

SAFE ROUTES TO SCHOOL ACTION PLAN

Marlboro Elementary & Middle Schools – Marlborough, NY



Young Avenue near the Elementary School – Source: Alta Planning + Design

March 2016



*Town of
Marlborough*



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.

UCTC 2014 UPWP Project 44.23.02 - 01: Complete a Safe Routes to School Demonstration Project

Prepared by Alta Planning and Design under contract with Ulster County Transportation Council

<http://ulstercountyny.gov/planning/transportation>.

Acknowledgements

UCTC and Alta Planning and Design would like to thank each member of the Marlboro Elementary and Middle Schools Working Group for their contributions to this report:

Town of Marlborough

John Alonge, Marlborough Highway Department

Howard Baker, Councilman

Gerald Cocozza, Chief of Police

Al Lanzetta, Town Supervisor

Ed Molinoli, Councilman

Marlboro Central School District

Michael Brooks, Superintendent of Schools

Debra Clinton, Principal, Marlboro Middle School

Susan Horton, Marlboro Board of Education

David Saulpaugh , Principal, Marlboro Middle School Assistant

Marie Toombs, Principal, Marlboro Elementary School

Pat Witherow, Marlboro Central School District Representative

Citizen Volunteers

James Garofalo, AICP, CTP, Local Resident

Table of Contents

Section 1.Safe Routes to School Overview.....	1
1.1 Introduction	1
1.2 Safe Routes to School Program Overview	2
1.3 Why are Safe Routes to School Important?	2
1.4 Benefits of a Safe Routes to School Program.....	3
Section 2.Existing Conditions	5
2.1 Arrivals and Departures	6
2.2 Campus Circulation Map	11
2.3 Existing Conditions Map.....	13
2.4 Potential Influence	14
Section 3.Recommendations	16
3.1 Physical Improvements	16
3.1.1 Signage and School Zone Recommendations	17
3.1.2 Sidewalk and Crossing Recommendations.....	19
3.1.3 Middle School Campus Improvements	22
3.1.4 Route 9W, Western Ave, and King St. Intersection Recommendations ...	28
3.1.5 Shared Use Path Recommendations	32
3.1.6 On Street Bicycle Improvements	36
3.1.7 Bicycle Boulevard Recommendations.....	39
3.1.8 Bicycle Parking Recommendations Map	41
3.2 School Improvement Plan Map.....	43
3.3 Program Recommendations	44
3.3.1 Education Programs.....	44
3.3.2 Encouragement Programs.....	46
3.3.3 Enforcement Programs	53
3.3.4 Evaluation Programs	54
Section 4.Next Steps.....	55
4.1 Priority Recommendations Map	60
Section 5.Funding Sources.....	61

Section 1. Safe Routes to School Overview

1.1 Introduction

This project was funded by the Ulster County Transportation Council (UCTC) utilizing Federal Highway Administration funds, and is part of a model Safe Routes to School (SRTS) program for Ulster County.¹ The information in this action plan will be compiled with other plans for schools from around the region, and will be included in a Safe Routes to School Toolbox. This Safe Routes to School Action Plan is customized for the Marlboro Elementary and Middle Schools' campuses, located in the Hamlet of Marlboro, NY, within the Town of Marlborough, NY. The document provides analysis of the existing conditions surrounding the school and suggests 'next step' projects and programs to improve the safety, health, and wellness of the schools' students, faculty, staff, and visitors.

The goal of this action plan is to identify recommended physical improvements and operational measures within a one-mile radius of the school site, including conceptual design and cost estimates for the recommended physical improvements. The action plan also prioritizes follow up activities to advance the recommendations. This action plan will progress Safe Routes to School for the Marlboro Elementary and Middle Schools' campuses. The successful implementation of this plan will require a dedicated and active Safe Routes to School team, inspired by a local school champion. The champion may be a teacher, an administrator, a parent, and/or a community volunteer. In order for this team to succeed, next step projects in the plan should be implemented with community consent and reflect the team's available time, skills, interests, and priorities.

This action plan will become a framework to guide actionable next steps, both in the short-term and long-term. Included with each recommended project or program are recommendations about which school team members should be involved in its implementation, and the role each should play to help ensure its success. All recommendations contained herein are intended to be in conformance with or supplemental to the 2008 Marlboro Hamlet Area Transportation Plan developed by Creighton Manning Engineers with funding from Ulster County Transportation Council.ⁱ

¹ Visit the Ulster County Transportation Council Safe Routes to School resource page at <http://ulstercountyny.gov/planning/transportation-council/safe-routes-to-school>

1.2 Safe Routes to School Program Overview

“Safe Routes to School” was established as a national program in 2005 by the Federal Highway Administration (FHWA) in order to empower communities to make walking and bicycling to school a fun, safe, and routine activity for children and their parents. The program established a framework that has been used successfully by schools, communities, and Metropolitan Planning Organizations across the United States to develop comprehensive approaches that encourage safe walking and biking to schools. Along with increasing pedestrian and bicyclist safety, the framework also embraces the goals of improving student health and enhancing environmental quality. To accomplish these goals, a comprehensive program must be established to create an environment that enhances, supports, and sustains walking and cycling as viable options for travel. To achieve this, SRTS emphasizes a holistic approach to create change that encompasses the five (5) E approach, which includes the following components: Engineering, Education, Encouragement, Enforcement, and Evaluation.

- **Engineering:** physical improvements to the environment such as crosswalks, sidewalks, and signals.
- **Education:** methods to teach children, parents, and neighbors about the benefits of walking and cycling to school, as well as teaching appropriate walking, driving, and cycling behaviors to support safe travel in the school zone.
- **Encouragement:** programs such as Walk to School Day, the Walking School Bus, contests and other initiatives to encourage children, parents, and others to walk or bicycle to school.
- **Enforcement:** incorporates law enforcement efforts to ensure drivers, bicyclists, and pedestrians obey traffic laws and practice appropriate behaviors.
- **Evaluation:** uses measurements or indicators such as the number of children walking or bicycling to school, to track the success of the SRTS program.

1.3 Why are Safe Routes to School Important?

Although almost half of the students in the United States walked or biked to school prior to the 1980s, the number of students walking or bicycling to school has sharply declined since then. In 1969, 89% of students lived within a mile of the school they attended, and 48% of all K-8th grade students walked or biked to school. In 2009, only 13% of K-8th grade students walked or bicycled any distance to get to school, and only 35 percent of students that lived within one mile of school walked

or bicycled². This decline is due to a number of factors, including suburban growth patterns, school siting requirements that encourage school development in outlying areas, increased traffic, and parental concerns about safety. The situation is self-perpetuating: As more parents drive their children to school, there is increased traffic at the school site, resulting in more parents becoming concerned about traffic leading to a strong desire to drive their children to school (refer to Figure 1 at right).

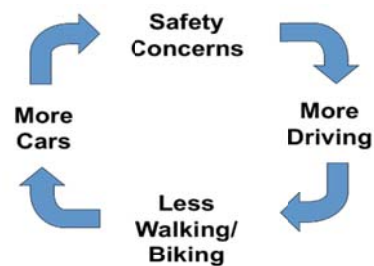


Figure 1: The downward spiral of walking and bicycling to school.

According to a 2004 survey by the Center for Disease Control, parents whose children did not walk or bike to school cited the following barriers:²

- Distance to school – 61.5%
- Traffic-related danger – 30.4%
- Weather – 18.6%
- Crime danger – 11.7%
- Opposing school policy – 6.0%
- Other reasons (not identified) – 15.0%

A comprehensive Safe Routes to School program addresses many of the reasons for reductions in walking and biking through a multi-faceted approach that uses education, encouragement, engineering, and enforcement efforts to develop attitudes, behaviors, and physical infrastructure that improve the walking and biking environment.

1.4 Benefits of a Safe Routes to School Program

Safe Routes to School programs directly benefit schoolchildren, parents, and teachers by creating a safer travel environment near schools and reducing motor vehicle congestion at school drop-off and pick-up zones (see Image 1). Students that choose to walk or bike to school are rewarded with the health rewards of a more active lifestyle, and the independence that comes from being in charge of the way they travel, helping them to learn at an early age that walking and biking can be safe, enjoyable, and good for the environment. Having this perspective from an early age is imperative for helping children to develop transportation habits that

¹ National Center for Safe Routes to School, How Children Get to School, November 2011. Available: saferoutesinfo.org/sites/default/files/resources/NHTS_school_travel_report_2011_0.pdf. Accessed: March 2014
² U.S. Centers for Disease Control and Prevention. Barriers to Children Walking to or from School United States 2004, Morbidity and Mortality Weekly Report September 30, 2005. Available: www.cdc.gov/mmwr/preview/mmwrhtml/mm5438a2.htm. Accessed: March 2014.

could benefit them for the rest of their lives. Safe Routes to School programs offer additional benefits to neighborhoods by helping to slow traffic and provide infrastructure improvements that facilitate walking and biking for everyone. Identifying and improving routes for students to safely walk and bicycle to school is one of the most cost-effective means of reducing weekday morning traffic congestion and auto-related pollution.

In addition to safety and traffic improvements, a Safe Routes to School program helps integrate physical activity into the everyday routine of school children. Since 1980, the number of children who are overweight has more than doubled, from 7 percent to 18 percent for children 6-11, and from 5 percent to nearly 21 percent for adolescents aged 12-19. Health concerns related to sedentary lifestyles have become the focus of statewide and national efforts to reduce health risks associated with being overweight. Children who walk or bike to school have an overall higher activity level than those who are driven to school, even though the journey to school makes only a small contribution to activity levels.³



Image 1: The entire family can benefit from Safe Routes to School
Source: Alta Planning + Design

³ Cooper A, Page A, Foster L, Qahwaji D. Commuting to school: are children who walk more physically active? *American Journal of Preventive Medicine*. 2003 November;25(4):273-6.
Cooper A, Andersen L, Wederkopp N, Page A, Frosberg K. Physical activity levels of children who walk, cycle, or are driven to school. *American Journal of Preventive Medicine*, 2005 October; 29(3):179-184.

Section 2. Existing Conditions

2.1 Arrivals and Departures

At the Marlboro Elementary and Middle Schools, students have multiple modes of transportation available to them, including being driven by parents or guardians, riding the school buses, walking to school, or biking to school. The primary modes that students use to get to school are described in this section.

2.1.1 Parent Drop-offs/Pickups

Unlike many schools where parent drop-offs and pick-ups are the most popular choice, parent drop-offs and pickups are the second most popular mode of travel for students arriving and leaving the two schools. This mode accounts for approximately 20-22% of all arrivals and departures at the two schools.

Marlboro Elementary School

The Marlboro Elementary School Campus has multiple locations where students are dropped off and picked up. This includes multiple parking lots and traffic loops that allow the drop-offs and pickups to occur as close as possible to the four main entrances to the school building. One constraint that is caused by drop-offs/ pickups is the fact that all of the vehicular traffic, as well as the bus traffic, is funneled into a single two-lane corridor that provides access to each parking lot and loop. This can cause heavy congestion and ‘bottlenecking’ at the beginning and end of each school day. This congestion results in a number of issues. It can cause students to be late to school if they are stuck waiting in line to be dropped off, can increase the stress and frustration of those driving, and can hinder the service of the corridor for vehicles driving on the street and accessing 9W.

The Elementary School does have several design factors to help allow vehicles to flow more smoothly through the campus. This includes a mini traffic circle at the eastern end of the campus, allowing vehicles to make easy turnarounds, as well as traffic loops. The traffic loops remove vehicles that are dropping off or picking up students from the street, preventing double parking on the main street corridor which can block traffic and increase congestion. Buses and private vehicles are separated with buses in two northern loops and private vehicles sent to the eastern side of the school.

Marlboro Middle School

Marlboro Middle School does not currently have any designated parent drop-off or pickup locations, but the majority of them occur near the rear parking lot. Like the elementary school, the drop-offs and pickups do conflict with bus traffic, and congestion can build up at the beginning and end of the school days.

Marlboro Middle School has two driveways to the rear parking lot. One driveway is north of the school building, connecting to Route 9W. The other driveway is west of

the school building connecting to Birdsall Ave. While the 9W driveway allows traffic to exit the site westbound, the Birdsall Ave driveway only allows traffic to flow north into the site. This creates a more concentrated flow in one direction during drop-off and pickup times. There have been some levels of concern about vehicles speeding in this loop though, especially while turning the corner around the school building. There have also been concerns of parents using these driveways for drop-offs and pickups, as they tend to conflict with buses in the parking lot, creating heavier congestion.

Parent drop-offs for the Middle School are from 7:25 a.m. to 7:38 a.m. when homeroom begins. The Elementary School drop-off time is from 8:55 a.m. to 9:05 a.m. The pickup times begin at 2:23 p.m. for the Middle School and 3:10 p.m. at the Elementary School. This means that with the exception of a handful of students who may arrive early to the Elementary School or leave late from the Middle School for various activities and programs, most of the traffic from the parent drop-offs and pickups from one school does not conflict with another school.

2.1.2 Bus Arrivals/Departures

Buses are the most popular choice to get to school for students of both the Middle and Elementary schools. Buses have a designated loop on the campuses that allows them to flow freely with minimal conflicts. The Elementary School campus has two bus loops on the northern side of the campus where buses line up and drop off their students. The middle school does not have any designated bus loop, but the buses do form a loop through the school's parking lots. Staff carefully choreographs student departure, lining up on Birdsall Ave, moving buses into the parking lot in waves, and finally exiting again onto 9W.

The current bus system will pick up any students for either of the two schools that live a ½ mile or more from the schools. They pick up students at designated locations throughout Marlborough according to established routes and bus schedules. There are currently 20 routes for the Elementary School and 20 routes that are shared between the Middle and High School. The bus routes are managed by a private firm; Quality Bus Service, which is in charge of coordinating routes, schedules, and policies with the school district.

The school district also has a program for reviewing the safety of the different bus stops. Parents can submit a form, found online at the Marlboro Central School District's webpage, which allows them to express their concerns over bus stop locations for all schools and suggest a location that they believe to be more suitable. The school then reviews the request and may make changes accordingly.

2.1.3 Pedestrian and Bicycle Arrivals/Departures

Pedestrian and bicycle arrivals or departures are the least popular travel mode among students. Much of this lack of enthusiasm to walk or bike can be attributed to a general lack of good walking and biking facilities in Marlborough and on the school campuses. Overall, pedestrian and bicycle accommodations throughout Marlborough vary greatly. While some locations have ample sidewalks, many neighborhoods do not have any. Highlights of the pedestrian and bicycle infrastructure also include the pedestrian bridge off of Western Ave. Other locations, such as the intersection of Western Ave and Route 9W, create barriers and illustrate the highly auto-oriented landscape of the street networks. To truly accommodate pedestrians, bicyclists, and for students to be encouraged to walk or bike to school, conditions need to be comfortable for walking and bicycling and a full network should be established that provides routes for the students to get to and from the schools.

Campus Bicyclist and Pedestrian Conditions

The Elementary School campus has a number of facilities that are great for both pedestrians and bicyclists. There is an extensive sidewalk network that connects each entrance of the school to Route 9W, as well as to the parking lot, and to the adjoined baseball fields. There is also a crosswalk on Route 9W, a crosswalk over Young Ave, leading to one of the school's parking lots, and crosswalks over each bus loop. Additionally, there are wide striped shoulders leading into the campus. One constraint to note on the Elementary School's campus is the extended crosswalk that passes over the eastern bus loop and Young Ave. This crosswalk is approximately 90 feet long, and crossing it can create an uncomfortable



Images 2 & 3: Buses preparing to pick up students at the Middle School at the end of the school day.

environment for pedestrians attempting to cross the street during busy hours.



Image 4: The crossing guard at the Middle School after classes have ended.

Source: Alta Planning + Design

The middle school campus has fewer accommodations and has several barriers to overcome in order to create a pedestrian and bicycle friendly environment. Leading into the school at its Route 9W entrance, there is a crosswalk that spans over the school's driveway, and a concrete sidewalk that connects the Elementary School's crosswalk to the crosswalk over the Middle School's driveway. Leading south from this crosswalk, there is an asphalt sidewalk that extends to Birdsall Ave. There is also a crossing guard at this location before and after school to help ensure the safety of students crossing the street. However, there is no path or sidewalk that leads up to the school building. The school is also situated on the top of a steep hill, which creates an additional barrier to pedestrian and bicyclist accessibility, especially pedestrians using mobility devices, such as wheelchairs or walkers.

