



Route 9W Corridor Management Plan

Towns of Marlborough and Lloyd of Ulster County, NY

Final Report - October 18 2018

ROUTE 9W CORRIDOR MANAGEMENT PLAN

Towns of Marlborough and Lloyd

Ulster County, NY

Ulster County Transportation Council

Dennis Doyle, Director
Brian Slack, AICP, Project Manager
David Stass, Senior Transportation Planner

Technical Advisory Committee

Town of Marlborough

John Alonge, Highway Dept. D. Superintendent	Chief Gerald Coccozza, Marlborough Police Dept.
Gael Appler, Highway Dept. Superintendent	Tom Corcoran, Zoning and Building Inspector
Howard Baker, Town Councilman	Al Lanzetta, Town Supervisor
Michael Brooks, School Superintendent	Allan Koenig, Town Councilman
Manny Cauchi, Business Owner	Bob Troncillito, Marlboro Fire Department

Town of Lloyd

David Barton, Director of Building and Zoning Enforcement	Peter Brooks, Planning Board Member
---	-------------------------------------

New York State Department of Transportation

Terry Donoghue, Region 8	Joseph Hurley, Region 8
Robert Gaffney, Region 8	Christopher Lee, Region 8

Consultants

BFJ Planning

Georges Jacquemart P.E., AICP, Principal
Noah Levine AICP, Associate
Lauren Rennée AICP, PTP Senior Transportation Planner

Susan G. Blickstein

Susan G. Blickstein, AICP, PP, Ph.D. , Principal
Zachary Zeilman, Planner

October 2018

This report was funded in part through grants from the Federal Highway Administration, a division of the U.S. Department of Transportation. The views and opinions expressed herein do not necessarily reflect those of the U.S. Department of Transportation.

TABLE OF CONTENTS

SECTION 1. INTRODUCTION AND VISION	1
SECTION 2. ROUTE 9W TODAY	5
SECTION 3. ROADWAY SAFETY AUDIT	15
SECTION 4. FUTURE TRAFFIC CONDITIONS	19
SECTION 5. OVERVIEW OF CORRIDOR IMPROVEMENTS	31
SECTION 6. RECOMMENDATIONS	37
SECTION 7. IMPLEMENTATION	75

APPENDICES

Under separate cover

APPENDIX A: PUBLIC ENGAGEMENT

APPENDIX B: EXISTING CONDITIONS

APPENDIX C: ROADWAY SAFETY AUDIT

APPENDIX D: FUTURE CONDITIONS ANALYSIS

APPENDIX E: PROPOSED LANE RECONFIGURATION

APPENDIX F: ACCESS MANAGEMENT PLAN

SECTION 1. INTRODUCTION AND VISION

Planning Background and Process

In 2016, the Ulster County Transportation Council (UCTC) issued a Request for Proposals (RFP) to develop a Corridor Management Plan (CMP) for the portion of the Route 9W from the hamlet of Marlboro north to Blue Point Road. A Technical Advisory Committee consisting of representatives from the Towns of Marlborough, Town of Lloyd, and New York State Department of Transportation was appointed by UCTC to work with the consulting team hired to prepare the plan. Consulting firms BFJ Planning and Susan G. Blickstein began work on the plan in the Spring of 2017.

The purpose of the CMP is to develop short and long-range recommendations to improve vehicular and non-vehicular access, safety and mobility along the Route 9W corridor. The plan contains an examination of existing conditions, a corridor safety assessment, and an evaluation of future impacts of development proposals and land use policies. The concluding recommendations and implementation plan outline actions that should be taken to improve corridor access, operations, safety, and aesthetics and mitigate future impacts.

The CMP builds upon the following list of previous studies commissioned by the UCTC, Ulster County, and the respective Towns:

- *Marlboro Hamlet Area Transportation Plan (2008)*
- *Ulster County Non-Motorized Transportation Plan (2008)*
- *Marlborough Safe Routes to School Action Plan (2016)*
- *Rethinking Transportation Ulster County Long Range Transportation Plan 2040 (2015)*
- *Town of Lloyd Comprehensive Plan (2013)*
- *Marlboro Hamlet Enhancements Design Report (2015)*
- *Town of Marlborough Comprehensive Plan (2017)*
- *Town of Marlborough Local Waterfront Revitalization Plan (2018)*
- *Land Use Referral Guide, Ulster County Planning Board (2017)*
- *The Community Design Manual, Ulster County Planning Board (2017)*

Public Participation

The project team used a variety of outreach methods to solicit input from the community on their experiences living, working, visiting, and traveling on Route 9W. In-person and online surveys were used during the plan's visioning process to inform the study's goals. Workshops and Focus Groups were used to hone in on ideas and solicit feedback on preliminary recommendations. Comments from each of these outreach methods were reviewed and appropriately integrated into the Plan.

Public Surveys

Intercept surveys were conducted throughout the day on Monday, May 15, 2017 along Route 9W at locations in both the Town of Lloyd and the Town of Marlborough. The use of intercept surveys enables direct and voluntary interaction and conversations as people go about their daily work, errands, and business within the community. Overall, the field team spoke with 92 people about their use, experience, and perceptions of safety and the character of Route 9W in the Study Area, as well as issues and opportunities that should be addressed.

An online survey, administered through SurveyMonkey, was open for three months and advertised through the project website, email lists, press releases, social media posts, and fliers. The purpose was to provide an alternative method to in-person engagement to target stakeholders who do not typically attend public meetings. The survey included questions about transportation, safety, pedestrian and bicycle conditions, and land use issues for the corridor. The survey received 125 responses.

Focus Groups

The project team conducted two focus group meetings (June 1 and September 22, 2017) with business owners and operators located along the Route 9W corridor. In these meetings, the moderator asked participants a series of questions to understand how their business uses the corridor and to identify challenges and potential solutions. The first focus group was used to understand existing issues along the corridor. The second focus group was used to solicit input on preliminary recommendations.

Workshops

The project team hosted two evening workshops (June 8 and November 16, 2017) at the Marlboro Elementary School to present findings and recommendations and solicit feedback from the public. The objective of the first workshop was to provide an overview of study background and process, introduce the consultant team and identify issues and concerns from stakeholders. The objective of the second workshop was to present and solicit input on the plan's preliminary recommendations.

A summary of each engagement is contained in Appendix A

The Public Engagement Summary
is contained in Appendix A

Goals and Objectives

The study's main goal is to develop short-term and long-term recommendations to improve vehicular and non-vehicular access, safety and mobility in the corridor, and to assess and mitigate the impacts of development proposals and local land-use laws on future access and safety of Route 9W. The corridor management plan has to be embraced by the community, in accordance with local plans and regulations, and serve all users.

The study's objectives were developed in consultation with the Technical Advisory Committee and input solicited through the plan's initial phase of public outreach. The following six objectives reflect issues experienced by the corridor's users and opportunities for improvement:

- *Address traffic safety issues, reduce speeds*
- *Improve traffic flow, especially in the Hamlet of Marlboro*
- *Improve walking and pedestrian crossing conditions along select sections of the corridor*
- *Improve opportunities for bicycling in the corridor and connections to surrounding trails*
- *Improve streetscape aesthetics*
- *Manage and mitigate future land use development*

These planning goals and objectives guided the analysis of issues and opportunities and provided the foundation for the plan's recommended strategies and improvements.

SECTION 2. ROUTE 9W TODAY

Study Area Overview

The study area, shown in Figure 1, consists of a nearly 6.5 mile length of Route 9W from Marlboro Hamlet to the southern portion of the Town of Lloyd, which is the site of future large-scale, mixed-use development. The Marlboro and Milton hamlets serve as the primary nodes of attractions and population. The following provides an overview of the land uses and major trip generators found within the study area:

Marlboro Hamlet

Marlboro hamlet serves as one of the activity nodes along Route 9W. Marlboro is relatively dense in population and retail services in comparison with the rest of the corridor. There is a mix of residential, commercial, office, agricultural, recreational, and institutional land uses. Some of the significant features of Marlboro hamlet include the Marlboro Free Library at the southernmost point of the Study Area, Marlboro Elementary School and Middle School, the Western Ave/King Street triangle area, and the Lattintown Creek, which is piped under 9W and continues downstream to the Hudson River.

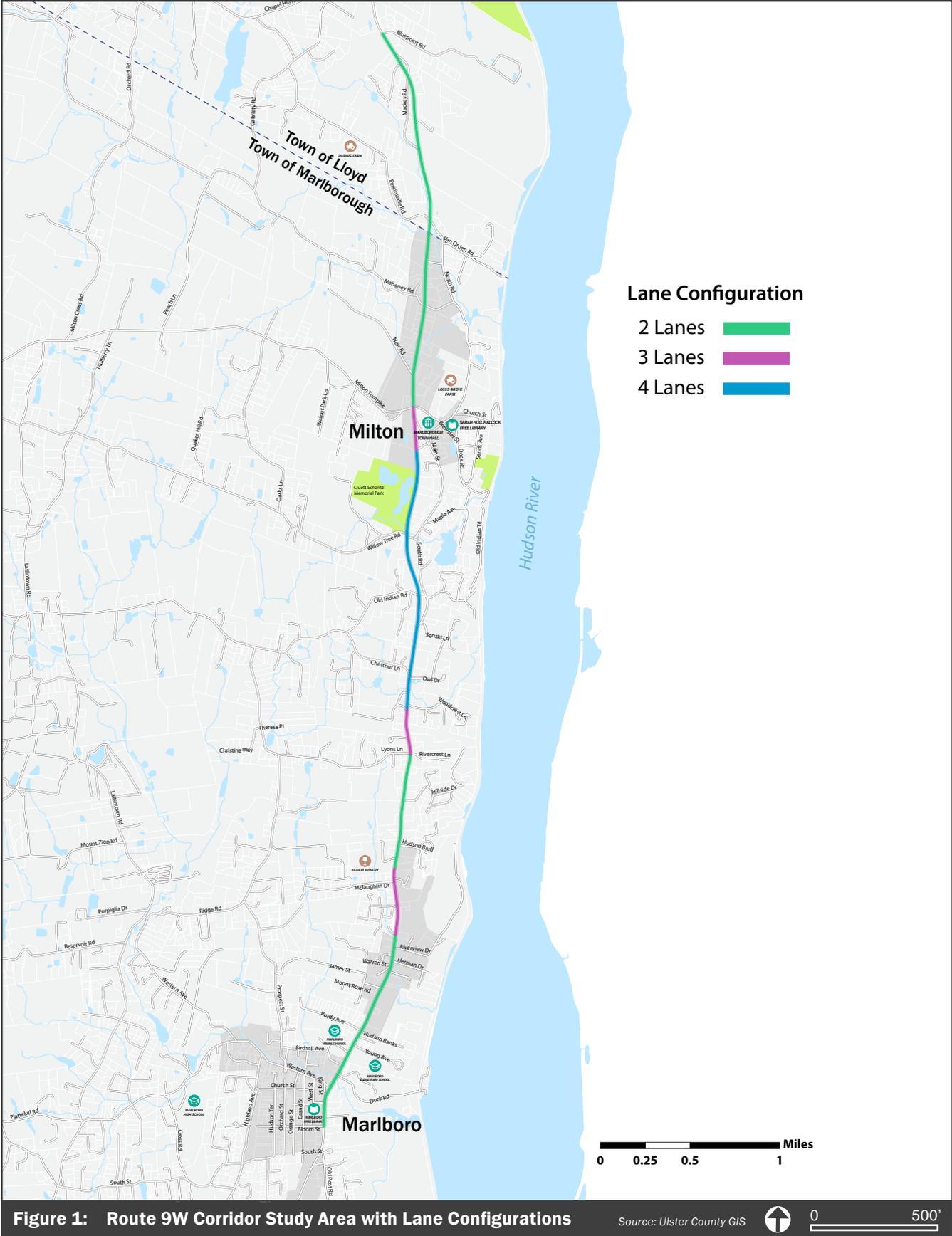
Milton Hamlet

The hamlet of Milton, located further north in the Town of Marlborough, is concentrated around Main Street and Milton Turnpike on the east side of the corridor. Route 9W runs north-south through the hamlet area with a signalized intersection at Milton Turnpike. Milton, like Marlboro, has a variety of land uses such as residential, commercial, industrial, agricultural, recreational, and institutional, within a relatively small and dense area. There are some existing sidewalks along Main Street and Milton Turnpike in the core of Milton and posted speed limits are lower (30 mph) in the hamlet core relative to the Route 9W corridor.

Areas connecting the Hamlets

The connecting section of the Route 9W Study Area, located between the Marlboro and Milton hamlets (approximately Riverview Drive to Willow Tree Road), consists primarily of single-family residential homes, agricultural land, industrial uses, and some commercial retail. The surrounding development is significantly less dense than that of the hamlets.

The Existing Conditions Report is contained in Appendix B



Town of Lloyd

Route 9W enters the Town of Lloyd approximately 200 feet south of the intersection with Milton Road and Perkinsville Road. The Route 9W study area within Lloyd extends approximately 1.2 miles from the border with Marlborough to Blue Point Road to the north. This section is relatively undeveloped, with the exception of a handful of single-family homes and some commercial businesses near Mackey Road. A large mixed-use development, known as the Hudson Valley Wine Village, has been proposed off Bluepoint Road.

Roadway Configuration

The character of the Route 9W corridor is much determined by its lane configuration. The roadway varies in width, from a narrow 30 feet in Marlboro Hamlet to nearly 60 feet in the low density areas between the hamlets. The roadway's current design prioritizes vehicular through traffic, providing additional lanes as roadway width allows. Figure 1 shows the lane configurations found along the corridor. In Marlboro Hamlet, the posted speed limit is 40, except for a 30 mph section through the hamlet center. The remainder of the corridor has a posted speed limit of 55 mph. The 55 mph section starts at Riverview Drive and continues through the remainder of the corridor regardless of whether Route 9W is 2-lanes or 4-lanes wide. The presence of shoulders is inconsistent.

The 4-lane segment is about 1.9 mile long and is located in the middle of the corridor. It is surrounded by 2-lane segments south and north that function well from a traffic capacity point of view (except for the hamlet of Marlboro that has capacity restrictions due to higher turning volumes, a lack of turn lanes, frequent pedestrian activity and on-street parking). The purpose of the 4-lane segment is not to provide greater capacities, but to allow vehicles to pass other vehicles. Whereas a widening of an arterial was seen as beneficial about 50 years ago because of the greater speeds that could be achieved, today this widening would only be justified, if it was needed from a capacity point of view or to resolve a safety issue.

A few protected left-turn lanes are provided along the 2-lane segment just north of the Marlboro hamlet and at the Milton Turnpike intersection. For the 4-lane segment the left turns are made out of the left-hand through lane.

Intersections

The study area contains two signalized intersections at Young Avenue and Milton Turnpike. The intersection at King Street (Marlboro Triangle) is equipped with a signal that can be activated by the Marlboro fire department to stop traffic on Route 9W. The signal otherwise operates as a flashing yellow.

Route 9W is the primary arterial roadway in the study area vicinity and has great influence over the street network and development pattern. With the exception of Milton Turnpike, the street network on the east and west side of Route 9W

do not line up, causing most four-leg intersections to be skewed or off-set. The lack of a more complete street grid forces Route 9W to serve the function of a local, collector, and arterial roadway. There are an abundance of informal T-intersections caused by the proliferation of driveways.

Table 1: Summary of Recent Peak-Hour Traffic Counts along Route 9W in Study Area

Segment	Number of Lanes	AM Peak Hour		PM Peak Hour	
		SB	NB	SB	NB
Mackey Rd - Mackey Rd	2	502	772	849	705
New Rd - Mahoney Rd	2	503	775	860	688
North of Milton Turnpike*	2	547	870	887	784
Old Indian Dr - Willow Tree Dr	4	540	764	828	721
Hudson Bluff - Hillside Dr	3	566	709	812	740
Riverview Dr - McLaughlin Dr	2	581	700	818	765
N. Young Ave - Hudson Bank	2	580	743	871	740
North of Western Ave*	2	657	843	861	659

*The two counts shown for North of Milton Turnpike and North of Western Avenue are based on turning movement counts that were undertaken in May 2017 with 15-minute intervals

The remaining six counts are based on ATR counts undertaken in July 2017

Peak-Hour Traffic Volumes

Traffic counts performed in the spring and early summer of 2017 showed the following peak-hour traffic volumes on Route 9W:

It is noteworthy that the highest peak-hour volumes are not along the 4-lane segment, but north of the Milton Turnpike and north of the Marlboro Hamlet.

Operating Speeds

Table 2 shows the pattern of operating speeds along Route 9W in the study area. The following are interesting points to be raised regarding the speed pattern:

- The percentage of vehicles exceeding the posted speed limit is significantly higher on the 4-lane segment, especially in the northbound direction
- All 50th percentile speeds (exceeded by 50% of the drivers) are below the posted speed limits, except for the northbound speeds on the 4-lane segment and the northbound speeds in the 40-mph zone

- The 85th percentile speeds (exceeded by 15% of the drivers) are very close to the posted speed limit (exceeding the 55-mph speed limit by about 5% or less), except for the 4-lane segment and the 40-mph segment in the south. Both of these segments have 85th percentile speeds that exceed the speed limit by about 14 to 17% in the northbound direction and 8 to 9% in the southbound direction

Table 2: Speed Patterns Along Route 9W

Segment	Posted Speed Limit (mph)	Number of Lanes	Southbound Direction			Northbound Direction		
			50th% Speed	85th % Speed	% Exceed Speed Limit	50th% Speed	85th % Speed	% Exceed Speed Limit
Mackey Rd - Mackey Rd	55	2	53	58	30	49	54	9
New Rd - Mahoney Rd	55	2	49	55	11	50	56	16
Old Indian Rd - Willow Tree Rd	55	4	50	60	35	56	63	56
Hudson Bluff - Hillside Dr	55	2	52	58	26	51	57	22
Riverview Dr - McLaughlin Dr	55	2	52	58	25	49	58	20
N Young Ave - Hudson Bank	40	2	38	43	7	42	47	22

Speed surveys taken as part of ATR counts in July 2017

These data show that speed behavior is significantly different between the 2-lane and 4-lane segments and that the 4-lane design seems to encourage higher speeds. The fact that for the 55-mph zone the 50th percentile speeds are all below the posted speed limit and the 85th percentile speeds are close to the speed limit (except for the 4-lane segment) raises the question whether the speed limit for the 2-lane segments should be lowered. The data suggest that a posted speed limit differential may be justified between the 4-lane segment and the 2-lane segments.

Multi-modal Travel

Pedestrian and Bicycle Facilities

Marlboro Hamlet

The Marlboro Hamlet section of the corridor has the most multi-modal improvements within the Study Area. ADA stamps/curb drops are in place at Young Avenue, along with a sidewalk on the western side of Route 9W that extends south from the elementary to the middle school. There is also a crosswalk at the Young Avenue signalized intersection, with pedestrian-actuation and countdown signals. The shoulder width varies from a few feet in some places to eight (8'+) feet or more in others, with some areas in poor condition (potholes, gravel) and areas that are difficult to distinguish from the roadway altogether.

There are no markings for bicycles to share the road with motorists through the hamlet. Sidewalks are in place throughout much of the Hamlet area – at least on one side of the road – but vary in condition, size, and ADA compliance. There are limited opportunities for safe pedestrian crossings of Route 9W, as there are only three crosswalks across this stretch of Route 9W, including the one at the southern leg of Young Avenue at the Marlboro Elementary School. During field visits, cars frequently did not stop for pedestrians at marked crosswalks.

North of Marlboro Hamlet

The remainder of the corridor north of the hamlet lacks any sidewalks, crosswalks or ADA improvements. There are no crosswalks, push buttons or ADA improvements at the Milton Turnpike intersection. Some pedestrian and bicycle activity was observed at this intersection, which is located a short walk from Main Street, which has some sidewalks.

Similar to Marlboro Hamlet, there are no markings for bicycles to share the road with motorists. Shoulder width north of Marlboro Hamlet vary depending on the lane configuration. South of Rivercrest and Lyon Lanes, where the lane configuration is either two or three lanes, shoulder widths range from 3 to 12 feet. In the four-lane section between Rivercrest Lane and Milton Turnpike, there are very narrow shoulders in most locations. In the two-lane section North of Milton Turnpike, the shoulders are generally consistent at 8 feet.

