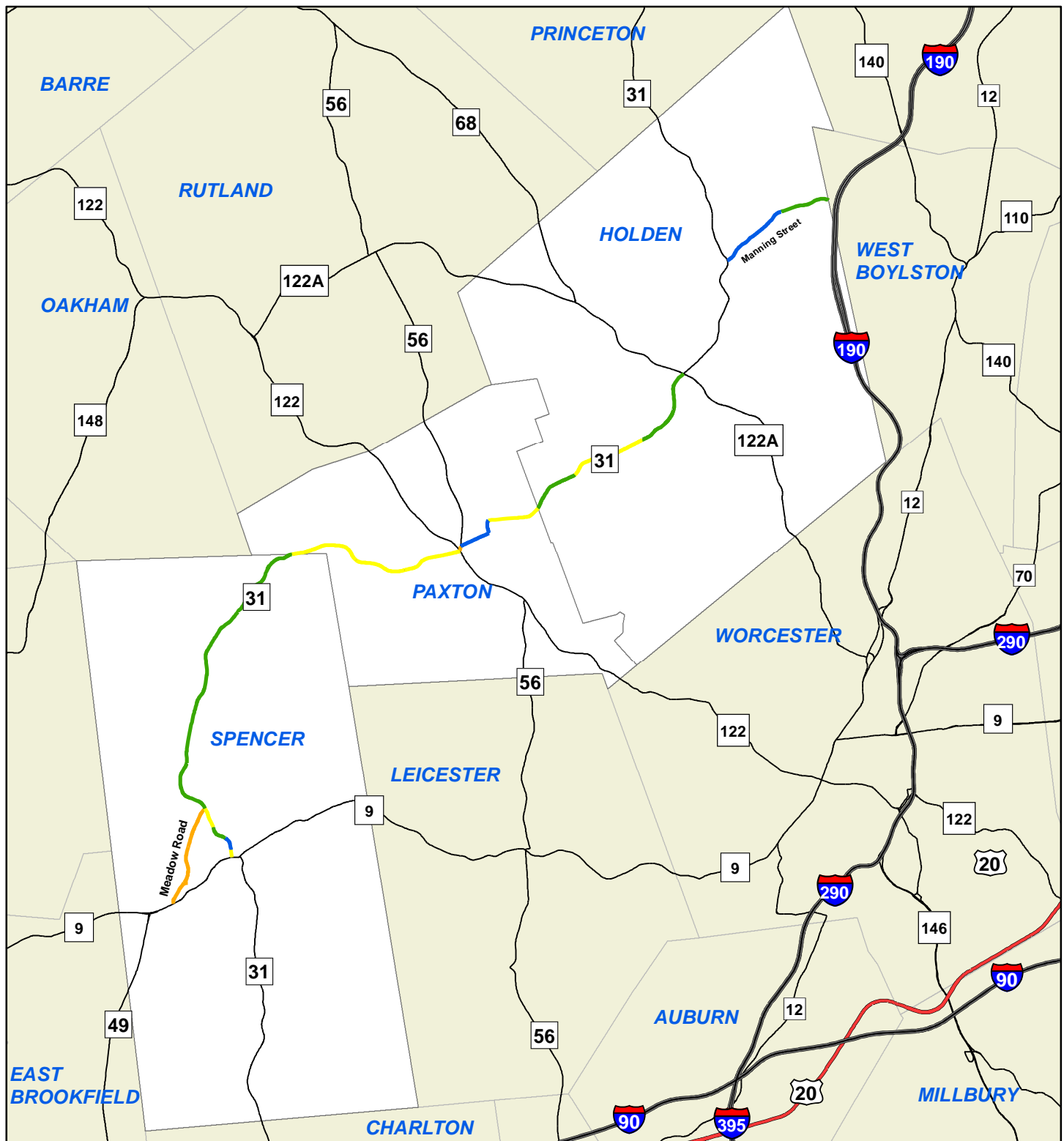


Table 16

Route 31 Pavement Analysis Recommendations

Town	Street	From	To	Length	Plan Activity	OCI
Holden	MANNING STREET*	WEST BOYLSTON TOWN LINE	NORTH STREET	0.75 mi	ROUTINE MAINTENANCE	83.2
Holden	MANNING STREET	NORTH STREET	GENERAL HOBBS ROAD	0.71 mi	DO NOTHING	94.4
Holden	MANNING STREET	GENERAL HOBBS ROAD	WACHUSETT STREET	0.40 mi	DO NOTHING	94.4
Holden	RESERVOIR STREET	MAIN STREET	AVERY HEIGHTS DRIVE	0.61 mi	ROUTINE MAINTENANCE	87.2
Holden	RESERVOIR STREET	AVERY HEIGHTS DRIVE	SOUTH ROAD	0.68 mi	ROUTINE MAINTENANCE	84.0
Holden	SOUTH ROAD (EB/WB)	RESERVOIR STREET	PAXTON ROAD	1.20 mi	PREVENTATIVE MAINTENANCE	61.3
Holden	PAXTON ROAD	SOUTH ROAD	PAXTON TOWNLINE	0.79 mi	ROUTINE MAINTENANCE	81.7
Paxton	HOLDEN ROAD	GROVE STREET	HOLDEN TOWNLINE	0.70 mi	PREVENTATIVE MAINTENANCE	48.5
Paxton	GROVE STREET	MAPLE STREET	HOLDEN ROAD	0.40 mi	DO NOTHING	99.2
Paxton	MAPLE STREET	RICHARDS AVENUE	GROVE STREET	0.40 mi	DO NOTHING	98.4
Paxton	CHURCH STREET	PLEASANT STREET	RICHARDS AVENUE	0.10 mi	STRUCTURAL IMPROVEMENT	25.3
Paxton	WEST STREET	SUOMI STREET	PLEASANT STREET	0.80 mi	PREVENTATIVE MAINTENANCE	64.0
Paxton	WEST STREET	BLACKHILL ROAD	SUOMI STREET	0.70 mi	PREVENTATIVE MAINTENANCE	57.2
Paxton	WEST STREET	SPENCER TOWNLINE	BLACKHILL ROAD	1.00 mi	PREVENTATIVE MAINTENANCE	49.1
Spencer**	NORTH SPENCER ROAD	PAXTON TOWNLINE	BARCLAY ROAD	0.69 mi	ROUTINE MAINTENANCE	69.6
Spencer	NORTH SPENCER ROAD	BARCLAY ROAD	PLEASANT STREET	4.53 mi	DO NOTHING	88.2
Spencer	PLEASANT STREET	MEADOW ROAD	200' N OF SMITHVILLE ROAD	0.50 mi	PREVENTATIVE MAINTENANCE	51.5
Spencer	PLEASANT STREET	200' N OF SMITHVILLE ROAD	100' N OF HIGH STREET	0.42 mi	ROUTINE MAINTENANCE	80.2
Spencer	PLEASANT STREET	100' N OF HIGH STREET	400' N OF MAIN STREET	0.53 mi	DO NOTHING	99.7
Spencer	PLEASANT STREET	400' N OF MAIN STREET	MAIN STREET	0.14 mi	PREVENTATIVE MAINTENANCE	64.2
Spencer	MEADOW ROAD*	PLEASANT STREET	WEST MAIN STREET	1.98 mi	STRUCTURAL IMPROVEMENT	33.6