At the southern entrance to the campus, there is a concrete sidewalk that leads from the southern parking lot, to the school's building. However, there are no sidewalks or other accommodations connecting the school campus to the street network at this entrance. Along its path, the sidewalk also has a number of staircases but there are no ramp facilities available for users with disabilities.

Western Avenue Pedestrian and Bicycle Improvements

One project that is currently being developed in Marlborough is the plan to widen the shoulders along Western Avenue, creating a more comfortable route between the High School and the Middle/Elementary School for pedestrians and bicyclists. Widened shoulders can provide a space for both pedestrians and bicyclists to travel that is separated from the motor vehicle travel lanes.

Western Avenue Pedestrian Bridge

Off of Western Avenue, there is a non-motorized bridge that provides a connection over the small creek to the north (Image 5). This bridge provides a connection point for students that walk and bike to the Elementary and Middle School Campuses

from the southern side of the creek. It also provides a much more comfortable crossing point than the bridge on 9W, which does not have any dedicated pedestrian or bicycle facilities. While the bridge may only be a small crossing, it fills what otherwise would be a critical gap in Marlboro's bike and pedestrian network. The bridge is privately owned and is intended purely to be a fire access point for the



housing developments on the northern side of the creek. A public access easement should be secured so that students can legally use the bridge crossing.

Image 5: The non-motorized crossing off of Western Avenue, providing a path across the small creek.

Source: Alta Planning + Design

Sidewalks and Bike Lanes

Sidewalks are present at a limited number of locations within Marlborough. Most of them exist along the commercial strip near the intersection of Western Avenue and Route 9W, but most neighborhoods do not have any sidewalks or paths. This forces pedestrians to walk along the shoulders of roads or in travel lanes. This can create an uncomfortable environment for pedestrians, especially along higher speed streets, or streets with low visibility. Many streets also do not have lighting, which decreases pedestrian comfort even more during the evening.

There are presently no dedicated bicycle facilities in the Town; the only option for bicyclists is to therefore travel along shoulders when present, or travel in the motor vehicle travel lanes. This can be uncomfortable to many bicyclists, however, especially along high-speed arterials. As a result, this discourages most from choosing cycling as their preferred mode of travel. This has an even larger impact on the student populations at the elementary and middle schools, as most students are new to travelling by bicycle and are less confident and experienced. Additionally, younger students are harder to see from the motorists' perspective. These factors combined make many parents feel uncomfortable allowing students to travel by bicycle without proper facilities.

Bicycle Parking

It has been noted by the Steering Committee that there are no bike racks or other bicycle storage facilities available on either campus. This lack of parking can be a major deterrent from cycling to school, as students may not feel comfortable leaving their bicycles in non-dedicated facilities because of fear of theft, vandalism, or damage from weather. The lack of available bicycle parking compared to adequate design for motor vehicle access illustrates the auto-oriented environment of the campuses.

It has also been noted that there may not be any public bicycle parking facilities throughout the town or school district at all. Having a lack of bicycle parking facilities around popular after-school locations can also be a deterrent for students riding to and from school.

School Zone

There was a school zone speed limit applied to Route 9 W between Purdy Ave and Birdsall Road. The school zone placed a speed limit of 30 miles per hour (mph) on the high speed arterial when the flashing beacons were activated. When the beacons were not active, the speed limit was 40 mph. This provided some level of traffic calming during school pick up and drop off times. The total length of the school zone was approximately 1/4 mile and it served both schools. This school zone was removed though, when a traffic signal was installed at Young Ave and Route 9W, and a constant speed limit of 30 mph was established. With the installation of the traffic signal, the rapid rectangular flashing beacon at this location was also removed.



Figure 2: A New York State MUTCD approved school speed limit sign, figure number 7B 100. Source: NYSDOT

2.1.4 Route 9W, Western Ave, and King St. Intersection

One of the largest barriers for pedestrian and bicycle travel in Marlborough is the intersections of Route 9W, Western Ave, and King Street. The intersections form a small triangular island, with each street intersecting with the other two. The intersections are only 200 to 400 feet apart from one another and the entire landscape is heavily auto-oriented. There are limited pedestrian crossings; no bicycle specific facilities, excessively wide travel lanes, and ample on-street parking that make the lanes appear to be even wider. Additionally, most of the triangular island formed by the three streets is a paved parking lot. This creates a visual 'sea of asphalt' that can be intimidating and deterring to pedestrians or bicyclists. There have been some attempts at mitigating the intersection's negative character, particularly revolving around the intersection of Western Ave and King Street. King Street has been converted to a one-way street heading south and Western Ave is a one-way street heading west from Route 9W to King Street. This allows for a

smoother flow of traffic, but in order to accommodate motorists coming from 9W and reaching destinations on King Street, a slip ramp was installed leading from Western Ave to King Street. With the slip ramp, small island made by the slip ramp, nearby curb cuts, and nearby angled parking, the scenario becomes confusing and difficult to navigate for all users.

The intersection of 9W and Western Ave. becomes a barrier particularly for the students of the Elementary and Middle Schools who wish to walk or bike to school as it is a focal point for the most direct routes from the majority of the students' neighborhoods. To avoid this intersection, some students would have to face trips up to twice as long, and so routes that avoid this intersection are much less appealing, and from a practical point of view, not viable alternatives.

2.2 Campus Circulation Map

As part of the assessment of the existing conditions for the Marlboro Elementary and Middle Schools, campus circulation studies were conducted for the existing campuses (see Figure 3). The following observations were part of the key findings of these studies:

- Both campuses place the bus circulation as a high priority in their transportation infrastructure, giving buses primary access to the schools from the designated loops.
- Both campuses are heavily auto-oriented, with much of the infrastructure on the campuses dedicated to the movement and parking of motor vehicles.
- The Elementary School campus has dedicated sidewalks that allow pedestrian movements to most of the campus. The Middle School campus



Image 6: The intersection of King Street, Western Ave, and Rte 9W

Source: Google Earth

lacks sidewalks for most of its campus.

- Neither campus has dedicated bicycle infrastructure. The lack of bike racks greatly deters students from biking to school, and the cyclist circulation is harder to predict on the school campuses.

The results of the circulation study can also be seen in the circulation map below, identifying key routes for pedestrians or ‘walkers,’ bus movement, and personal vehicles for faculty, staff, and parents.

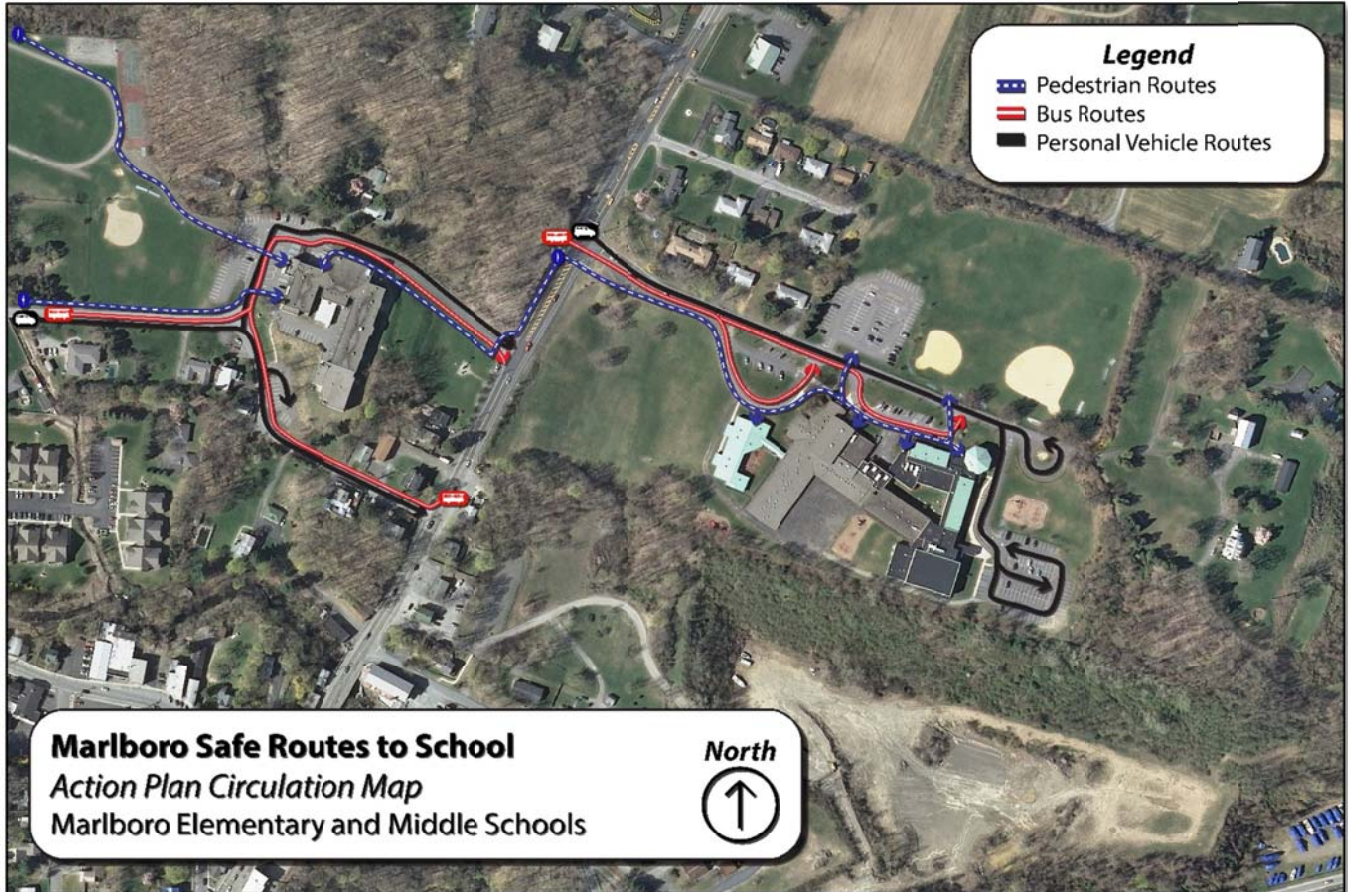


Figure 3: Campus Circulation Map
Source: Alta Planning + Design

2.3 Existing Conditions Map



Figure 4: Existing Conditions Map
 Source: Alta Planning + Design

2.4 Potential Influence

In order to understand the potential impact of safe routes to school improvements for the Marlboro Elementary and Middle Schools, an analysis was conducted to determine approximately how many students live within the defined one-mile walking/bicycling radius of the schools. These estimates are based on available 2010 census data. The following proposed ‘Safe Routes to School’ program has the potential to impact up to 158 students.



Figure 5: Marlboro Elementary School radius map showing potential SRTS routes and number of students

Source: Alta Planning + Design

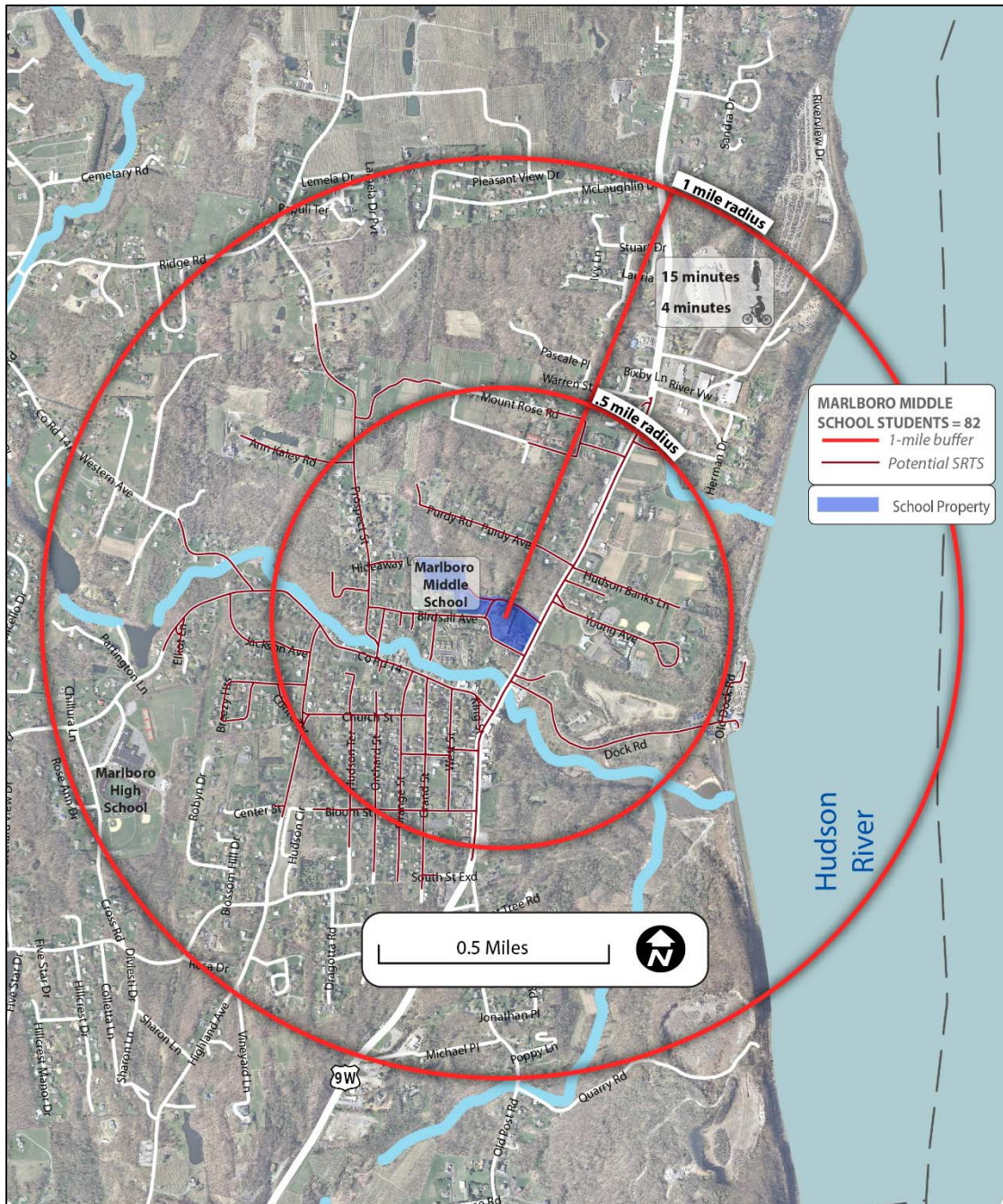


Figure 6: Marlboro Middle School radius map showing potential SRTS routes and number of students impacted
 Source: Alta Planning + Design

Section 3. Recommendations

3.1 Physical Improvements

Engineering measures for Safe Routes to School include the design, construction, and maintenance of physical infrastructure that can improve the safety and comfort of students that are walking and biking to school. This infrastructure includes signage, stenciling, and traffic control devices such as stop signs, bulb-outs, sidewalks, paths, bike lanes, and trails. It may also include more innovative approaches that are steadily receiving more attention in New York State, including cycle tracks, buffered bike lanes, bicycle boulevards, Rectangular Rapid Flashing Beacons (RRFBs), HAWK (High-intensity Activated crossWALK signals), and bicycle signals.



*Image 7: Simple engineering measures such as pedestrian refuges can improve real and perceived safety.
Source: Alta Planning + Design*

Specific engineering strategies that can be applied within the School Zone, in areas along the school route, at street crossings, and to slow traffic down are provided in this section. Many of the strategies – such as on-street warning signs – are most effective if they are only used during school commute hours. Although some engineering solutions entail higher-cost infrastructure improvements, many enhancements that provide real benefits can be implemented without large expenditures, such as posting signs, modifying signal timings, or striping crosswalks or bike lanes. The engineering strategies listed below may also be utilized by the community to improve pedestrian and bicycle safety in projects other than this Safe Routes to School Action Plan.