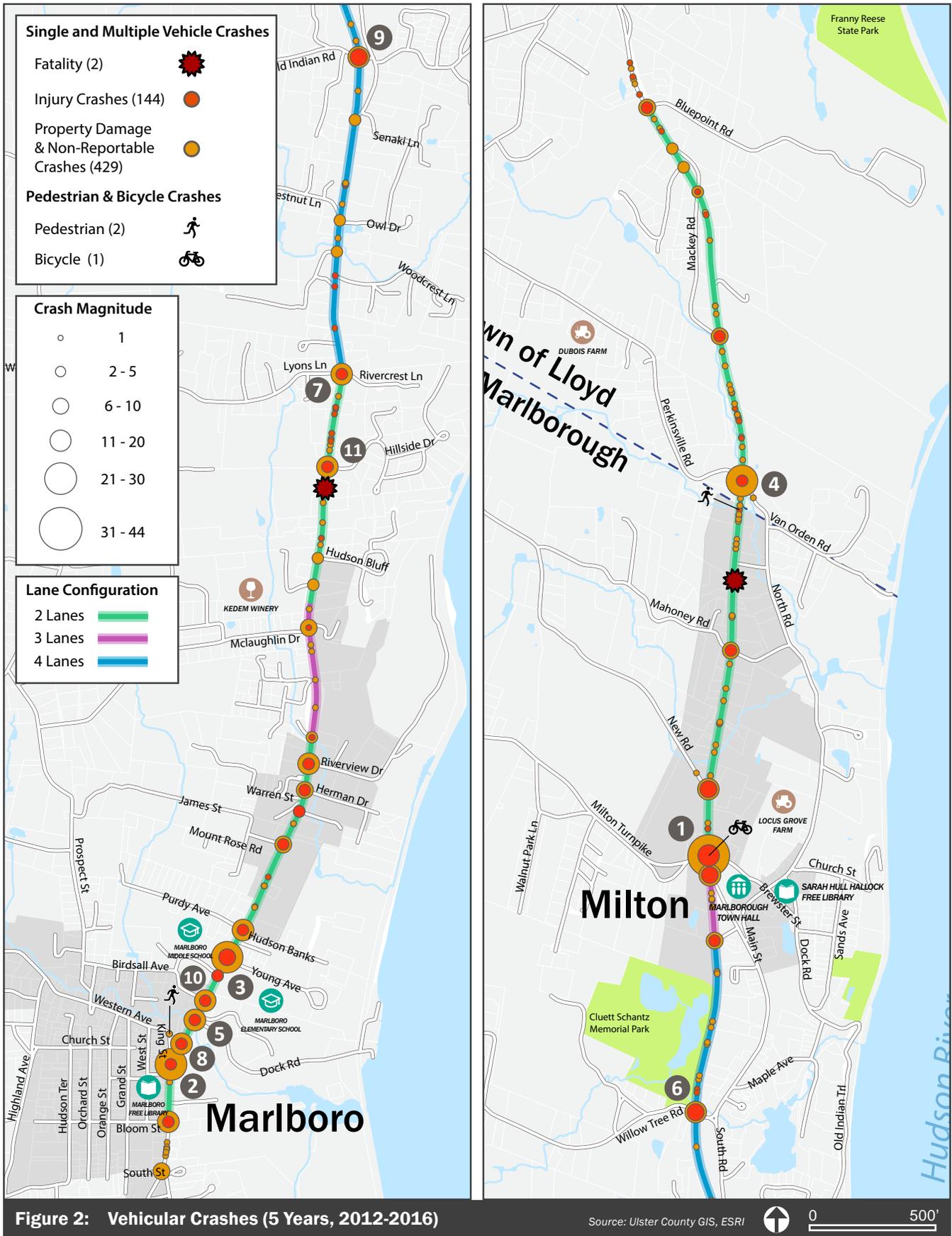
Transit Services

Ulster County Area Transit (UCAT) provides fixed route bus service and paratransit shuttle services in the study area. The Kingston Poughkeepsie Line (KPL) is scheduled to provide service along this portion of Route 9W twice day, at 7:00am and 6:25pm. UCAT provides “Rural Route Service” every 2nd, 3rd, and 4th Wednesday of the month by appointment. ADA paratransit service is available to eligible persons.

Traffic Safety

Crash data were obtained from NYSDOT for the most recent available five-year period, 2012 to 2016. The crash analysis includes crashes that occurred within 200 feet of the corridor. The crashes are classified into four categories of severity: fatal, injury, property-damage (damage over \$1,000), and non-reportable (damage under \$1,000). Of the 575 crashes that occurred along the corridor between 2012 and 2016, two (2) resulted in fatalities and a quarter (25%, 144) resulted in injuries. Two injury crashes involved pedestrians and 1 involved a bicyclist.

Figure 2 shows the location of all motor vehicle crashes aggregated into clusters by severity. Pedestrian and bicycle crash locations are indicated also indicated on this map. The majority (71%) of crashes occurred within 200 feet



of an intersection. Table 3 lists the intersections that have had a total of 15 or more crashes. The greatest number of crashes occurred at the signalized intersection of Milton Turnpike and Route 9W. The largest crash cluster is found in the Marlboro Hamlet, where five of the top crash intersections are located. These are the study area's most active areas. However, intersections with the

Table 3: Top Crash Intersections (5 Years - 2012-2016)

Map ID	Intersection	Injury	Property Damage	Total
1	Milton Turnpike	13	31	44
2	King Street	4	21	25
3	Young Avenue	7	17	24
4	Perkinsville Road	4	18	22
5	Dock Road (Marlboro)	3	17	20
7	Lyons Lane/Rivercrest Ln	2	17	19
6	Willow Tree Road	6	13	19
8	Western Avenue	5	13	18
9	Old Indian Road	9	7	16
10	Birdsall Avenue	3	12	15
11	Hillside Drive	4	11	15

The NYS Department of Transportation has designated several high accident locations (HALs) along the corridor. Table 4 shows the crash rates calculated for the various segments of Route 9W by lane configuration. The review of crash rates for the various segments of Route 9W shows that 2 segments significantly exceed the state-wide averages for these types of highways: the most southerly segment between Bloom Street and Riverview Drive with an average rate of 4.43 crashes per million vehicle miles traveled (MVM) and the segment of St. James Street to Milton Turnpike with an average rate of 5.88.

Table 4: Crash Rate by Segment (5 Years - 2012-2016)

Segment	Lane Configuration	Average Annual Crash Rate (per Million Vehicle Miles, 2012-2016)
Bloom Street - Riverview Drive	1-Lane NB 1-Lane SB	4.43
Riverview Dr - McLaughlin Dr	2-Lane NB 1-Lane SB	1.41
McLaughlin Dr - Rivercrest Ln	1-Lane NB 1-Lane SB	2.70
Rivercrest Ln - St. James St	2-Lane NB 2-Lane SB	1.95
St James St - Milton Turnpike	1-Lane NB 2-Lane SB	5.88

highest proportion of injury crashes are located between the hamlets and in the Milton Industrial Park.

It is also interesting to note that whereas the 4-lane segment of Route 9W between Rivercrest Lane and St. James Street has a relatively low crash rate of 1.95, the segment north of this segment has the highest rate (5.88) and the segment south has the 3rd highest rate (2.70) plus one of the fatalities. This seems to indicate a spill-over effect from the 4-lane segment where drivers are encouraged to drive faster and arrive at speeds that may be too high on the adjacent segments. This effect seems to be confirmed by the crash pattern at the High Accident Location of Route 9W and Milton Turnpike: The 5-year crash data show 26 crashes involving NB vehicles and 14 crashes involving SB vehicles (8 of these crashes involved both a NB and a SB vehicle). The significant difference between the two approaches is due to the fact that the number of NB rear-end crashes is 4 times higher than the SB rear-end crashes.

SECTION 3. ROADWAY SAFETY AUDIT

As part of the Corridor Management Plan, a Safety Assessment was conducted following the Roadway Safety Audit (RSA) process detailed in guidelines produced by the Federal Highway Administration (FHWA) and the New York State Association of Metropolitan Planning Organizations (NYSAMPO). The purpose of the assessment is to identify existing issues contributing to roadway crashes and develop recommendations to improve safety. The Safety Assessment builds upon the existing conditions analysis and stakeholder concerns conveyed through the first phase of public engagement.

Focus Area

The RSA focus area covers a two-mile segment of Route 9W in the northern portion of the study area between Old Indian Road and Perkinsville Road. This area was chosen because it is the site of several high-crash locations and has received little attention in previous studies. The Project Team and Technical Advisory Committee felt it was important to examine the area to assess the need for traffic calming in the four-lane section between Riverview Drive and Milton Turnpike and the two-lane section going through Milton Industrial Park.

The RSA focused on three specific areas, as shown in Figure 3::

- Perkinsville Road (Spanning quarter-mile north and south of Perkinsville Road intersection)
- Milton Turnpike (St. James Place to roughly 500 feet north of Milton Turnpike intersection)
- Route 9W between Old Indian Road and Willow Tree Road.

RSA Process

The Safety Assessment Team consisted of six members of the Project Team and TAC members who have experience in traffic planning, engineering and enforcement. The Team was tasked with performing field observations at the selected focus areas during various times to examine conditions. Each location was visited once during the AM peak period (7-9am), PM peak period (4-6pm), and after dark (8pm-10pm) over the course of two days (Tuesday, September 26 and Wednesday, September 27 of 2017). Prior to conducting the field observations, the Safety Assessment Team reviewed detailed crash maps and traffic crash data to identify contributing factors. A meeting was held after the field observations to review and confirm the RSA findings.

Additional information on the Roadway Safety Audit is contained in Appendix D

Findings

The following summarizes the safety issues that were identified during the RSA process. Recommendations addressing these issues have been incorporated into the plan's overall recommendations, which are featured in Section 6.

High Travel Speeds

Drivers were found to be driving at high speeds through this section of the Route 9W corridor. The highest speeds were observed at the intersections of Willow Tree Road and Old Indian Road where the horizontal and vertical curvature, four travel lanes and a wide visual field create an environment that encourages fast driving. Lane reconfigurations and streetscape improvements should be considered to traffic calm this area.

Difficulty Making Left-Turns from Route 9W

Current lane configurations in the four-lane section and two-lane section in Milton Industrial Park make it challenging for drivers to make left-turns from Route 9W because of the lack of protected turn pockets. At unsignalized intersections, drivers are rushed to make left-turns because they must be made across opposing traffic from a through lane. In the two-lane section, queues often form while the turning vehicle waits for a gap in opposing traffic.

The Team observed many drivers not slowing down for vehicles making turns. At the intersection of Perkinsville Road, located along the two-lane section, the Team observed drivers using the shoulder to pass vehicles waiting to make left-turns. Protected left-turn lanes should be considered at the intersections of Willow Tree Road and Old Indian Road, as well as along the two-lane section in Milton Industrial Park.

Intersection Geometry

Perkinsville Road, Willow Tree Road, and Old Indian Road intersect Route 9W at skewed angles, which make it more challenging for drivers to turn in and out of them. The minor roads are poorly delineated because they have large corner radii. While intersection realignment is not feasible due to existing developments, recommendations have been developed to help better define intersections with roadway features, landscaping, signage and lighting.

Visibility

The Team identified visibility deficiencies along the roadway and at intersections due to inconsistent lighting and missing reflectors. Pavement markings were found to be in good condition for daytime use, but they are difficult to see at night because the paint is not reflective. The pavement markings are planned to be re-applied in the construction cycle of 2019.

SECTION 4. FUTURE TRAFFIC CONDITIONS

Local and Regional Growth

Historical traffic volume data collected by NYSDOT shows a fluctuation in Annual Average Daily Traffic (AADT) along Route 9W in the study area since 2004. Between 2004 and 2011, AADT decreased 18% from nearly 20,000 to 16,500 vehicles per day. The most recent NYSDOT count in 2014 shows a 26% increase from 2011. However, counts commissioned by UCTC in 2017 showed an AADT of 16,520 at the NYSDOT count location, which represents a 20% decrease from 2014. These data show an overall traffic decrease of 8% in the last 10 years despite the surge recorded in 2014. Decreases in AADT have been seen throughout the region. In conjunction with UCTC, it was determined that a modest 0.5% annual growth rate should be assumed for future traffic forecasts.

The demographic analysis in the Town of Marlborough's Comprehensive Plan shows a projected decline in the enrollment of school children in the Marlboro Central School District, a relative decline in the "under 40" population; and an increase in the senior and elderly populations (Behan, 2017). Both Towns are interested in attracting new residents and have mixed-use developments in the pipeline, as outlined in the following section.

Planned Developments

Bayside Development

The Bayside Development has been approved on the west side of U.S. Route 9W, south of Purdy Avenue, opposite Young Avenue. This development will include 104 dwelling units and approximately 12,600 sq.ft. of commercial space. Marlborough Middle School borders the site to the south. Access to the site is proposed via a new roadway connection to Route 9W opposite Young Avenue where there is currently a signalized intersection and crosswalk.

Hudson Valley Wine Village

The Town of Lloyd has recently approved the master plan for the Hudson Valley Wine Village, a large development to be built on the east side of Route 9W, generally south of Bluepoint Road. The master plan defines the Hudson Valley Wine Village project as mixed-use development with approximately 913 residential dwelling units, a 103 room hotel/conference center and restaurant space, 50,000 sq. ft. of new commercial space (office/retail), 450,000 sq. ft. of light industrial space and 51,727 sq. ft. of adaptive reuse of the existing winery structure. The project is in a conceptual phase and would be developed in stages over a 10- to 20-year period.

Project generated traffic will enter and exit the site through two new access points that will be constructed between Bluepoint Road and Mackey Road (South). The southerly access is proposed to connect directly to Route 9W, while the northerly one is via a reconstructed Sam Williams Road to create an intersection opposite Paladino Drive. This new access road would also be made available to the existing residences. An emergency only connection to Bluepoint Road is also expected to be provided.

Traffic Impacts

This section summarizes the anticipated traffic impacts resulting from local and regional background growth as well as the Bayside and Hudson Wine Village Developments.

Marlboro Hamlet

Marlboro Triangle is the hamlet's bottleneck due to the high volume of left turns from Route 9W and King Street. If the triangle's roadway configuration remains unchanged, these issues are expected to exacerbate and cause further delays along the corridor. The 2008 Marlboro Hamlet Area Transportation Plan identified several alternative solutions to address this issue – two of which were identified as the preferred alternatives for improvements: Alternative 2 and 6.

- Alternative 2 includes the installation of Traffic Signals at both King Street and Western Avenue. King Street and Western Avenue would remain as one-way eastbound and one-way westbound, respectively. A left turn lane would be constructed on the northbound Route 9W approach to the Western Avenue intersection. Pedestrian signals and crosswalks would be installed at each intersection, as well as new sidewalks throughout the area. Parking would be prohibited along Route 9W from King Street to Dock Road.
- In Alternative 6, Western Avenue and King Street would both become two-way streets and the intersection of Western Avenue and King Street would be controlled by two coordinated traffic signals with pedestrian phases on each approach. Vehicles traveling to Route 9W northbound would be required to make left turns from Western Avenue, while traveling to Route 9W southbound would require right turns from King Street. Also, as part of this alternative, vehicles traveling west on Western Avenue would be required to make left turns at King Street where a separate left turn lane would be provided.

The implementation of either of these alternatives is expected to significantly reduce intersection delay time.

The Bayside project is expected to generate 105 additional vehicle trips in the AM Peak Hour and 177 additional trips in the PM Peak Hour. Two-thirds of the project generated traffic is expected to travel to and from the south and the remaining third is expected to travel to and from the north. The Traffic Impact Study prepared by Maser Consulting in 2015 concluded that the project generated traffic will not

have a significant impact on area intersections if improvements are made to Marlboro Triangle.

Milton Turnpike

In the long term, the intersection of Milton Turnpike and Route 9W will experience an increase in peak hour delays as local and regional traffic volumes grow and the intersection is used by pedestrians and bicyclists. The intersection could operate more efficiently if it was converted into a roundabout, which would reduce delays at all approaches because it would allow vehicles to continuously move through the intersection. A roundabout would bring traffic benefits to the corridor, by regulating traffic flow and speed, and creating an opportunity for vehicles to make U-turns. In the long term, additional traffic generated from a future development in the Town of Lloyd are expected to significantly impact the intersection during the PM peak period. These impacts are described in greater detail in the following future level of service analysis.

Town of Lloyd

The traffic Impact Study prepared in 2012 for the Hudson Valley Wine Village assumed a full-build-out of the Master Plan and estimated that an additional 851 additional vehicle trips would be generated in the AM Peak Hour and 1,130 additional trips in the PM Peak Hour. This represents a worst-case scenario. Forty percent (40%) of the project generated traffic is expected to travel to and from the south, through the study area.

The study recommends the following improvements to address peak hour traffic impacts:

- The provision of left and right-turn lanes and signalized intersections at the two project entrance roads on Route 9W to help reduce delay times for vehicles turning onto Route 9W.
- The construction of a spine road connecting to either the existing Blue-point Road or to Sam Williams Road should be completed to provide an alternate north-south link and an emergency access once significant development occurs or the access road extends more than 1500± feet.
- Consideration to providing a shuttle service for residents from the Project to Bridgeview Plaza in Highland to access additional UCAT bus services or eventually extending the service area for more frequent service to help reduce the peak-hour trip generation of the Project.

The study concluded that with the above mitigations, the additional traffic generated by the development will not cause significant impact to the roadways or intersections within the vicinity of the project site, which is defined as the intersections between Tillson Avenue/Haviland Road and Mackey Road. The study did not analyze intersections in Marlborough Township.

The additional volumes will impact intersection operations downstream of this development, mainly creating greater demand at the south and northbound through movements at the signalized intersection of Milton Turnpike and Route 9W. However, the signalization of intersections at the site driveways are expected to improve conditions at other nearby unsignalized intersections because it will create more gaps in north and southbound traffic.

Future Traffic Volumes and Levels of Service

An analysis of future traffic operations was conducted for the section of the Route 9W corridor between Hudson Bluff and Perkinsville Road where the roadway transitions between two and four lanes. A level of service analysis was conducted at the intersection at Milton Turnpike and along three segments of Route 9W to evaluate impacts of future traffic increases on roadway capacity and operations. The arterial level of service analysis examines traffic conditions with or without the lane reconfiguration of the four-lane section proposed in the report's recommendations and shown in detail in Appendix E.

Future traffic volumes depend on a number of factors that are difficult to predict. On one hand this corridor is not projected to grow significantly – about 0.5% per year based on an optimistic outlook of regional growth- on the other hand there seem to be some development projects such as the Hudson Valley Wine Village that may have a greater impact on future growth. The Hudson Valley Wine Village traffic study indicates that at full build out there may be as many as 340 additional vehicles on Route 9W south of the project site in the AM peak hour in both directions and 450 in the PM peak hour. Not all of these vehicles will continue all the way to the hamlet of Marlboro. Some will peel off on Milton Road/North Road, Perkinsville Road and Mahoney Road before reaching the Milton Turnpike intersection, the most critical intersection in terms of traffic capacity constraint in the corridor.

Route 9W & Milton Turnpike

Assuming that 85% of the vehicles assigned south of the project site will drive through the Milton Turnpike intersection, about 289 vehicles would be added to this intersection in the AM peak hour and 386 vehicles in the PM peak hour. During the PM peak period at full build out, it is estimated that 135 of the additional vehicles will be traveling in the northbound direction and 251 vehicles will be traveling southbound direction. It is assumed that in 5 years (2022), the Wine Village project will be 20% built and in 25 years (2042) it will be completed. Considering the annual growth rate, the following increases are estimated for north and southbound traffic traveling through the Milton Turnpike intersection:

- In 5 years (2022). It is estimated that 20% of additional vehicle traffic will be added to the network. This will result in a 6% increase in northbound traffic and a 7% increase in southbound traffic from 2017.

The Level of Service Analysis is contained in Appendix D

- In 25 years (2042), it is estimated that the remaining 80% of additional vehicle traffic will be added to the network. This will result in a 25% increase in northbound traffic and a 33% increase in southbound traffic from the volume projected for 2022.

The signalized intersection is expected to operate at an overall LOS C in 2022 and LOS D in 2042. The following table summarizes the level of service analysis for the Milton Turnpike intersection by approach:

Table 5: Future Level of Service - Intersection Route 9W & Milton Turnpike

Lane Group/ Movement		Existing Conditions (2017)		Future 5-Year (2022)		Future 25-Year (2042)	
		LOS	Delay	LOS	Delay	LOS	Delay
Northbound	<i>Left</i>	A	7	A	9	B	15
	<i>Through</i>	B	20	C	28	F	99
	<i>Overall</i>	B	19	C	27	F	94
Southbound	<i>Left</i>	B	17	B	19	C	30
	<i>Through</i>	B	11	B	11	B	15
	<i>Overall</i>	B	11	B	11	C	15
Eastbound	<i>Overall</i>	C	32	C	32	D	35
Westbound	<i>Overall</i>	D	40	D	38	D	43
Overall		B	18	C	20	D	58

HCM Reports contained in Appendix D

In the 5 year scenario, the level of service of the signalized intersection, which currently operates at a LOS B is expected to operate at LOS C with the current intersection configuration and signal phasing.