*The towns of Holden & Spencer requested that these two additional roadways be analyzed.

**The pavement in the town of Spencer was collected and analyzed by Fay, Spofford & Thorndike.

alligator and transverse/longitudinal cracks, low severity surface wear, and high severity rutting.

In addition, the combined OCI of Manning Street is 90.7, which is in the “Do Nothing” category. Low severity distortions, alligator cracks, and rutting that were observed in the field.

5.3 Town of Paxton Overall Condition Index (OCI)

For the town of Paxton the pavement data was collected in 2011. Conditions might thus be worse now; this depends how much road maintenance has been done by the town over the last few years. The map shows that Route 31 is mainly in the “Preventative Maintenance” category, but there are a couple of sections such as Grove Street and Maple Street that are in the “Do Nothing” category. Lastly, the Church Street segment is in the “Structural Improvement” category. The Holden Road segment has an OCI of 48.5 and thus categorized as “Preventative Maintenance”, but it could as easily be considered “Structural Improvement” since the OCI of 48.5 is right on the border of the categories.

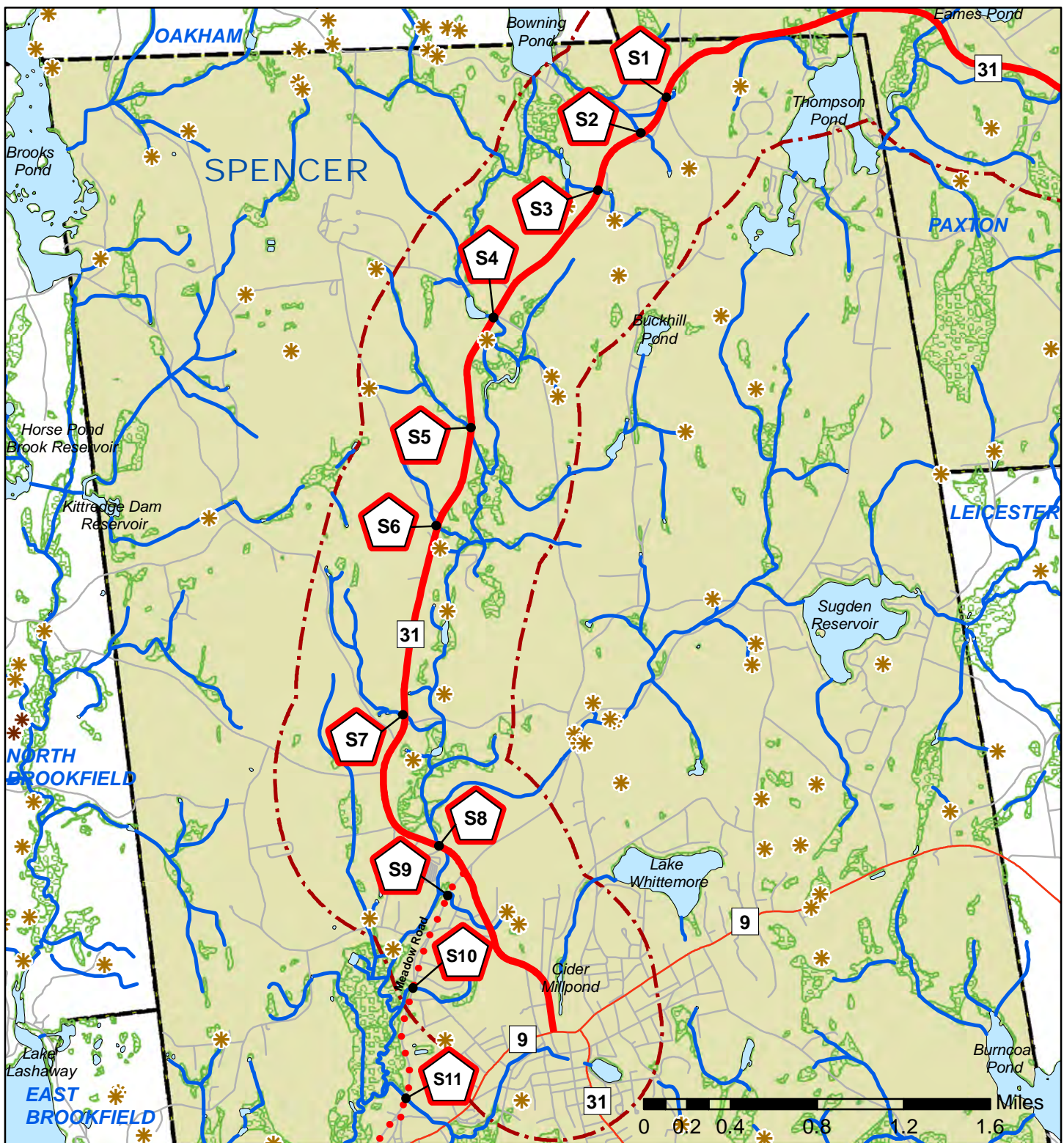
Holden Road was found to have medium severity of distortions, alligator cracking, block cracking, and rutting. Distortions are bumps in the road, often a result of other distresses. Distortions affect the rideability of the road and may cause drivers to slow their traveling speed or even prevent them from traveling the posted speed. All of these distresses have an extent of either low or medium along this segment. Extent means the amount of the roadway that a distress occupies within a given segment. Church Street is another poor section of Route 31 with an OCI rating of 25.3. “Structural Improvement” is recommended for this section. This segment has medium severity of alligator cracking, block cracking, and rutting. It also has low severity distortion, but these occur along a good extent of the roadway. The remaining portion of Route 31 from Route 122 to the Spencer town line falls in the “Preventative Maintenance” category. The average OCI for this section is 56.8. Distortions, alligator and transverse/longitudinal cracking, rutting, and surface wear were observed in the field. Rutting has the highest extent along this section with nearly 50%. Rutting is a dip or trough-like feature found in the vehicular wheel-paths of a road. These troughs are the result of a sub-base degradation resulting from inappropriate base mix or poor drainage. Ruts are caused by the road’s inability to consistently handle the weight of traveling vehicles.

