



*Final Master Plan Report
New Paltz Flats Bicycle/ Pedestrian Trail
August 28, 2014*

Table of Contents

Part I: Summary of the Planning Process

- A. Introduction
- B. Review of Relevant Reports and Studies
- C. Existing Conditions Assessment
- D. Concept Development
- E. Summary of Public Workshop
- F. Applicable Techniques, Standards and Requirements

Part II: Master Plan and Recommendations

- A. Illustrative Master Plan
- B. Design Recommendations
- C. Cost Estimate
- D. Next Steps

Part III: Appendix

- A. Meeting/workshop agendas and summaries
- B. List of Potential Funding Sources

Part I: Summary of the Planning Process

A. Introduction

This Master Plan Report documents the planning process and recommendations for the initial 0.8 mile segment of pedestrian and bicycle access improvements along Route 299, west of the Village of New Paltz. Part I of this Report summarizes the technical analyses, public input, and planning tasks performed with the guidance of the Project Design Team (Project Team) comprised of the New Paltz Bicycle and Pedestrian Committee (BPC), representatives from the Town and Village of New Paltz, the Mohonk Preserve and the Wallkill Valley Land Trust and AKRF, Inc. The project work forms the foundations for the ultimate Master Plan Recommendations found in Part II.

Led by the Project Team, AKRF Inc., developed an achievable, environmentally responsible conceptual plan, which will improve safety, convenience and accessibility for non-motorized transportation while enhancing the user experience and maintain the rural roadway character. The primary project objective was to develop a conceptual plan for new pedestrians and non-motorized transportation infrastructure. The improvements will fulfill the project goals of providing a safe option for alternative transportation modes, creating new opportunities for recreation and reinforcing connections between the Village of New Paltz and the many recreational and scenic amenities west of the Wallkill River.

Funding for this project was provided by Hudson Valley Greenway, Open Space Institute, Mohonk Preserve and Town of New Paltz.

Project Background

The need for a new non-motorized transportation link through the New Paltz Flats has been established in multiple plans, studies and reports as well as general observations of the residents of and visitors to the Town and Village of New Paltz. West of the Village of New Paltz, Route 299 provides access for motor vehicle travel, but the narrow lanes and high speed traffic creates a dangerous environment for pedestrians and bicyclists. Public safety and a desire for improved non-motorized transportation options require that roadway improvements and/or a new separate pathway be provided.

The proposed 0.8 mile New Paltz Flats Trail (Flats Trail), will run adjacent to Route 299, beginning at the border of the Village of New Paltz, just west of the Carmine Liberta Bridge spanning the Wallkill River and terminate at the Wallkill View Farm Market at the intersection of Route 299 and Red Barn Road. The Flats Trail is the initial segment of a bicycle/pedestrian trail route, which could eventually connect to a large existing network of trails and recreational destinations throughout the County. This Flats Trail will provide a safe and convenient route for pedestrians and bicyclists, connecting the Ulster County Fairgrounds, the Mohonk Testimonial Gateway trail, the Wallkill Valley Rail Trail, the many hiking/biking trails in the Mohonk Preserve and the Village of New Paltz. In addition, the Flats Trail will provide key linkages for users traveling throughout the region, both on and off the vehicular roadways. The Flats Trail will serve as a recreational amenity for pedestrians to explore and experience the sights and sounds of the farmlands,

foothills, and mountain views in close proximity to the downtown area.

The Planning Process

A participatory planning approach provided the structure for the planning process and project work. The two key elements of the planning process were a series of Project Team meetings and a public engagement and feedback loop.

The Project Team was led by the New Paltz Bicycle and Pedestrian Committee (BPC), which comprises representatives of the Village and Town of New Paltz, and SUNY New Paltz. Other members of the Project Team included representatives from the Mohonk Preserve, the Wallkill Valley Land Trust, the Open Space Institute, and the New Paltz Highway Department. AKRF organized five Project Team meetings, scheduled at key decision-making points in the master planning process (see Appendix A for meeting agendas, presentations and summaries). Discussions and decisions made at these meetings guided the project work and ultimately formed the Master Plan Recommendations.