The increase in northbound traffic in the 25 year scenario is expected to significantly increase delays at the northbound approach, reducing the LOS of the through lane from C to F. No mitigation measures have been proposed by the Wine Village traffic impact study for this intersection. An increase in green time for the northbound approach is expected to mitigate delays.

Arterial Level of Service

In addition to the capacity verification at the most critical signalized intersection in the corridor, the capacity methodology for 2-lane rural highway segments was utilized to assess the adequacy of the Route 9W capacity as a 2-lane highway. This assessment was undertaken for the PM peak hour since the PM peak-hour volumes are about 18% to 24% higher than the corresponding AM peak-hour volumes (except for the segment in the Hamlet of Marlboro, where the pm volumes are 2% higher than the am volumes). The analysis was undertaken for the following three segments of Route 9W:

Segment 1: between Hudson Bluff Drive and Chestnut Road. This is a 2-lane segment with a northbound passing lane. It is assumed that 85% of the Hudson Valley Wine Village traffic assigned to Route 9W south of the site would be added to this segment.

Segment 2: between Old Indian Road and Willow Tree Road. This is currently a 4-lane that is proposed to be reduced to a 2-lane segment with a southbound passing lane. It is estimated that 77% of the Hudson Valley Wine Village south traffic would be added to this segment.

Segment 3: north of Milton Turnpike, between New Road and Perkinsville Road. This is a 2-lane segment with passing zones. It is assumed that 77% of the Hudson Valley Wine Village south traffic would be added to this assigned to Route 9W south of the site would be added to this segment.

The level of service for these highway segments was calculated for existing conditions (2017), 5 year (2022), and 25 year (2042) scenarios using the Highway Capacity Manual (2010) methodology for two-lane highways. The methodology was developed for three classes of highways: Class I and Class II for rural highways and Class III for highways in developed areas. The roadway character of the three analysis segments fits both the definition of a Class I and Class III roadway – Route 9W is a regional arterial roadway that serves as a commuter route (Class I) that serves moderately developed communities and has a high number of unsignalized intersections and access driveways compared to rural roadways (Class III).

The directional level of service of two-lane highways is defined using three metrics, which are designed to convey driver expectations and operating characteristics:

- Average Travel Speed (ATS): conveys mobility through the segment
- Percent Time-Spent-Following (PTSF): represents the freedom to maneuver and the comfort and convenience of travel
- Percent Free-Flow Speed (PFFS): Percent of vehicles traveling at free flow speed, which is considered at or near the posted speed limit

All of these metrics relate to the ability to pass vehicles, which depends on the passing capacity and the passing demand. This considers the opportunity to pass vehicles using passing zones or passing lanes and the desire for drivers to pass slow moving vehicles.

The level of service of Class I highways, where drivers expect to travel at high speeds, is determined using the Average Travel Speed (ATS) and Percent Time-Spent-Following (PTSF) metrics. The level of service of Class III highways, areas of moderate development and higher activity, is determined using the Percent Free-Flow Speed (PFFS) metric. The following table summarizes the metrics for the Class I and Class III Highways.

Table 6: Level of Service Definitions for Two-Lane Highway

Level of Service	Class I Highway		Class III Highway
	Average Travel Speed (mi/h)	Percent Time Spent Following (%)	Percent of Free-Flow Speed (%)
LOS A	> 55	<= 35	> 91.7
LOS B	> 50 - 55	> 35 - 50	> 83.3 - 91.7
LOS C	> 45 - 50	> 50 - 65	> 75.0 - 83.3
LOS D	> 40 - 45	> 65 - 80	> 66.7 - 75.0
LOS E	<= 40	> 80	<= 66.7
LOS F	Exists whenever the demand flow in on or both directions exceeds the capacity of the segment		

Source: Highway Capacity Manual, 6th Edition

Given the varied nature of Route 9W corridor, level of service calculations are presented for both Class I and Class III highways to provide a more comprehensive assessment of the impacts of future development and the proposed lane reconfiguration.

The analysis of two-lane highways is performed directionally. The tables on the following pages show the various metrics and Class I and Class III level of service for the northbound and southbound directions in the PM peak hour.

Table 7 shows the level of service for the three lane segments without changes to the 4-lane section. The multilane level of service analysis shows that traffic currently flows at or near free flow speeds in the 4-lane section, but is constrained in the 2-lane sections up and down stream. As traffic increases in the future, the percent time-spent-following to increase and percent free-flow speed is expected decrease, which will cause an overall decline in the level of service in the 2-lane section. Although little noticeable change to future average speeds is projected for the 4-lane section, vehicles will continue to be constricted by the 2-lane sections preceding and following this brief increase in roadway capacity.

Table 8 shows the level of service for the three lane segments with the proposed lane reconfiguration of the 4-lane section to a 2-lane section with a 0.4 mile southbound passing lane. The 2-lane level of service analysis shows that traffic in Segment 2 is expected to operate similarly to Segments 1 and 3. Looking to 2042, the Class III level of service is projected to be LOS D along each segment except for the southbound direction in Segment 2. A potential mitigation is for NYSDOT to create southbound passing zones where sight distance allows.

Table 7: Future Level of Service with 4 Lane Segment

	Segment 1: Hudson Bluff to Chestnut Road						Segment 2: Chestnut Road to St. James Place						Segment 3: New Road to Perkinsville Road					
	Existing		Future: 5 Years		Future: 25 Years		Existing		Future: 5 Years		Future: 25 Years		Existing		Future: 5 Years		Future: 25 Years	
	1 Lane NB - 1 Lane SB						2 Lanes NB - 2 Lanes SB						1 Lane NB - 1 Lane SB					
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
<i>Two-Way Flow Rate</i>	740	812	783	878	963	1152	721	828	764	894	942	1170	688	860	737	941	942	1275
<i>% No Passing Zone</i>	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	10%	20%	10%	20%	10%	20%
<i>Existing Mean Travel Speed (mph)</i>	48.9	49.5					53.7	33.7*					48.6	47.4				
Volume/Capacity Ratio	0.47	0.50	0.49	0.54	0.61	0.71	0.28	0.32	0.29	0.34	0.36	0.45	0.40	0.51	0.43	0.55	0.55	0.75
Level of Service																		
<i>Average Travel Speed (mph)</i>	42	46	41	45	38	41	53	47	53	46	52	46	41	41	40	40	36	36
<i>Percent Time-Spent-Following (PTSF)</i>	66%	54%	67%	55%	72%	59%							72%	80%	75%	83%	83%	90%
Multilane / Class I Level of Service (LOS)	D	C	D	D	E	D	A	B	B	B	B	B	D	E	D	E	E	E
<i>Percent Free-Flow Speed (PFFS)</i>	77%	80%	76%	79%	69%	73%							77%	76%	75%	74%	67%	67%
Class III Level of Service (LOS)	C	C	C	C	D	D							C	C	D	D	D	D

*Speed measured at incline. Base Free Flow Speed of 55mph used instead.

HCM Reports contained in Appendix D

Table 8: Future Level of Service with Lane Reconfiguration of 4-Lane Section

	Segment 1: Hudson Bluff to Chestnut Road						Segment 2: Chestnut Road to St. James Place						Segment 3: New Road to Perkinsville Road					
	Existing		Future: 5 Years		Future: 25 Years		Existing: 2017		Future: 5 Years		Future: 25 Years		Existing		Future: 5 Years		Future: 25 Years	
	1 Lane NB - 1 Lane SB						1 Lane NB - 1 Lane SB						1 Lane NB - 1 Lane SB					
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
Two-Way Flow Rate	740	812	783	878	963	1152	721	828	764	894	942	1170	688	860	737	941	942	1275
% No Passing Zone	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	10%	20%	10%	20%	10%	20%
Existing Mean Travel Speed (mph)	48.9	49.5					53.7	33.7*					48.6	47.4				
Volume/Capacity Ratio	0.47	0.50	0.49	0.54	0.61	0.71	0.27	0.52	0.49	0.56	0.60	0.73	0.40	0.51	0.43	0.55	0.55	0.75
Level of Service																		
Average Travel Speed (mph)	42	46	41	45	38	41	45	37	44	38	41	33	41	41	40	40	36	36
Percent Time-Spent-Following (PTSF)	66%	54%	67%	55%	72%	59%	79%	74%	80%	75%	86%	80%	72%	80%	75%	83%	83%	90%
Class I Level of Service (LOS)	D	C	D	D	E	D	D	E	D	E	E	E	D	E	D	E	E	E
Percent Free-Flow Speed (PFFS)	77%	80%	76%	79%	69%	73%	75%	73%	74%	72%	69%	68%	77%	76%	75%	74%	67%	67%
Class III Level of Service (LOS)	C	C	C	C	D	D	D	D	D	D	D	D	C	C	D	D	D	D

*Speed measured at incline. Base Free Flow Speed of 55mph used instead.

HCM Reports contained in Appendix D

It is important to note that 2-lane highway level of service analysis is generally used for more rural traffic conditions where traffic flows with few interruptions compared to conditions in more developed areas. Unlike the methodology for signalized intersections, where the level of service deteriorates with increased delays at the intersection and greater percentages of vehicles that have to wait for more than one signal phase, the LOS for 2-lane highways degrades with greater percentages of vehicles circulating behind each other and with lower operating speeds. In the case of Route 9W in the Town of Marlborough the lower operating speeds are seen as desirable, as long as there are no traffic blockages. The 2-lane level of service depends on the geometry of the highway (lane and shoulder widths), the presence of segments with passing opportunities and the presence of passing lanes, but it does not take into consideration the presence of left-turn lanes, which will reduce delays at unsignalized intersections within the corridor.

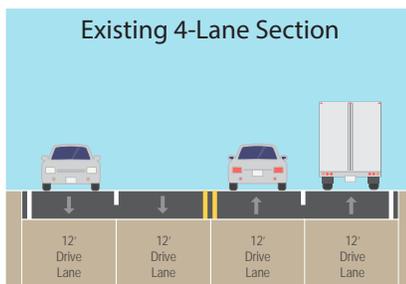
It can be concluded from the level of service analysis that Route 9W can continue to function in the 2-lane segment road north of Milton Turnpike intersection and therefore the 4 lanes that exist on the segment further south will not be needed from a capacity point of view even with the additional traffic volumes.



SECTION 5. OVERVIEW OF CORRIDOR IMPROVEMENTS

Lane Reconfigurations

One of the key issues that emerged from the public engagement process, from the safety audit, and from the consultant team's assessment is the inconsistent character and configuration of Route 9W and the speeding issues created by this configuration. The sections of Route 9W in the southerly and northerly portions of the Town of Marlborough, as well as the study section in the Town of Lloyd, have one traffic lane in each direction with shoulders on both sides. In between these two sections Route 9W varies between 2-lane, 3-lane and 4-lane sections, with most of the 4-lane sections lacking shoulders. Left turns from the 4-lane sections occur from the left-hand through lane. Drivers tend to take advantage of the 3-lane and 4-lane sections to pass other vehicles and speed. These sections of Route 9W are perceived as an expressway and set the tone (and speed) for this arterial throughout most of its length.



Lane reconfiguration from 4-Lane Section to 2-Lane Section with Turning Lane

The analysis undertaken in previous tasks leads to the following conclusions:

- The 4-lane segment of Route 9W has significantly higher percentages of drivers exceeding the posted speed limit, especially in the northbound direction, compared to the 2-lane segments.
- Whereas the 4-lane segment itself does not have a high crash rate, the segments north and south of the 4-lane segment do have higher rates, implying a possible spill-over effect of crashes. This spill-over effect is also a probable cause of the HAL rating of the Route 9W/Milton Turnpike intersection located just north of the 4-lane segment. This signalized intersection has 4 times more NB rear-end crashes than southbound rear-end crashes.
- The 4-lane segment is not needed nor justified from a capacity point of view. Today the 2-lane segments north and south of the 4-lane segment carry higher volumes and function well throughout the corridor (except maybe for delays incurred in the Marlboro hamlet due to pedestrian activity and turning vehicles). The capacity analysis of the 2-lane segment north of the Milton Turnpike for the future conditions with the Hudson Valley Wine Village traffic indicate that both directions of this segment will operate at LOS D in both the future 5 year and 25 year scenarios (Class III LOS). The Milton Turnpike intersection will operate at LOS C in 2022 and LOS D in 2042 with today's configuration and signal phasing.
- The analysis of operating speeds in the study corridor, the character of Route 9W with its numerous driveways and friction points and its comparison to other highways and parkways in the region led the consultant team

to conclude that the posted speed limit of 55 mph is too high. The operating speeds associated with the 55 mph speed limit are also an obstacle to some of the pedestrian and bicycle improvements proposed for the corridor. The reconfiguration of the 4-lane segment should therefore be seen as a tool to move towards a more “complete” Route 9W as per NYSDOT policy.

This assessment leads to the following improvement principles regarding the general configuration of Route 9W in the study area:

- Consider setting a general design standard for Route 9W in this area as a 2-lane arterial, with consistent shoulders throughout the corridor
- Provide protected left-turn lanes at those intersections or driveways that have high left-turn volumes
- Maintain the existing uphill passing lane in the northbound direction north of Riverview Drive and one southbound passing lane between Old Indian Road and Chestnut Lane (about 2,300 feet long).

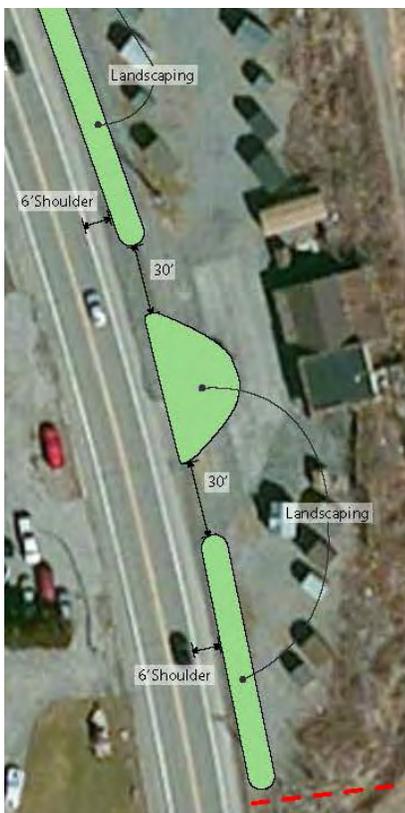
This more consistent and standard design of Route 9W would reduce operating speeds and the 85th percentile speeds without having a significant impact on total travel times throughout the corridor. The reduction in speeding will facilitate the other improvements recommended in the next section.

In addition to the lane reconfiguration recommendations listed in Section 6 of this report, conceptual sketches of the proposed lane reconfiguration showing how the 1.9-mile long segment of Route 9W in the Town of Marlborough from Lyons/Rivercrest Lane in the south to Milton Turnpike in the north could be reconfigured. These maps are contained in Appendix E. The main purpose is to show a potential lane reconfiguration that could be undertaken during the next repaving project of that segment. The following are the key objectives and design principles/assumptions underlying the drawings:

- Provide consistent shoulders throughout the segment. Today Route 9W has shoulders south and north of this segment, but generally no shoulders in the 4-lane segment.
- Provide a consistent cross-section for Route 9W from Newburgh north of I-84 to County Route 11 in the Town of Lloyd.
- Provide for protected left-turn lanes, rather than allowing left-turn movements out of through lanes
- Maintain as much as possible the existing centerline of Route 9W
- Maintain the existing lane widths

Conceptual plans showing the Proposed Lane Reconfiguration are contained in Appendix E

- Maintain one northbound and one southbound passing lane within the study corridor
- Maintain the overall paved surface, no widening and no shrinkages are proposed
- As the drawings are based on aerial maps, the outer edges of the shoulders are uncertain
- When there was a choice of maintaining median striping or having wide shoulders, the wider shoulders were chosen (this can be changed if desired)



Recommended Driveway Narrowing using Landscaping

The Access Management Plan is contained in Appendix F

Access Management

The main purpose of access management is to optimize the safety and efficiency of Route 9W. Given that the primary function of this state highway is to satisfy through traffic (trips between the hamlets and towns in the corridor) as opposed to providing access to adjacent parcels of land, it is important to design Route 9W so that it can fulfill that function in a safe manner. A multitude of driveways and street connections along Route 9W adds conflict points and safety hazards and will increase the number of injuries and fatalities. The stop-and-go conditions associated with a high density of driveways also impede the fluidity of the highway and will require its widening faster than if access is controlled. Good access management will therefore enhance the efficiency of the highway.

A secondary, but also very important purpose of access management is the aesthetic quality of the highway corridor. The proliferation of driveways and related signage, and the wide open driveways often associated with older commercial uses have a negative impact on the visual quality of the corridor and property values. Finally, the reduction of the number of conflicts with driveways will improve the quality of pedestrian and bicycle circulation along the highway independently of the presence of sidewalks or bicycle facilities.

Many of the plan's recommendations reference the following access management principles:

- Reduce the number of driveways: The reduction of the number of driveways will reduce crashes in the corridor, but it will also increase the opportunities to provide better and safer access control. It will make it easier to provide individual left-turn lanes for these driveways, since the greater number of turning movements may warrant that type of treatment.
- Avoid placing additional driveways on 9W and maximize opportunities to provide access from the side or back of the parcel. Driveways should be located on local streets rather than the state highway. At a minimum the access off Route 9W can be converted to a right-turn-in and right-turn-out

only movement. This will improve the safety for the turning movements and safety for traffic on Route 9W.

- Add landscaping and improve parking configuration and efficiency. The addition of landscaping along the Route 9W frontage will enhance the visual quality of the corridor significantly. This is the case particularly for parcels of land that today have wide open driveways, where vehicles often park in a perpendicular fashion to the state highway and occasionally back into the traffic lane to get out of the parking space. This unsafe practice should be avoided.

Expansion of Pedestrian Network

An effective pedestrian network connects population centers and traffic generators to points of interest. While the Marlboro hamlet has an established patchwork of multi-modal features, including some sidewalks and trails, they are not well connected and extend to only a few points within the hamlet. This opportunity is greatly diminished outside of Marlboro Hamlet due to the lack of pedestrian infrastructure of any kind, except along Main Street in Milton Hamlet.

The plan includes recommendations that address network gaps in the existing network and highlight opportunities to expand sidewalks and crossing opportunities in the hamlets. Whenever possible, the Towns should explore opportunities to create off-road shared-use paths.

One of the most pressing issues is the lack of pedestrian crossings across Route 9W. The plan recommends adding crossings in Milton Hamlet and upgrading existing crosswalks in Marlboro Hamlet to encourage greater compliance by drivers. Enhanced Crossings, which provide both warning signs and pedestrian actuated flashing lights, are recommended for crossings at unsignalized intersections or at midblock locations.

Creation of a Bicycle Route Network

Route 9W is not presently a safe nor comfortable road for the vast majority of cyclists due to current lane configurations, pavement conditions and relatively high travel speeds. However, bicycling should be encouraged locally within the Hamlets and regionally along County Routes. The plan outlines an initial bicycle network consisting of shared roadways on local streets and use of shoulders on collector roads. Bicycle parking should be provided in the hamlets and in parks and schools.

The plan's roadway configuration and safety recommendations aim to create a consistent shoulder and reduce vehicular travel speeds, which will make Route 9W a better candidate for bicycle route designation. A long-term vision imagines a shared-use path on one side of Route 9W, that would connect the hamlets.

Streetscape Design

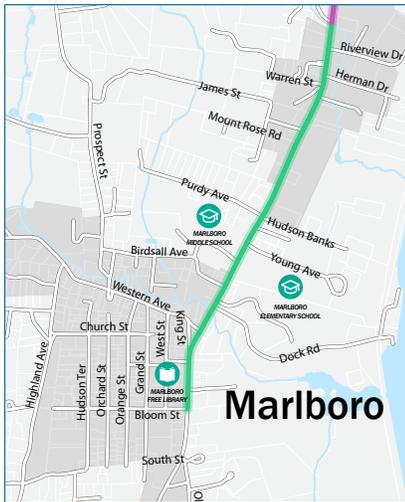
Streetscape elements such as building form, street furniture, landscaping, and lighting, define a community's character and have significant influence on how streets function. There should be a greater effort to encourage public and private investment in the corridor's appearance to build the corridor's identity so it is no longer perceived as an area to pass through. Streetscape improvements are an effective tool for calming traffic and will be a vital component of a multi-pronged effort to reduce speeds throughout the corridor.