5.4 Town of Spencer Overall Condition Index (OCI)

The pavement data in the town of Spencer was collected and analyzed in 2012 by the engineering firm Fay, Spofford & Thorndike. Route 31 was split into six segments. There were four segments for Pleasant Street and two segments for North Spencer Road. Most of North Spencer Road is considered in excellent condition with an OCI of 88.2 corresponding to the “Do Nothing” category. This part of North Spencer Road was a 4.53 mile segment. A short section from Barclay Road to the Paxton town line has an OCI of 69.6 and is in the “Routine Maintenance” category. The rest of Route 31 is called Pleasant Street. It was split up into four

segments for the purpose of pavement data collection and analysis. The Pleasant Street segments all had an OCI of 50 or higher. There was one segment that was a half mile long which was in the “Do Nothing” category. The remaining three segments were either in the “Routine Maintenance” or “Preventative Maintenance” categories.

In addition, Meadow Road is just less than two miles in length; it starts at Route 31 and heads southeast to meet Route 9. Its OCI rating was 33.6 corresponding to “Structural Improvement” category.



ROUTE 31 CORRIDOR PROFILE: SPENCER

Major Drainage Structures

Figure 47

Legend

- Route 31 - Holden, Paxton, Spencer
- - - Route 31 1-Mi Buffer Zone
- Streams Intersecting Rt 31
- Rivers & Streams
- * NHESP Certified Vernal Pools
- * Potential Vernal Pools
- S Drainage structure or bridge
- DEP Wetlands (Jan. 2009)
- Waterbodies Intersecting Rt 31
- Waterbodies
- Towns

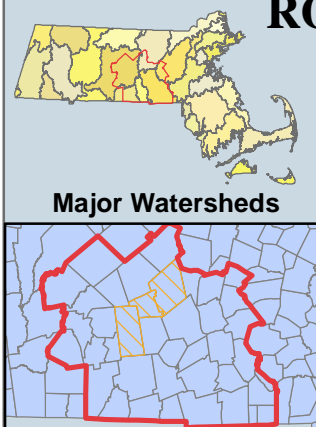


Table 18
Route 31 & Meadow Road
Inventory of Major Drainage Structures

Assigned Map #	Host Community	Primary Materials	General Condition	Approx. Pipe Size	Approx. Length	Field Observations	Additional Notes
S8 S-23-002		Concrete & steel bridge structure Built 1952 Last painted 6/95	Good/Fair	Open box	34' deck roadway width	Nearby catch basin pipe blocked near cemetery POSTED 20, 25, 40 depending on # axles Substandard concrete railing	Safety fencing suggested for top of bridge wing walls Scour noted adjacent to SE ing wall, fairly significant
S9		Granite cap with concrete & stone Corrugated steel	Good/Fair	1'	50'	Recent maintenance activities noted Areas adjacent to pipe inflow and outflow clear of all debris	Home made headwall failing
S10		Stone & mortar headwall Loose granite cap slab, acts like see-saw Concrete pipe	NB is poor, failing headwall noted SB is fair, some deterioration	2'	57'	NB headwall could collapse Fair amount of erosion eroded 1' connecting drain SB better than NB, fair condition SB siltation, some blockage	Woodland animal tracks noted for potential for wildlife X-ing
S11		Concrete	Good	3' dual pipe arrangement	40'	Lots of brush on sides Some sediment on NB side in front of pipes	Pipes exhibit minimal wear

7.2 Town of Holden

Existing Service

Currently there is no fixed route service to Holden and thus no complementary paratransit in general. The WRTA paratransit zone does encompass part of a corner of the community which is adjacent to the city of Worcester.

Paratransit service is however offered to all elders and people with disabilities town-wide. This service is in effect on weekdays between 9 AM-4 PM. It is provided by the Holden Council on Aging through a contract with the WRTA. The WRTA provides a van and reimburses the Council on Aging for operating costs. The WRTA also has a grant through Community Transit Grants to extend additional service to all elders and people with disabilities for travel between Holden and Worcester between 6-9 AM and 4-6 PM.

Future Outlook

There is potential for the return of fixed route service on Main Street. Such a route did formerly exist, terminating in Jefferson. The completion of a “comprehensive service analysis” document by WRTA consultant URS Corporation may shed further light on this possibility. The report is due in June of 2015.

7.3 Town of Paxton

Existing Service

Paxton recently joined the WRTA service area in July 2013. On December 11, 2013, flex route service was established with a WRTA vehicle for two days a week. It begins near the town center area and nearby Anna Maria College and terminates at Worcester’s Union Station. Service runs from about 6-9 AM and 3-6 PM on Wednesdays and Fridays.