The following specific recommendations for the Marlboro Elementary and Middle Schools' Campuses should be considered by the school administration. Note that some of the recommendations will require participation by partner agencies such as the Town of Marlborough, the Department of Transportation, and local Police Departments for their implementation. The map at the end of this section displays the recommendations and their respective locations. All recommendations contained herein are intended to be in conformance with or supplemental to the 2008

Marlboro Hamlet Area Transportation Plan developed by Creighton Manning Engineering with funding from Ulster County Transportation Council.ⁱⁱ

3.1.1 Signage and School Zone Recommendations

School Zones

In New York State, school zones can be designated on all roadways contiguous to a school serving K through 12th grade. A New York School Speed Limit assembly (see Figure 8) shall be used to indicate the speed limit where a reduced speed zone for a school area has been established or where a speed limit is specified for such areas by statute. The New York School Speed Limit assembly shall be placed at or as near as practical to the point where the reduced speed zone begins. In order for a school speed limit to be established, the school and the jurisdiction responsible for the highway must provide written documentation of their support for a school speed limit.

As dictated by NYS Vehicle and Traffic Law, the numerical value of a school speed limit should be approximately 10 mph below the normally prevailing 85th percentile speed on the highway, or at approximately the actual 85th percentile speed within the zone during school crossing periods. School speed limits shall not be set below 15 mph and the maximum length of a school speed zone shall not be greater than 1320 feet (0.25 mile) on a highway passing a school building, entrance or exit of a school abutting on the highway. School Zones signage focused traffic enforcement can occur to target speeding and other moving violations.

While a school zone does not exist along 9W, extending one to include Birdsall Ave and Young Ave will provide more comfortable walking and biking conditions on roads that nearly all students will travel along.

School Area Signage

The Manual on Uniform Traffic Control Devices (MUTCD) provides guidance on the use of school area signs and markings. The key signs should include the School Advance Warning Assembly, the School Crosswalk Warning Assembly, and the School Speed Limit Assembly. One way of increasing the visibility of school area signage is through the use of Fluorescent Yellow-Green signs. School Advance Crossing Assembly signage (S1-1) are used to warn road users that they are approaching a school area that might include school buildings or grounds, a school

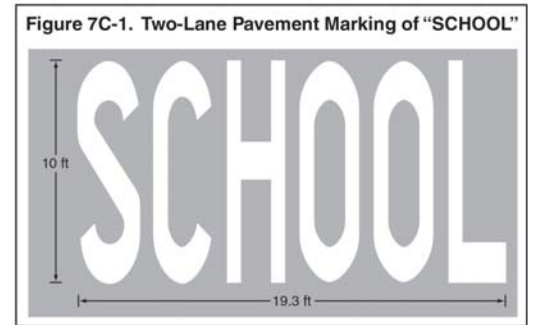
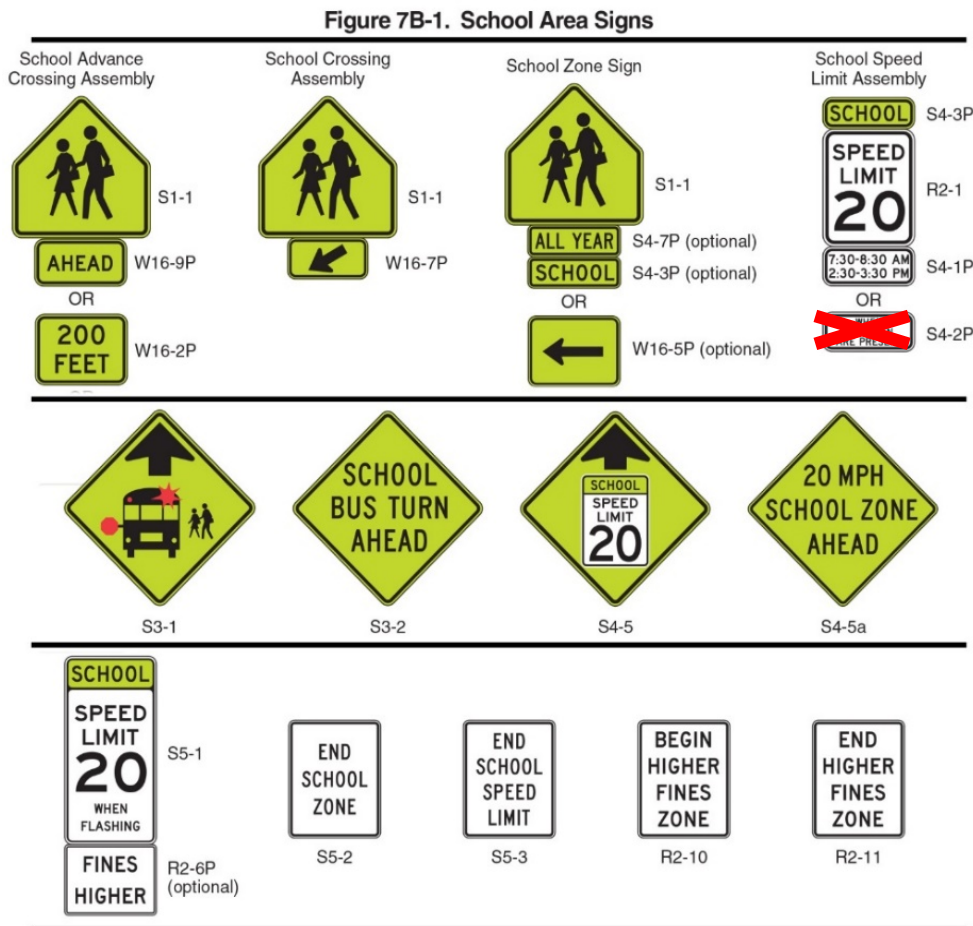


Figure 7: If used, the SCHOOL word marking may extend to the width of two approach lanes. If the two-lane SCHOOL word marking is used, the letters should be 10 feet or more in height. MUTCD Section 3B.20 contains provisions regarding other word, symbol, and arrow pavement markings that can be used to guide, warn, or regulate traffic. Source: MUTCD

crossing, or school related activity adjacent to the highway. Iterations include using the S1-1 sign to identify the location of the beginning of a designated school zone, combining the sign with an AHEAD plaque to warn road users that they are approaching a crossing where school children cross the roadway. The School Crossing Assembly, if used, must be installed at the school crossing. It is important



to note that “signs should be used judiciously as overuse may breed driver noncompliance and excessive signs may create visual clutter⁴.”

Figure 8: These represent some of the options for roadway signage in or approaching a school zone (note sign S4-2P is prohibited by NYS MUTCD), for a complete detailed visit <http://mutcd.fhwa.dot.gov>. Source: FHWA MUTCD

⁴ http://guide.saferoutesinfo.org/engineering/school_zone_signs_and_pavement_markings.cfm

3.1.2 Sidewalk and Crossing Recommendations

Sidewalk

Sidewalks are the most fundamental element of the walking network, as they provide an area for pedestrian travel that is grade separated from vehicle traffic. Installing new sidewalks can be costly, but fixing short gaps in the existing sidewalk network is important to ensure the continuity of the system. Filling gaps is a relatively low cost solution to improving the pedestrian network. The sidewalk infrastructure around the school is partially. Sidewalks throughout the rest of Marlborough are largely missing though. The installation of sidewalks on the following streets are recommended as part of the Safe Routes to School program and their implementation will help create a more comprehensive sidewalk network. These recommendations are shown on Figure 24, page 45.

- Route 9W (Old Post Rd. to Young Ave)
- Dubois St.
- Orange St.
- Bloom Street
- Birdsall Ave
- McLaughlin Dr.
- Purdy Ave

Sidewalks should first be prioritized along routes designated in this report as bicycle boulevards, a concept that will be explained in Section 3.1.6. This will encourage pedestrians to also utilize the bicycle boulevard network, creating more visibility for the network.

Crossings

School crosswalks denote the preferred location for children to cross the street. High visibility crosswalks should be installed at key locations around the schools and along walking routes to and from the schools. The “SLOW SCHOOL

Figure 9: Crossing Treatments
Source: Alta Planning + Design



Standard (Traverse) Crosswalks



High Visibility Crosswalks



Advanced School Crossing Pavement



Yellow School Zone Crosswalks

XING” marking can be used in advance of uncontrolled school crosswalks.

Various striping patterns can be used. The standard crosswalk striping pattern consists of two parallel lines, called the “transverse” pattern. Higher-visibility patterns can also be used, such as longitudinal and combination markings, which add bars for increased visibility. High visibility markings should be considered for all high-volume crossings near schools, and where conditions demonstrate a need for an increased visibility marking (e.g., a mid-block location). Yellow crosswalks can also be used in immediate proximity to the school (within 500 feet) to further delineate that it is a school zone crosswalk. All crosswalk elements should lead to sidewalks with ramps or be flush to the road with appropriate accessible design features. Locations for recommended crosswalk installation are listed below and shown on Figure 24, page 45.⁵

- Birdsall Ave & 9W (W)
- Orange St. & Western Ave. (E)
- Western Ave & Winter St. (N, W)
- Purdy Ave & 9W (W)
- Birdsall Ave and Prospect St. (E)
- South St. and Bloom St. (N,E,S,W)

In addition, the 90 foot crosswalk at the Elementary School crossing Young Ave should be improved. The crosswalk should go from the building sidewalk directly to the median where a sidewalk should cross the median to a point directly across from the break in the guiderail. There should be a crosswalk straight across the road perpendicular to the road edge to that break, rather an meandering. Sidewalk elements should have ramps or be flush to the road with appropriate accessible design features.

⁵ Note: The leg(s) of the intersection where the crosswalk is recommended is indicated in parathesis such as (N) for the northern leg of the intersection

In-Street Yield-to-Pedestrian Devices

In-Street Yield-to-Pedestrian Signs are flexible signs installed in the median to enhance a crosswalk at uncontrolled crossing locations. These signs communicate variations of the basic message ‘State Law: Yield to Pedestrians.’ At school crosswalks, these signs are sometimes installed on a portable base and brought out in the morning and back in at the end of each day by school staff, which may reduce the chance that the sign will become “invisible” to motorists by being left out all the time. For permanently-installed signs, maintenance can be an issue as the signs may be run over by vehicles and need to be replaced occasionally. Installing the signs in a raised median can help extend their lifetime. Installing “shark’s tooth” yield pavement markings at these crossings can also increase yield rates for pedestrians at the crosswalk. These signs are recommended for the crosswalks adjacent to the two schools on 9W, Young Ave, and Birdsall Ave (the In-Street Pedestrian Crossing sign, the In-Street Schoolchildren Crossing sign, the Overhead Pedestrian Crossing sign, and the reduced size in-street School (S1-1) sign shall not be used at signalized locations). Signs will work best when accompanied with pavement markings.

Raised Crosswalk

Raised crosswalks combine pedestrian crossings with a speed table. A speed table is a form of vertical traffic calming that encourages vehicles to slow down. The raised crosswalk should be

are flexible signs installed in the median to

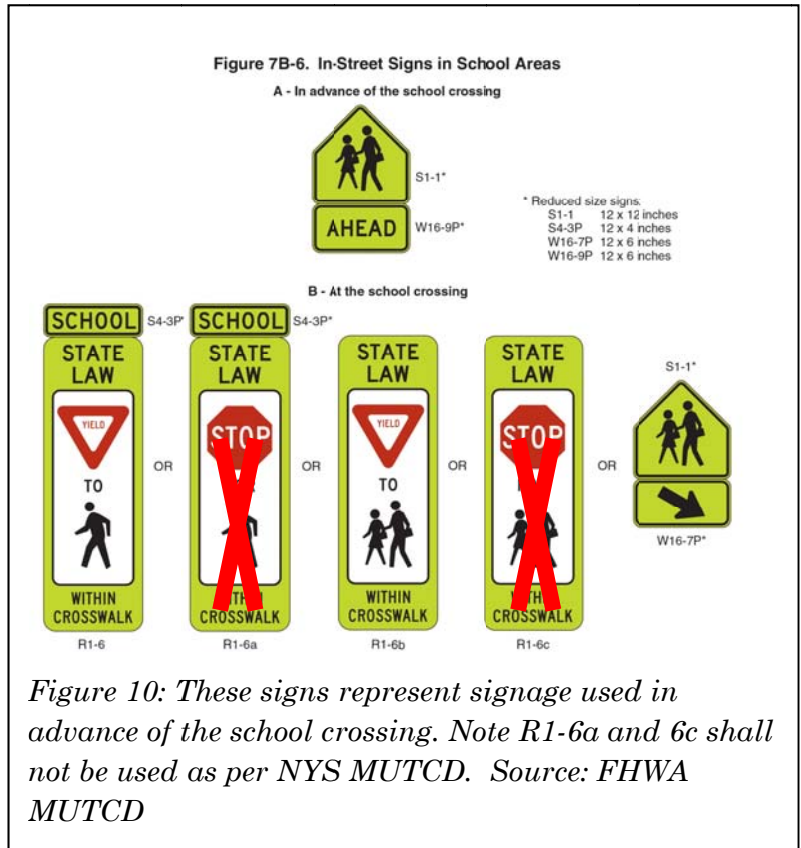


Figure 10: These signs represent signage used in advance of the school crossing. Note R1-6a and 6c shall not be used as per NYS MUTCD. Source: FHWA MUTCD



Image 8: “Yield to Pedestrian” Sign
Source: Alta Planning + Design

elevated so that it is flush with the sidewalk and include yield pavement markings on the slope of the speed table, as shown to the right.

While these can be implemented on any low speed corridor, only one location is recommended as a priority site for this enhancement: the entrance leading into Young Ave from 9W, which also serves as the Elementary School entrance. The proposed raised crosswalk would be located mid-block on Young Avenue (at the present location of the meandering 90 foot painted crossing referenced on page 20), bringing people between the parking lot and the front entrance of the Elementary School. This crossing would double as a traffic calming feature, acting to slow vehicles down as they enter the school campus.



*Figure 11: Raised crosswalk illustration
Source: Alta Planning + Design*

3.1.3 Middle School Campus Improvements (*Short Term*)

The steering committee noted a large number of conflicts and constraints within the elementary School campus that create a barrier for pedestrian and bicycle travel. Many of these barriers can be overcome or mitigated through infrastructure improvements. All of the recommended improvements are identified in Figures 13 and 14.

Sidewalk Improvements

The Middle School campus has few sidewalks. This creates a very unfriendly environment for students that walk to school, especially considering the steep hills and sharp turns. Sidewalks should be prioritized on the northern driveway, leading up the hill. While sidewalks would ideally be installed on both sides of the driveway, the southern side should be prioritized, which leads directly to the school building. The northern side is a lower priority since most residents reside south of the school.

Another location that could use improvements are the sidewalks leading from the smaller parking lot. This sidewalk has frequent staircases; improving this with ADA compliant ramps will provide the accessibility for individuals with mobility impairments. An alternative to this would be to install a new sidewalk that leads east to the building, and then installing a new building entrance. This land is much more gradual and will require fewer locations that would need to be graded in order to meet ADA compliance. This may prove to be the cheaper, yet similarly effective option.

Sidewalks should also be installed and improved around the outskirts of the campus along the adjacent streets. This will provide connections to the overall sidewalk network of Marlborough and increase accessibility for the school.

Parent Parking Lot

The parking lot that is designated for parent drop-off and pickups is generally avoided by parents due to the poor circulation of the parking lot. It has a single entry point, a capacity of 12 cars parked in standard stalls, and a driving lane of 20', which is less than the standard 24' for two-way single entry parking lots. This makes it difficult for a large number of cars to pull into the parking lot, park, let students out, turn around, and then exit again. However, there are several simple improvements that would greatly improve the effectiveness and circulation of this parking lot. This will increase the number of parents who use this parking lot for drop-offs and pickups, which will decrease their conflicts with the bus and make the circulation of the overall campus much smoother.

The most needed improvement for the parking lot is to create an additional entry point in the southern corner of the parking lot. This will allow smoother circulation within the parking lot. This could be made even more effective by making the parking lot one-way, running north to south. This will prevent the need for cars to turn around, allowing for parents to pull up to a curb, and then pull away. Having a one-way restriction will also encourage parents to come from 9W, and then return to 9W, completely avoiding the bus traffic.

Another way to improve circulation would be to create a designated 'pull-up drop-off' location in the parking lot. This can be done by striping out a 'drop-off zone' on the eastern end of the parking lot, and installing a sidewalk on the eastern end of the parking lot.

Mini Traffic Circle

The Middle School driveway that intersects with Birdsall Ave becomes congested due to the high traffic volumes and turning movement conflicts created by the buses and parent drop-offs/pickups.