SECTION 6. RECOMMENDATIONS

The plan's recommendations are arranged in the following seven categories:

- *Roadway Configuration and Safety (R)*
- *Intersection Improvements (I)*
- *Transit Service (T)*
- *Pedestrian and Shared-Use Paths (P)*
- *Bicycle Infrastructure (B)*
- *Streetscape Improvements (S)*
- *Land Use and Access Management (L)*

ROADWAY CONFIGURATION AND SAFETY



RECOMMENDATION R-1: ESTABLISH SCHOOL ZONE WITHIN QUARTER-MILE OF MARLBORO ELEMENTARY & MIDDLE SCHOOLS

Per the 2016 Marlborough Safe Routes to School Plan, a school zone with signage and reduced speed limits should be placed along Route 9W (no more than 0.25 miles from a school entrance/exit) and should extend between Birdsall Avenue and Purdy Avenue to the north. The Town should request that NYSDOT study the appropriateness of a school speed zone, with a speed limit reduction from 40 mph to 30 mph to restore the school zone speed limit that was previously set before the installation of the traffic signal at Young Avenue.

The school zone will include both the Elementary School and Middle School and the new Bayside Development and will provide more comfortable walking and biking conditions on roads that students travel along. The Manual on Uniform Traffic Control Devices (MUTCD) provides guidance on the use of school area signage and markings. The signs that should be used include: School Advance Warning Assembly, the School Crosswalk Warning Assembly, and the School Speed Limit Assembly.

Location:

- Between Birdsall Avenue and Young Avenue, Marlboro Hamlet, Town of Marlborough

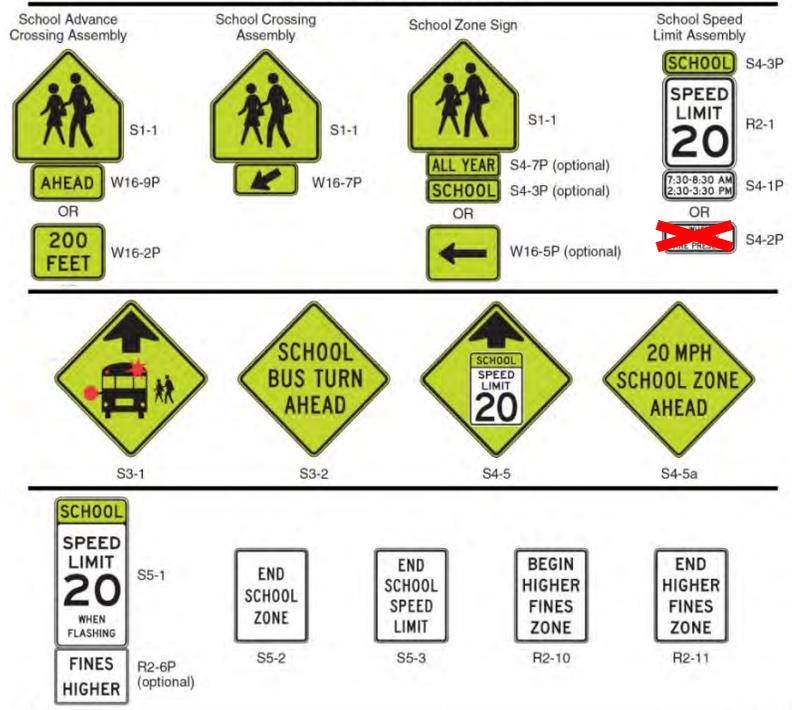
Agencies Involved:

- Marlboro Central School District
- New York State Department of Transportation
- Town of Marlborough

Timeframe:

- Short-term

Figure 7B-1. School Area Signs



School Area Signs

Source: Manual of Uniformed Control Devices, Alta Planning

ROADWAY CONFIGURATION AND SAFETY

RECOMMENDATION R-2: LANE RECONFIGURATION FROM FOUR LANES TO TWO LANES WITH LEFT TURN POCKETS AT INTERSECTIONS BETWEEN RIVERCREST LANE AND MILTON TURNPIKE

Convert four-lane section to two travel lanes with left-turn pockets provided at intersections between Rivercrest Lane and Milton Turnpike. It is recommended that a southbound passing lane be maintained between Old Indian Road and Chestnut Lane to provide opportunity for motorists to pass slow moving heavy vehicles. Conceptual diagrams showing the proposed lane reconfiguration are contained in Appendix E.

The current four-lane configuration encourages higher speeds, which poses a risk to motorists making turns on and off Route 9W. The lane reconfiguration will provide the following benefits:

- Provide protected turn lane for motorists to make left turns. Reduces occurrence of rear-end and left-turn crashes
- Reduction in number of passing zones and the potential narrowing of travel lanes will encourage motorists to travel at or below speed limit.
- Provides the appropriate roadway conditions for a speed limit reduction from 55 mph to a speed of 45 mph
- Additional width available for roadway median and reduction in speed provides opportunities for midblock pedestrian crossings across Route 9W.



Location:

- Between Rivercrest Lane and Milton Turnpike, Town of Marlborough

Agencies Involved:

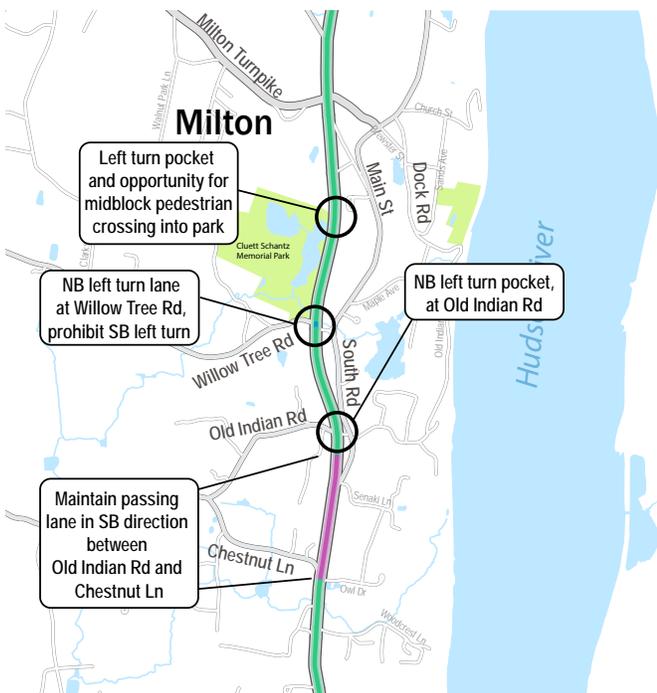
- New York State Department of Transportation
- Town of Marlborough

Timeframe:

- Mid-term

Contingent Upon:

- This project requires coordination between the Town of Marlborough, and the New York State Department of Transportation. The should be done in conjunction with NYSDOT repaving of Route 9W.



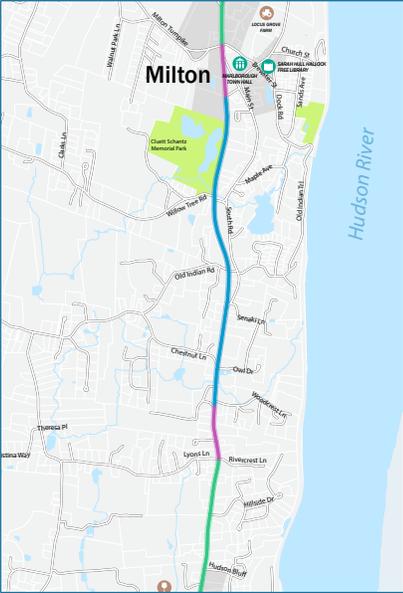
Recommended Lane Reconfiguration

Recommended Lane Configurations



Source: BfJ Planning

ROADWAY CONFIGURATION AND SAFETY



RECOMMENDATION R-3: REDUCE SPEED LIMIT BETWEEN MILTON HAMLET AND MARLBORO HAMLET FROM 55 MPH TO 45 MPH

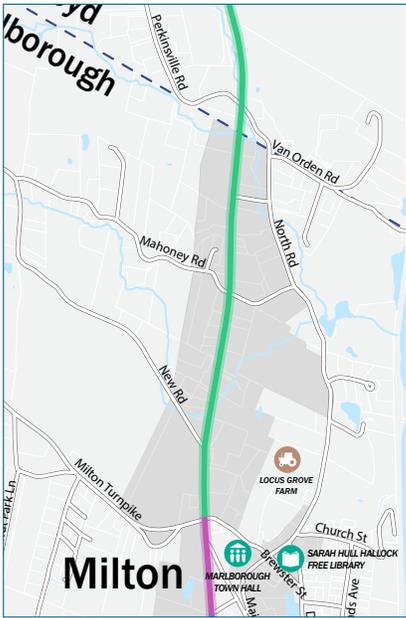
As a follow-up to Recommendation R-2, Marlborough Town should request NYSDOT to study a speed limit reduction from 55 mph to 45 mph between Riverview Drive and Milton Turnpike.

<p>Location:</p> <ul style="list-style-type: none"> Between Riverview Drive and Milton Turnpike, Town of Marlborough <p>Agencies Involved:</p> <ul style="list-style-type: none"> New York State Department of Transportation Town of Marlborough 	<p>Timeframe:</p> <ul style="list-style-type: none"> Mid-term <p>Contingent Upon:</p> <ul style="list-style-type: none"> This is contingent upon the lane reconfiguration described in Recommendation R-2
--	---

RECOMMENDATION R-4: REDUCE SPEED LIMIT BETWEEN MILTON HAMLET AND MILTON INDUSTRIAL PARK FROM 55 MPH TO 40 MPH

Marlborough Town should request NYSDOT to study a speed limit reduction from 55 mph to 40 mph between Milton Turnpike and Perkinsville Road to better complement the land use pattern. This area has a similar character to Marlboro Hamlet between Young Avenue and Riverview Drive, where the current posted speed limit is 40 mph.

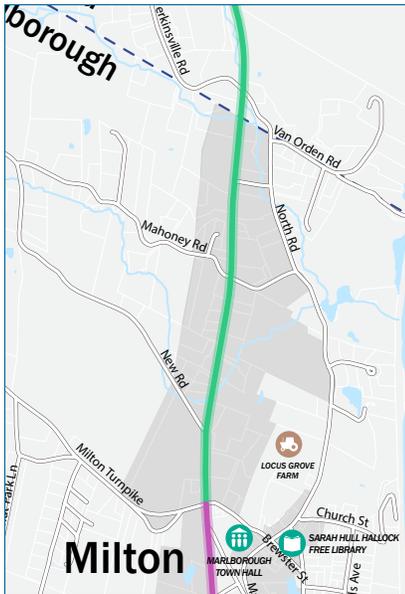
<p>Location:</p> <ul style="list-style-type: none"> Between Milton Turnpike and Perkinsville Road, Town of Marlborough <p>Agencies Involved:</p> <ul style="list-style-type: none"> New York State Department of Transportation 	<ul style="list-style-type: none"> Town of Marlborough <p>Timeframe:</p> <ul style="list-style-type: none"> Mid-term
---	---



ROADWAY CONFIGURATION AND SAFETY

RECOMMENDATION R-5: ADD LEFT-TURN LANES IN MILTON INDUSTRIAL PARK

Study the need for adding left-turn pockets in two-lane section in Milton Industrial Park to reduce opportunity for rear-end and left-turn collisions and improve traffic flow along this section of Route 9W. The number of intersections should be reduced using access management techniques to consolidate and narrow driveways. In the long term, efforts should be made to widen the roadway to provide a consistent shoulder throughout this section.



Location:

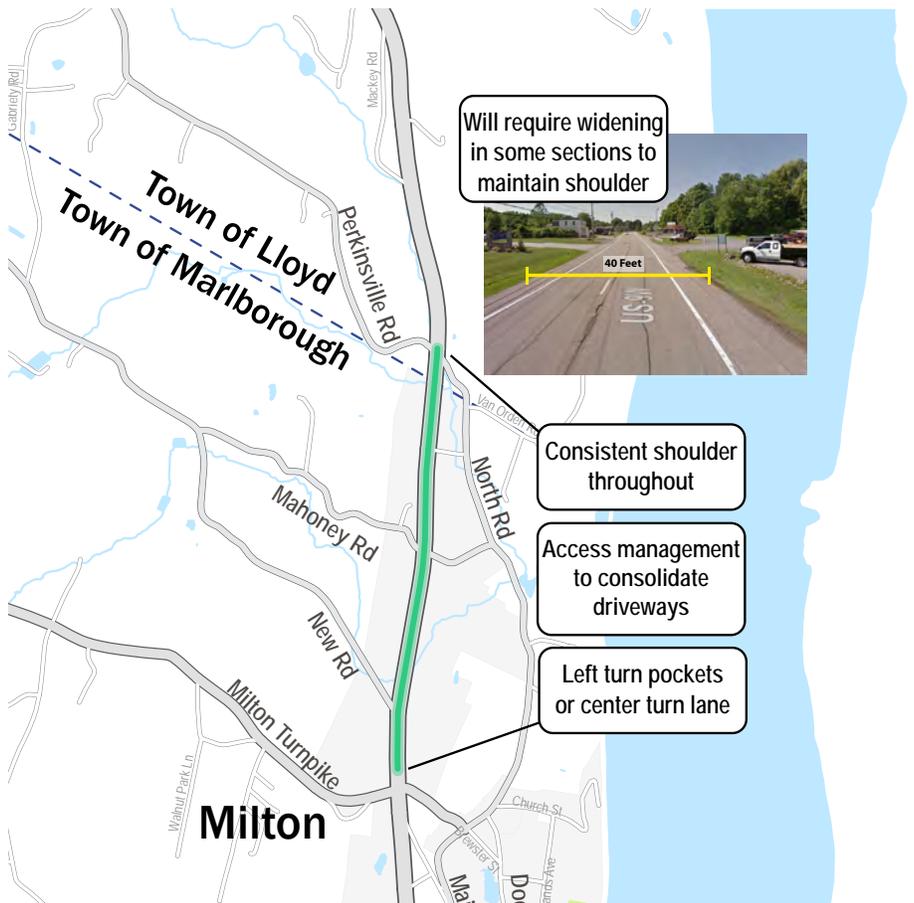
- Between Milton Turnpike and Perkinsville Road, Milton Hamlet, Town of Marlborough

Agencies Involved:

- New York State Department of Transportation
- Town of Marlborough

Timeframe:

- Mid-term



Two-Lane Section in Milton Industrial Park

Source: BFJ Planning

ROADWAY CONFIGURATION AND SAFETY

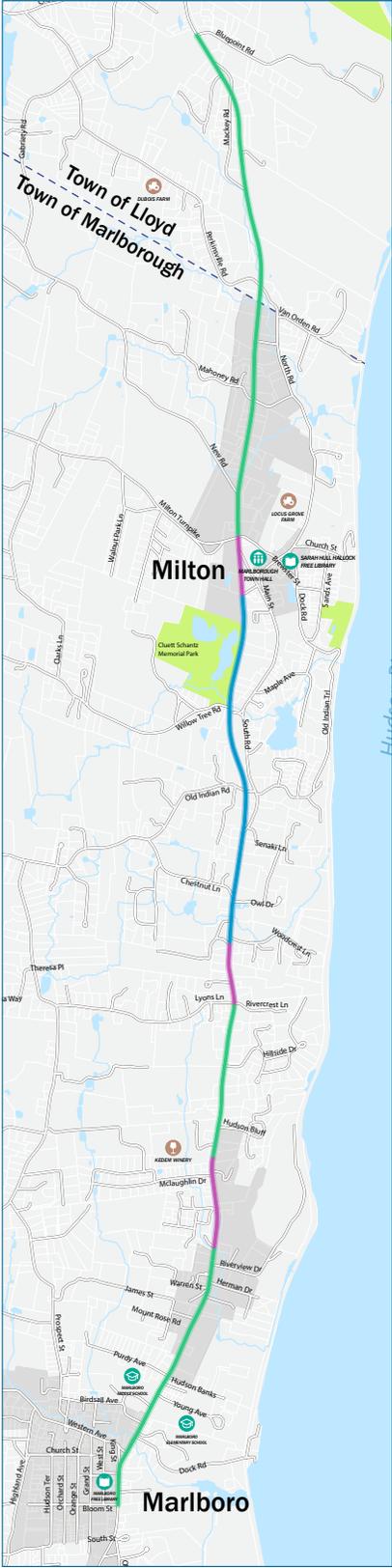
RECOMMENDATION R-6: PROVIDE CONSISTENT SHOULDERS THROUGHOUT CORRIDOR

Provide 6'+ wide, well maintained shoulders throughout the Route 9W corridor to accommodate multi-modal travel. This can be achieved through a combination of repaving, lane reconfigurations, and/or roadway widening. Shoulders should be incorporated in all future roadway projects and is stated as an objective of the roadway improvements in Recommendations R-2 and R-5.

Shoulders increase safety by providing motorists with a recovery area as well as space for emergency, maintenance, and enforcement activities. Shoulders also provide safety and comfort to bicyclists and can accommodate pedestrian activity.

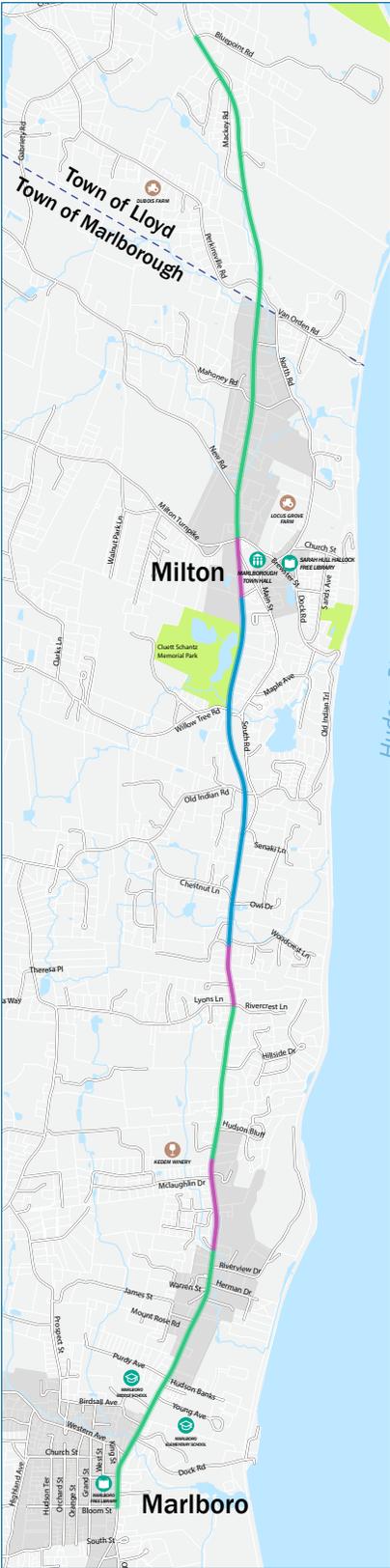
Exceptions will have to be made in the historic portion of Marlboro hamlet because of right-of-way constraints that exist due to the existing development pattern.

<p>Location:</p> <ul style="list-style-type: none"> Corridor-wide, Town of Marlborough and Town of Lloyd 	<p>Timeframe:</p> <ul style="list-style-type: none"> Mid-term
<p>Agencies Involved:</p> <ul style="list-style-type: none"> New York State Department of Transportation Town of Marlborough Town of Lloyd 	<p>Contingent Upon:</p> <ul style="list-style-type: none"> This project requires coordination between the Town of Marlborough, the Town of Lloyd, and the New York State Department of Transportation. Should be done in conjunction with NYSDOT repaving of Route 9W.



ROADWAY CONFIGURATION AND SAFETY

RECOMMENDATION R-7: EVALUATE CENTERLINE MARKINGS, GUARDRAILS AND REFLECTORS ALONG CORRIDOR



The Roadway Safety Audit revealed that portions of Route 9W have damaged guardrails and reflectors and that roadway centerlines need to be examined to revise passing zones. The Town should request that NYSDOT conduct a corridor-wide audit to evaluate the extent of these deficiencies.