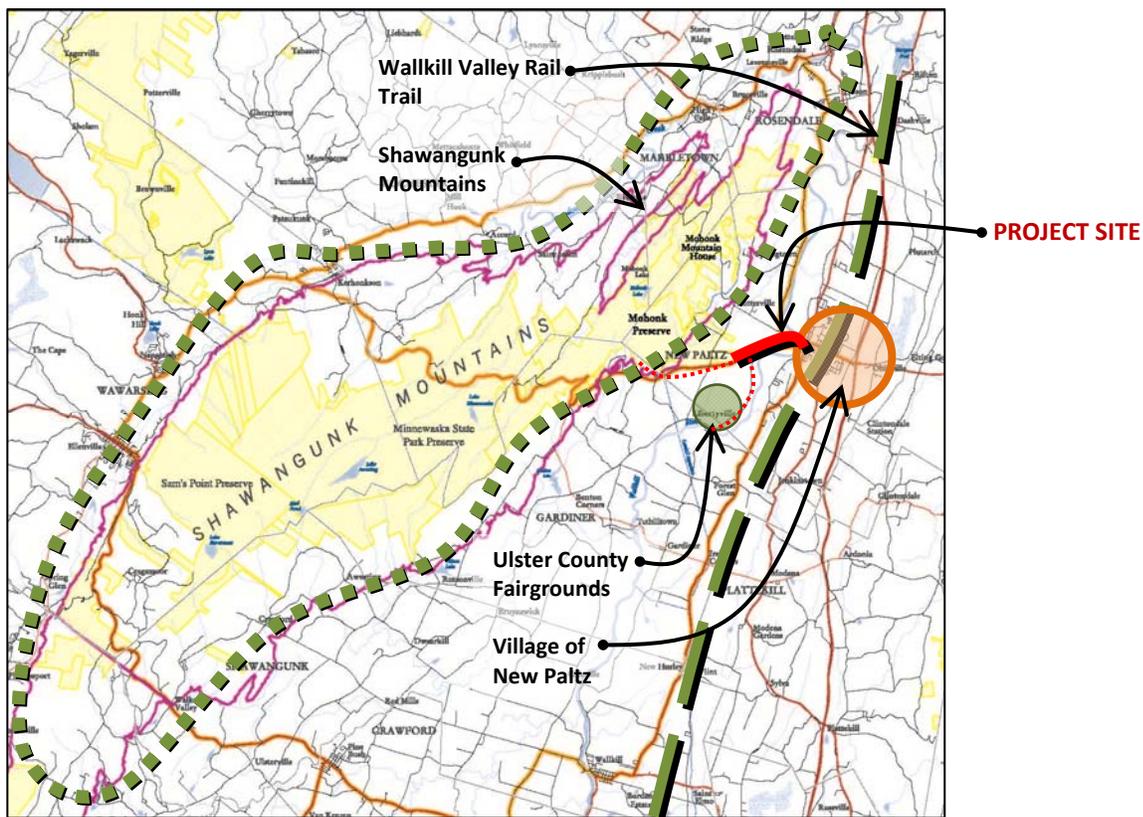


Figure 1: Location Map

Members of the public were invited to participate in a two-hour evening workshop designed to inform stakeholders and solicit input from individuals with varied interests and perspectives. The final public presentation of the Master Plan Recommendations is scheduled to take place on July 14, 2014. In addition to the committee meetings and public workshops, AKRF conducted outreach to key stakeholders and permitting groups for feedback on the proposed alternatives and the specifics of trail design.

B. Review of Relevant Reports and Studies

AKRF identified and reviewed related reports and studies published by Ulster County, the Town of New Paltz, the Village of New Paltz and local and regional environmental, transportation, and recreation advocacy groups. Relevant recommendations and guidance were presented to the Project Team are summarized below.