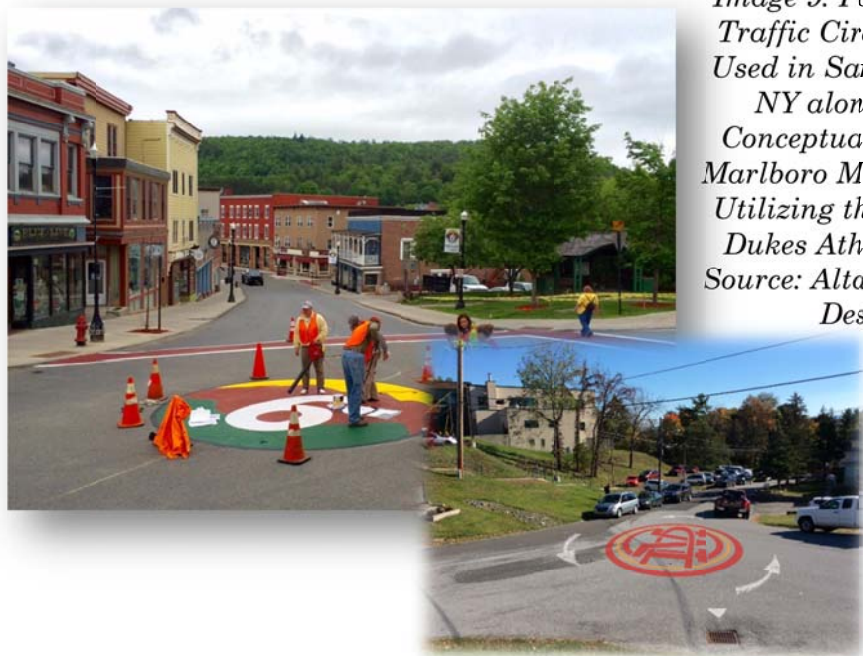


Image 9: Painted Mini Traffic Circle Concept Used in Saranac Lake, NY along with a Conceptual Design at Marlboro Middle School Utilizing the Marlboro Dukes Athletics Logo Source: Alta Planning + Design

Creating a mini traffic circle at this location will likely increase clarity of movement, as the intersection is often currently used more as a traffic circle than a T-intersection, with U-turns and K-turns being a common occurrence. The mini traffic circle can be painted on, like the one seen below. This will allow buses to pass over it with ease, but will encourage other motorists to use the circle. It is important to note that such a facility would not alter existing traffic control. A painted circle does not restrict current movement, but rather encourages drivers to drive more carefully and slowly while still making the same maneuvers as before. It should not be confused with a roundabout, which is a permanent circular intersection subject to FHWA and NYSDOT design guidelines.

Speed Reduction

The steering committee indicated that there is a high level of speeding that occurs in the parking lot and driveways of the Middle School. The location that was specifically noted was at the turn around the corner of the school. In order to mitigate this condition, a speed hump can be installed at this location. The speed hump will encourage drivers to reduce their speeds to 15 mph or slower. It should be included with a “slow, bump” sign, and tactile yield triangles striped before the hump; humps should be installed across both lanes of traffic in order to prevent vehicles from driving around.

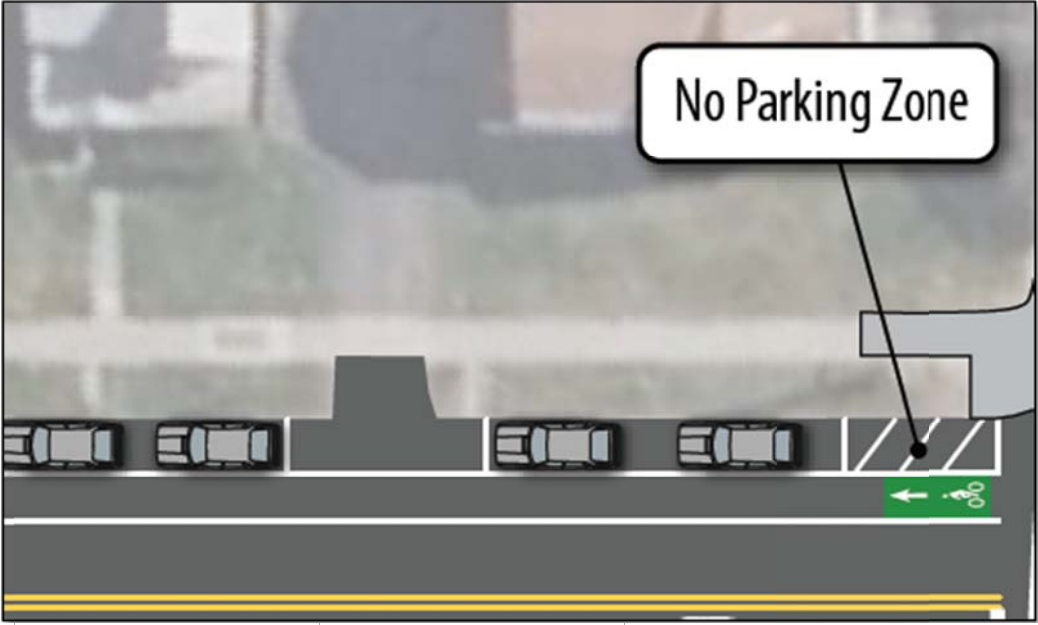
*Image 10: Speed humps are an effective speed reduction tool for low speed areas.
Source: Alta Planning + Design*



Driveway Hatching

One hindrance that the school campus poses on the surrounding neighborhood is caused by the queueing of buses along Birdsall Ave. When buses get too close to a driveway or cross-street, they significantly reduce the sight-distances of individuals attempting to pull out of these locations. It becomes a danger to the drivers, and any nearby pedestrians, cyclists, or other motorists. As a method of reducing this hindrance, driveways and cross-streets should be marked with a ‘No Waiting’ zone on either side of them, denoting to bus drivers and other motorists where they can queue for pick-ups and drop-offs. These zones can be hatched with white stripes for higher visibility, like the “No Parking Zone” illustrated in Figure 11 below.

In the long run, when Birdsall Ave is eventually reconstructed, widening the street to incorporate bus queueing bays on the south side of the road will create a more effective solution and should be considered.



*Figure 12: Parking Restriction Hatching Example
Source: Alta Planning + Design*

Driveway Signalization

For the Elementary School campus entrance, there is a traffic signal with associated pedestrian signals. These signals allow students to cross the street without the need for a crossing guard. The Middle School driveway, less than 100' south of this signal, is not signalized and, here, a crossing guard is used to assist students crossing the street.

It is recommended that a signal, similar to the one at the Elementary School, be installed at the intersection of the Middle School driveway and Route 9W. This will increase pedestrian comfort and mobility, especially during the hours when the crossing guard is not present. It will also slow down traffic coming down the hill from the middle school, and will alleviate the financial burden of the crossing guard. Most importantly, the signal would need to be timed to correlate precisely with the signal at the Elementary School. This will prevent any additional delays that the signal might otherwise cause, essentially turning the two signals into a single signal spread across two intersections. In the event that the adjacent Bayside development becomes reality, however, new alignments would likely be considered, which may make an additional signal unnecessary.



Figure 13: Short-term Middle School Campus Improvements
Source: Alta Planning + Design

Long-Term Parking Lot Improvements

With the proposed Bay-Side development bordering the northern side of the Middle School Campus, a great opportunity to improve the campus has arisen. Part of the development plan includes the construction of a road. This road will require at least one access point to the Middle School parking lots for emergency vehicle access to the development. Utilizing this new construction project, the middle school parking lot can be redeveloped to better facilitate flow of buses, vehicles, and pedestrians.

In Figure 13, a proposed redevelopment for the parking lot can be seen. As can be seen in the figure, the current bus parking area has been replaced with pull-off 'bus-bays' that will allow the buses to parallel park against the curb-sides of the new bus lane, and then easily pull back out into the lane and leave. In addition, the parking area has been separated from the bus lane by a new sidewalk and green space, and the parking lot has been transformed into a one-way, public thorough-fare with on-street parking for staff and visitors. Separating the parking lot from the bus lane will help create a more sustainable flow of traffic in the area during drop-off and pick-up times. A large amount of the parking lot has also been converted to green space that will create a more comfortable environment for pedestrians, such as students walking to the fields during gym class or staff and visitors walking from their parked vehicles.



*Figure 14: Proposed Middle School Parking Lot Redevelopment
Source: Alta Planning + Design*

3.1.4 Route 9W, Western Ave, and King St. Intersection Recommendations

In order for students to be encouraged to walk or bike to school, certain barriers to pedestrian and bicyclist travel will need to be overcome. One such barrier is the intersections of Route 9W, Western Ave, and King Street. Several concepts for implementing infrastructural changes at this location have been developed.

Textured On-street Parking

One of the primary influences that leads to the auto-oriented atmosphere of the location is the wide roadways. The on-street parking, especially when unused, contributes greatly to the visual effects of the wide roadways. In order to mitigate this, the parking spaces can be made to be visually or texturally different than the travel lanes. This will give the impression of a narrower roadway, while not diminishing the travel or parking service provided to motorists. It may also have a traffic calming effect that can increase the comfort of all users. The parking lanes can be made visually or texturally distinct through a number of different means, including:

- Textured asphalt
- Solid concrete
- Concrete pavers
- Traffic Paint
- Cobblestone or brick



Images 11 & 12: A similar project was conducted in Portland, OR, where parking lanes were converted to permeable pavers. In addition to the environment benefits, the visually contrasting parking lanes created a visual narrowing effect without actually narrowing the roadway.

Source: Alta Planning + Design

Upgrade & Re-align Pedestrian Crossings

At this location, there is currently only one crosswalk. It passes over Route 9W and provides access between the east side of 9W and the triangular block formed by the three streets. There are no other crosswalks providing access over either of the other roadways. In addition, the one crosswalk that does exist does not have a curb ramp on the east side, limiting access for individuals with mobility devices.

In order to mitigate this, a concept for new crossing locations has been developed. The locations can be seen on the plan-view documents on the following pages. The crosswalks should be high visibility, and each crosswalk should be ADA compliant, with curb ramps leading into them.

Curb Extensions

Curb Extensions are a traffic calming measure that brings the curbs into the travel or parking lanes in order to narrow the lanes, slowing traffic down, and reducing the distance needed to travel for crosswalks. There are a number of locations that curb extensions would be effective. One particular instance is at the intersection of Western Ave and Route 9W. A painted curb extension already exists here. Creating a physical curb extension with a concrete sidewalk here would greatly increase pedestrian comfort. It would also allow for street furniture, such as benches, café spaces, and street art. This would help convert this location from its current uncomfortable environment into a destination. The curb extensions should be made mountable in order to still allow turning truck traffic to pass through.



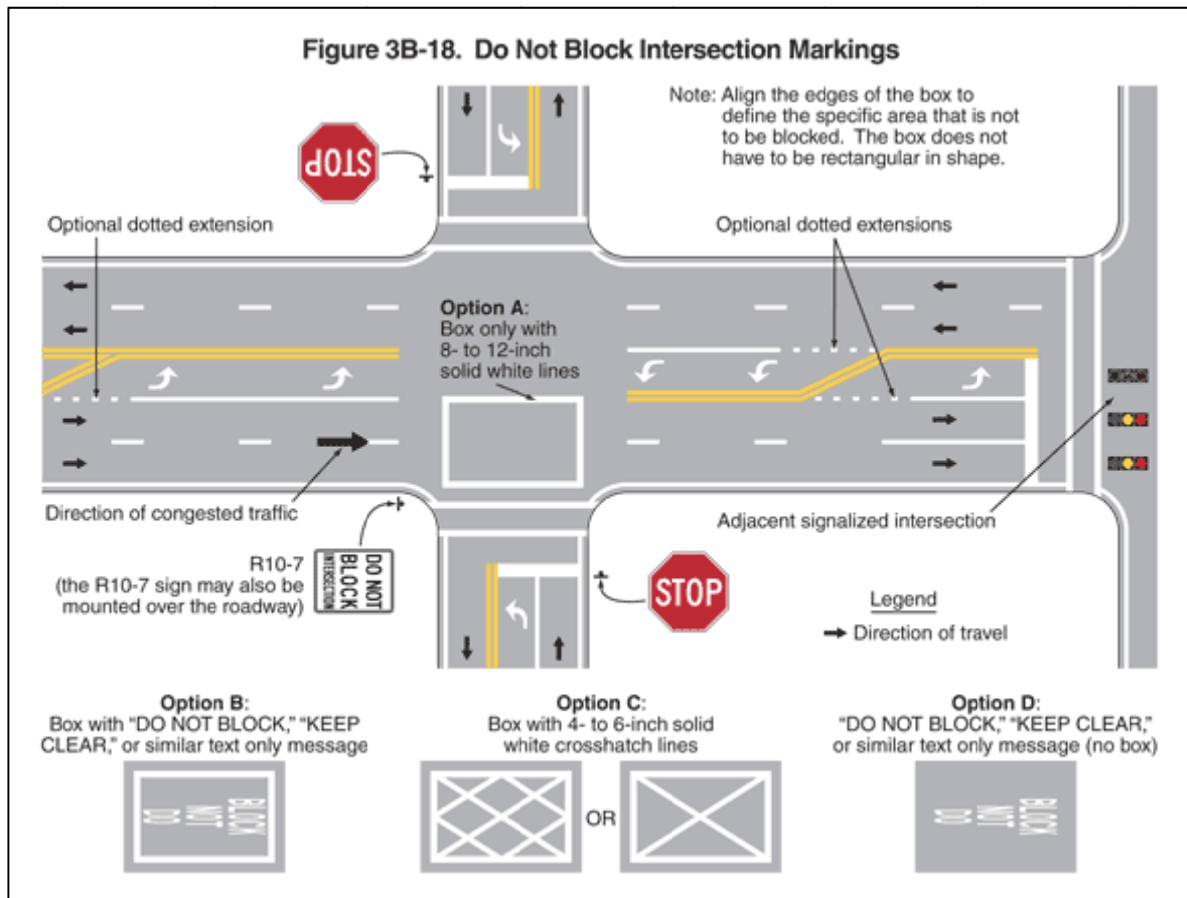
Image 13: Curb Extension

Example

Source: Alta Planning + Design

“Do Not Block Intersection” Signage and Markings

Locations, such as the intersections of King Street and Route 9W or Western Ave and Route 9W, where congestion tends to block access to or from side streets can be marked and signed to encourage motorists to not stop in the intersection. The MUTCD’s Figure 3B-18 outlines acceptable marking and signage that is associated with this intersection feature. Enforcing this restriction can help keep intersections clear, which can increase pedestrian and bicycle comfort at those intersections. The Town should pursue opening up conversations with the New York State Department of Transportation for implementing these features.



Top: Figure 15: MUTCD Figure 3B-18 – Do Not Block Intersection Markings Source: FHWA MUTCD

Left: Image 14: MUTCD Sign R10-7 “Do Not Block Intersection” Source: MODOT

Mini Traffic Circle Concept

The eastern most intersection within this area is the intersection of King Street and Western Ave. This intersection's geometry is complex and intricate, and is very difficult to cross or maneuver for pedestrians and bicyclists. The main point of confusion is the combination of the slip ramp and small median island, leaving a large area of asphalt with cars coming from all directions. The planning team developed two concepts to improve circulation for all modes at this intersection. The first option to mitigate these challenges is to create a mini traffic circle which will take the place of the slip ramp and island. In order to accomplish this, the curb cuts for the bank parking lot will have to be consolidated. The traffic circle can then be used as a pedestrian refuge island, with crosswalk. This set up can be seen in Figure 16.

The second concept for the intersection would keep the same general layout as the existing conditions, but enlarge the median island to better deflect traffic and more clearly delineate the path that vehicles should take. Similar to the first option, the island can then be used as a pedestrian refuge island. This concept can be seen in the diagram below.

Any vegetation that is added to the refuge islands should be made sure to not restrict motorists' vision.



*Image 15: Mini Traffic Circle
Example
Source: Alta Planning + Design*



Figure 16: King Street Triangle Alternative 1 – Mini Traffic Circle Concept
Source: Alta Planning + Design



Figure 17: King Street Triangle Alternative 2 – Enlarged Pedestrian Refuge Island
Source: Alta Planning + Design

3.1.5 Shared Use Path Recommendations

Shared use paths are paved paths that are accessible to a number of transportation modes. The most common uses are bicyclist and pedestrian use, though access can also be granted for equestrian use, cross-country skiing, skateboarding, rollerblading, and a number of other uses. They can provide a facility for both recreation, and transportation.