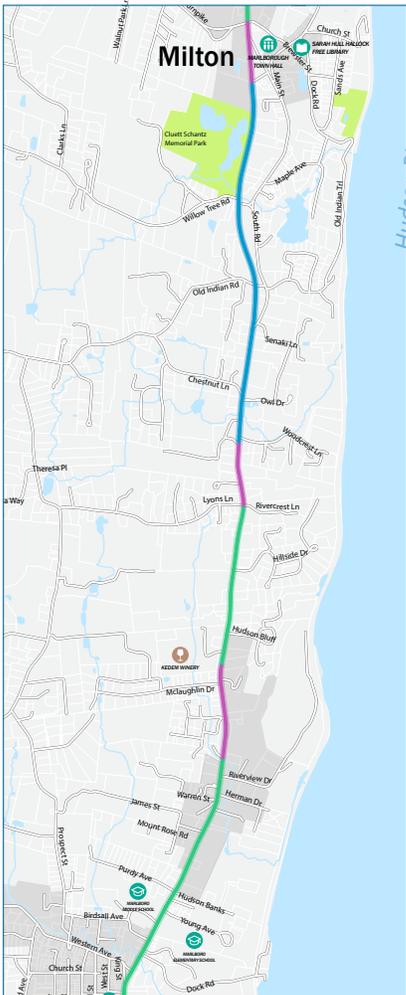
<p>Location:</p> <ul style="list-style-type: none"> Corridor-wide, Town of Marlborough and Town of Lloyd 	<p>Timeframe:</p> <ul style="list-style-type: none"> Short-term
<p>Agencies Involved:</p> <ul style="list-style-type: none"> New York State Department of Transportation Town of Marlborough Town of Lloyd 	

ROADWAY CONFIGURATION AND SAFETY

RECOMMENDATION R-8: INSTALL ADDITIONAL DEER CROSSING SIGNS

The study’s crash analysis shows many incidents of vehicle collisions with animals have occurred throughout the corridor. While deer are a commonplace in Hudson Valley and are known to enjoy the agriculture of Marlborough, their migration patterns have adjusted due to changes in the build environment, such as installation of electric fences. The signage inventory revealed there are few deer warning signs posted along Route 9W to warn drivers of their presence.

It is recommended that additional deer warning signage be installed to convey that deer are present. The signage should be installed at the edges of the hamlets, where the land use transitions from commercial to agricultural and low density residential.



Deer Warning Sign in Saratoga County Source: Manual of Uniformed Control Devices

Location:

- Corridor-wide, Town of Marlborough and Town of Lloyd

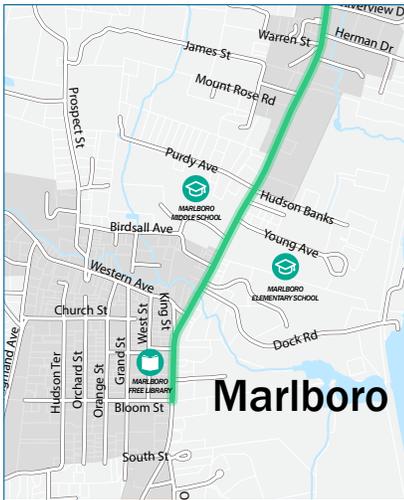
Agencies Involved:

- New York State Department of Transportation
- Town of Marlborough
- Town of Lloyd

Timeframe:

- Short-term

INTERSECTION IMPROVEMENTS



RECOMMENDATION I-1: STUDY PARKING AND PEDESTRIAN INFRASTRUCTURE AT MARLBORO TRIANGLE TO ASSESS FEASIBILITY OF ADDING LEFT-TURN LANE

The 2008 Marlboro Hamlet Area Transportation Plan identified two preferred alternatives for improvements to circulation at Marlboro Triangle (See Section 5). Both alternatives need to be reexamined to take into account changes to land ownership and concerns about removing on-street parking. The construction of a left-turn lane will require widening of the existing roadway, which will have an impact on parking and pedestrian facilities.

The proposed re-examination should study on-street parking occupancy and turnover to determine impact of the removal of on-street parking, explore the acquisition of land for off-street parking, and identify shared-parking opportunities. The 2008 alternatives should be updated to reflect current land use, the location of current and future pedestrian infrastructure, and chosen on-street parking strategy.

A first set of improvements, outlined in Recommendation P-1, would increase convenience and safety at the pedestrian crossing at the triangle by relocating it to the corner with Western Avenue. To provide adequate sight distance for southbound traffic, a portion of the raised sidewalk wrapping the corner building should be removed.

Location:

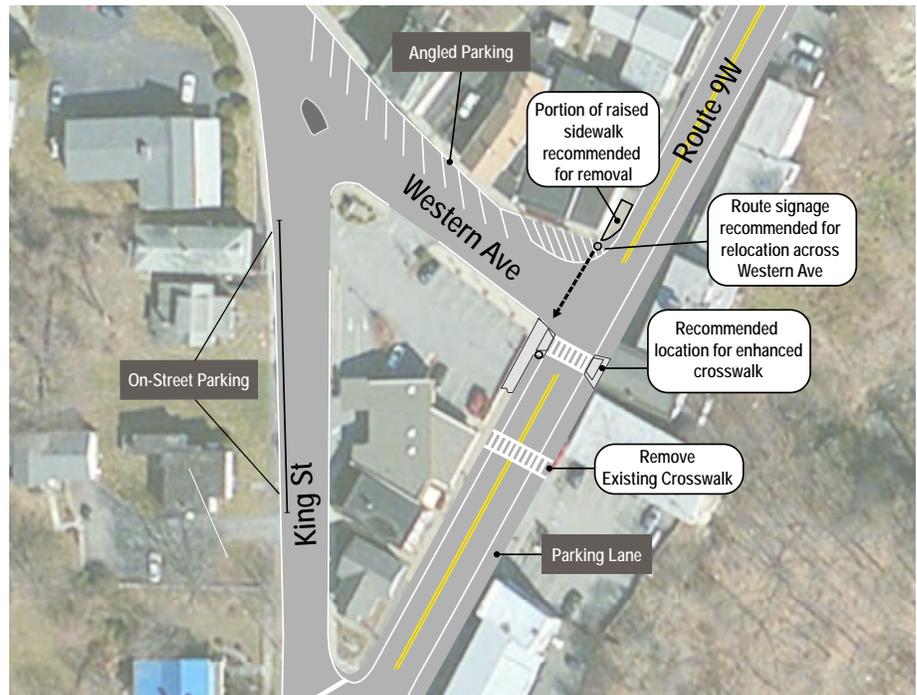
- Marlboro Triangle, Marlboro Hamlet, Town of Marlborough

Agencies Involved:

- Ulster County Transportation Council
- Town of Marlborough
- New York State Department of Transportation

Timeframe:

- Short-term



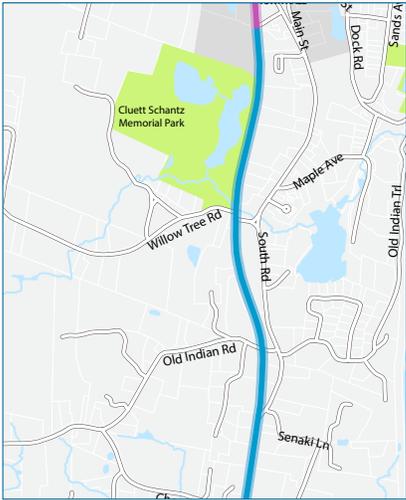
Existing On-street Parking and Recommended Pedestrian Improvements for Marlboro Triangle

Source: BFJ Planning

INTERSECTION IMPROVEMENTS

RECOMMENDATION I-2: ADD CENTER-TURN LANE TO INTERSECTION AT WILLOW TREE ROAD

The intersection of Route 9W and Willow Tree Road has a negative offset that causes conflicts between left-turning vehicles. Realigning the intersection would be challenging due to existing residential developments on south west and north east corners and closing one leg of Willow Tree Road may not be feasible because the street is an important collector road to areas west of Route 9W and is one of only few viable access points to South Road south of Milton Turnpike. No turning movement volumes currently exist for this intersection, however, it appears that the Willow Tree leg is more important in terms of classification and traffic volumes. It is recommended that a northbound left-turn pocket be installed in the median lane and that the southbound left turns from Route 9W into Willow Tree east be prohibited.



Proposed intersection configuration at Route 9W and Willow Tree Road Source: BFJ Planning

Location:

- Intersection of Willow Tree Road and Route 9W, Town of Marlborough

Agencies Involved:

- New York State Department of Transportation
- Town of Marlborough

Timeframe:

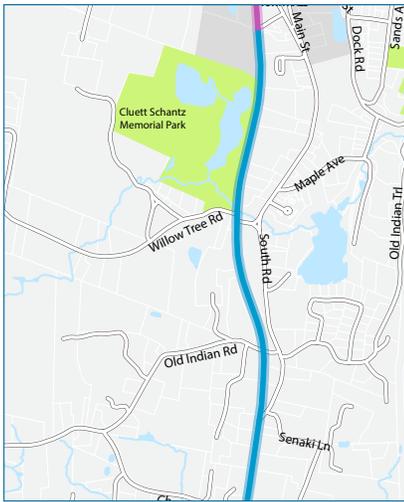
- Mid-term

Contingent Upon:

- The project is contingent upon the lane reconfiguration described in Recommendation R-2

INTERSECTION IMPROVEMENTS

RECOMMENDATION I-3: RECONFIGURE INTERSECTION AT OLD INDIAN ROAD



The intersection of Old Indian Road and Route 9W has a skewed alignment due to roadway curvature and changes in topography. The west leg of Old Indian Road serves as a collector road to agricultural uses in central Marlborough and connects to Lattintown Road. The east leg is a short and narrow residential street that terminates at South Road. This leg is difficult to see from Route 9W due to topography and tree coverage. A northbound left-turn pocket is recommended for vehicles turning left onto Old Indian Road westbound.

Traffic volumes to and from the east leg should be monitored in view of the southbound left-turn prohibition at the Willow Tree intersection (Recommendation I-2). This leg could potentially be closed or become one-way eastbound only.

Location:

- Intersection of Old Indian Road and Route 9W, Town of Marlborough

Agencies Involved:

- New York State Department of Transportation
- Town of Marlborough

Timeframe:

- Mid-term

Contingent Upon:

- The project is contingent upon the lane reconfiguration described in Recommendation R-2



Reconfiguration of Route 9W & Old Indian Road Intersection

Source: BFJ Planning

INTERSECTION IMPROVEMENTS

RECOMMENDATION I-4: RECONFIGURE SIGNALIZED INTERSECTION AT MILTON TURNPIKE



This intersection should be reconfigured for multi-modal use because it is an important node for bicyclists and will experience more pedestrian activity as the Milton Hamlet sidewalk network expands. It is recommended that the intersection have high-visibility crosswalks, as well as ADA curb ramps and, depending on right-of-way widths, sidewalks. Pedestrian signal heads and push buttons should be installed at the corners.

The two southbound lanes are proposed to merge into one lane south of the intersection in conformance with the lane reconfiguration recommended for the four-lane section (Recommendation R-2).

To accommodate bicyclists traveling on Milton Turnpike, the NYSDOT will be asked to fit the intersection with bike friendly detectors or activation to allow a bicyclist to trigger the light and safely cross even when vehicles are not present.

The pedestrian and bicycle conditions and volumes should be monitored to determine the timing for these improvements.

Location:

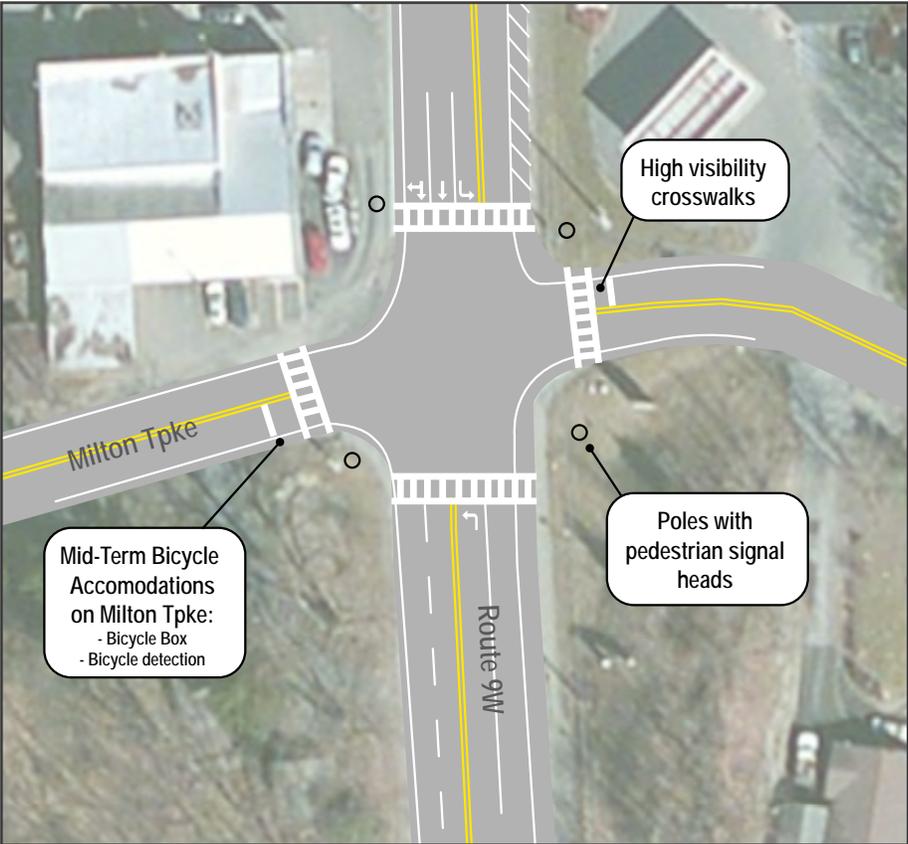
- Intersection of Milton Turnpike and Route 9W, Town of Marlborough

Agencies Involved:

- New York State Department of Transportation
- Town of Marlborough

Timeframe:

- Mid-term



Reconfiguration of Route 9W & Milton Turnpike for Multi-modal use

Source: BFJ Planning

INTERSECTION IMPROVEMENTS

RECOMMENDATION I-5: CONVERT SIGNALIZED INTERSECTION AT MILTON TURNPIKE INTO A ROUNDABOUT

As the intersection experiences increased demand from growth in vehicular, pedestrian, and bicycle traffic, it is recommended that the intersection be studied for possible conversion from a signalized intersection to a single-lane roundabout. The roundabout will not only increase intersection capacity and reduce delay, it will also reduce crash rates. Roundabouts are safer for all users because vehicles must travel through the intersection at a slower speed. The roundabout would also provide an opportunity for motorists to make a U-turn in this section of the corridor, which could reduce the number of left turns and contribute to access management efforts. Lastly, the roundabout will serve as a memorable gateway to Milton hamlet.

The roundabout would have to be designed to accommodate large semi-trailer trucks, which will require additional land to be acquired from adjacent properties.



Location:

- Intersection of Milton Turnpike and Route 9W, Town of Marlborough

Agencies Involved:

- New York State Department of Transportation
- Town of Marlborough

Timeframe:

- Long-term

Contingent Upon:

- This project requires land acquisition from adjacent properties and coordination with Central Hudson Gas & Electric.



Roundabout in Greenwich, New York

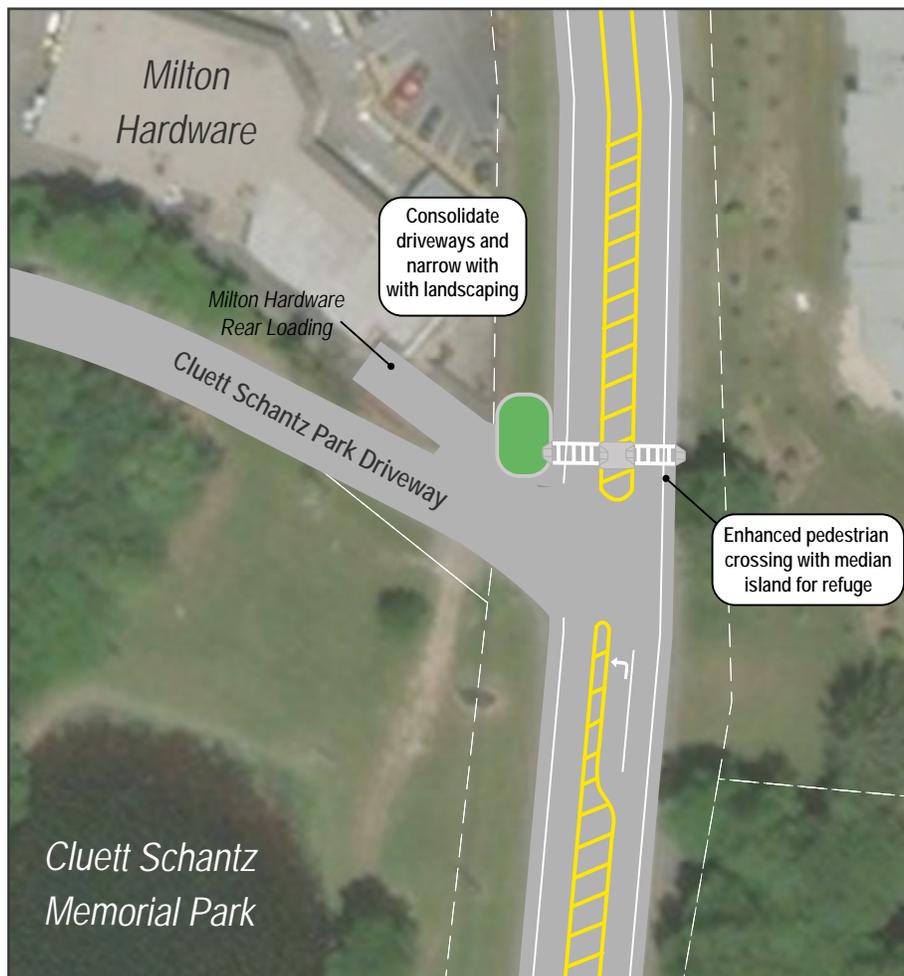
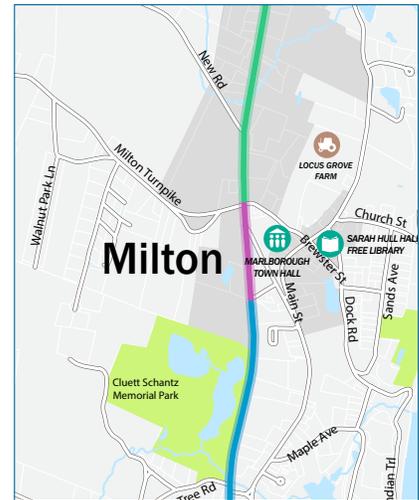
Source: NYSDOT

INTERSECTION IMPROVEMENTS

RECOMMENDATION I-6: ADD LEFT TURN LANE TO NORTHBOUND APPROACH OF ROUTE 9W AND DRIVEWAY TO CLUETT SCHANTZ PARK

In conjunction with the lane reconfiguration in this portion of the corridor, it is recommended that a left turn pocket is placed at this intersection to facilitate left turns into Cluett Schantz Park. The rear driveway of Milton Hardware should be consolidated with the park driveway to better define the intersection.

The speed reduction resulting from the lane reconfiguration presents the opportunity for an enhanced pedestrian crossing to provide access between the park and the east side of Route 9W. This proposed crossing is discussed further in Recommendation P-7.



Location:

- Intersection of Cluett Schantz Park driveway and Route 9W, Town of Marlborough

Agencies Involved:

- New York State Department of Transportation
- Town of Marlborough

Timeframe:

- Mid-term

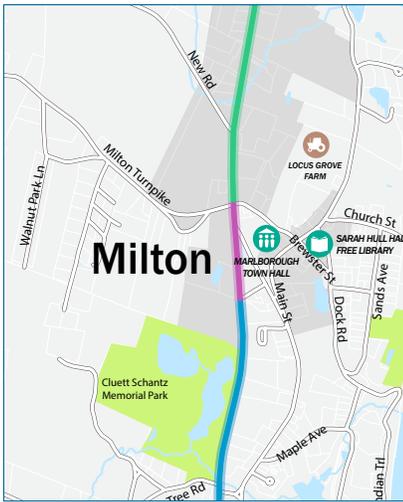
Contingent Upon:

- The project is contingent upon the lane reconfiguration described in Recommendation R-2
- Driveway consolidation requires coordination with property owner.

Addition of Left Turn Lane and Enhanced Pedestrian Crossing at intersection of Route 9W and Cluett Schnatz Park Driveway

Source: BFJ Planning

TRANSIT SERVICE IMPROVEMENTS



RECOMMENDATION T-1: IMPROVE BUS STOP AT MILTON TURNPIKE

One of the two bus stop in the study area is located at the south east corner of the intersection of Milton Turnpike and Route 9W. While landscaped, this corner does not provide a flat surface for customers to stand.

The bus stop area should be upgraded to provide a level surface and seating.

Location:

- Intersection of Milton Turnpike at Route 9W, Milton Hamlet, Town of Marlborough

Agencies Involved:

- Ulster County Area Transit
- Town of Marlborough
- New York State Department of Transportation
- Central Hudson Gas & Electric

Timeframe:

- Short-term

Contingent Upon:

- Bus stop improvements will need to be coordinated with Central Hudson Gas & Electric, which runs a gas line under east side of the intersection.