Future Outlook

There may be an opportunity for increased frequency of flex route service along with increased local commitments for funding. The completion of a “comprehensive service analysis” document by WRTA consultant URS Corporation may shed further light on this possibility. The report is due in June of 2015.

7.4 Town of Spencer

Existing Service

Fixed route service is currently provided by two routes. Weekday service from Worcester to Brookfield runs from early morning to early evening, including stops at Spencer Center and the

Spencer DPW. There is similar service on Saturday which ends in Spencer on its western leg. ADA paratransit service is available within ¾ mile of these fixed routes.

Additional paratransit service is offered to all elders and people with disabilities in Spencer on weekdays between 8 AM-3 PM. This service is operated by SCM Elderbus. The WRTA provides a van and reimburses Elderbus for operating costs.

Future Outlook

There may be an opportunity for increased frequency of service. The completion of a “comprehensive service analysis” document by WRTA consultant URS Corporation may shed further light on this possibility. The report is due in June of 2015.

The Spencer Highway Department property is currently used by the WRTA as a bus dwelling/parking area. The host community of Spencer has recently indicated the potential for an electric “fast charge” station or in the long term a Park & Ride Lot at this site. Commuters could drive to the lot, leave their cars and utilize the fixed route service to travel on to Worcester. This potential site use may be investigated further as a future Park & Ride activity under the region’s Congestion Management Program (CMP).

8.0 ALTERNATIVE MODES

8.1 Introduction

Various state initiatives, compacts and design criteria revisions have served to raise awareness about alternative modes of transportation including primarily public transit (detailed in another section of the CP), bicycling and walking. Specifications for this Route 31 Corridor Profile effort also included long distance hiking trails – namely, the Mid-State Trail – as well as traditional pedestrian access.

8.2 GreenDOT

The GreenDOT initiative is MassDOT’s sustainability policy which supports the implementation of existing state laws, Executive Orders and other MassDOT policies.¹ The policy overreaches all MassDOT activity, from planning to construction and systems operations. GreenDOT’s three primary objectives are to reduce greenhouse gas (GHG) emissions, to promote the healthy transportation options of walking, bicycling and public transit, and to support smart growth development.

Among GreenDOT’s core planning goals related to mode shift and healthy transportation are the design of a multimodal transportation system, the promotion of healthy transportation and livable communities, and an increase in the use of bicycling, public transit and walking. In particular, a specific goal exists to triple the overall trip share of alternative modes. All goals are associated with specific strategies to be applied within reasonable timeframes. GreenDOT seeks to make real mode shift feasible by increasing the access and connectivity of all modes, improving transit performance, expanding commuter options, and by increasing the number of Complete Streets designed projects.

8.3 MassDOT Healthy Transportation

The Transportation Reform Law (2009) established the Healthy Transportation Compact (HTC) which promotes improved public health through active transportation. Active transportation refers to walk, bike and transit. The HTC is an interagency initiative co-chaired by the Secretary of Transportation and the Secretary of Health and Human Services, including the Secretary of Energy and Environmental Affairs, MassDOT Highway Administrator, MassDOT Transit Administrator, the Commissioner of Public Health and the Secretary of Housing and Economic

¹ The State policy includes: Climate Protection and Green Economy Act (Mass. Gen. L. c. 21N); Green Communities Act (Chapter 169 of the Acts of 2008); Healthy Transportation Compact (section 33 of Chapter 25 of the Acts of 2009); Leading by Example (Executive Order of Governor Patrick, no. 488); MassDOT’s youMove Mass planning initiatives; and the “Complete Streets” design standards of the 2006 MassDOT Highway Division Project Development and Design Guide, as amended.

Development. The HTC goals are to facilitate transportation decisions that balance the needs of all users, expand mobility, improve public health, support a cleaner environment and create stronger communities. GreenDOT healthy transportation strategies were built upon the HTC spirit. The intent is to adopt best practices to increase efficiency in achieving positive health outcomes through the coordination of land use, transportation and public health policy.

Some of the programs and or initiatives promoted by MassDOT and its partners that are currently in place and make the connection between health and transportation are: Mass in Motion, Safe Routes to School, and the Healthy Transportation Policy Directive, among other initiatives.

8.4 Healthy Transportation Policy Directive

MassDOT's Healthy Transportation Policy Directive requires all state transportation projects to increase bicycling, transit and walking options. This new Directive is intended to promote multimodal access for all transportation customers. MassDOT has made it clear that everyone in Massachusetts must be given the opportunity to bike, walk, or take transit instead of driving.

All MassDOT facilities will consider adjacent land uses and be designed to include wider sidewalks, landscaping, crossing opportunities and other features to enhance healthy transportation options. Reviews will be conducted of cluster sites where incidents have occurred with healthy-mode transportation users. MassDOT will also develop a guide to assist communities proposing shared use paths on or along rail beds in order to accelerate the path design process.

8.5 Community Health Improvement Plan (CHIP)

The City of Worcester Division of Public Health in collaboration with community partners has released a Community Health Improvement Plan (CHIP). The CHIP identifies major health priorities for the Greater Worcester region and includes specific objectives and strategies. The Town of Holden is part of the Central Massachusetts Regional Public Health Alliance. One of the topics included in the CHIP is Healthy Eating/Active Living; one of the strategies within this domain is to increase the consideration of pedestrian and bicycle accommodation in routine decision making through the adoption of Complete Streets transportation policy throughout the region.

Goals include an increase in the number of municipalities adopting Complete Streets policies and the number of completed assessments for parks/open spaces, including the development of prioritization criteria. Additionally, the partners seek an increase in miles of bicycle lanes and in the number of schools that have adopted a Safe Routes To School policy.

8.6 Complete Streets

What is now known as the Complete Streets approach was first included in the 2006 *Project Development and Design Guide*. Multimodal design guidelines are part of MassDOT's current policy for Context Sensitive Design. In a Complete Streets approach, roadway projects accommodate all users, not only auto traffic. All highway projects shall, from the earliest design stages, provide safe access and connectivity for pedestrians and bicyclists. The Healthy Transportation Policy Directive expands on how, when and where these accommodations should be provided, including ADA design compliance. The *Complete Streets initiative*, which requires roadway designs that accommodate all users, calls for bicycle & pedestrian accommodation as part of most highway projects, a major exception being limited access highways.