In order to grant better access to the schools for students who wish to walk or bike, two shared use path recommendations have been developed. The first is a path that will follow an electric utility right of way, leading north from the Middle School. It will start from the unofficial path that leads from the middle school and connects with Purdy Ave. This unofficial path should be formalized and paved. From there, a recreational easement will be required to grant access to the utility corridor, which will lead the paved path to Pleasant View Drive, making connections to a number of different neighborhoods along the way. This will be a much more ideal alternative to riding or walking along Route 9W, which is the only route that many students from these neighborhoods would have to take to schools.

Utilizing utility corridors with recreational easements provides great opportunities because the utility corridors are generally well graded, and may already have access roads or paths that are used for utility maintenance.

Additionally, an opportunity exists to create a recreation path around the perimeter of the Elementary school property that would provide students from both the Elementary and Middle Schools who are unable to bike to and from school a place to



*Image 16: The Walkkill Valley Rail Trail is a popular rail trail in Ulster County
Source: www.newpaltz.org*

learn bicycling skills and develop comfort using a bicycle.

The second shared use path recommendation is for a side-path along Route 9W. Side-paths are shared use paths that follow a street corridor, like a sidewalk would, but provide a space for both bicyclists and pedestrians, that is separated from motor vehicles. The recommended side-path would be at least 8' wide and would replace the western sidewalk and shoulder of Route 9W, from the northern driveway of the Middle School to Western Ave. This will greatly increase the comfort of Route 9W for students who will likely travel along it from the neighborhoods to the south. This would be considered a long term project, and in the meantime, the sidewalk on the western side of 9W should be maintained, and have gaps filled.

In order to incorporate the side-path with a proper landscaped buffer, the western shoulder should be removed and the eastern shoulder should be narrowed. The travel lanes can then be shifted east, and the side-path and buffer zone can be installed on the western side. As an additional bicycle facility, the eastern shoulder can be striped with bike lane markings. This will give bicyclists a choice between the two facilities.

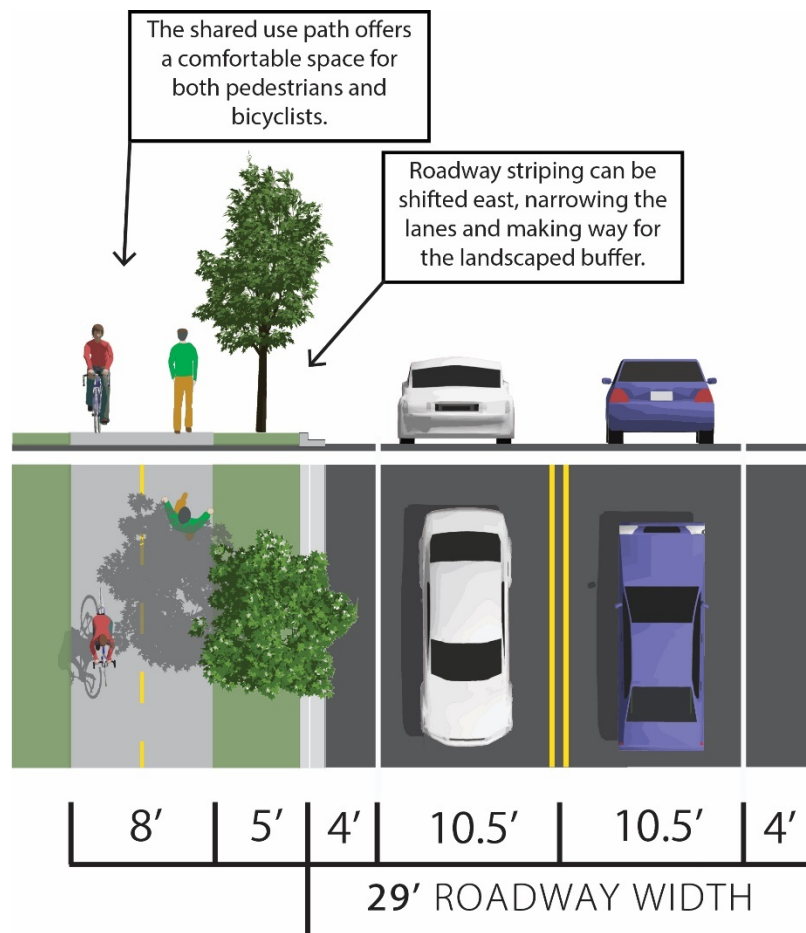


Figure 18: Route 9W Cross-section with Proposed Facilities

Source: Alta Planning + Design

3.1.6 On Street Bicycle Improvements

Although it may be appropriate for younger children to bicycle on the sidewalk, designated on-street bicycle facilities can provide a space for older or more experienced children to bicycle on-street. Particularly for older grade levels, as children become more confident in their cycling skills and ride at faster speeds, designated on-street facilities may help to reduce bicycle/pedestrian conflicts on congested walkways near schools. Use of on-street facilities is more appropriate for children with better bike handling skills, as they need to be aware to stay within the bike lane (if striped) or to the right of traffic (on signed routes), obey stop signs and other traffic signals, and to watch for traffic pulling out of side streets or driveways.

Three types of on-street bicycle improvements are outlined below. These include:

- Bike lanes
- Shared Lanes
- Bicycle Boulevards

While these treatments can be applied incrementally over time on specific roadway segments, it is important to note that these facilities function best as part of a larger network. It is also important to select an appropriate facility type and provide connectivity between each.

Bike Lanes

Bicycle lanes designate an exclusive space for bicyclists with pavement markings and signage. The bicycle lane is located adjacent to motor vehicle travel lanes and bicyclists ride in the same direction as motor vehicle traffic. Bicycle lanes are typically on the right side of the street (on a two-way street), between the adjacent travel lane and curb, road edge or parking lane. Striped shoulders can also be easily converted to bicycle lanes, though it is important to note that shoulders converted to bicycle lanes only give cyclists preference, and do not restrict vehicles from using them in emergency situations, such as vehicle breakdowns or allowing emergency vehicles to pass.



Figure 19: Bike Lanes
Source: Alta Planning + Design

Bike lanes are recommended for the following corridor segments:

- Plattenkill Rd./Western Ave. from Cross Road to Rt. 9W (24' curb to curb width)
- Rt. 9W south of Western Ave. (varies 24' to 40' curb to curb widths)

Future expansion of the bike lanes can also be emphasized north of the proposed 9W side-path (outlined in the previous section), which would align with the New York State Department of Transportation’s plan to create a bikeway along Rt. 9W.

Marked Shared Roadway

A marked shared roadway is a general purpose travel lane marked with shared lane markings (SLM) used to encourage bicycle travel and proper positioning within the lane. In constrained conditions, the SLMs are placed in the middle of the lane to discourage unsafe passing by motor vehicles, shown in the left lane in the adjacent image. On a wide outside lane, the SLMs can be used to promote bicycle travel to the right of motor vehicles, shown in the right lane in the adjacent image. In all conditions, SLMs should be placed outside of the door zone of parked cars. Marked Shared Roadways may be signed with Bike Route and/or May Use Full Lane signage. Shared lane markings are proposed on the following roadways:



*Figure 20: Shared Lane Markings
Source: Alta Planning + Design*

- Old Post Rd. (24’ curb to curb width)
- Prospect St. (20’ curb to curb width)
- Western Ave. west of Plattenkill Rd. (24’ curb to curb width)
- South St. (24’ curb to curb width)

Shared lane markings should not be posted on corridors with speed limits greater than 35 miles per hour. For expanses of the recommended corridors that do have higher speed limits, “Share the Road” signage should be posted with signed bike routes and striped shoulders as an alternative to the shared lane markings.



*Images 17 & 18: Left
MUTCD Sign R4-11
“Bikes May Use Full lane”
Source: MUTCD*

*Right: Share the Road
signage paired with bike
route signage on a rural
road Source: Flickr –
Richard Drdul*

Bicycle Boulevards

Bicycle boulevards are low-volume, low-speed streets modified to enhance bicyclist comfort by using treatments such as signage, pavement markings, traffic calming and/or traffic reduction, and intersection modifications. These treatments allow through movements of bicyclists while discouraging similar through-trips by non-local motorized traffic. Streets should contain a minimum

of three traffic calming enhancements if they are to be considered bicycle boulevards and should include a variety of traffic calming treatments. These traffic calming enhancements can include, but are not limited to, speed humps, curb extensions, mini traffic circles, and stop signs. Traffic diverters can also be used to prevent certain turning movements of motor vehicles at intersections.

Creating a bicycle boulevard network through the neighborhoods of Marlborough will help create comfortable environments for students to both bike and walk to school. Considering the low traffic volumes for the neighborhood streets in Marlborough, implementing a bicycle boulevard network should be highly feasible along many streets and provide great opportunities. Dubois Street and Orange Street present favorable conditions for starting the network. These two streets run in opposite directions, allowing more connections to be created by the network. They also run through the primary grid style neighborhood of the Town, and have certain geometric conditions that already help deter through traffic. The network can then be expanded onto streets, such as Church Street, and Hudson Terrace, increasing mobility. Traffic Calming recommendations can be seen in the diagram below.

Traffic Diverters, such as this one-way diverter, can be used to deter through traffic on the bicycle boulevards. A one-way diverter is recommended for the entrance of Dubois Street on Orange Street and a diagonal diverter is recommended for the intersection of Dubois Street and West Street. More information can be found on the layout of these diverters and more in the NACTO Urban Bikeway Design Guide:ⁱⁱⁱ



Figure 21: Range of possible treatments to create a Bicycle Boulevards - Source: Alta Planning + Design



Image 19: One-way Traffic Diverter
Source: Alta Planning + Design

3.1.7 Bicycle Boulevard Implementation Example

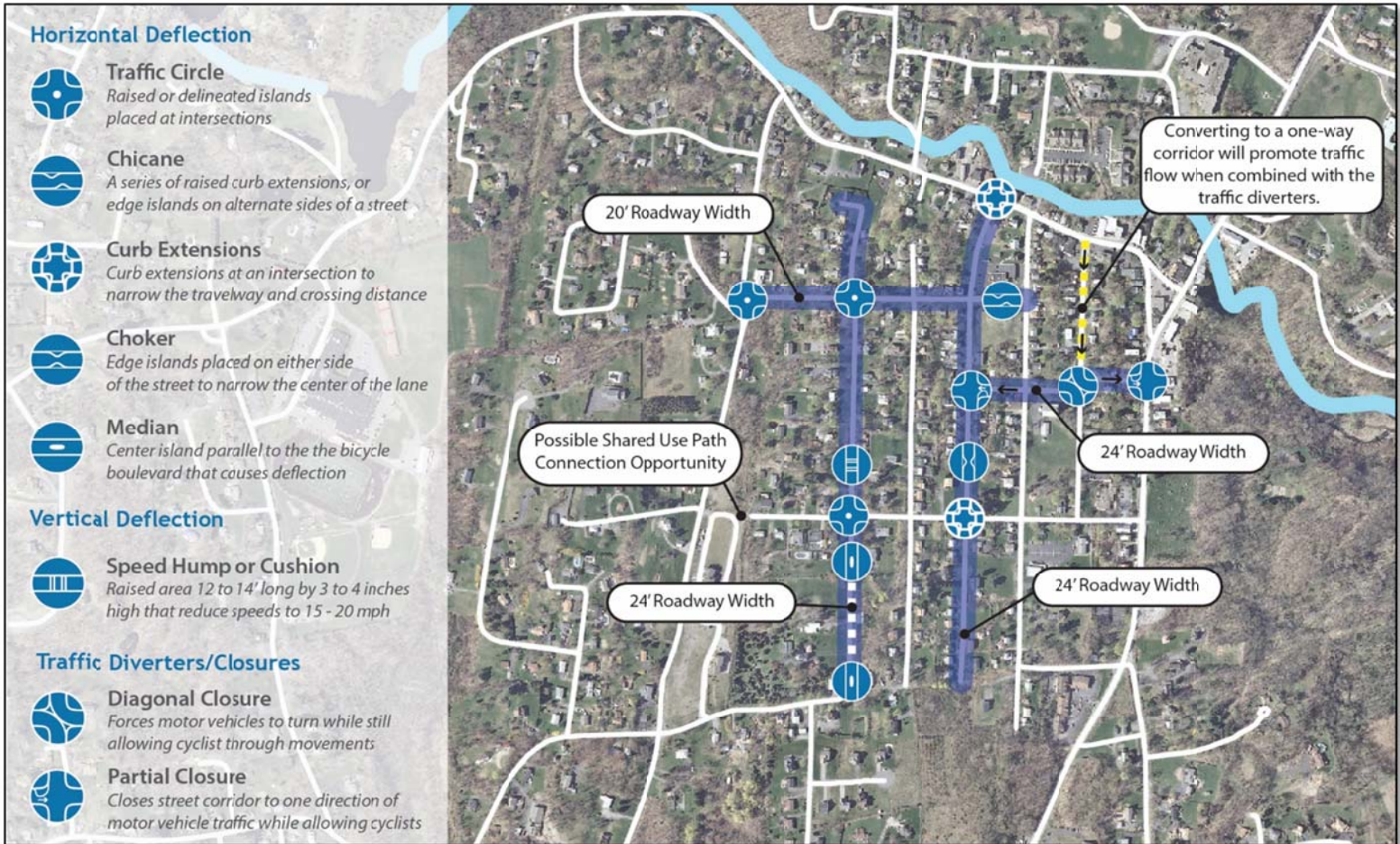


Figure 22 – Bicycle Boulevard Implementation Example (This concept will require further study and community input.)

3.1.8 Bicycle Parking Recommendations

Bike racks are not present on either school's campus. Providing a secure and convenient location for bicycle parking is one way to help encourage more students to bike to school. Attributes of good bike parking include:

- Protection from vandalism/theft
- Protection from damage to the bicycle
- Protection from weather
- Convenient to destination

A sufficient amount of parking must be made available so that bicycles are not crowded. The location must be convenient to the end destination, i.e. close to the building entrance. The location should also provide the owner with a sense that their property will be secure. If possible, racks should be covered to protect bicycles from rain and snow. A bike rack type to avoid is the "wheel holder" style of rack. These only support the bicycle by the wheel, potentially causing damage. Additionally, these types of racks do not allow the bike to be locked by the frame with a U-lock. The preferred bike rack design should keep the bike upright by supporting the frame, allow the bike to be locked by the frame, and allow one or both wheels to be secured. The post and ring style and inverted-u style, which are both shown above, illustrate bicycle rack styles that meet these criteria. More information on bicycle storage facilities and guidelines can be found in the Association of Pedestrian and Bicycle Professionals' 2015 publication of "Essentials of Bike Parking." This publication can be downloaded for free at the APBP's

official website: www.apbp.org

Recommendations for locations on the school campuses for the installation of bike racks can be found in Figure 23 in Section 3.1.9. Indoor locations such as an unused classroom or large storage room can be used to store bikes in addition or as an alternative to recommended outdoor locations. A faculty member could assist students as they bring



Images 20 & 21: The bike racks shown here model the preferred design to support the bicycle in an upright position without placing additional strain on the wheels. Source: Alta Planning + Design

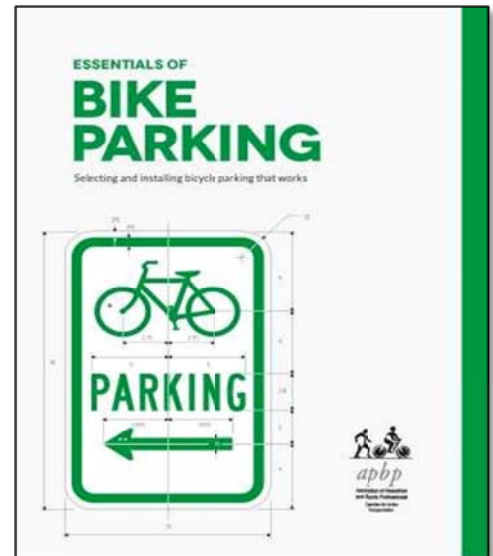


Image 22: The Essentials of Bike Parking Manual Source: APBP

bicycles inside before school begins. There are a number of different indoor storage options available that can help conserve space in constrained conditions, such as ceiling hooks and multi-level racks. Indoor storage provides the greatest protection from vandalism and weather. Priority locations for bike storage though is under roof canopies at both school campuses.