TRANSIT SERVICE IMPROVEMENTS

Location:

- Communities served by KPL Line

Agencies Involved:

- Ulster County Area Transit
- Town of Marlborough
- Town of Lloyd

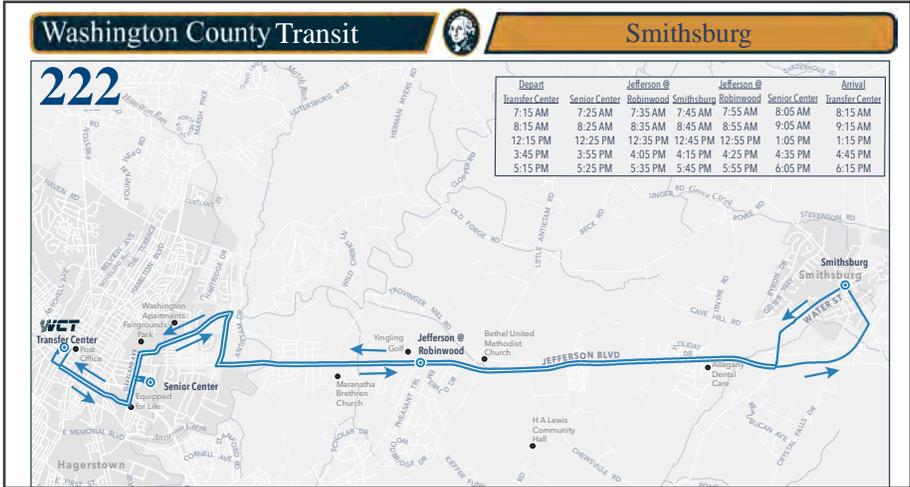
Timeframe:

- Short-term

RECOMMENDATION T-2: IMPROVE CUSTOMER INFORMATION ABOUT UCAT SERVICE

Current information on the Kingston Poughkeepsie Line (KPL) is challenging to find and interpret. It is recommended that the agency create more user friendly service schedules and route maps that can be featured at bus stops, printed in pamphlets, and posted online. Information about the KPL route and other UCAT services should be featured on the websites for both Towns.

Example of bus route information card with schedule and destinations



Source: Washington County Transit

RECOMMENDATION T-3: EVALUATE KPL LINE SERVICE PERFORMANCE

Once the signage and customer information improvements from Recommendations T-1 through T-3 have been implemented, the agency should review ridership and service performance to determine necessary changes to the route, service hours, and frequency. The agency should evaluate if the KPL's current limited schedule is meeting its goals.

Location:

- Communities served by KPL Line

Agencies Involved:

- Ulster County Area Transit
- Town of Marlborough
- Town of Lloyd

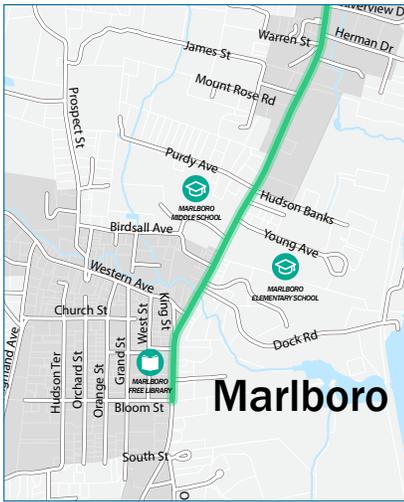
Timeframe:

- Mid-term

Contingent Upon:

- Improvements described in Recommendations T-1 through T-3

PEDESTRIAN AND SHARED-USE PATH IMPROVEMENTS



RECOMMENDATION P-1: ENHANCE CROSSWALKS ON ROUTE 9W IN MARLBORO HAMLET WITH PEDESTRIAN ACTIVATED RECTANGULAR RAPID FLASHING BEACONS

Create high visibility crosswalks across Route 9W in the heart of the hamlet by installing warning signage with pedestrian-actuated Rectangular Rapid Flashing Beacons (RRFBs) to facilitate safe crossing and improved stop compliance by motorists. Enhanced crossings are recommended at the following locations:

1. Western Avenue at Route 9W

The current crossing is located mid-block between King Street and Western Avenue, generally from Key Bank to Pizza Town. Although the crosswalk has appropriate markings and signage, drivers rarely stop for pedestrians. Given relatively high travel speeds, especially during off-peak hours, and the informal on-street parking along the east side of Route 9W which obscures pedestrians, a RRFB would greatly improve pedestrian visibility and safety at this location. The crosswalk should be relocated further north at the intersection, to encourage greater use by pedestrians crossing 9W to access Western Avenue. The raised sidewalk on the northwest corner of the intersection would have to be eliminated from the corner to improve sight conditions for drivers and pedestrians.

2. Dubois Street at Route 9W

This intersection has a painted crosswalk. A higher visibility crosswalk with advance warning signs is warranted given prevailing travel speeds.

Location:

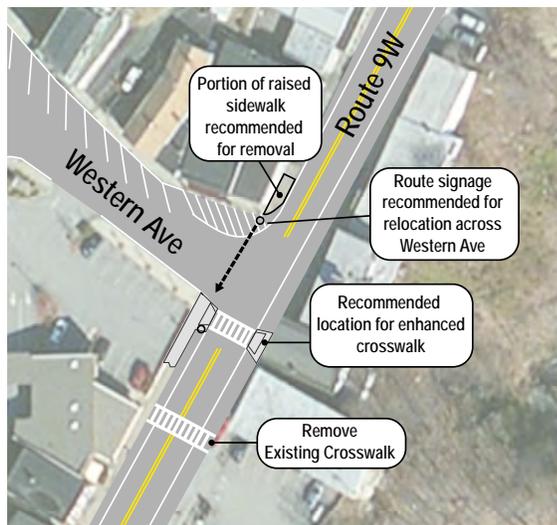
- Marlboro Hamlet, Town of Marlborough

Agencies Involved:

- Town of Marlborough
- New York State Department of Transportation

Timeframe:

- Short-term



Marlboro Triangle

Source: BFJ Planning



RRFB

Source: NYS DOT



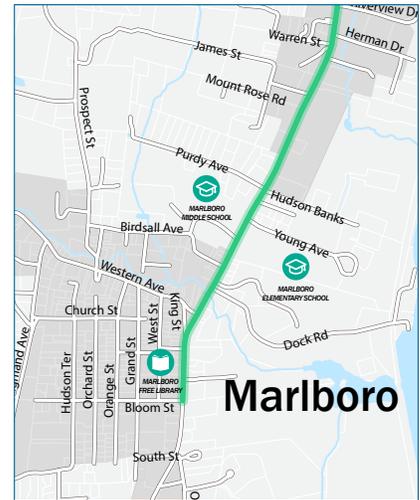
Figure 4: Marlboro Hamlet Pedestrian Improvement Recommendations

PEDESTRIAN AND SHARED-USE PATH IMPROVEMENTS

RECOMMENDATION P-2: INSTALL CROSSWALKS ACROSS MINOR STREETS INTERSECTING ROUTE 9W TO COMPLETE PEDESTRIAN NETWORK IN MARLBORO HAMLET

Crosswalks are recommended at the following intersections on Route 9W to complete gaps in the hamlet’s pedestrian network:

- Dubois Street: A crosswalk should be installed across Dubois Street.
- Bloom Street: A crosswalk should be added across Bloom Street to connect to the existing ADA-accessible sidewalks on the west side of Route 9W.
- Birdsall Avenue: Currently, there is no crosswalk across Birdsall Avenue on the west side of Route 9W. A striped crosswalk should be placed across Birdsall Avenue, along with ADA curb ramps.



<p>Location:</p> <ul style="list-style-type: none"> ▪ Marlboro Hamlet, Town of Marlborough 	<p>Timeframe:</p> <ul style="list-style-type: none"> ▪ Short-term
<p>Agencies Involved:</p> <ul style="list-style-type: none"> ▪ Town of Marlborough 	

PEDESTRIAN AND SHARED-USE PATH IMPROVEMENTS

RECOMMENDATION P-3: FILL IN GAPS IN SIDEWALK NETWORK BETWEEN WESTERN AND YOUNG AVENUE

Sidewalks are recommended to fill the following network gaps, found between Western Avenue and Young Avenue:

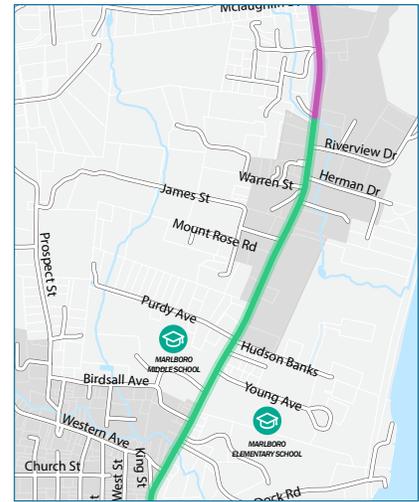
Route 9W north of Western Avenue to Dock Road

- No sidewalk is presently in place on the east side of Route 9W from Dock Road to Birdsall Avenue. The future addition of a sidewalk, landscaping, and clearly defined driveways along the east side of Route 9W would improve pedestrian safety and help to create a sense of arrival into the hamlet center.
- The west side of 9W, which is primarily residential in character, has an existing sidewalk that extends approximately from Dock Road (across the street) up to Birdsall Avenue, that would benefit from widening and repaving, especially since it serves school age children.

Birdsall Avenue to Purdy Avenue

- North of Birdsall Avenue, the sidewalk on the west side of 9W becomes a narrow dirt/gravel path and informal parking across the front of the first few residential lots. The path turns to a combination of concrete and gravel up until the Marlboro Middle School exit road. The dirt path should be replaced with a new concrete sidewalk.
- The east side of Route 9W does not have any existing improvements; however, the shoulders on Route 9W between the gas station and the Elementary School are wide enough for bicycle lanes, and a sidewalk can be added along the frontage of the Elementary School property.
- There are no existing pedestrian or bicycle improvements north of Young Avenue to Purdy Avenue. However, the shoulders provide enough space to continue the sidewalks and/or install bicycle lanes.

It should be noted that sidewalks are not built by the NYSDOT unless they are part of a highway related project or special funding from the State Legislature is obtained specifically for a sidewalk project. The Town and County should consider applying for funding under the Transportation Alternatives program or a similar grant program.



Location:

- Between Western Avenue and Young Avenue, Marlboro Hamlet, Town of Marlborough

Agencies Involved:

- New York State Department of Transportation
- Ulster County
- Town of Marlborough

Timeframe:

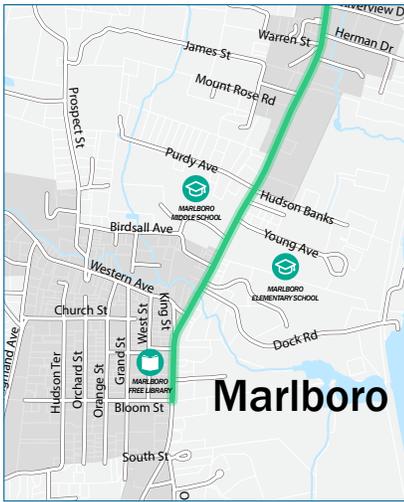
- Short-term

Contingent Upon:

- This project will involve coordination with property owners.

PEDESTRIAN AND SHARED-USE PATH IMPROVEMENTS

RECOMMENDATION P-4: SUPPORT THE MALBORO MILLS WATERFALL WALKWAY



The Marlboro Mills Waterfall Walkway is a proposed trail project that builds from the existing Lattintown Creek trail, which provides view of the ravine falls.

As the Marlboro Mills Waterfall Walkway vision is developed and waterfront access becomes increasingly desirable, an enhanced crosswalk as described in Recommendation P-1 should be installed across Route 9W at Dock Road. This crossing is vital to the trail’s connectivity.

Location:

- Lattintown Creek, Marlboro Hamlet, Town of Marlborough

Agencies Involved:

- Town of Marlborough

Timeframe:

- Short-term

Contingent Upon:

- This project requires coordination with property owners



Proposed Marlboro Mills Waterfall Walkway

Source: Marlboro Hamlet Enhancements Design Report, 2015, Barton & Loguidice

PEDESTRIAN AND SHARED-USE PATH IMPROVEMENTS

RECOMMENDATION P-5: INSTALL HIGH VISIBILITY CROSSWALKS IN MILTON HAMLET

Description

Within the hamlet core, high-visibility crosswalks are recommended at the intersection of Milton Turnpike and Main Street as well as the intersection of South Road and Main Street.

<p>Location:</p> <ul style="list-style-type: none"> Milton Hamlet, Town of Marlborough 	<p>Timeframe:</p> <ul style="list-style-type: none"> Short-term
<p>Agencies Involved:</p> <ul style="list-style-type: none"> Town of Marlborough 	<p>Contingent Upon:</p> <ul style="list-style-type: none"> This project requires coordination between property owners and the Town of Marlborough.



RECOMMENDATION P-6: EXTEND SIDEWALK NETWORK IN MILTON HAMLET

Description

It is recommended that sidewalks are constructed at the following locations:

East Side of Route 9W

- Along west side of South Road from Milton Harvest to the Town/Police building
- Along east side of South Road from Josie’s Path to sidewalk along Main Street.
- Along east side of Route 9W between Milton Turnpike and South Road.

West Side of Route 9W

A sidewalk and curb ramp should be placed at each corner of the intersection of Route 9W and Milton Turnpike with a sidewalk extending along the northwest side of Route 9W to the baseball fields on New Road.

<p>Location:</p> <ul style="list-style-type: none"> Milton Hamlet, Town of Marlborough 	<p>Timeframe:</p> <ul style="list-style-type: none"> Short-term
<p>Agencies Involved:</p> <ul style="list-style-type: none"> Town of Marlborough New York State Department of Transportation 	<p>Contingent Upon:</p> <ul style="list-style-type: none"> This project requires coordination between property owners, the Town of Marlborough, and the New York State Department of Transportation.

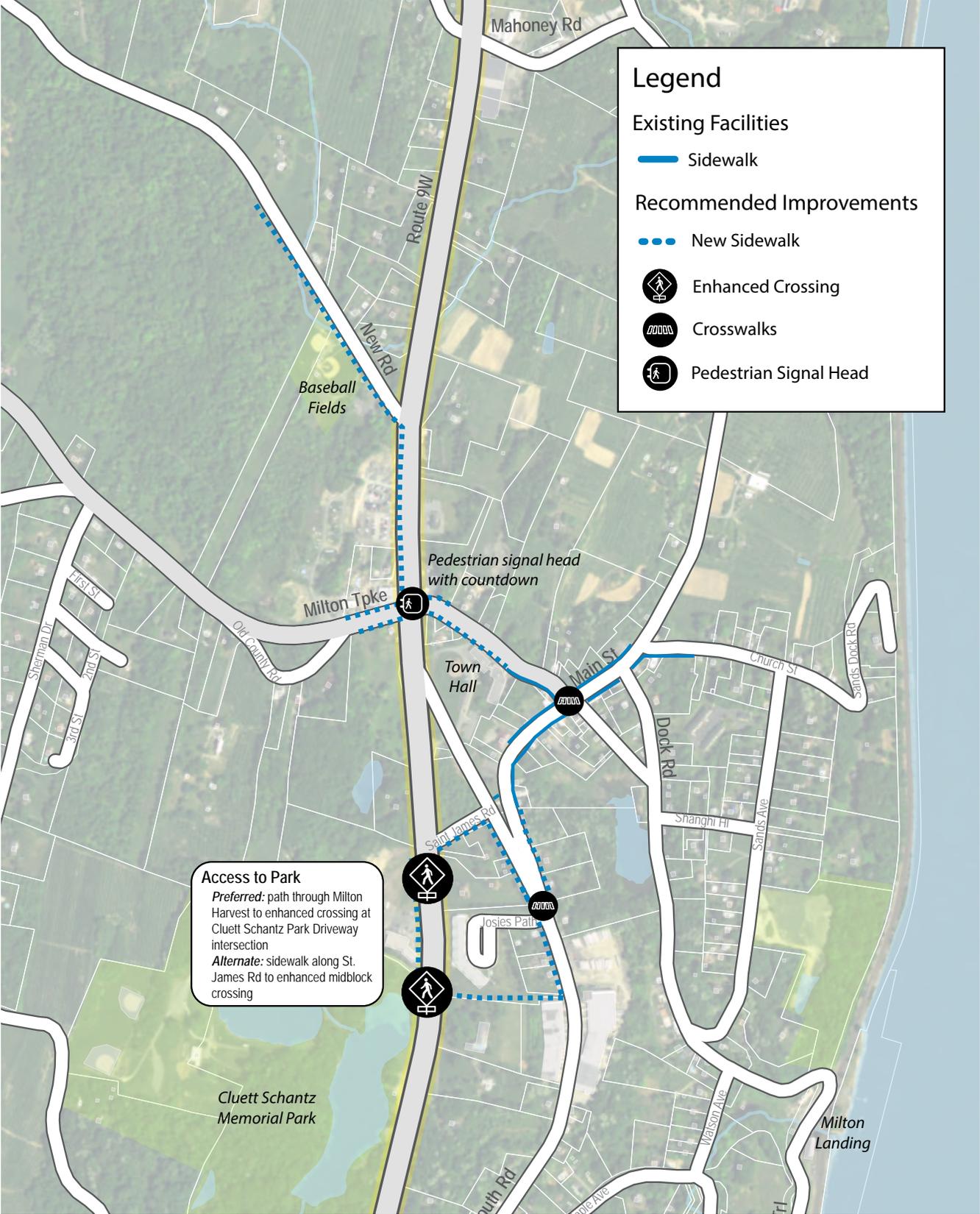


Figure 5: Milton Hamlet Pedestrian Improvement Recommendations

PEDESTRIAN AND SHARED-USE PATH IMPROVEMENTS

RECOMMENDATION P-7: ADD MIDBLOCK CROSSING ACROSS 9W TO CLUETT SCHANTZ PARK

Cluett Schantz Park is located across from the Milton Harvest senior housing community and Brooklyn Bottling (on South Road). The Town of Marlborough should work with property owners, such as Milton Harvest, to provide an access path/sidewalk between South Road and Route 9W. If such an easement is not feasible, the crosswalk and other safety measures could be placed across Route 9W opposite from St. James Road and should then include a sidewalk along the west side of Route 9W to the entrance of the park.

The Town should request that NYSDOT study the feasibility of adding a high-visibility crosswalk across Route 9W along with ADA curb ramps and warning signage with pedestrian-actuated Rectangular Rapid Flashing Beacons (RRFBs) to allow pedestrians to walk from the village area on the east side to the park on the west side of 9W.



Location:

- Intersection of Cluett Schantz Park driveway and Route 9W, Town of Marlborough

Agencies Involved:

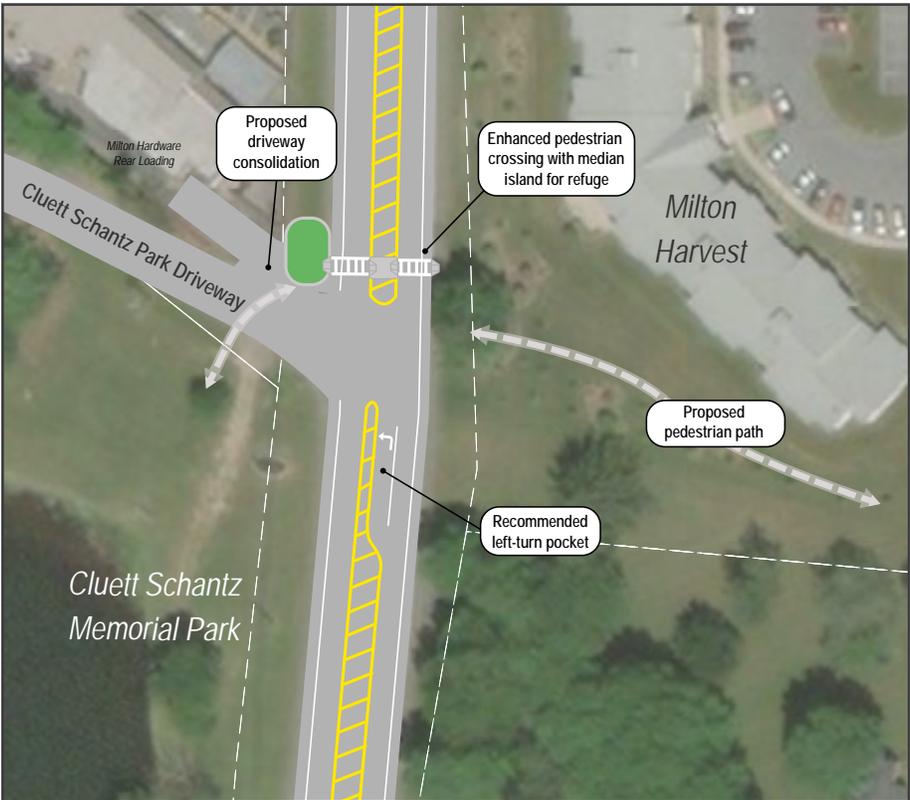
- New York State Department of Transportation
- Town of Marlborough

Timeframe:

- Mid-term

Contingent Upon:

- The project is contingent upon the lane reconfiguration described in Recommendation R-2, speed and the limit reduction described in Recommendation R-3



Addition of Northbound Left Turn Lane at Cluett Schnatz Park Driveway

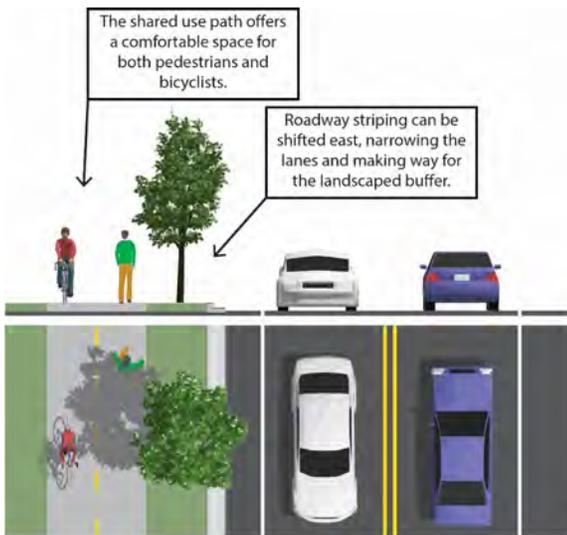
Source: BFJ Planning

PEDESTRIAN AND SHARED-USE PATH IMPROVEMENTS

RECOMMENDATION P-8: SHARED-USE PATH CONNECTING THE HAMLETS

Connecting the Marlboro and Milton Hamlets with a shared-used path on one side of Route 9W has been expressed as a long-term goal for the community. This path would be constructed on whichever side is most feasible, but preference is given to the east side of Route 9W which has better access to traffic generators and the waterfront. This path is envisioned beginning north of Lattintown Creek and ending at South Road.