8.7 Bicycling in the Corridor

Paved shoulders reduce passing conflicts between motor vehicles and bicyclists and pedestrians and make the crossing pedestrian more visible to motorists. They also provide for storm water discharge farther from the travel lanes, reducing hydroplaning, and splash and spray to following vehicles, pedestrians and bicyclists. In rural areas, they provide space for bicyclists to ride at their own pace.

Existing Route 31 conditions include roadway shoulders with minimal width that are too narrow to serve as breakdown lanes and recovery/clearance areas. In the future, five foot shoulders would be preferable along the entire corridor. In some areas this goal would admittedly be a challenge due to existing narrow roadway footprints and the existence of various roadside features such as large trees and historic stonewalls.

In Paxton, planned improvements to the Holden Road segment of Route 31 call for 11 foot travel lanes with 5 foot shoulders. This typical roadway cross section specification could perhaps be utilized along other segments of the study corridor.

8.8 Pedestrian Facilities and Activity in the Corridor

Limited sidewalks currently exist in the corridor area. They are mostly in the vicinity of town center areas. Spencer has a sidewalk betterment program which includes both proposed new sidewalks and improvements to existing sidewalks that primarily connect schools, shopping and the downtown area. Similar efforts could be considered as appropriate in the other towns.

With regard to crossing the primary corridor roadway, Route 31, triggered pedestrian phases to traffic signals are available at Route 122A in Holden and Route 122 in Paxton. In Spencer, the intersections of Route 9 with Meadow Road & South Spencer Road and Route 9 with Route 31 provides for pedestrian call time. Crosswalks could be considered at other key locations along the study corridor where demand appears to be high.

Walkable Community Workshops are short interactive courses that involve learning the basics, touring an area on foot to identify issues, and cooperatively determining a plan for making improvements. Special topics may include schools, major roads, land use, neighborhood design and the needs of the mobility impaired. CMRPC also conducts Neighborhood SAFE studies that provide communities with small area infrastructure assessments from a pedestrian and bicyclist safety perspective.

Host communities are at various stages in the use of these informative tools. Holden and Paxton have both completed a Neighborhood SAFE program for their town centers, while Spencer plans to utilize the Neighborhood SAFE program for the Meadow Road area. They are also requesting a Road Safety audit for the roadway itself.

8.9 Regional Trails in the Corridor

The Midstate Trail is a scenic footpath which runs 92 miles through Worcester County from the Rhode Island border to the New Hampshire border. The trail is considered highly accessible, scenic, and remarkably rural despite its proximity to urban areas. The trail includes the summits of Mount Wachusett and Mount Watatic, as well as many interesting geologic, historic, and natural features. Central portions of the trail climb the flanks and summits of drumlins such as Moose Hill and Buck Hill in Spencer.

In the host community of Spencer, the Mid-State Trail crosses Route 31 in North Spencer in vicinity of the landmark Black & White Restaurant. **Figure 52** indicates the location of the Mid-State Trail in the town of Spencer using a green line. From the adjacent communities of Leicester and Paxton, the Mid-State Trail continues on to skirt Spencer state forest in North Spencer before crossing Route 31. The trail then essentially parallels Browning Pond Road before entering the town of Oakham.

The Midstate Trail Committee, under the auspices of the Worcester chapter of the Appalachian Mountain Club, continues the administration and maintenance of the Trail. The Committee is augmented by a larger group of resident volunteer maintainers who are invaluable to the survival of the Midstate Trail. Local mountain club chapters assist with hike publicity and recruitment of maintainers. The Committee welcomes anyone willing to help maintain a part of this “close to home” trail. The Department of Environmental Management has provided support, map printing, and publicity over the years.

We note here also that the long distance MassCentral Rail Trail crosses Route 31 in host community Holden, north of the defined Corridor Profile study area.

Table 21

Town of Spencer
Route 31(& Meadow Rd) Focus Intersections:
Overall Corridor Profile Findings

Study Intersection Location	CMP Intersection Level-of-Service(LOS)*	Safety Analysis**	Public Transit***	Freight Movement Heavy Vehicle %	Environmental Consultation Analysis	Other Considerations
Route 31/Barclay Rd	AM = A (A) PM = B (A)	Total = 2 PI - 1, PD - 1	SCM Elderbus provides service to elders and disabled in the town of Spencer	AM = 3.5% PM = 2.0%	Recreation, potential vernal pools, species of conservation concern, wooded swamp	"Y"-type intersection
Route 31/Browning Pond Rd/ Thompson Pond Rd	AM = B (B) PM = B (C)	Total = 3 PI - 1, PD - 2	SCM Elderbus	AM = 4.5% PM = 2.5%	Recreation & conservation, potential vernal pools, species of conservation concern, wooded swamp	Expansive pavement area
Route 31/North Brookfield Rd	AM = B (C) PM = B (B)	Total = 3 PI - 0, PD - 3	SCM Elderbus	AM = 3.5% PM = 0.4%	Agriculture, potential vernal pools, wooded swamp	Limited lines of sight, northbound road approach is steep
Route 31/Meadow Rd/ Wire Village Rd	AM = B (B) PM = C (D)	Total = 16 PI - 9, PD - 7	SCM Elderbus	AM = 3.5% PM = 0.4%	Historical/cultural, recreation, potential vernal pools, wooded swamp	Limited lines of sight, adjacent Eagleton St
Route 31/Route 9/ Wall St	AM = C (C) PM = C (C)	Total = 10 PI - 0, PD - 10	SCM Elderbus	AM = 6.8% PM = 1.5%	Historical/cultural, recreation, potential vernal pools, deep marsh	Off set geometry planned for improvement
Meadow Rd/Route 9/ South Spencer Rd****	AM = B (B) PM = B (B)	Total = 13 PI - 1, PD - 12	SCM Elderbus / WRTA Fixed Route #33 serves a portion of Meadow Rd	AM = 5.4% PM = 1.5%	Historical/cultural, water protection land, potential vernal pools, species of conservation concern, wooded swamp	Commercial area, need for bicycle & pedestrian connectivity