Community outreach should also be undertaken in order to place bike racks at key destinations throughout the town. Priority rack locations should include places where students travel to after school, such as parks or popular businesses. In order to promote bicycle use for the students in Marlborough, bike parking should be available at every destination a student may visit on their way to and from school. Zoning codes and planning policies can be altered to accomplish this. New commercial and residential developments can be required to assess, and provide parking for, the bicycle traffic they will generate.



*Image 23: Individual bike lockers found outside of BART stations in Oakland, CA
Source: Alta Planning + Design*



Images 24 & 25: Examples of a staggered indoor bike storage facility (left) and an outdoor bike storage enclosure shed facility (right).

Source: Alta Planning + Design

3.1.9 Bicycle Parking Recommendations Map

The following map shows suggested locations for installing bicycle parking on the school campuses. The top priority should be installing outdoor racks under existing structures, like the schools' canopies. Long term projects can include installing indoor bicycle storage inside unused classrooms or storage rooms. Installing bike racks near the sports facilities near the middle school can also encourage students and spectators to ride their bikes to sporting events or practices.

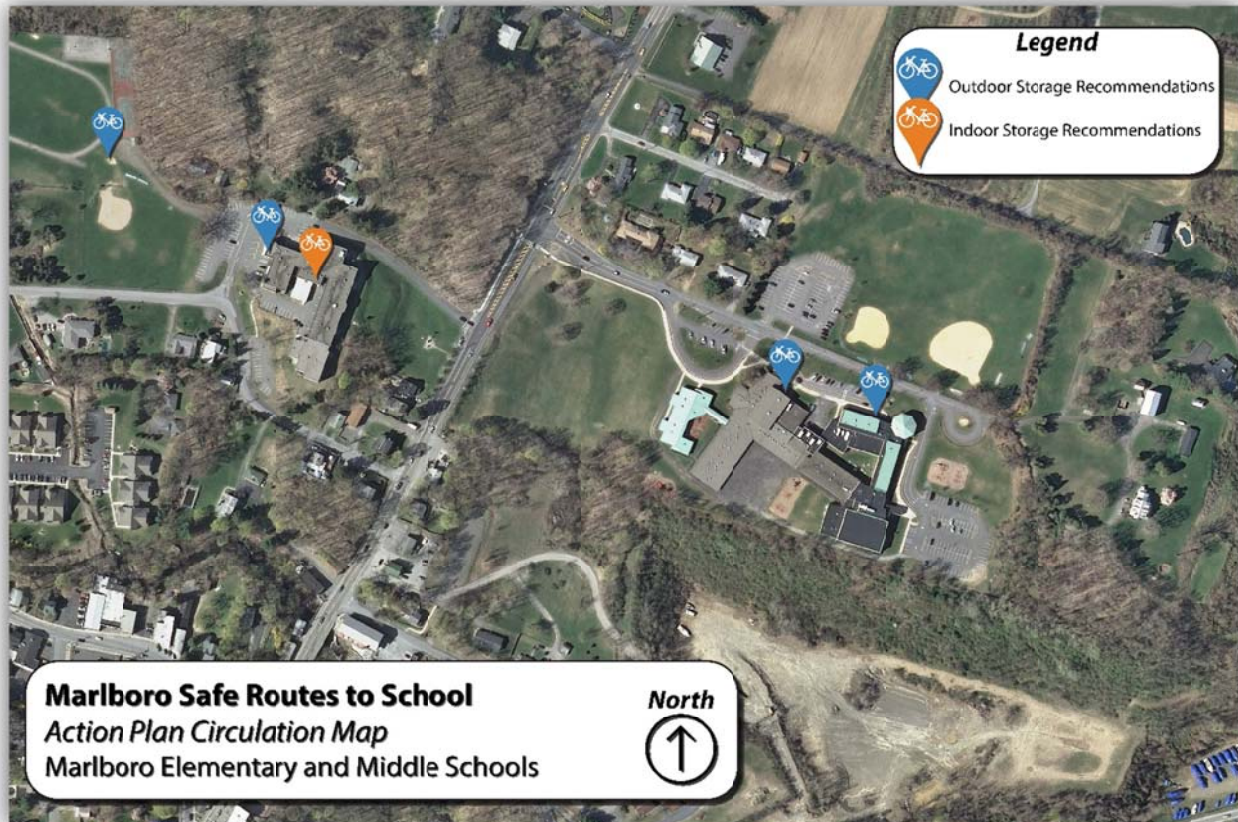


Figure 23: Bicycle parking recommendations map.

Source: Alta Planning + Design

3.2 School Improvement Plan Map

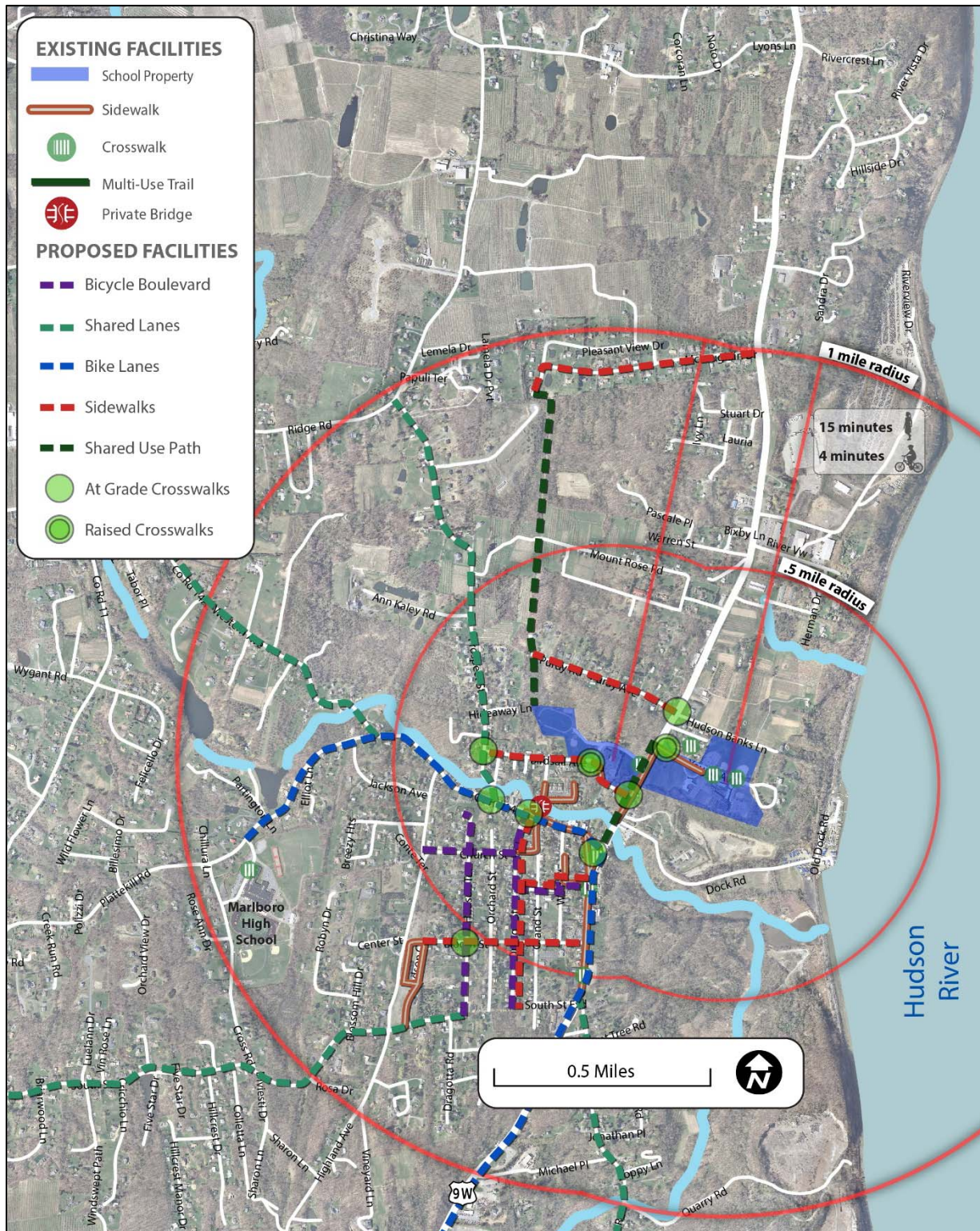


Figure 24: Recommendations Map

Source: Alta Planning + Design

3.3 Program Recommendations

While Safe Routes to School (SRTS) programs have historically focused on elementary school age children and their parents, working directly with students in middle and high school is an effective method of engaging students and reducing dependence on motor vehicles. Middle and high school students:

- Have more independence than younger students and can safely walk, bike, or take the bus without parent supervision.
- Tend to travel further for school, sports, and other activities.
- Have more freedom to make their own transportation choices.
- Can be more influenced by their peers.
- Are looking for opportunities to add to their resume for college.
- May seek leadership opportunities to prepare for college or for entering the workforce.
- May be required to undertake a service learning project or participate in community service.

Middle School students are more likely to make their own transportation decisions and are full of new ideas to share with peers. Developing teen interest in the environment and harnessing their energy is a great way to promote sustainable transportation and develop new materials that can be used to promote the program to younger grades.

3.3.1 Education Programs

The following list of education program recommendations are categorized by suitability for either Elementary School-age students, Middle School-age students, or both.

Bike Rodeo (Elementary)

The School District, along with the Town and Village, should collaborate and conduct annual bike rodeos. These could be conducted as after school or Saturday events, or even with the National Bike to School Day activities. A bicycle rodeo provides children with a basic understanding of the rules of the road; educates those children and their parents about elementary bike safety; gives trained personnel a chance to look over the equipment the kids are riding; and involves parents, teachers, and/or local civic organizations in a worthwhile activity. A bicycle rodeo involves "stations" that teach skills, such as:

- Looking over a shoulder without weaving
- Fast-braking without skidding
- Dealing with traffic at intersections
- Signaling

A bike rodeo can be held in the parking lots of the schools. As an additional activity, a 'no-cars on campus' event can be held where everyone, including faculty and staff,

can find alternative ways to get to school, and then the empty parking lots can be used to host the bike rodeos.

Cornell University offers an organizers guide to conducting a bike rodeo which can be found here:

http://www.bike.cornell.edu/pdfs/Bike_Rodeo_404.2.pdf

Walk/Bike Lesson Plans (Elementary & Middle)

A variety of existing lessons and classroom activities are available to help teach students about walking, bicycling, health, and traffic safety. These can include lessons given by law enforcement officers or other trained professionals. They can also be lesson plans developed by teachers. Example topic lessons are: Safe Street Crossing; Helmet Safety; Rules of the Road for Bicycles; and Health and Environmental Benefits of Walking and Biking.

The lessons should be grade-appropriate and can be incorporated into the subjects of health, environment, social science, math, and physics. Physical Education classes are also a popular class for teaching students how to ride a bike and obey traffic laws for bicyclists and pedestrians. Another alternative is taking the students for a walk, and showing them how to safely cross roads with a hands-on approach.

Sample lesson plans are available at a number of Safe Routes to School program websites:

The National Highway Traffic Safety Administration:

<http://www.nhtsa.gov/people/injury/pedbimot/bike/Safe-Routes-2002/classact.html>

New York State Department of Transportation:

<https://www.dot.ny.gov/divisions/operating/opdm/local-programs-bureau/srts/srts-curriculum>

Alameda County SRTS Educator Guide:

<http://www.alamedacountysr2s.org/tools-and-resources/#educatorguide>

School Zone Traffic Safety / Share the Road Campaign (Elementary & Middle)

A School Zone Traffic Safety Campaign creates awareness of students walking and



*Image 26: Traffic safety education
Source: Alta Planning + Design*



*Image 27: Students help with a Share the Road campaign
Source: Alta Planning + Design*

bicycling to school. A safety campaign is an effective way to reach the general public and encourage drivers to slow down and look for students walking and biking to school. A School Zone Traffic Safety Campaign uses signs and banners located near schools (for example, in windows of businesses, yards of people’s homes and print publications) to remind drivers to slow down and use caution in school zones. This can also be coupled with a “share the road” campaign, which is a commonly known phrase in New York. This campaign can be kicked off at the start of each school year or in conjunction with special events, such as Walk and Bike to School Month, which takes place in October.



*Image 28: Keep Kids Alive, Drive 25 Sign
Source: [keepkidsalivedrive25.org](http://www.keepkidsalivedrive25.org)*

Banners and signs can be effective tools to remind motorists about traffic safety in school zones. Large banners can be hung over or along roadways near schools with large, legible letters cautioning traffic to slow down, stop at stop signs or watch for students in crosswalks with memorable messages such as:

- Give Our Kids a Brake
- Keep Kids Alive Drive 25 (<http://www.keepkidsalivedrive25.org/>)
- Share the Road (<http://sharetheroad.org/>)

3.3.2 Encouragement Programs

The following list of encouragement program recommendations are categorized by suitability for either Elementary School-age students, Middle School-age students, or both.

Golden Sneaker Contest (Elementary)

The Golden Sneaker Contest takes the concept of a Walk & Roll to School Day and turns it into a competition between homeroom classes that rewards the classroom with the greatest percentage of green trips (active and shared modes) in a given time period, such as two weeks or one month. Typical tally sheets can be adapted for use in middle and high schools and additional activities can be incorporated into classes, such as calculating total pounds of CO2 saved during the contest. The winning classroom receives a Golden Sneaker trophy.



*Image 29: Walk and Bike to School Day celebrations.
Source: Alta Planning + Design*

An additional incentive for teens to participate could be a smoothie or pizza party for the winning class. The contest also provides an opportunity to promote a social media campaign at participating schools.

Walk and Bike to School Day/Week/Month

(Elementary & Middle)

Walk and Bike to School Day/Week/Month are special events encouraging students to try walking or bicycling/biking to school. The most well-known of these is International Walk to School Day, a major annual event that attracts millions of participants in over 30 countries in October.

Walk and bike to school days can be held yearly, monthly, or even weekly, depending on the level of support and participation from students, parents and school and local officials. Some schools organize more frequent days – such as weekly Walking/Wheeling Wednesdays or Walk and Roll Fridays – to give people an opportunity to enjoy the event on a regular basis. Parents and other volunteers accompany the students, and staging areas can be designated along the route to school where groups can gather and walk or bike together. These events can be promoted through press releases, articles in school newsletters, and posters and flyers for students to take home and circulate around the community.

International Walk to School Day - <http://www.walktoschool-usa.org/>.

Friendly Walking/Biking Competitions (Incentive Programs) (Elementary & Middle)

Contests and incentive programs reward students by tracking the number of times they walk, bike, carpool, or take transit to school. Contests can be individual, classroom competition, or inter-school competitions. Local businesses may be willing to provide incentive prizes for these activities. Students and classrooms with the highest percentage of students walking, biking or carpooling compete for prizes and “bragging rights.” Contests can center around walking or riding a familiar distance, such as the distance from Marlborough to NYC, the length of the Hudson River, or the distance across New York State.

Small incentives, such as shoelaces, stickers, and bike helmets, can be used to increase participation. It can also be effective to allow different grades and schools (elementary school vs. middle school) to compete against each other in a mobility challenge.

Programs can be modified for students who live too far away from school to walk or bike. Modification can include walking or biking at lunch time or gym class. Also, students can count the miles walked or biked to the bus stop or with parents and guardians outside of the school day. Increasing parent participation in the program, such as having parents ride with students to school or encouraging parents to organize after dinner walks every night, is likely to have a large impact on the students, especially the students of the lower grades.



Image 30: Example of a Pollution Punch Card Source: Bicycle Transportation Alliance Oregon

Other Incentives (Elementary & Middle)

Incentives can be used to encourage participation in activities and events and for long-term involvement in sustainability efforts on campus. Raffles and awards that include larger giveaways tend to be more appealing to older students, even if fewer people receive the prize.