This path should be maintained as a long-term planning goal for this corridor. Future funding opportunities should be explored to determine the feasibility of this improvement.



Source: Figure 18, 2016 Marlboro Safe Routes to School Plan, Alta Planning + Design

Route 9W Cross-section with Proposed Shared Use Path

Location:

- Between Marlboro and Milton Hamlets, Town of Marlborough

Agencies Involved:

- New York State Department of Transportation
- Town of Marlborough

Timeframe:

- Long-term

Contingent Upon:

- Coordination with Central Hudson Gas & Electric may be necessary due to location of gas line.

Location:

- Between Dock Roads in Marlboro and Milton Hamlets, Town of Marlborough

Agencies Involved:

- Town of Marlborough

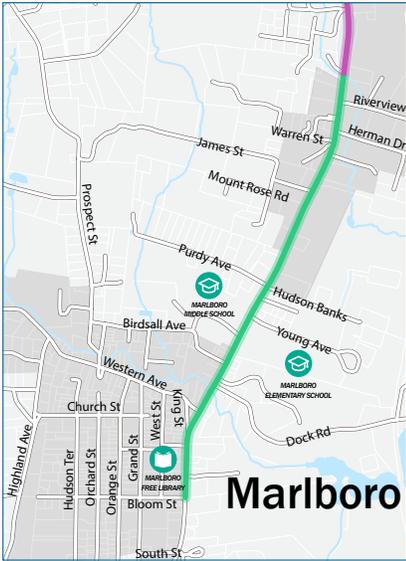
Timeframe:

- Long-term

RECOMMENDATION P-9: CONSTRUCT HUDSON RIVER TRAIL BETWEEN BOTH DOCK ROADS

This recommendation envisions a future trail that improves access to the Hudson River and connects the Hudson waterfront between both Dock Road in Marlboro Hamlet and Dock Road/Old Indian Trail in Milton Hamlet. It is part of a longer-term vision to provide a local alternative to Route 9W.

BICYCLE INFRASTRUCTURE



RECOMMENDATION B-1: SHARED ROADWAYS IN MARLBORO HAMLET

Provide shared bicycle use of key roadways within hamlets where Route 9W and other roads narrow, with both roadway markings (‘sharrows’) and signage (‘Share the Road’) to encourage safe and comfortable roadway sharing by vehicles and bicycles. NYSDOT may require a maintenance agreement for the installation of sharrow markings on Route 9W.

Similar to Route 9W, King Street and Western Avenue would also benefit from ‘sharrows’ to highlight shared roadway conditions.

<p>Location:</p> <ul style="list-style-type: none"> Marlboro Hamlet, Town of Marlborough 	<p>Timeframe:</p> <ul style="list-style-type: none"> Short-term
<p>Agencies Involved:</p> <ul style="list-style-type: none"> Town of Marlborough New York State Department of Transportation 	<p>Contingent Upon:</p> <ul style="list-style-type: none"> This is contingent upon Recommendation B-5, NYSDOT designation of Route 9W as a bicycle route.

RECOMMENDATION B-2: PROVIDE BICYCLE PARKING IN MARLBORO HAMLET

Provide safe and convenient bicycle parking within Marlboro hamlet. Recommended locations include the public library, Marlboro Triangle, on school campuses, and at the future bayside development.

<p>Location:</p> <ul style="list-style-type: none"> Marlboro Hamlet, Town of Marlborough 	<p>Timeframe:</p> <ul style="list-style-type: none"> Short-term
<p>Agencies Involved:</p> <ul style="list-style-type: none"> Town of Marlborough 	<p>Contingent Upon:</p> <ul style="list-style-type: none"> This project requires coordination between property owners and the Town of Marlborough.



Figure 6: Malboro Hamlet Bicycle Improvement Recommendations (B1 & B2)

BICYCLE INFRASTRUCTURE

RECOMMENDATION B-3: SHARED ROADWAYS IN MILTON HAMLET



Bicycle infrastructure and activity should be encouraged along side streets as much as possible between South Road and Milton Road around Milton hamlet. This shared roadway/bicycle route network would include Milton Turnpike, South Road, Main Street, North Road, and Milton Road. ‘Sharrow’ markings and shared roadway signage should be used to encourage safe roadway sharing by cars and bicycles.

The route on South Road should initially extend south to Willow Tree Road, with a possible extension to include all of the South Road in the future. To accommodate this, the section of South Road that traverses the Brooklyn Bottling facilities will need to be clearly delineated and striped to enhance safety for all roadway users.

Additionally, “Share the Road” signs should be placed along Dock Road which runs from Main Street/North Road to the waterfront along the Hudson River where there is a public park and the Milton-on-Hudson historic train station. Sidewalks may not be feasible nor necessary along Dock Road; however, pedestrian warning signs should also be included along Dock Road as there may be pedestrians walking between the hamlet and waterfront and the road is very narrow and steep.

Location:

- Milton Hamlet, Town of Marlborough

Agencies Involved:

- Town of Marlborough

Timeframe:

- Short-term

Contingent Upon:

- This project requires coordination with Brooklyn Bottling on South Road.

RECOMMENDATION B-4: PROVIDE BICYCLE PARKING IN MILTON HAMLET AND PARKS

The addition of bicycle parking on Main Street in Milton and at the Milton Train Station would provide an opportunity for cyclists to lock their bikes and enjoy the Town’s waterfront and commercial amenities. Bicycle parking should also be provided at Town Hall and the Town’s other parks.

Location:

- Milton Hamlet and Cluett Schantz Park, Town of Marlborough

Agencies Involved:

- Town of Marlborough

Timeframe:

- Short-term

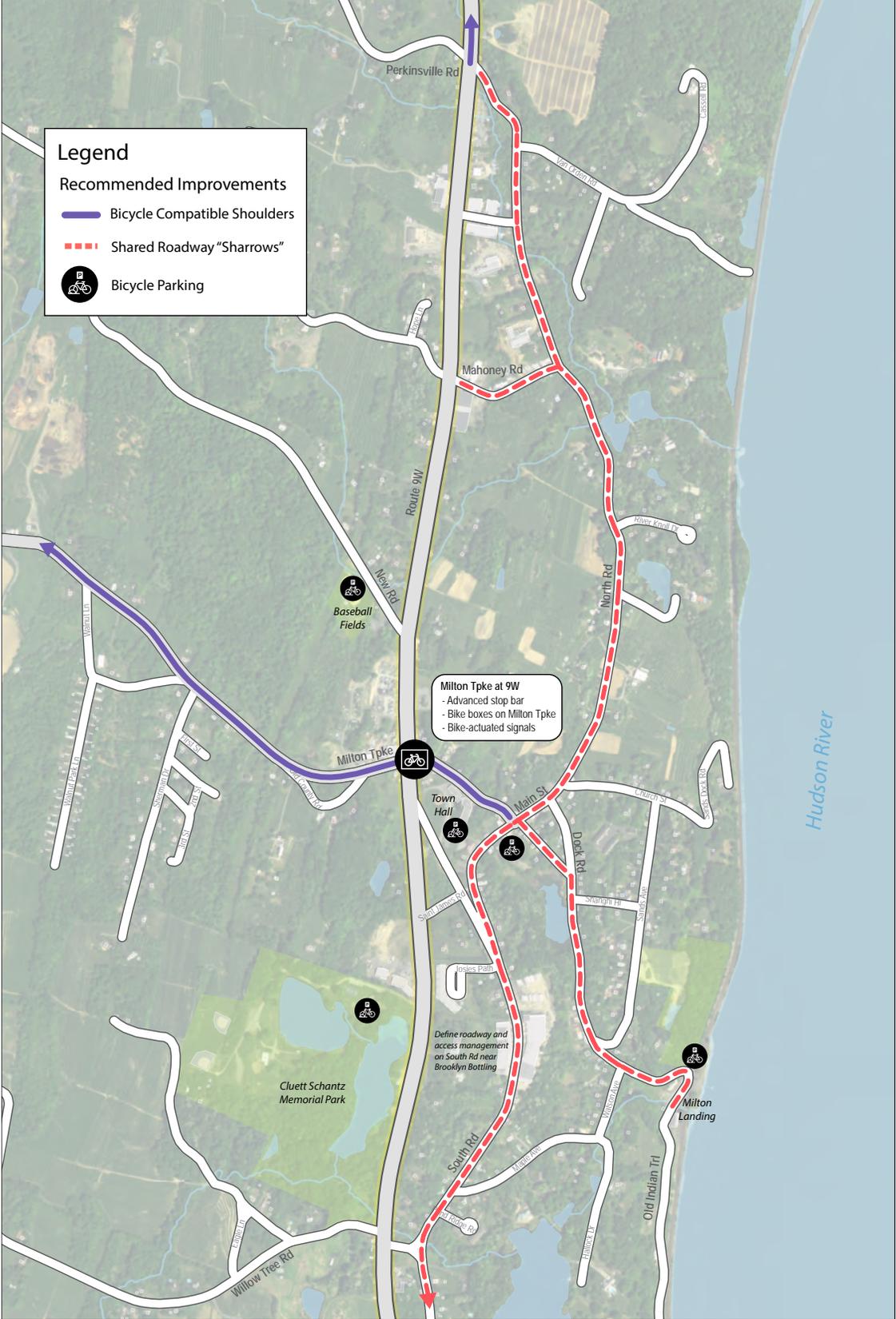
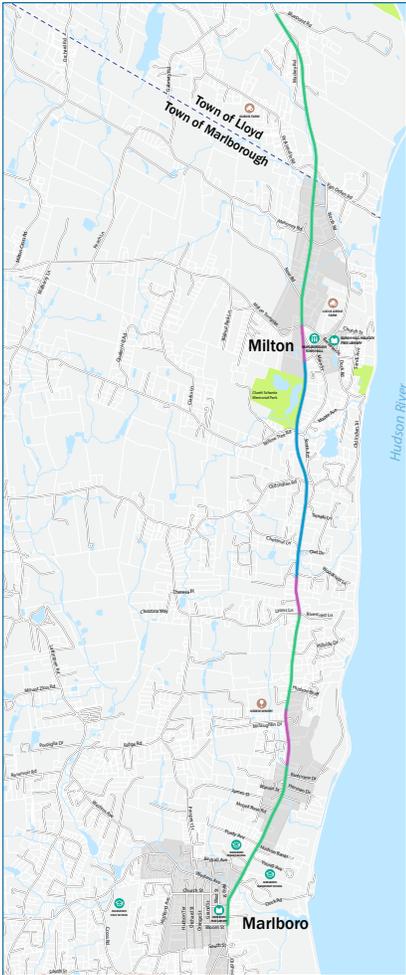


Figure 7: Milton Hamlet Bicycle Improvement Recommendations (B3 & B4)

BICYCLE INFRASTRUCTURE



RECOMMENDATION B-5: DESIGNATE 9W AS A BICYCLE ROUTE

In the case that Route 9W is reconfigured to accommodate a consistent shoulder (except in Hamlets due to right-of-way constraints), Ulster County and the Towns of Marlborough and Lloyd should seek to have the corridor designated as a bicycle route by NYSDOT.

This Route 9W bicycle route would be the missing link to connect to the Walkway Over the Hudson/Hudson Valley Rail Trail and the future Empire Trail amenities. It would provide the opportunity for bicycling on the west side of the Hudson River that connects to Newburgh-Beacon Bridge and regional routes into the lower Hudson Valley.

<p>Location:</p> <ul style="list-style-type: none"> Corridor-wide, Town of Marlborough and Town of Lloyd 	<p>Timeframe:</p> <ul style="list-style-type: none"> Long-term
<p>Agencies Involved:</p> <ul style="list-style-type: none"> Town of Marlborough Town of Lloyd New York State Department of Transportation 	<p>Contingent Upon:</p> <ul style="list-style-type: none"> This project is contingent upon the creation of a consistent shoulder along Route 9W as described in Recommendation R-6. The Towns should solicit support from regional bicycle advocacy organizations.

RECOMMENDATION B-6: DESIGNATE REGIONAL BICYCLE ROUTES

Bicycle route designation and bicycle compatible shoulders are recommended for the following County Routes to provide a route to connect the hamlets:

- Milton Turnpike (C.R.10) from Route 9W to Lattintown Road (C.R. 11).
- Lattintown Road (C.R. 11).
- C.R. 14A/Western Avenue.
- C.R. 14/Western Avenue and Plattekill Road between Lattintown Road and Western Avenue.

<p>Location:</p> <ul style="list-style-type: none"> County Routes and local roads in the Town of Marlborough
<p>Agencies Involved:</p> <ul style="list-style-type: none"> Town of Marlborough Ulster County
<p>Timeframe:</p> <ul style="list-style-type: none"> Short-term

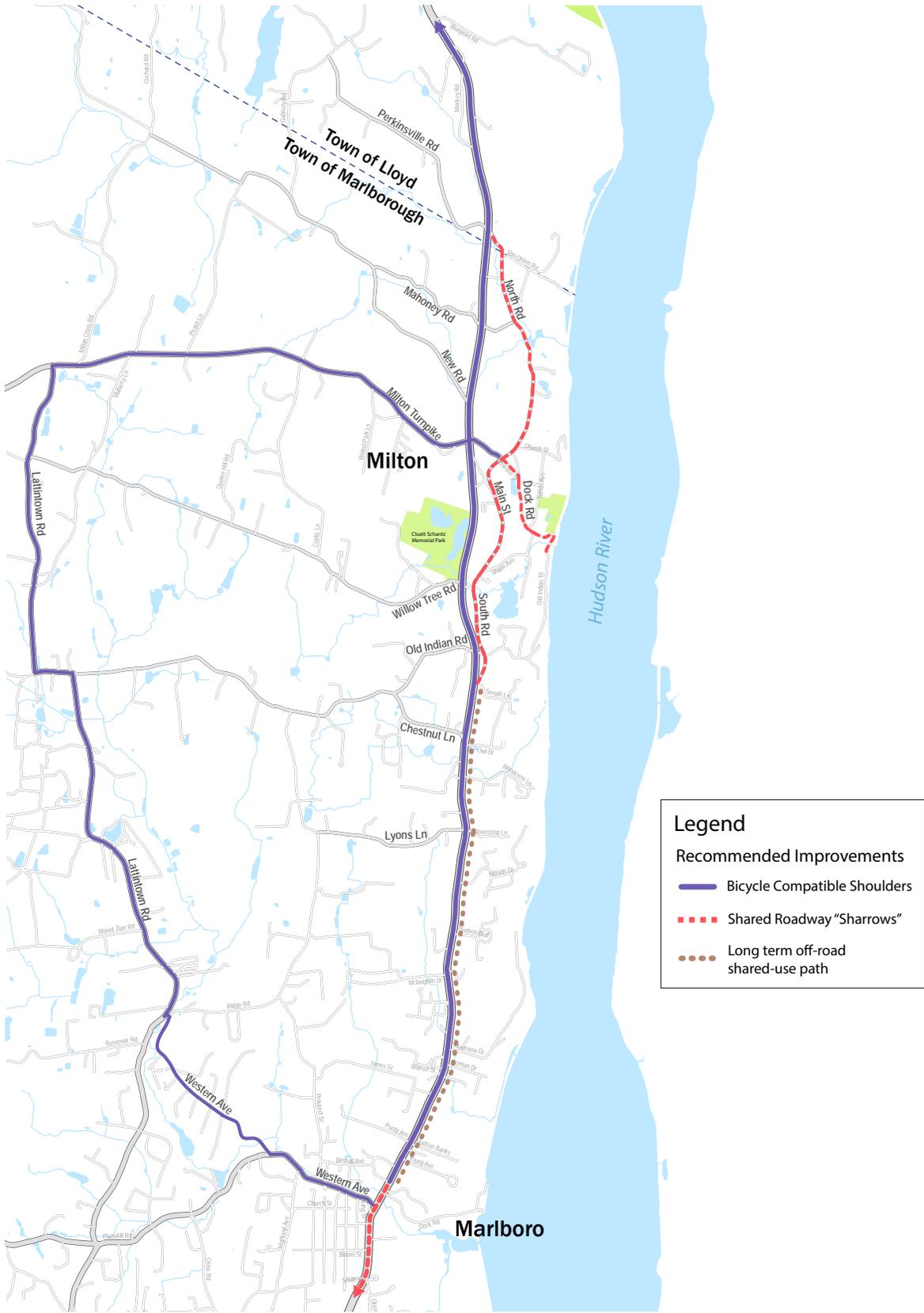


Figure 8: Roadways Recommended for Regional Bicycle Routes (B5 & B6)

STREETSCAPE IMPROVEMENTS

Location:

- Corridor-Wide, Town of Marlborough and Town of Lloyd

Agencies Involved:

- Town of Marlborough
- Town of Lloyd
- New York State Department of Transportation

Timeframe:

- Short-term

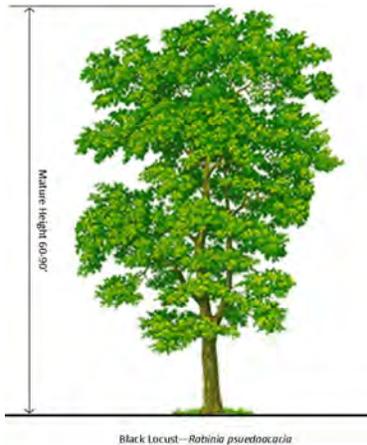
Contingent Upon:

- Design and Maintenance Coordination committee (Towns) should oversee coordination of streetscape improvements.

RECOMMENDATION S-1: IMPROVE LIGHTING, LANDSCAPING AND SIDEWALKS

The Towns should partner with property owners with frontage on Route 9W on beautification projects and safety improvements to improve corridor character. Streetscape improvements contribute to the plan's overall traffic calming goals by creating a sense of enclosure along the corridor. Recommended streetscape treatments and standards should be documented in a set of design guidelines (Recommendation S-3).

Any work in the Route 9W right-of-way will need a highway work permit from NYSDOT. Streetscape improvements will need to be maintained by the Town.



Black Locust—Robinia pseudoacacia
Preferred Street Trees for Urban Streets



Ornamental Street Lamps with Landscaping and Sidewalks

Source: Marlboro Hamlet Enhancements Design Report, 2015, Barton & Loguidice

STREETSCAPE IMPROVEMENTS

RECOMMENDATION S-2: IMPROVE GATEWAY & WAYFINDING SIGNAGE

Gateway treatments should be installed to communicate to motorists that they are entering a place and encourage visitors to spend time in the hamlets. Existing gateway signage in Milton should be updated to better communicate arrival and wayfinding signage should direct motorists towards Main Street. The following locations recommended for gateway treatments:

Marlboro Hamlet

- South Entrance Gateway: Signage is recommended to be placed at the corner of the parking lot across from St. Mary Church near the intersection of Route 9W and Old Post Road. It is recommended that the signage is incorporated in the stone wall treatment proposed for site in the 2015 Marlboro Hamlet Enhancements Design Report.
- North Entrance Gateway: Signage should be placed at the intersection of Route 9W and Purdy Avenue.