*Intersection Level-of-Service Existing (Projected 2023)

**PI = Personal Injury, PD = Property Damage

***WRTA Fixed Route service has no stops on Route 31, but Route #33 ends at Spencer DPW on Meadow Road.

****This additional intersection was added per request by the town of Spencer

Table 24
Town of Spencer
Route 31 (& Meadow Rd) Roadway Segments:
Overall Corridor Profile Findings

Route 31 Roadway Segments	Safety Analysis*	Pavement Condition**	Bridge/Culverts Observed Condition	Public Transit***	Freight Movement Daily % of Heavy Vehicles	Environmental Consultation Analysis	Other Considerations
Paxton Town Line to Barclay St	None	OCI = 69.6 Routine Maintenance	None	SCM Elderbus provides service to elders and disabled in the town of Spencer	8.0%	Recreation, potential vernal pools, wooded swamp	Substandard roadway geometry
Barclay St to Browning Pond Rd	Total = 1 PI - 1, PD - 0	OCI = 88.2 Do Nothing	Culvert S1 - good/fair condition	SCM Elderbus	8.0%	Recreation, potential vernal pools, species of conservation concern, wooded swamp	Need to maintain lines of sight
Browning Pond Rd to North Brookfield Rd	Total = 16 PI - 5, PD - 11	OCI = 88.2 Do Nothing	Culvert S2 - unknown condition Culvert S3 - good/fair condition Bridge S4 - fair condition Culvert S5 - fair/poor condition Culvert S6 - fair/poor condition Culvert S7 - fair condition	SCM Elderbus	6.3%	Conservation, agriculture, potential vernal pools, species of conservation concern, wetland buffer, wooded swamp	Roadway widths vary, town-owned bridge over Seven Mile River
North Brookfield Rd to Meadow Rd	Total = 6 PI - 1, PD - 5	OCI = 88.2 Do Nothing	Bridge S8 - good/fair condition Functionally obsolete	SCM Elderbus	6.7%	Historical/cultural, potential vernal pools, wooded swamp	Need to maintain lines of sight
Meadow Rd to Route 9	Total = 13 PI - 6, PD - 7	OCI = 73.9 Routine Maintenance	None	SCM Elderbus	5.2%	Recreation, potential vernal pools, deep marsh	State-owned bridge over Seven Mile River
Route 31 to Route 9 (Meadow Road)	Total = 16 PI - 2, PD - 14	OCI = 33.6 Structural Improvement	Culvert S9 - good/fair condition Culvert S10 - fair/poor condition Culvert S11 - good condition	SCM Elderbus / WRTA Fixed Route #33 serves a portion of Meadow Rd	6.5%	Historical/cultural, water protection land, potential vernal pools, species of conservation concern, wooded swamp	Roadway widths vary

*PI = Personal Injury, PD = Property Damage

**OCI = Overall Condition Index, Ranging From 0 - 100 / Data was collected by Fay, Spofford & Thorndike (FST)

***WRTA Fixed Route Service has no Stops on Route 31, but Route #33 ends at Spencer DPW on Meadow Road.

10.4 Town of Spencer

Figure 57 shows where and what type of improvements could be made along Route 31 in Spencer. A summary of these suggested improvement options are provided below:

- Considered a longer-term recommendation, realign/straighten the Route 31 curve in Spencer just south of the Paxton town line. This improvement would supplement earlier realignments to Route 31 made in the 1960's/1970's. Evidence of various realignments can be seen between Northwest Road and the Browning Pond Road/Thompson Pond Road intersection. Various options for consideration:
 - Same alignment (relocate house and garage)
 - New alignment, north
 - New alignment, south

Depending on the preferred alignment selected by the host community, there would be the need to acquire the necessary right-of-way for the project, mindful of any environmental challenges. The alignment options are shown in **Figure 58**.

- Tighten the intersection of Route 31 with Browning Pond Road/Thompson Pond Road in North Spencer. Provide for improved intersection definition, reducing the fairly large area of open, unmarked pavement. Improve traffic control signage and pavement markings. As observed in the field, there is an extensive closed drainage system in this area.
- Replace Route 31 bridge over Seven Mile River adjacent to Hastings Road, estimated at nearly \$1 million (S-23-012). Various levels of corrosion to both concrete and steel noted on structure. The deck has numerous areas of cracking and the concrete bridge railings are deteriorating as it is approaching the end of useful service. Town's consultant has recommended that the bridge be replaced with a butted deck beam bridge type with crash approved steel bridge rails. The existing abutments and wing walls can be modified and included in the reconstruction. Advantages of this design include fairly rapid construction while minimizing environmental impacts by reducing costly work in the waterway.
- Drainage improvements in North Spencer are planned to be implemented in 2014. New culvert installation is meant to alleviate observed recurring Route 31 flooding. This local project will add another culvert to complement two existing that become overwhelmed in various storm events. The new culvert is considered an overflow culvert designed to *not* change riparian conditions, that is, when the existing culverts are flooded beyond capacity the water will flow down a newly constructed drainage ditch and into the new