Effective incentives for teens include:

- Food at meetings or events
- Gift cards
- Technology, such as an iPad, SmartHalo Bike GPS systems, or GoPro Cameras for larger competitions
- Bike lights
- Bike bells or horns
- Key chains
- Reusable bags with items, such as Bike to School Day giveaways
- Pencils or other useful school-related items

Other types of incentives:

- Letters of recommendation
- Community service hours
- Credit for service learning projects
- Internship credit
- Special privileges, such as tickets to school events or games, first place in

SAFE ROUTES TO SCHOOLS
 P.O. Box 201, Forest Knolls, CA 94932 • 415.448.4113
 MARIN COUNTY
 saferoutetoschools.org

Name: _____
 Grade: _____
 Phone: _____
 Parent's signature: _____

How to Play Frequent Rider Miles

1. Write the date at the beginning of each week.
2. Every day you walk or bike to or from school put a \
3. Every day you walk, bike, carpool* or take the bus put a slash / in the box for that day of the week.
4. Thus if you walk, bike, carpool, or take the bus both ways you'll put an X in the box for that day of the week.
5. When you have 20 points, have your card checked for your reward and get your name in the raffle to win a new Trek bicycle and other prizes.
6. Continue to use your card, follow steps 1-5 again for more rewards and chances to win valuable prizes.
7. Keep filling in your card until the end of the contest.
8. Be sure to have your parent's signature on your card.

*A carpool is two or more families sharing a ride to school

Frequent Rider Miles
 20 points to win!

= 1 point traveling to school
 = 1 point traveling from school = 2 points traveling both ways

Start Date	M	T	W	Th	F

I (circle one or more) walk, bike, carpool, or take the bus to school.

TOTAL POINTS _____
 Frequent Rider Miles sponsored by **TREK**

Image 31: Example of a Frequent Rider Miles sheet Source: Marin County Safe Routes to School



Image 32: Giving away helmets can be exciting for students and encourage safe riding practices at the same time.

Source: Alta Planning + Design

line, etc.

Teaming with a local bike shop to organize a bike giveaway for a grand prize (such as the individuals who walked or biked the most during a year) can draw in even larger participation. The bike may not even need to go to the students. It can be organized so that the bike shop donates a new bike to children in need, or some variation of that, for every 500 miles that the schools ride as a combined value. This could help teach the students that even a small act, when combined with everyone else's effort, can make a big change in someone else's life.

Suggested Route to School Maps (Elementary & Middle)

Suggested Route to School maps show stop signs, signals, crosswalks, sidewalks, trails, overcrossings, and crossing guard locations around a school. These can be used by families to identify the best way to walk or bike to school.

Liability concerns are sometimes cited by cities or school districts as reasons not to publish walking route maps. While no walking route will ever be completely free of safety concerns, a well-defined route should provide the greatest physical separation between walking students and traffic, expose students to the lowest traffic speeds and have the fewest roadway crossings. Route to school maps should be updated annually, especially in the first few years of implementation and as infrastructure improvements are made.

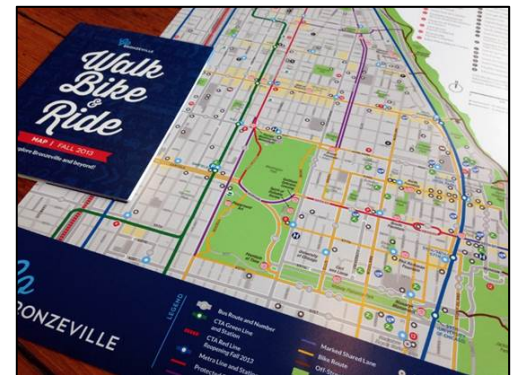


Image 33: Biking and walking maps can help students find comfortable routes to get to school.

Source: Alta Planning + Design

Walking School Buses (Elementary)

Parents and guardians often cite distrust of strangers and the dangers of traffic as reasons why they do not allow their students to walk to school. Walking School Buses are a way to make sure that children have adult supervision as they walk to

school. Walking School Buses are formed when a group of children walk together to school and are accompanied by one or two adults (usually parents or guardians of the children on the “bus”). As the walking school bus continues on the route to school they pick up students at designated meeting locations.

Walking school buses can be informal arrangements between neighbors with children attending the same school or official school-wide endeavours with trained volunteers and structured meeting points with a pick-up timetable. In this setting, there is opportunity for older siblings to walk their brothers or sisters to local elementary schools, or lead larger walking school buses, either before or after school.

More information about Walking School Buses is available at the end of this document. Additionally, a Walking School Bus “how to” guide is available from the National Center for Safe Routes to School (http://www.saferoutesinfo.org/guide/walking_school_bus/index.cfm).



Image 34: Students participate in a walking school bus.

Source: Alta Planning + Design

Bike Trains (Elementary & Middle)

A bike train is a group of students riding to school together, usually with adults. However, in middle and high schools, students are old enough to ride on their own. Bike trains can be organized through classes or using an online tool and students can pick up their peers along the way. Holding a bicycle safety class is a great first step to launching a bike train as it provides safety skills that students can practice on their rides to and from school.



Image 35: Students participate in a bike train.

Source: Alta Planning + Design

Bike trains can also help to reinforce helmet use among students. Schools should enforce the helmet law for students participating in the bike train. As high school students with helmets become a frequent sight, peers will also be encouraged to wear a helmet. It provides students with an opportunity to lead by example.

Messaging and Outreach (Elementary & Middle)

To promote sustainable transportation choices to youth, communicate using the mechanisms students use and consider appropriate messages. As technology continues to advance, methods of communication do as well. Students are more likely to use their phone than their computers and communicate via text message or app. Students frequently switch to the latest social media platforms and therefore any safe routes to school program should determine which platform is currently in use but also be prepared for students to switch again mid-stream.

Social Media (Elementary & Middle)

Social media can be used to promote clubs, events, and activities that focus on green transportation choices. Students, clubs, and schools may have a Facebook page, Twitter account, or Instagram for photos. It is beneficial to have a broad social media presence since not all teens will use all of these sites.

Promotional Videos (Elementary & Middle)

Videos are a great promotional tool that can engage students at every step in the process. Students can be involved in the development, filming, editing, and promotional phases.

Consider creating a YouTube Channel to highlight videos developed by local students and include others that students find inspirational.

If your school or district has media classes, consider hosting a video contest or have students work together to develop short Public Service Announcements about active transportation. The San Ramon Valley Street Smarts' *Be Reel Middle School Video Contest* has some good resources and examples.⁶

Sample videos developed by or for teens include:

- Alameda County Safe Routes to Schools student-created videos ⁷
- Marin Safe Routes to School promotional videos ⁸
- Drake High School Distracted Driving video⁹
- Spare the Air Youth Partner Videos¹⁰

Websites and Blogs (Elementary & Middle)

Websites and blogs can be a good way of getting students involved in promoting activities and events. They can support for active transportation modes by showing others that peers are choosing these modes. Students can take turns posting short articles about upcoming or just past events, or about the benefits of exercise and active transportation.

Example blogs include:

- Safe Routes to School National Partnership blog¹¹
- San Francisco SRTS blog¹²

Websites that highlight youth involvement in climate change and transportation include:

- The *Alliance for Climate Education* suggests ways youth can take action to fight climate change through their Do One Thing (DOT) pledge challenge.¹³
- The US Environmental Protection Agency's *A Student's Guide to Global Climate Change* provides information and tools to learn about climate change.¹⁴

⁶ Be Reel Middle School Video Contact. http://www.street-smarts.com/programs/video_contest.htm

⁷ Alameda County Safe Routes to School. <http://alamedacountysr2s.org/news-room/videos/>

⁸ Marin County Safe Routes to School. https://www.youtube.com/playlist?list=PLPi9Vgu1V2I91a5Ko-t6bKmvFXiz7_WUz

⁹ Peer Resource, Distracted Driving Campaign 2013. Sir Francis Drake High School. <https://www.youtube.com/watch?v=3QM-O7oC-Gg>

¹⁰ Spare the Air Youth. <http://www.sparetheairyouth.org/videos>

¹¹ Safe Routes to School Partnership Blog. <http://saferoutespartnership.org/blog>

¹² San Francisco Safe Routes to School Blog. <http://sfsaferoutes.org/news/>

¹³ Alliance for Climate Education. <https://acespace.org/>

¹⁴ A Student's Guide to Global Climate Change. <https://www3.epa.gov/climatechange/kids/index.html>

- *Young Voices for the Planet* features a film series profiling youth for their low greenhouse gas lifestyles and provides discussion questions for teachers. ¹⁵
- *ManagEnergy Kid's Corner* is a project of the Intelligent Energy Europe and includes curriculum materials and activities about reducing fossil fuel and energy use. ¹⁶
- *Eco2School* team works with classes, clubs, and student leaders to develop a comprehensive climate change education program that focuses on student leadership and empowerment. ¹⁷

3.3.3 Enforcement Programs

Radar Trailer

Speed Radar Trailers can be used to reduce speeds and enforce speed limit violations in known speeding problem areas. In areas with speeding problems, police set up an unmanned trailer that displays the speed of approaching motorists along with a speed limit sign. The town can either purchase a speed radar, or rent one from the state, county, or other local municipalities.

Speed radar trailers can be used as both an educational and enforcement tool. By itself, the unmanned trailer serves as effective education to motorists about their current speed compared to the speed limit, especially in school zones. As an alternative enforcement measure, the police department may choose to station an officer near the trailer to issue citations to motorists exceeding the speed limit. Because they can be easily moved, radar trailers are often deployed on streets where local residents have complained about speeding problems. If frequently left in the same location without officer presence, motorists may learn that speeding in that location will not result in a citation and the strategy can lose its benefits. For that reason, radar trailers should be moved frequently. Radar trailers and police enforcement are recommended on Route 9W, near the school driveways, Birdsall Road, and Western Ave.



Image 36: Example of a radar trailer

Source: Alta Planning + Design

¹⁵ Young Voices for the Planet. <http://www.youngvoicesonclimatechange.com/>

¹⁶ Manage Energy Kids Corner. <http://learn-energy.managenergy.net/education/kidscorner/en/o11/home.htm>

¹⁷ Eco2School. <http://climateprotection.org/our-work/eco2school/>

3.3.4 Evaluation Programs

Perform Annual Hand Tally and Parent Surveys

Since 2005, the federal Safe Routes to School program has set aside federal funding to help states, cities, towns and schools increase the number of students walking and biking to school. One requirement of receiving this money is that schools must perform annual hand tally and parent surveys so that the national program can track the effectiveness of the various programs across the country.

The National Center for Safe Routes to School has developed a recommended methodology, survey and count forms and reporting forms (<http://www.saferoutesinfo.org/guide/evaluation/index.cfm>). A teacher administers the hand tally survey to the students in their classroom. The parent surveys are either mailed or sent home to parents or guardians. The National Database (<http://www.saferoutesdata.org/>) stores the data and provides simple analysis reports. The Marlboro Elementary and Middle Schools should perform annual counts to assist in future grant applications and comply with future funding sources.

Walk Audits

Youth can participate in a walk audit/assessment around their school to identify traffic safety concerns and potential solutions, while learning about urban planning and civil engineering. Ideally, the school can partner with City planners and engineers, who can explain their roles to develop and improve transportation infrastructure.

Students can help design solutions using SketchUp or other online tools, and can write letters of support for grant applications to help fund identified projects.

Section 4. Next Steps

The next steps presented below are intended to allow for a flexible approach to implementation. The decision to undertake a project or program should be made based on the available resources of the school team, the municipality, UCTC, and the NYSDOT.

\$ = Minimal to \$500 Volunteer effort and low funding required

\$\$ = \$500 to \$10,000 Moderate amounts of funding required

\$\$\$ = \$10,000 + High amounts of funding required

Priority Recommendation # 1	Identification of SRTS Facilitator & Initiation of Basic Bicycling and Walking Safety Education
Cost	\$
Groups	School Administration, Local Advisory Committee, and UCTC
Description	The school should identify a staff member or volunteer (possibly an interested parent) to facilitate the initiation of the Safe Routes to School Program for the school.
Priority Recommendation # 2	Formation of Safe Routes to School Task Force & Program Promotion
Cost	\$
Groups	Safe Routes to School Facilitator and School Administration
Description	The facilitator should reach out to interested persons to begin the formation of an informal SRTS taskforce for the school. The taskforce should include members of the local advisory committee, parents, teachers, school administration, and local residents.

Priority Recommendation # 3		Route 9W Side Path
Cost	\$\$\$	
Groups	Safe Routes to School Taskforce, School Administration, NYSDOT, and the Town	
Description	Install the shared use path on the west side of Route 9W. The path should include high visibility crossings at intersections and have a curbed and landscaped buffer between the path and the travel lanes. This will greatly increase pedestrian and bicycle comfort along 9W, opening up access to both schools. The path should extend from Western Ave to the crossing at Young Ave.	

Priority Recommendation # 4		International Walk and Bike to School Day Events
Cost	\$	
Groups	Safe Routes to School Taskforce and School Administration	
Description	International Walk to School Day is annually held on the first Wednesday of October and can serve as the kickoff event for the Safe Route to Schools program and be used to raise awareness and enthusiasm. Events can be held including the kick-off of social media awareness around the program, the start of a walking competition, and an assembly can be held. The enthusiasm can be rebuilt in the spring with similar programs surrounding National Bike to School Day, annually held on the first Wednesday in May. Introducing other suggested programs throughout, such as the bicycle rodeos, the year should also be a priority. More information can be found at http://www.walkbiketoschool.org/ . Enthusiasm for the programs can be built up during the weeks beforehand with educational programs in classrooms and sending flyers home, advertising the events and emphasizing traffic laws.	

Priority Recommendation # 5	Pedestrian Improvements
Cost	\$\$\$
Groups	Safe Routes to School Taskforce, School Administration, and the Town
Description	Install the recommended pedestrian facilities and pedestrian crossing improvements throughout Marlborough. The highest priority crossings should include the Old Post Road crossing and the raised crosswalk on the Elementary School campus. Priority sidewalks should correlate with the proposed bicycle boulevards and the around the schools campuses.

Priority Recommendation # 6	Bicycle Rack Recommendations
Cost	\$
Groups	Safe Routes to School Taskforce and School Administration
Description	Install the recommended outdoor bicycle parking infrastructure on both campuses, meeting proper bicycle rack standards as outlined in the prior sections. As an alternative, indoor facilities can be installed if the necessary space can be identified.

Priority Recommendation # 7	Utility Corridor Shared Use Path
Cost	\$\$\$
Groups	Safe Routes to School Taskforce, Utility Company, School Administration, and the Town
Description	Formalize the soft-surface ‘goat path’ in the rear of the Middle School with a paved shared use path, and continue the path by following the utility corridor north, connecting with Purdy Ave, Mt. Rose Rd., Prospect Street, and Pleasant View Drive.

Priority Recommendation # 8	Middle School Campus Improvements
-----------------------------	--

Cost	\$\$
Groups	Safe Routes to School Taskforce, School Administration, and the Town
Description	Install the outlined sidewalk improvements, speed humps, and parking lot improvements. This will increase the circulation of the campus for all users and increase pedestrian comfort for students that walk to school.

Priority Recommendation # 9	Bicycle Boulevard Network
-----------------------------	----------------------------------

Cost	\$\$\$
Groups	Safe Routes to School Taskforce, School Administration, and the Town
Description	Convert Dubois Street and Orange Street into Bicycle Boulevards. This should include installing sidewalks, traffic calming features, and traffic diversion methods. This will provide the adjacent neighborhoods with a bicycle and pedestrian friendly route to 9W and Western Ave.

Priority Recommendation # 10	King St. Area Improvements
------------------------------	-----------------------------------

Cost	\$\$
Groups	Safe Routes to School Taskforce, School Administration, NYSDOT, and the Town
Description	Install new pedestrian crossings, overcoming a major obstacle in Marlborough for pedestrian travel and open up access to the schools. Curb extensions should also be installed, and one of the two presented alternatives should be installed to create a more intuitive motor vehicle circulation.

Cost	\$\$
Groups	Safe Routes to School Taskforce, School Administration, and the Town
Description	Install a second wave of sidewalks to continue to improve the pedestrian environment in Marlborough. After the sidewalks recommended in Priority Recommendation # 5 are installed, sidewalks connecting the new utility trail to Route 9W and throughout the neighborhoods of Marlborough should be focused on. These should also correlate with the installation of new pedestrian crossings.