Milton Hamlet

- South Entrance Gateway: Current gateway signage, located on the southeast corner of the Intersection of Route 9W and Milton Turnpike, is difficult to see and contains too much information. This signage should be redesigned to place greater emphasis on directing motorists to Main Street.
- North Entrance Gateway: More striking gateway signage should supplement the existing Milton regulatory destination sign located just south for Perkinsville Road at northern edge of Milton Industrial Park. Wayfinding signage should direct visitors towards Main Street.

Any gateway signs and decorative improvements within the State right-of-way will need a highway work permit and will need to comply with the NYSDOT Decorative Community Gateway Signing and/or Landscaping guidelines (NYSDOT Highway Design Manual Chapter 11 Appendix B)



Recommended Treatment for South Entrance Gateway

Source:
Marlboro Hamlet
Enhancements
Design Report,
2015, Barton &
Loguidice

Location:

- Marlboro Hamlet and Milton Hamlet, Town of Marlborough

Agencies Involved:

- Town of Marlborough
- New York State Department of Transportation

Timeframe:

- Short-term

Contingent Upon:

- This project requires coordination between property owners, Town of Marlborough, and the New York State Department of Transportation
- Design and Maintenance Coordination committee (Towns) should oversee coordination of streetscape improvements.

STREETSCAPE IMPROVEMENTS

Location:

- Corridor-wide, Town of Marlborough and Town of Lloyd

Agencies Involved:

- Town of Marlborough
- Town of Lloyd

Timeframe:

- Short-term

Contingent Upon:

- Design and Maintenance Coordination committee (Towns) should oversee coordination of streetscape improvements.

RECOMMENDATION S-3: CREATION OF DESIGN GUIDELINES FOR ROUTE 9W

Develop a set of guidelines that encourage cohesive buildings and streetscape treatments of future developments on parcels along Route 9W. Guidelines should be developed for the each hamlet center and the adjacent commercial and light industrial zones (Highway Development Zone).

Future development in the hamlet center should reflect the area's historic character and incorporate and/or support sidewalks, crosswalks, street trees and pedestrian scale lighting. Future development in the Highway Development zone should maximize the visual framing of buildings; buffer parking and service areas; and include sidewalks, street trees, and lighting.

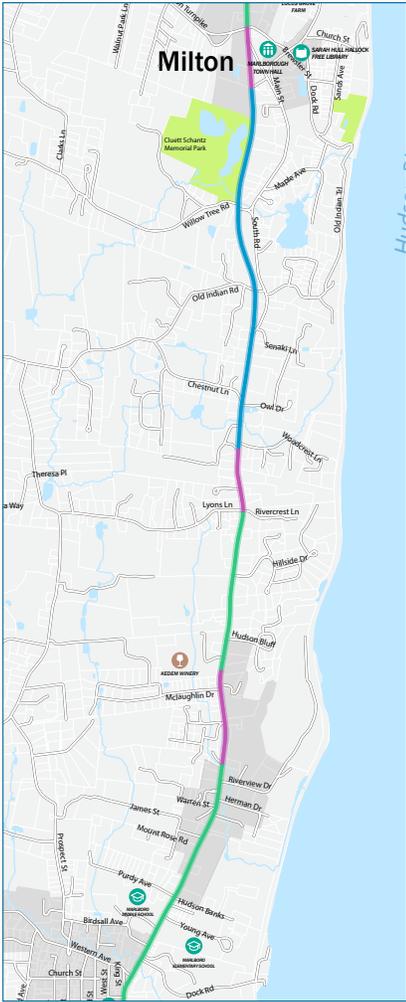
NYS DOT's complete street guidelines should be consulted for typical treatments and ideas.



Vision for Character of Future Development in the Town of Marlborough's Highway Development Zone

Source: Town of Marlborough Comprehensive Plan, 2017, Behan Planning

LAND USE AND ACCESS MANAGEMENT



RECOMMENDATION L-1: RESTRICT USES PERMITTED IN BUSINESS CORRIDOR OVERLAY DISTRICT IN AREA BETWEEN HAMLETS

The Town of Marlborough developed the Business Corridor Overlay District floating zone to provide a mechanism to improve non-conforming commercial and light industrial uses along Route 9W located within the R-1 Residential and R-Ag-1 Rural Agricultural zoning districts. These parcels are generally located between the hamlets. If designated by the Town Board, these properties are permitted uses allowable in the Highway Development District, which permits a wide range of commercial and light industrial uses.

In an effort to preserve the Town’s farmland and open space and to preserve the economic viability of the hamlets, it is recommended that the Business Corridor Overlay District prevent the creation of additional town centers. The Overlay District text should be revised to restrict retail uses that would compete with the hamlet uses, except in cases where it is part of a mixed-use development that will not significantly harm the hamlets.

The Overlay District should incorporate future corridor design guidelines (Recommendation S-3) and the Access Management Plan (Recommendation L-2).

<p>Location:</p> <ul style="list-style-type: none"> ▪ Town of Marlborough 	<p>Timeframe:</p> <ul style="list-style-type: none"> ▪ Short-term
<p>Agencies Involved:</p> <ul style="list-style-type: none"> ▪ Town of Marlborough 	

LAND USE AND ACCESS MANAGEMENT

RECOMMENDATION L-2: REVISE ZONING TO INCORPORATE ACCESS MANAGEMENT PLAN

The Access Management Plan featured in this Corridor Management Plan (Appendix E) was created as a tool for the Planning Boards of the Towns of Marlborough and Lloyd to improve safety, fluidity, and aesthetics along the Route 9W study area. Access management can be best achieved when an applicant has an application before the Planning Board. It is recommended that the Town Boards incorporate the Access Management Plan into their respective Zoning Codes by reference.

Location:

- Town of Marlborough and Town of Lloyd

Agencies Involved:

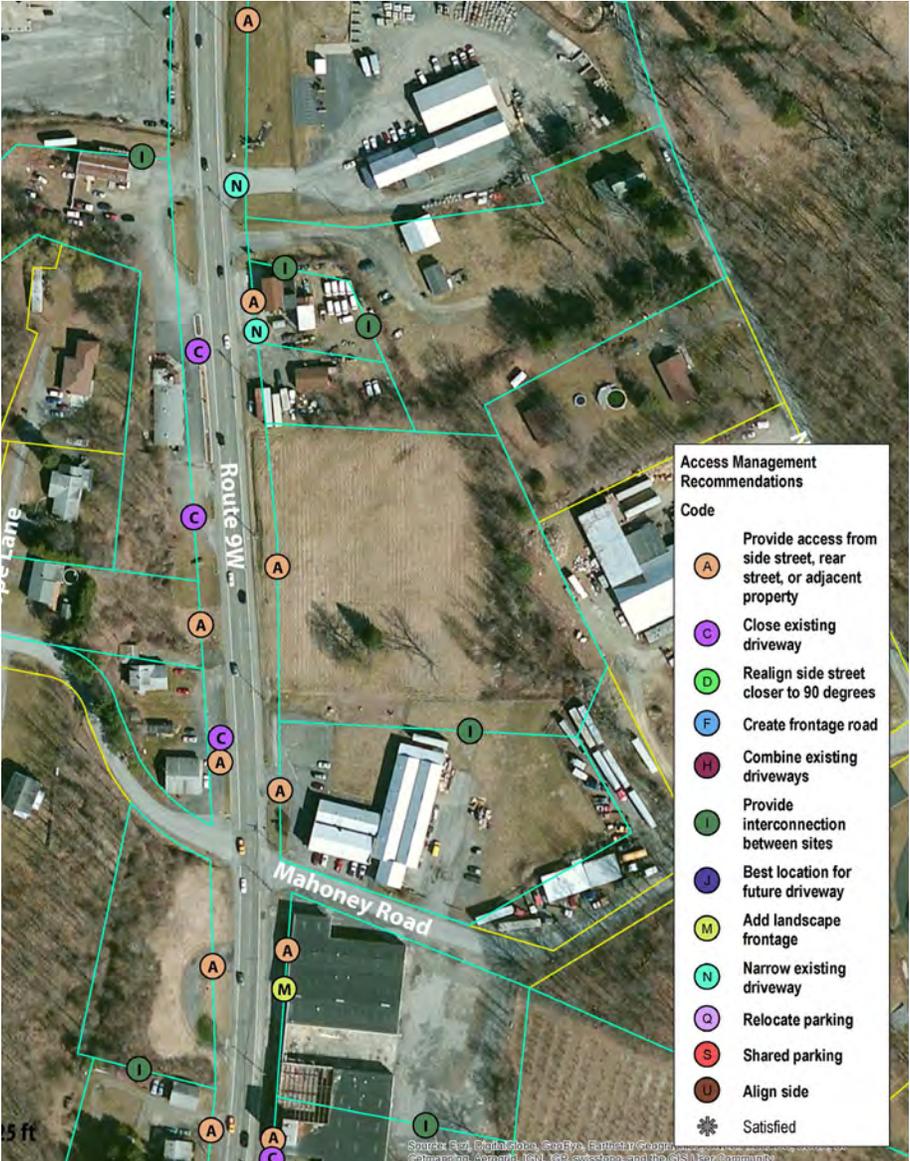
- Town of Marlborough
- Town of Lloyd
- New York State Department of Transportation

Timeframe:

- Short-term

Contingent Upon:

- Execution of the Access Management Plan requires coordination between property owners and the Town of Marlborough.
- Long-term success contingent upon coordination between New York State Department of Transportation driveway approvals.



Map from Access Management Plan

Source: BFJ Planning

SECTION 7. IMPLEMENTATION

Summary Table

The following table shows all of the recommendations developed for the Corridor Management Plan. Each recommendation is listed with Responsible Agencies involved and the Time Frame for implementation, categorized as follows:

- Short-term (Under 2 years) recommendations include installation of traffic and wayfinding signage, adoption of land use policies, and the access management plan.
- Medium-term (1-5 years) recommendations involve routine capital infrastructure improvements such as the construction of sidewalks, signal upgrades, and roadway repaving and remarking.
- Long-term (5+ years) recommendations include significant capital improvements that will involve further study to determine feasibility and funding strategies.

If a recommendation is dependent upon the actions of another, it is referenced in the *Contingent Upon* column.

ROADWAY CONFIGURATION AND SAFETY RECOMMENDATIONS						
RECOMMENDATION		DESCRIPTION	RESPONSIBLE AGENCIES		TIMEFRAME	CONTINGENT UPON
			Primary	Secondary		
MARLBORO HAMLET						
R-1	Request School Zone within quarter-mile of Marlboro Elementary & Middle Schools	School zone with signage and reduced speed limits should be placed along Route 9W (no more than 0.25 miles from a school entrance/exit) and should extend between Birdsall Avenue and Purdy Avenue to the north.	NYSDOT	Town of Marlborough	Short-Term	
R-2	Lane reconfiguration from four lanes to two lanes with left turn pockets at intersections between Rivercrest Lane and Milton Turnpike.	Convert four-lane section to two travel lanes with left turn pockets provided at intersections between Rivercrest Lane and Milton Turnpike. Southbound passing lane maintained between Old Indian Road and Chestnut Lane.	NYSDOT	Town of Marlborough	Medium-Term	
R-3	Request speed limit reduction between Milton Hamlet and Marlboro Hamlet from 55 mph to 45 mph	Speed limit reduction of 10 mph between Riverview Drive and Milton Turnpike.	NYSDOT	Town of Marlborough	Medium-Term	R-2
MILTON HAMLET						
R-4	Request speed limit reduction in Milton Hamlet and Milton Industrial Park from 55 mph to 40 mph	Speed limit reduction of 15 mph between Riverview Drive and Milton Turnpike.	NYSDOT	Town of Marlborough	Medium-Term	
R-5	Add left-turn lanes in Milton Industrial Park	Provide left-turn pockets in two-lane section to reduce opportunity for collisions.	NYSDOT	Town of Marlborough	Medium-Term	

CORRIDOR-WIDE						
R-6	Provide consistent shoulders throughout corridor	Provide 6'+ wide, well maintained shoulders to accommodate multi-modal travel.	NYSDOT	Town of Marlborough, Town of Lloyd	Mid-Term	R-2
R-7	Evaluate centerline markings, guiderails, and reflectors (per Roadway Safety Audit)	Corridor-wide audit of roadway features per recommendations from Roadway Safety Audit.	NYSDOT		Short-Term	
R-8	Install additional deer warning signs	Increase number of deer warning signs along corridor with focus on edge of hamlets.	NYSDOT		Short-Term	

INTERSECTION RECOMMENDATIONS						
RECOMMENDATION	DESCRIPTION	RESPONSIBLE AGENCIES		TIMEFRAME	CONTINGENT UPON	
		Primary	Secondary			
MARLBORO HAMLET						
I-1	Study parking and pedestrian infrastructure at Marlboro Triangle to assess feasibility of adding left-turn lane	Re-examination of preferred alternatives for circulation improvement focusing on the challenges associated with incorporating a left turn lane at Route 9W and Western Avenue.	Ulster County Transportation Council	Town of Marlborough	Short-Term	
BETWEEN HAMLETS						
I-2	Add NB left-turn pocket into Willow Tree Road WB	Create NB left-turn lane at offset intersection for vehicles turning left from 9W.	NYSDOT	Town of Marlborough	Medium-Term	R-2
I-3	Reconfigure intersection at Old Indian Road	Add left turn pocket on Route 9W at northbound approach and monitor the easterly leg of Old Indian Road.	NYSDOT	Town of Marlborough	Medium-Term	R-2
MILTON HAMLET						
I-4	Reconfigure signalized intersection at Milton Turnpike	Reconfigure intersection to accommodate pedestrian and bicycle users.	NYSDOT		Short-Term	
I-5	Convert signalized intersection at Milton Turnpike to a roundabout	Explore feasibility of converting signalized intersection to single lane roundabout.	NYSDOT	Ulster County	Long-Term	
I-6	Add left turn lane to intersection of Route 9W and Cluett Schantz Park Driveway	Provide NB left turn lane at intersection to provide greater access to Cluett Schantz Park. Consolidate park driveway with rear driveway of Milton Hardware.	NYSDOT	Town of Marlborough	Mid-Term	R-2

TRANSIT RECOMMENDATIONS						
RECOMMENDATION		DESCRIPTION	RESPONSIBLE AGENCIES		TIMEFRAME	CONTINGENT UPON
			Primary	Secondary		
T-1	Improve bus stop at Milton Turnpike	Upgrade current bus stop area to improve customer waiting experience.	NYS DOT, Town of Marlborough	Ulster County Area Transit	Short-Term	
T-2	Improve customer information about KPL line	Include improved bus route maps and schedules for KPL line. Provide information on Town websites.	Ulster County Area Transit	Town of Marlborough, Town of Lloyd	Short-Term	
T-3	Evaluate KPL Line Service Performance	Evaluate ridership after signage and customer information improvements have been implemented to adjust service route and schedules for more effective service.	Ulster County Area Transit		Medium-Term	T-1, T-2, T-3

PEDESTRIAN AND SHARED-USE PATH RECOMMENDATIONS						
RECOMMENDATION		DESCRIPTION	RESPONSIBLE AGENCIES		TIMEFRAME	CONTINGENT UPON
			Primary	Secondary		
MARLBORO HAMLET						
P-1	Install enhanced crossings on Route 9W in Marlboro Hamlet with warning signage and pedestrian-actuated flashing lights	Upgrade existing crosswalks at Marlboro Triangle and Dubois Street to enhanced crossings.	NYSDOT	Town of Marlborough	Short-Term	
P-2	Install crosswalks on minor streets to complete pedestrian network in Marlboro Hamlet	Crosswalks are recommended across Bloom Street, Dubois Street, and Birdsall Avenue.	Town of Marlborough		Short-Term	
P-3	Add pedestrian countdown timers at intersection of Route 9W and Young Avenue	Replace existing walk/don't walk pedestrian signal heads with countdown timers.	NYSDOT	Town of Marlborough	Short-Term	
P-4	Fill in gaps in sidewalk network between Western Avenue and Young Avenue	Provide consistent sidewalks to support the hamlet's commercial uses, safe route to school goals, and future residential growth.	Town of Marlborough		Short-Term	
P-5	Support the Malboro Mills Waterfall Walkway	The proposed trail runs along Lattintown Creek and crosses Route 9W.	Town of Marlborough		Short-Term	
MILTON HAMLET						
P-6	Install high visibility crosswalks in Milton Hamlet	Crosswalks are recommended at the intersections of Milton Turnpike & Main Street and South Road & Main Street.	Town of Marlborough		Short-Term	
P-7	Extend sidewalk network in Milton Hamlet	Sidewalks are recommended along several roadways in Milton Hamlet.	NYSDOT	Town of Marlborough	Short-Term	
P-8	Add crossing to Cluett Schantz Park	Provide an enhanced crossing across 9W to provide access to west side of Route 9W. Explore feasibility of a shared-use path connection from South Road across Milton Harvest to Route 9W.	NYSDOT	Town of Marlborough	Medium-Term	R-2, R-3

BETWEEN HAMLETS						
P-9	Shared-use path connecting the hamlets	A shared-use path along one side of Route 9W is part of a longer-term vision to better connect the hamlets.	NYSDOT	Town of Marlborough	Long-Term	
P-10	Construct trail between both Dock Roads	A future trail that improved access to the Hudson River and connects the Hudson waterfront between both Dock Roads.	Town of Marlborough		Long-Term	

BICYCLE RECOMMENDATIONS						
RECOMMENDATION		DESCRIPTION	RESPONSIBLE AGENCIES		TIMEFRAME	CONTINGENT UPON
			Primary	Secondary		
MARLBORO HAMLET						
B-1	Shared roadways in Marlboro hamlet	Provide shared bicycle use of key roadway within hamlets where Route 9W and other roads narrow, with both roadway markings ('sharrows') and 'Share the Lane' signage.	Town of Marlborough		Short-Term	
B-2	Bicycle Parking in Marlboro hamlet	Provide safe, convenient bicycle parking within the hamlets and encourage communities to adopt a requirement for bicycle parking in mixed-use and multi-family developments.	Town of Marlborough		Short-Term	
MILTON HAMLET						
B-3	Shared roadways in Milton hamlet	Provide shared bicycle use of key roadway within hamlets where Route 9W and other roads narrow, with both roadway markings ('sharrows') and 'Share the Lane' signage.	Town of Marlborough		Short-Term	
B-4	Bicycle parking in Milton hamlets and parks	Provide safe, convenient bicycle parking on Main Street, at Town Hall, and in parks.	Town of Marlborough		Short-Term	
CORRIDOR-WIDE						
B-5	Request designation of 9W as a bicycle route	Permitting roadway reconfigurations that provide a consistent shoulder along Route 9W, the corridor should be designated as a bicycle route, which would provide connections to regional routes throughout the Hudson Valley.	NYS DOT		Medium-Term	R-6
B-6	Regional bicycle routes	Make connections to future trails within the Study Area, the future Empire Trail, and existing Walkway Over the Hudson/Hudson Valley Rail Trail	Ulster County	Town of Marlborough, Town of Lloyd	Short-Term	

STREETSCAPE RECOMMENDATIONS						
RECOMMENDATION		DESCRIPTION	RESPONSIBLE AGENCIES		TIMEFRAME	CONTINGENT UPON
			Primary	Secondary		
S-1	Improve Lighting, Landscaping and Sidewalks	Work with property owners with frontage on Route 9W on beautification projects and safety improvements to improve corridor character.	Town of Marlborough, Town of Lloyd		Short-Term	
S-2	Creation of Design Guidelines for Route 9W	Develop guidelines that encourage cohesive design of buildings and streetscape treatments along Route 9W.	Town of Marlborough, Town of Lloyd		Short-Term	
S-3	Gateway & Wayfinding Signage	Provide gateway treatments to northbound and southbound entries to Marlboro Hamlet. Replace current gateway signage in Milton Hamlet.	Town of Marlborough, NYSDOT		Short-Term	

LAND USE RECOMMENDATIONS						
RECOMMENDATION		DESCRIPTION	RESPONSIBLE AGENCIES		TIMEFRAME	CONTINGENT UPON
			Primary	Secondary		
L1	Restrict uses permitted in Business Corridor Overlay District in area between hamlets	Town Board should revise Overlay Zone regulations to limit uses between hamlets	Town of Marlborough		Short-Term	
L2	Revise zoning to incorporate Access Management Plan	Town Board should incorporate Access Management Plan into Zoning Code by reference	Town of Marlborough, Town of Lloyd	NYSDOT	Short-Term	