List of Reports and Studies Reviewed

Shawangunk Mountains Scenic Byway Plan, Guide and Management Report (2005)
Ulster County Open Space Plan (2007)
Ulster County Non-Motorized Transportation Plan (2008)
New Paltz Transportation Land Use Project Report (2006)
New Paltz Open Space Plan (2006)
Town of New Paltz Master Plan (1995)
Town of New Paltz Farmland Preservation Plan (2011)
NYS Open Space Conservation Plan (2009)
Mohonk Preserve Land Asset Management Plan Summary (2012)
Wallkill Valley Rail Trail & Hudson Valley Rail Trail Link Feasibility Study (2011)
NY Rising Community Reconstruction (NYRCR) Program, Proposed Projects (2014)

Relevant Recommendations and Guidance

Shawangunk Mountains Scenic Byway Plan, Guide and Management Report (2005)

- Infrastructure: “Consider burying the utility lines along Route 299 and Springtown Road immediately west of the Wallkill River Bridge as they mar the tremendous views of the mountains along these roadway stretches.”
- Tourism: “improve the ability of ...communities to benefit from the tourism that is attracted to our region.”
- Traffic and Transportation:
 - “provide appropriate shoulders, consistently...”
 - Roundabout @ Springtown Road

Ulster County Non-Motorized Transportation Plan (2008)

- Specific project recommendation as part of the Route 299 Bike Demonstration Corridor: “Parallel Single Track Mountain Bike/Hiker Trail ...” Part of the strategy to “Create a key link in the regional bikeway network.” “...to improve gateway for access to the carriage trail network.”

Ulster County Open Space Plan (2009)

- General trail connection recommendation: “Create, preserve, enhance and provide managed access to parks, hiking trails, active and passive recreation facilities, and historic resources”

New Paltz Transportation Land Use Project Report (2006)

- Traffic and Transportation:
 - “Develop a formal vehicle pull-off area immediately west of the Wallkill”

- “River proximate to the intersection of Route 299/Springtown Road. Pull off area should include information resources for Shawangunk Scenic Byway and cultural and natural history interpretation”

Town of New Paltz Master Plan (1995)

- Trail Planning: Either painting stripes in streets for bicycles or constructing new pedestrian/bicycle ways on Route 32 North, Route 208 South, and Route 299 west of the Village, Springtown Road and Libertyville Road.

NY Rising Community Reconstruction (NYRCR) Program, Proposed Projects include:

- Stormwater Management, Drainage Improvements: Scoping and implementation of required improvements to address flooding along Route 299 West and Springtown Road, from Main Street to Mountain Rest Road. This segment is currently a major access point from the eastern portion of the community to the west and regularly gets inundated, shutting off access to and from the Village. It is also a gateway to areas in western Ulster County and a thoroughfare for tourism and recreation.
- Pedestrian and Bicycle Path: Scope and implement required improvements to the Carmine Liberta Bridge, which is in need of repair or replacement due to damaged sustained during Hurricane Irene and Tropical Storm Lee. The Bridge is the only roadway access to the west side of the river from New Paltz and heavily trafficked by residents, tourists, commercial vehicles and emergency services. Pedestrian and bicycle paths will be part of the redesign and construction.

C. Existing Conditions Assessment

The objective of the existing conditions assessment was to identify the opportunities and constraints of the project site to determine the parameters for the location and layout of the Flats Trail. For this assessment, a general area of study was identified as shown in Figure 2. The Project Team reviewed existing studies, performed site visits and researched publically accessible information to achieve an initial understanding of the project site. This section summarizes the findings of the Existing Conditions inventory and Mapping Phase of work.

Land Ownership

The land to the north of Route 299 is currently owned by the Open Space Institute (OSI) and has been leased to a not-for-profit organization for use as farmland. OSI is the process of transferring the ownership of this land to a private, for-profit entity. As part of the land acquisition agreement, a public access easement will be created for the construction and ongoing use by the Flats Trail. Once in place, the easement will be administered by the Wallkill Valley Land Trust and maintained by the Town of New Paltz Highway Department.