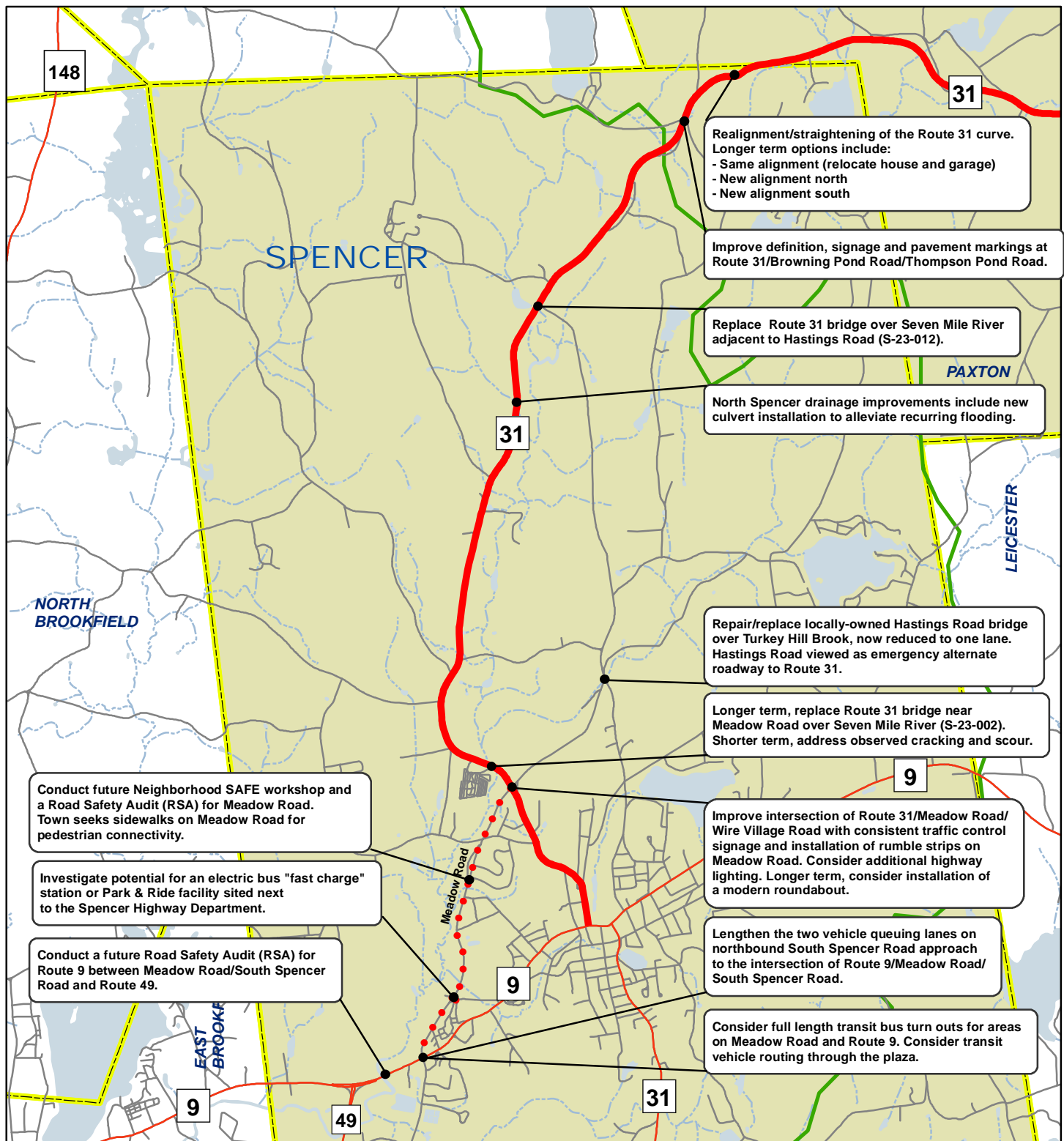
culvert under Route 31. It will drain to the same area it went to when it flooded the roadway. Also, continue regular culvert inspection and maintenance.

- Replace Route 31 bridge near Meadow Road over Seven Mile River (S-23-002). Currently posted at a 20/25/40 weight rating for 2, 3 and 4 axles, respectively, the host community requests that the bridge be added to the TIP project listing. Various observed deficiencies with the deck and superstructure, concrete cracks and deteriorating steel. Structural cracks in substructure abutments and wing walls. In the field, various levels of erosion were observed around the wing walls. (*MassDOT-owned structure.*)
- Implement improvements at the Route 31/Meadow Road/Wire Village Road intersection. In the short term, track effectiveness of recently installed advance warning signs on each approach to the intersection. Selectively trim/remove trees and other vegetation within the roadway right-of-way. As a further basic improvement, consider the installation of rumble strips on the Meadow Road approach supplementing traffic control signage, indicating the need to stop ahead. Review lane widths and consider minor geometric improvements. Consider additional overhead highway lighting at this study location.

In the longer term, consider installation of a modern roundabout at the Route 31/Meadow Road/Wire Village Road intersection. For a single lane roundabout, calculations show a level of service grade of “A” for the AM and PM time periods. For the existing geometry, the level of service is a “B” in the AM and “D” in the PM.

- Host community requests “Neighborhood SAFE” workshop for Meadow Road as well as a Road Safety Audit (RSA). Town seeks sidewalks on Meadow Road for pedestrian connectivity, part of a larger effort by the community to improve sidewalks radiating from the downtown “urban” area. In addition, town seeks RSA for Route 9 (West Main Street) between Meadow Road/South Spencer Road and Route 49.
- Further investigate the potential for an electric bus “fast charge” station or Park & Ride facility to potentially be sited adjacent to the Spencer Highway Department. WRTA vehicles already stop/dwell at this location. Perhaps consider other transit rider sidewalk/accessibility improvements.
- At the intersection of Route 9/Meadow Road/South Spencer Road, the town has suggested improvements to the South Spencer Road northbound approach. Improve vehicle queuing lanes by lengthening and widening, providing two approach lanes with a paved shoulder. The community intends to work with adjacent employer FLEXcon to implement this improvement.

- Mindful of Flexcon generated traffic volumes, consider full length transit bus turn outs or similar in the location of the Big Y plaza. Options include the existing grassy areas on Meadow Road as well as in front of Flexcon on Route 9. Further, perhaps a transit vehicle routing through the Plaza could be considered.
- Repair/replace locally-owned Hastings Road bridge over Turkey Hill Brook, now reduced to one lane. Hastings Road viewed as emergency alternate roadway to Route 31.