Planning Level Costs and Potential Funding Sources				
Recommendations	Unit	Quantity	Cost	Total
Sidewalks	Linear Foot	10200	\$65	\$663,000
High Visibility Crosswalks	Each	7	\$1,500	\$10,500
School Zone Crosswalks	Each	2	\$3,000	\$6,000
Raised Crosswalks	Each	2	\$7,100	\$14,200
Shared Lanes	Linear Foot	18500	\$8	\$148,000
Bicycle Boulevards	Linear Foot	3400	\$20	\$6,800
Shared Use Path (paved)	Linear Foot	6200	\$100	\$620,000
Bike Racks (10 Bike Capacity)	Each	5	\$500	\$2,500
Bike Lockers	Each	4	\$1500	\$6,000

4.1 Priority Recommendations Map

The numbers in the map below correspond to the priority recommendation numbers in the tables on the previous pages.

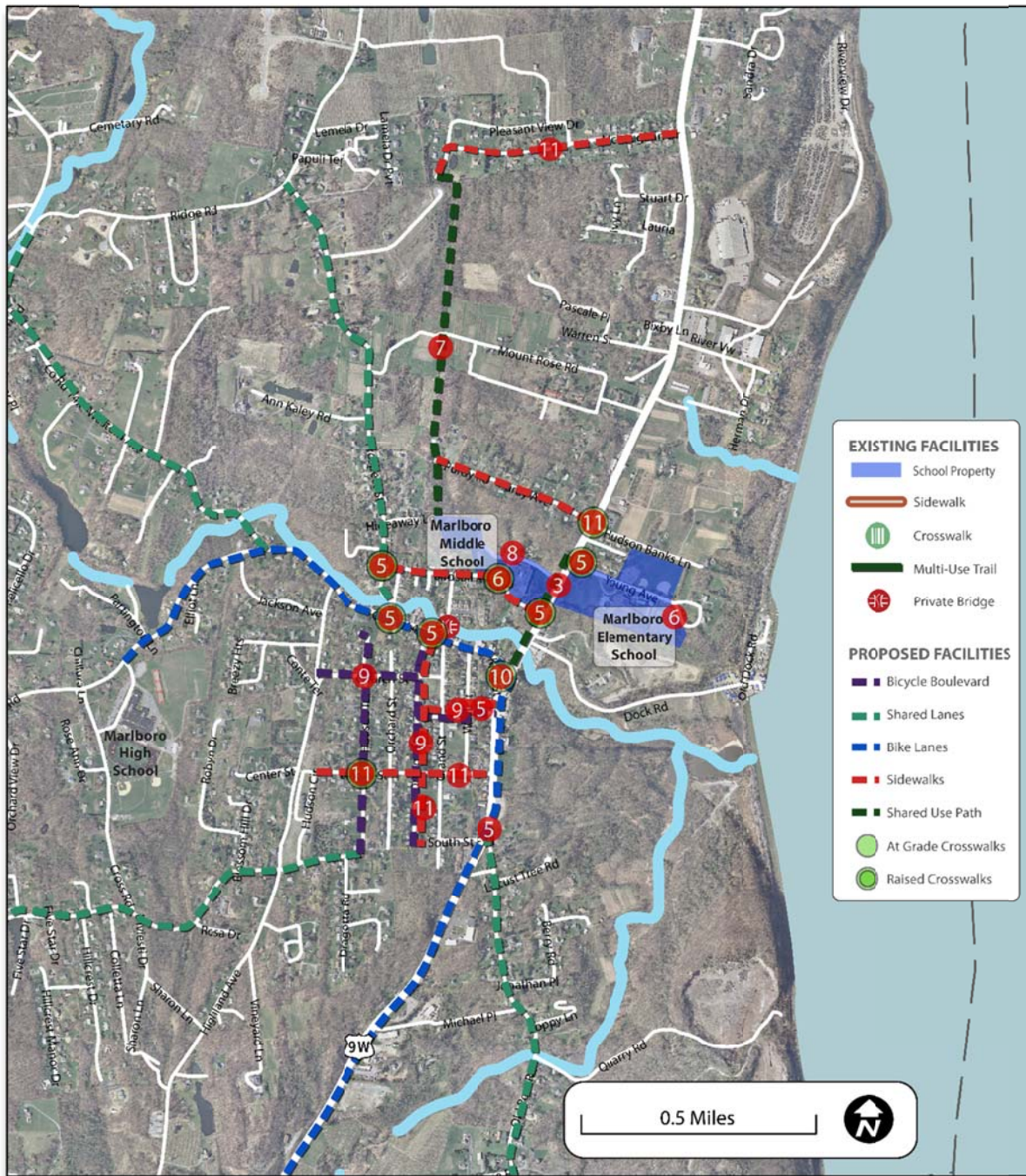


Figure 25: Priority Recommendations Map
Source: Alta Planning + Design

Section 5. Funding Sources

The following section outlines sources of funding for bicycle, pedestrian, and safe routes to school projects in New York State. Federal, state, local, and private sources of funding are identified. The following descriptions are intended to provide an overview of available options and do not represent a comprehensive list. Funding sources can be used for a variety of activities, including: planning, design, implementation, encouragement, and maintenance. Additionally, the School District should work with the district municipalities to take advantage of funding provided for other roadway projects, such as repaving and water/sewer main replacement to install bicycle and pedestrian accommodations. It should be noted that this section reflects the funding available at the time of writing. The funding amounts, fund cycles, and even the programs themselves are susceptible to change without notice.

Federal transportation funding is typically directed through state agencies to local governments either in the form of grants or direct appropriations, independent from state budgets. Federal funding typically requires a local match of 20%, although there are sometimes exceptions, such as the recent American Recovery and Reinvestment Act stimulus funds, which did not require a match.

The following is a list of possible Federal funding sources that could be used to support construction of many pedestrian and bicycle improvements. Most of these are competitive and involve the completion of extensive applications with clear documentation of the project need, costs, and benefits. However, it should be noted that the FHWA encourages the construction of pedestrian and bicycle facilities as an incidental element of larger ongoing projects. Examples include providing paved shoulders on new and reconstructed roads, or building sidewalks, on-street bikeways, trails, and marked crosswalks as part of new highways.

FIXING AMERICA'S SURFACE TRANSPORTATION ACT (FAST ACT)

The FAST Act was signed in 2015 to provide funding for five years, starting in the federal fiscal year of 2016, for highway and transit programs. This funding source replaces the Moving Ahead for Progress in the 21st Century (MAP-21), and like its predecessor, encompasses the Surface Transportation programs (STP), Congestion Mitigation and Air Quality Program (CMAQ), Transportation Alternatives Program (TAP), Safe Routes to School Program (SRTS), Recreational Trails Program (RTP), and the Transportation Enhancement Program (TE).

One of the largest changes created by the FAST Act is the introduction of the Surface Transportation Block Grant Program (STBG), which is replacing the STP under MAP-21. The TAP programs will now be a set-aside program of this block grant, providing funding for bicycle and pedestrian projects. Bicycle and pedestrian projects will also fall under the larger STBG Program, as well as the CMAQ and Highway Safety Improvement Program (HSIP).

The Fast Act in total is a \$305 billion funding source for transportation related projects, and will provide \$835 million for TAP programs in 2016 and 2017, and will rise to \$850 million for 2018, 2019, and 2020. More information can be found at: <http://www.fhwa.dot.gov/fastact/>

TRANSPORTATION ALTERNATIVES

Transportation Alternatives Program (TAP) was introduced under MAP-21 that consolidates three formerly separate programs under SAFETEA-LU: Transportation Enhancements Program (TEP), Safe Routes to School (SR2S), and the Recreational Trails Program (RTP), and is now under the FAST Act as a set-aside program for the STBG. These funds may be used for a variety of pedestrian, bicycle, and streetscape projects including sidewalks, bikeways, multi-use paths, and rail-trails. TAP funds may also be used for selected education and encouragement programming such as Safe Routes to School, despite the fact that TA does not provide a guaranteed set-aside for this activity as SAFETEA-LU did. Unless the Governor of a given state chooses to opt out of Recreational Trails Program funds, dedicated funds for recreational trails continue to be provided as a subset of TAP.

1. Transportation Alternatives as defined by Section 1103 (a)(29). This category includes the construction, planning, and design of a range of bicycle and pedestrian infrastructure including “on-road and off-road trail facilities for pedestrians, bicyclists, and other non-motorized forms of transportation, including sidewalks, bicycle infrastructure, pedestrian and bicycle signals, traffic calming techniques, lighting and other safety-related infrastructure, and transportation projects to achieve compliance with the Americans with Disabilities Act of 1990.” Infrastructure projects and systems that provide “Safe Routes for Non-Drivers” is a new eligible activity.

2. Recreational Trails. TAP funds may be used to develop and maintain recreational trails and trail related facilities for both non-motorized and motorized recreational trail uses. Examples of trail uses include hiking, bicycling, in-line skating, equestrian use, and other non-motorized and motorized uses. These funds are available for both paved and unpaved trails, but may not be used to improve roads for general passenger vehicle use or to provide shoulders or sidewalks along roads. Recreational Trails Program (RTP) funds may be used for:

- Maintenance and restoration of existing trails
- Purchase and lease of trail construction and maintenance equipment
- Construction of new trails, including unpaved trails
- Acquisition or easements of property for trails
- State administrative costs related to this program (limited to seven percent of a state’s funds)

- Operation of educational programs to promote safety and environmental protection related to trails (limited to five percent of a state's funds)

3. Safe Routes to School: The purpose of the Safe Routes to Schools eligibility is to promote safe and healthy alternatives to riding the bus or being driven to school. Education and enforcement projects must be within two miles of primary or middle schools (K-8). Eligible projects may include:

- Education Efforts: These programs are designed to teach children safe bicycling and walking skills while educating them about the health benefits, and environmental impacts. Projects and programs may include creation, distribution and implementation of educational materials; safety based field trips; interactive bicycle/pedestrian safety video games; and promotional events and activities (e.g., assemblies, bicycle rodeos, walking school buses).

- Enforcement Efforts: These programs aim to ensure that traffic laws near schools are obeyed. Law enforcement activities apply to bicyclists, pedestrians and motor vehicles alike. Projects may include development of a crossing guard program, enforcement equipment, photo enforcement, and pedestrian sting operations.

4. Planning, designing, or constructing roadways within the right-of-way of former Interstate routes or divided highways.

Average annual funds available through TAP over the life of MAP-21 equal \$814 million nationally, which is based on a 2% set-aside of total MAP-21 authorizations. Projected apportionments for New York State total \$25.8 million for FY 2013 and \$32.7 million for FY 2014. Note that state DOT's may elect to transfer up to 50% of TAP funds to other highway programs, so the amount listed above represents the maximum potential funding. To date, however, New York State has supported full funding of the TAP program. Remaining TAP funds (those monies not re-directed to other highway programs) are disbursed through a separate competitive grant program administered by NYSDOT. Local governments, school districts, tribal governments, and public lands agencies are permitted to compete for these funds.

SURFACE TRANSPORTATION BLOCK GRANT PROGRAM (STBGP)

The STBGP provides states with flexible funds which may be used for a variety of highway, road, bridge, and transit projects. A wide variety of bicycle and pedestrian improvements are eligible, including on-street bicycle facilities, off-street trails, sidewalks, crosswalks, bicycle and pedestrian signals, parking, and other ancillary facilities. Modification of sidewalks to comply with the requirements of the Americans with Disabilities Act (ADA) is also an eligible activity. Unlike most highway projects, STBGP funded bicycle and pedestrian facilities may be located on local and collector roads which are not part of the Federal-aid Highway System. 50% of each state's STP funds are sub allocated geographically by population; the remaining 50% may be spent in any area of the state.

MAP-21 doubled the amount of funding available through the Highway Safety Improvement Program (HSIP) relative to SAFETEA-LU and will continue to increase through the STBGP. HSIP provides \$2.4 billion nationally for projects and programs that help communities achieve significant reductions in traffic fatalities and serious injuries on all public roads, bikeways, and walkways. STBGP preserves the Railway-Highway Crossings Program within HSIP but discontinues the High-Risk Rural roads set-aside unless safety statistics demonstrate that fatalities are increasing on these roads.

The programming of these funds is coordinated by NYSDOT and the local MPO – Ulster County Transportation Council. When funding is available for programming toward new projects, UCTC will typically conduct an extensive “call for projects” public process in an effort to solicit potential projects for inclusion on the Transportation Improvement Program (TIP). The TIP is typically updated every 2 years and is due for its next update cycle during the 2016 Federal Fiscal Year. Contact UCTC staff at uctc@co.ulster.ny.us to learn more about this process, available funding, and associated schedules. The current UCTC 2014 – 2018 TIP can be viewed online at the following address: <http://ulstercountyny.gov/planning/transportation-improvement-plan>.

COMMUNITY DEVELOPMENT BLOCK GRANTS

The Community Development Block Grants (CDBG) program provides money for streetscape revitalization, which may be largely comprised of pedestrian improvements. Federal CDBG grantees may “use Community Development Block Grants funds for activities that include (but are not limited to): acquiring real property; reconstructing or rehabilitating housing and other property; building public facilities and improvements, such as streets, sidewalks, community and senior citizen centers and recreational facilities; paying for planning and administrative expenses, such as costs related to developing a consolidated plan and managing Community Development Block Grants funds; provide public services for youths, seniors, or the disabled; and initiatives such as neighborhood watch programs.” Safe Routes to School projects that enhance accessibility are the best fit for this funding source. More information: www.hud.gov/cdbg.

ADDITIONAL FEDERAL FUNDING

The landscape of federal funding opportunities for bicycle and pedestrian programs and projects is always changing. A number of Federal agencies, including the Bureau of Land Management, the Department of Health and Human Services, the Department of Energy, and the Environmental Protection Agency have offered grant programs amenable to bicycle and pedestrian planning and implementation, and may do so again in the future. For up-to-date information about grant programs through all federal agencies: <http://www.grants.gov/>

NEW YORK STATE FUNDING

Several specific NYS funding sources are detailed below; however, the best source of state funding is the consolidated funding application (CFA). The CFA's are typically due in August of each year and the application applies for a variety of state programs and funding.

CONSOLIDATED LOCAL STREET AND HIGHWAY IMPROVEMENT PROGRAM (CHIPS)

A New York State-funded program administered through the NYSDOT to assist localities in financing the construction, reconstruction, or improvement of local highways, bridges, highway-railroad crossings, and other local facilities. Eligible CHIPS bicycle and pedestrian projects include: bike lanes and wide curb lanes, shoulder improvements, roundabouts, new signs, new or upgraded traffic signals, and traffic calming installations (www.dot.ny.gov/programs/chips).

CHIPS funds are administered by local municipalities after they are apportioned to them by the New York State Legislature through the annual NYS budget process. These funds are then used to address necessary road improvements which are prioritized by the local highway department or department of public works in consultation with elected officials through a capital improvement program or other local budgetary structure. Many municipalities rely heavily on these funds for routine annual maintenance of local streets and such work is typically planned several years in advance. Local citizens should therefore contact their elected officials to encourage these funds to be used to address possible pedestrian and bicycle improvements in the future.

NYS DEPARTMENT OF HEALTH- PREVENTATIVE HEALTH AND HEALTH SERVICES (PHHS) BLOCK GRANT

The Preventive Health and Health Services (PHHS) Block Grant provides funding for health problems in the state of New York that range from tuberculosis to adult physical activity. PHHS Block Grant dollars fund a total of 19 different New York State health programs, including the Healthy Heart Program. PHHS Block Grant funds are used to promote and evaluate increases in the number of adults participating in regular sustained physical activity. From 1995-2004, nearly 1.2 million New York State residents received help from local HHP contractors to increase their physical activity levels (www.health.ny.gov/funding/grants/block_grant.htm).

PRIVATE FOUNDATIONS

Private foundations are an increasingly important source of funds safe routes to school planning and implementation. More info: <http://www.foundationcenter.org/>

PRIVATE DEVELOPMENT

It is encouraged that the town works with developers to encourage them to assist in developing pedestrian and bicycle facilities when implementing new developments. Working with developers can create an additional source of funding and ensure that

new facilities match the plans and overall goals of the communities. Participation by the developers can be encouraged through planning and developing requirements established by municipalities or encouraged as public outreach and publicity projects, bringing a positive light onto the developments as they are installed.

i http://ulstercountyny.gov/sites/default/files/documents/marlboro_final.pdf

ii http://ulstercountyny.gov/sites/default/files/documents/marlboro_final.pdf

iii NACTO Urban Bikeway Design Guide. <http://nacto.org/publication/urban-bikeway-design-guide/bicycle-boulevards/volume-management/>