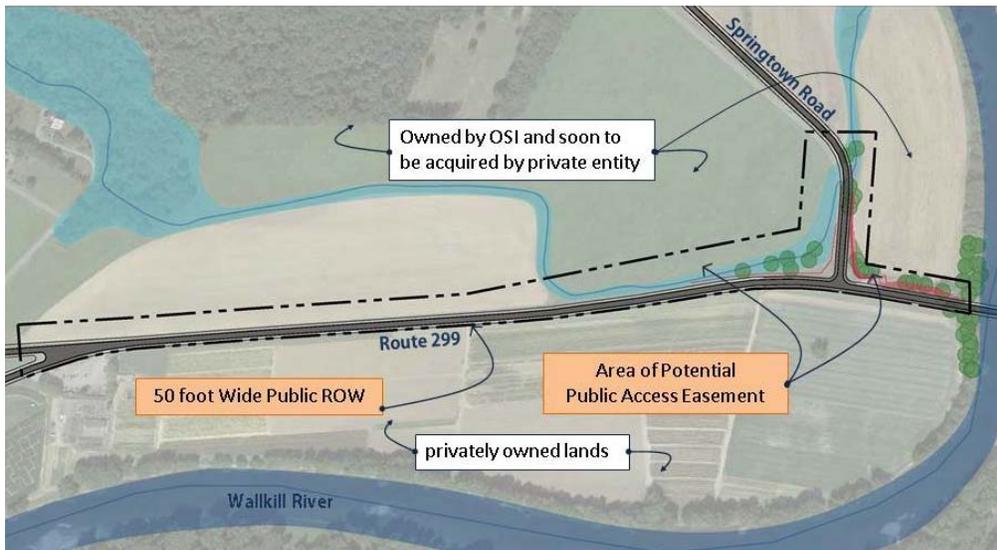


Figure 2: Land Ownership

Traffic

NYS Route 299 has a New York State road designation but is under the jurisdiction of Ulster County. The preliminary assessment of traffic conditions is based on publically available data from 2009 and in-field observations. The speed limit on Route 299 within the project area is 55 mph but the average roadway speeds during peak travel times range between 32 and 49 mph likely due to congestion.. Based on field observations, speeding is a potential issue along this portion of NYS Route 299, particularly outside of peak travel times when higher vehicle speeds tend to occur. Approximately 27 percent of the total vehicular traffic on this segment of Route 299 is comprised of heavy vehicles (heavy trucks, buses). The annual average daily traffic (AADT) on NYS Route 299 within the project area ranges between approximately 7,000 and 10,500 vehicles.

The AADT for Springtown Road is approximately 4,200 vehicles. The southbound Springtown Road approach to the intersection with Route 299 intersection can operate poorly during the peak hours (operating at Level of Service F, with an approximate average delay of 55 seconds for drivers at this approach to clear the intersection). The turning radii available for the turning movements at the intersection of NYS Route 299 and Springtown Road appear to be adequately designed for the vehicle speeds along these roadways. The intersection of NYS Route 299 and Springtown Road appears to have adequate sight distance as each approach of the intersection has unobstructed sight lines from that approach along the intersecting roadway.

NYS Route 299 does not currently provide safe facilities for bicycle or pedestrian travel within the project area. The existing widths of the travel lanes are inadequate for sharing bike and motor vehicles traffic in a safe manner (e.g., exclusive pedestrian and/or bicycle lanes), although bicyclists do regularly use the roadway for both transportation and recreation. There are no paved shoulders along either Route 299 or Springtown Road within the project area. High vehicle speeds along these roadways create an inhospitable and dangerous environment for both pedestrians and recreational bicyclists.

Natural Resources

Below are maps and a preliminary assessment of natural resources within the project area and in the immediate vicinity. This assessment is based on in-field observations and a review of publicly available information provided by the New York State Department of Conservation (NYSDEC), United States Department of Agriculture (USDA), United States Fish and Wildlife Service (FWS), United States Geological Survey (USGS), and the Federal Emergency Management Agency (FEMA).