ROUTE 31 CORRIDOR PROFILE: SPENCER

Suggested Improvement Options

Figure 57

Legend

- Route 31 - Holden, Paxton, Spencer
- ... Route 31 Corridor Profile Extension
- State Numbered Routes
- Other Roadways
- Midstate Trail



Source: Data provided by the US Census Bureau, Central Massachusetts Regional Planning Commission (CMRPC), massDOT Office Of Transportation Planning Geospatial Resources Section and the Office of Geographic Information MassGIS), Commonwealth of Massachusetts, Information Technology Division.

Information depicted on this map is for planning purposes only. This information is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis. Use caution interpreting positional accuracy.

1 in = 0.75 miles

radius in front of the town library. Improve pavement markings and also consider four-way “Stop” control signage for improved safety.

Preliminary Estimated Cost: \$150,000

(Local DPW or hired contractor)

#3 Priority

Route 31 (West Street) water mainline replacement and deepening must proceed prior to most improvements suggested for this roadway segment. At this time, the town’s plan is to install 6,700 feet, or 1.3 miles, of pipe between Route 122 at the town center and South Street.

Preliminary Estimated Cost: \$1.5 million

(Includes engineering and contingencies, hired water line contractor)

11.3 Town of Spencer

#1 Priority

Town seeks sidewalks on Meadow Road for pedestrian connectivity, part of a larger effort by the community to improve sidewalks radiating from the downtown “urban” area. Also, the town envisions the reconstruction and modernization of Meadow Road as a “Complete Street” as a long-term goal. Host community Spencer requests a “Neighborhood SAFE” workshop for Meadow Road as well as a Road Safety Audit (RSA). Further, town seeks RSA for Route 9 between Meadow Road/South Spencer Road and Route 49.

Estimated linear length of sidewalks envisioned for Meadow Road:

- 1st Phase: Route 31 to Spencer Highway Department (1.27 miles or 6,705 feet)
 - 2nd Phase: Spencer Highway Department to Route 9 (0.34 miles or 1,795 feet)
- Totals for sidewalk installation: 1.61 miles or 8,500 feet

Sidewalks Installation Preliminary Estimated Cost: \$700,000

(Estimate provided by MassDOT)

Meadow Road (1.61 miles) Reconstruction Preliminary Estimated Cost: \$2.5+ Million

(Estimate provided by the town of Spencer Utilities & Facilities Superintendent)

#2 Priority

Replace Route 31 bridge over Seven Mile River adjacent to Hastings Road, estimated at nearly \$1 million (S-23-012). Various levels of corrosion to both concrete and steel noted on structure. The deck has numerous areas of cracking and the concrete bridge railings are deteriorating as it is approaching the end of useful service. Town’s consultant has recommended that the bridge be replaced with a butted deck beam bridge type with crash approved steel bridge rails. The

existing abutments and wing walls can be modified and included in the reconstruction. Advantages of this design include fairly rapid construction while minimizing environmental impacts by reducing costly work in the waterway.

Preliminary Estimated Cost: \$1 million
(Hired bridge contractor)

Replace Route 31 bridge near Meadow Road over Seven Mile River (S-23-002). Currently posted at a 20/25/40 weight rating for 2, 3 and 4 axles, respectively, the host community requests that the bridge be added to the TIP project listing. Various observed deficiencies with the deck and superstructure, concrete cracks and deteriorating steel. Structural cracks in substructure abutments and wing walls. In the field, various levels of erosion were observed around the wing walls. *(MassDOT-owned structure.)*

Preliminary Estimated Cost: \$2 million
(Hired bridge contractor)

Repair/replace locally-owned Hastings Road bridge over Turkey Hill Brook, now reduced to one lane. Hastings Road viewed as emergency alternate roadway to Route 31.

Preliminary Estimated Cost: \$400,000
(Hired bridge contractor)

#3 Priority

Pavement preservation should be strongly considered and the resurfacing of Route 31 (5.6 miles) should be completed as soon as possible to avoid further pavement deterioration and higher reconstruction costs. The pavement condition varies for Route 31 as well as the roadway width, which ranges from 24 feet to 28 feet.

Consider including the realignment/straightening of the Route 31 curve in Spencer just south of the Paxton town line. This improvement would supplement earlier realignments to Route 31 made in the 1960's/1970's. Evidence of various realignments can be seen between Northwest Road and the Browning Pond Road/Thompson Pond Road intersection. Various options for consideration:

- Same alignment (relocate house and garage)
- New alignment north
- New alignment south

Depending on the preferred alignment selected by the host community, there would be the need to acquire the necessary right-of-way for the project, mindful of any environmental challenges. *Considered a longer-term recommendation.*

Route 31 Resurfacing Preliminary Cost Estimates
(MMA/MassDOT Current \$ Values)

- 2" overlay = ***\$680K***
- 4" overlay = ***\$1.7 Million***
- Full Depth Reconstruction = ***\$4.3 Million***

Route 31 Curve Realignment/Straightening Preliminary Estimated Cost: \$4 Million
(Based on similar CMMPO TIP cost estimates)

11.4 Potential Funding Sources

In large part, Route 31 is locally-maintained by the host communities. Depending on cost, some suggested improvements can be perhaps be implemented by host community public works or highway department personnel. Locally accomplished, some basic Route 31 improvement options could be funded by the state's Chapter 90 Program which provides local aid for highway purposes.

For more costly improvements, beyond local funding capabilities, the Route 31 host communities have the opportunity to seek funding for multi-modal improvements through the Transportation Improvement Program (TIP) developed by the Central Massachusetts Metropolitan Planning Organization (CMMPO). A process carried out annually by the CMMPO, the TIP provides funding for improvements on federal-aid eligible highways, including Route 31. MassDOT-Highway Division oversees and takes a major role in improvements suggested and eventually implemented along the federal-aid highway system.

The Route 31 study was modeled after a similar multi-community effort that focused on Route 140 in the host communities of Princeton, Sterling and Westminster. The Route 140 effort led to multi-modal highway improvements in the town of Princeton that are programmed for funding on the region's CMMPO TIP. Planned improvements are anticipated to benefit not only the host community but the greater region as well.