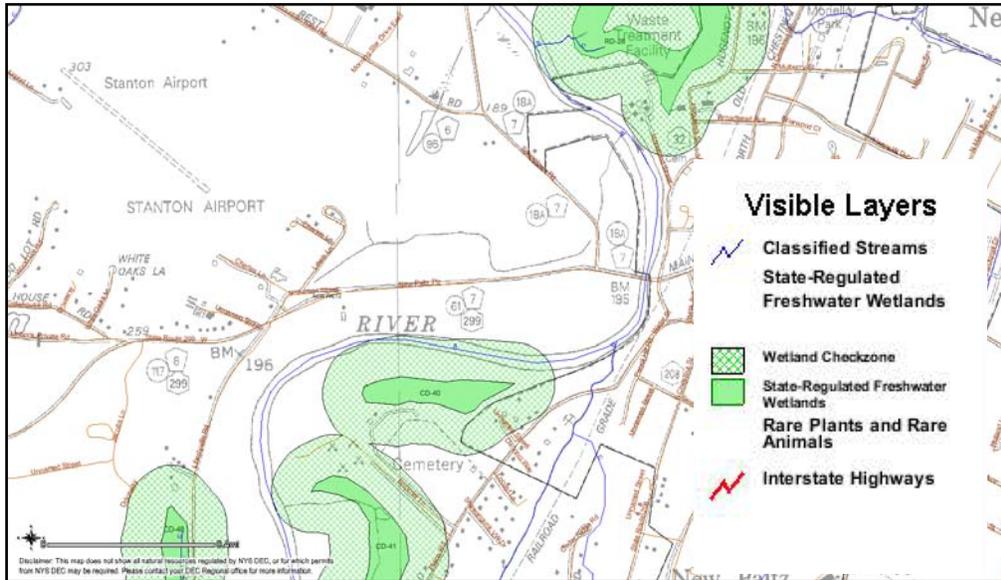


Figure 3: State Wetland and Wildlife

Source: New York State Department of Conservation Environmental Resource Mapper

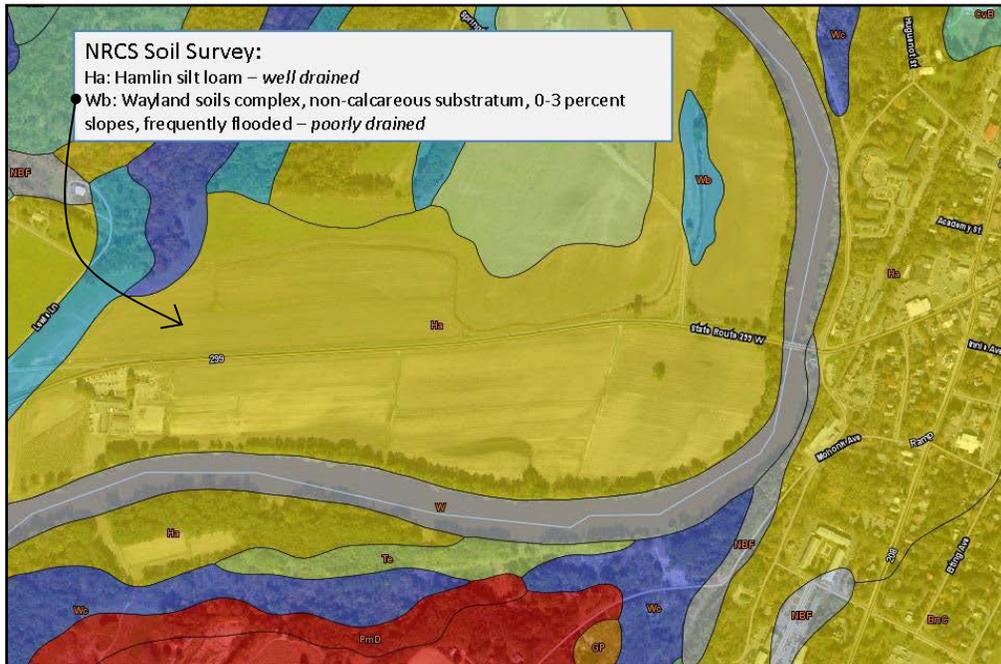


Figure 4: Soils

Source: USDA Natural Resource Conservation Service



Figure 5: National Wetlands
 Source: FWS National Wetland Inventory Wetlands Mapper

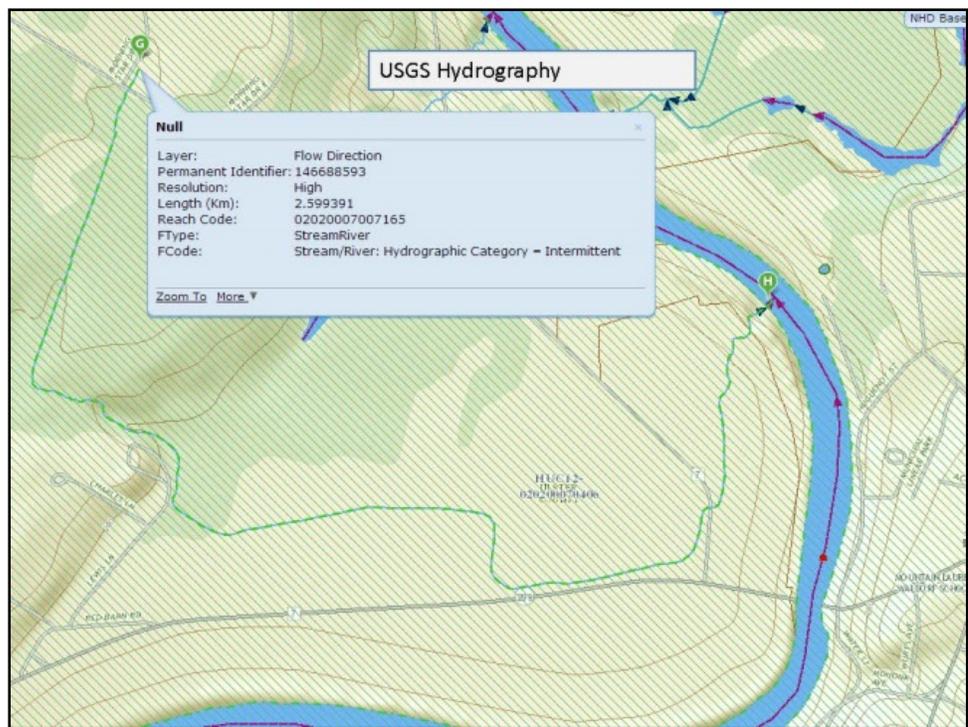


Figure 6: Water Courses
 Source: USGS National Map Viewer

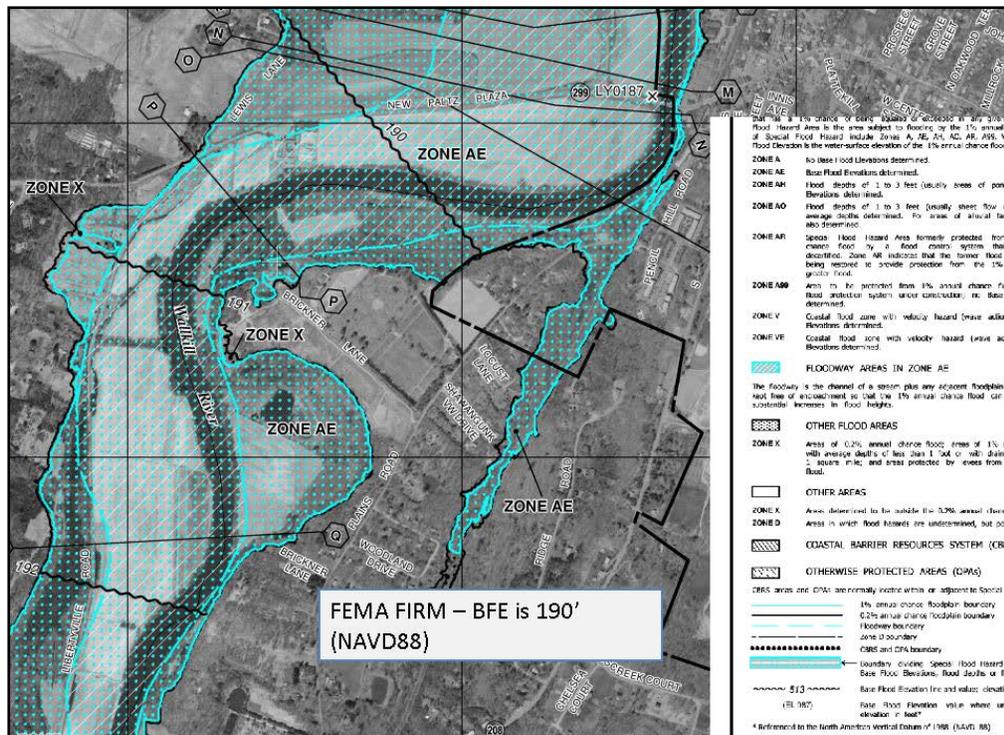


Figure 7: Floodplain, Source: FEMA

Preliminary Assessment

- The project site contains no threatened or endangered species according to the NYSDEC Environmental Mapper. There is a suitable habitat for one or more threatened and endangered species in the vicinity of the project site.
- The majority of the soils in this area are mapped as “well-drained.” There are mapped hydric soils east of Springtown Road (see Figure 4, area labeled ‘Wb’).
- The Wallkill River is categorized as Class-B. Any disturbance to the river bed or bank will require a ‘Protection of Waters’ Permit.
- An unnamed stream, which crosses the farm fields and runs through the project site and is mapped as an “intermittent” and “artificial path.” This stream may or may not be regulated by the Army Corp of Engineers.
- The entire project site is within the 100-year flood plain. The base elevation for the floodplain is roughly 109’.

Implication

- Work within a floodway will require a hydraulic analysis to demonstrate that there is no increase in the base flood elevation.
- Compensatory flood conveyance area will be proposed to mitigate any rise in the base flood elevation as a result from the proposed work.
- There are no National Wetland Inventory mapped wetland onsite. However, based on site inspection and the presence of mapped drainages and hydric soils in proximity to the proposed trail, it is likely that wetland conditions exist on the project site. Onsite wetland delineation will be required to determine whether the unnamed stream and other low areas will be regulated by the Army Corps of Engineers and the Town.

Recreational Resources

The Flats Trail Project is the initial step towards achieving the long-term objective of connecting the Village center to the Ulster County Fairgrounds, the Mohonk Testimonial Gateway trail, the many hiking/biking trails in the Mohonk Preserve. In the shorter term, the Flats Trail will improve recreational opportunities by extending the existing pedestrian facilities of the Village of New Paltz and connecting these to the Walkkill Valley Rail Trail to the westward farmlands. As part of the 82 mile Shawangunk Mountain Scenic Byway, the project site plays an essential role in supporting the regional identity and attracting tourism. Improvements along Route 299 will correspond with the goals, objectives and strategies called for in the 2005 Scenic Byway Management Plan

As illustrated in the images below, the project site benefits from existing natural features, which provide opportunities to create a unique recreational experiences, including: spectacular views of the distant mountain range, the proximity to the Walkkill River, on-site water elements and changing seasonal vegetation.

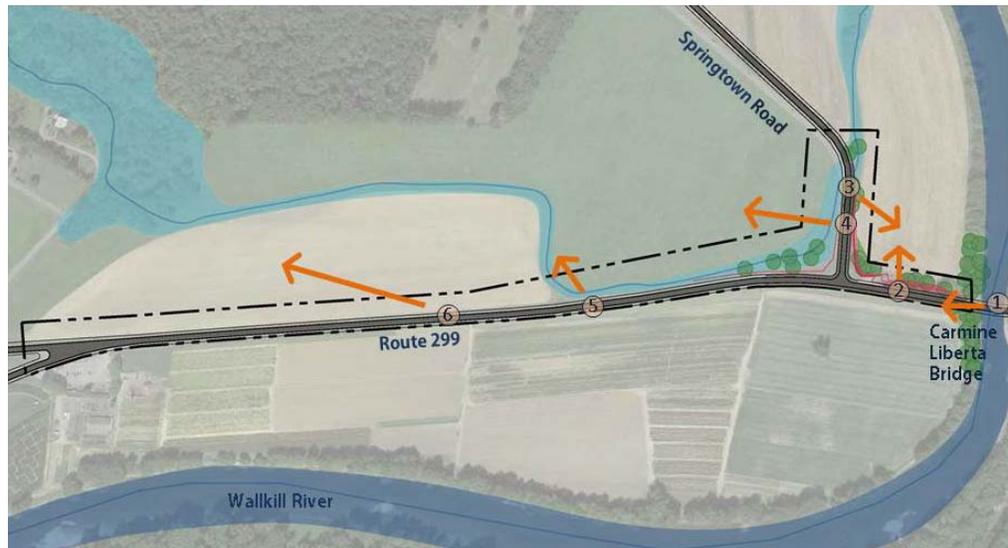


Figure 8: Key to Viewpoints

Viewpoint #1: Reveal

While crossing the Carmine Liberta Bridge from the Village, prior to entering the project site, the view narrows and shortens, due to the dominance of the steel bridge structure in the foreground and the deciduous vegetation on either side of the roadway.



Viewpoint 1a

Once across the Bridge, the landscape is abruptly and dramatically revealed with the mountain range in the distance, the open farmland in the midrange and depending on the season, a stand of sunflowers in the immediate foreground to the south of the roadway.



Viewpoint 1b

Viewpoint #2: Distant Points of Interest

When the leaves are off the trees in the late fall and throughout the winter months, rock formations on the mountains can be seen in the distance to the north (Viewpoint 2a). This view of the geologic formations begins to hint at the immensity of the natural, ecological and recreational resources beyond. Viewpoint 2b presents the field level view north of Route 299 in the early summer.



Viewpoint 2a



Viewpoint 2b

Viewpoint #3: Orienting Element

Along the proposed Flats Trail route are various opportunities to glimpse the Carmine Liberta Bridge over the Wallkill River. The Bridge becomes a point of orientation along the trail route. Viewpoint 3a presents the view from Springtown Road approximately 1/8 mile north of the intersection with Route 299. Viewpoint 3b is taken from the west side of the Springtown Road and Route 299 intersection.



Viewpoint 3a



Viewpoint 3b

Viewpoint #4: Rural Expanse

Throughout the project area, the openness of the cultivated farmland is a stark contrast with the urban character of the Village and the densely vegetated character of the Mohonk Preserve.



Viewpoint 4

Viewpoint #5: Patterns and Variability in the Landscape

As seasons change, the underlying geology, topography and hydrology is revealed through changing patterns of vegetation. Viewpoint 5 provides one example of the varied vegetation. In early springtime, dried vegetation from the previous year creates a meandering curve into the distance along the route of a stream.



Viewpoint 5

Viewpoint #6: Iconic View

The lasting image of the New Paltz Flats is the dramatic form of the distant mountain range.



Viewpoint 6

Inventory of Site Conditions and Design Constraints

This section provides a summary of the site conditions and constraints that informed design route for the proposed Flats Trail.

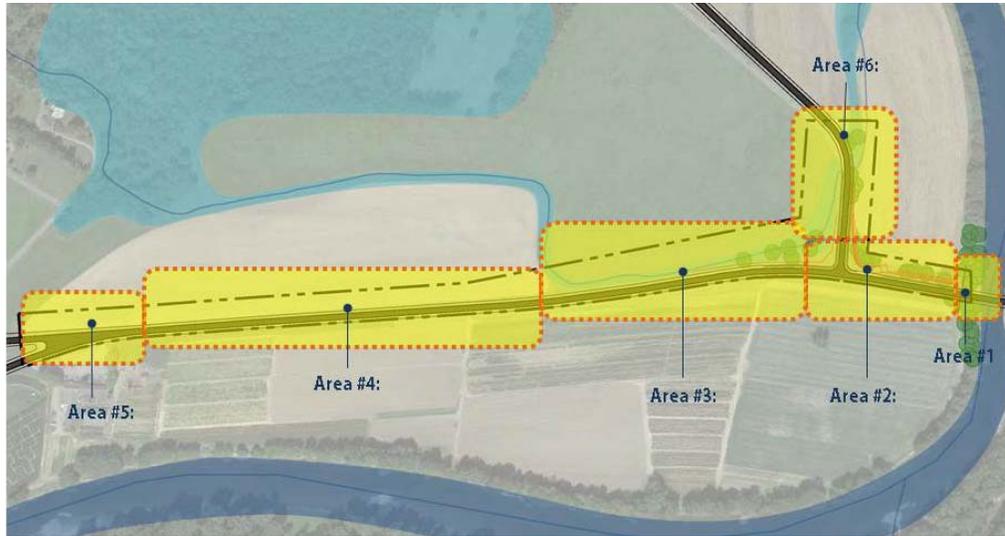


Figure 9: Key to Site Conditions Design Constraints

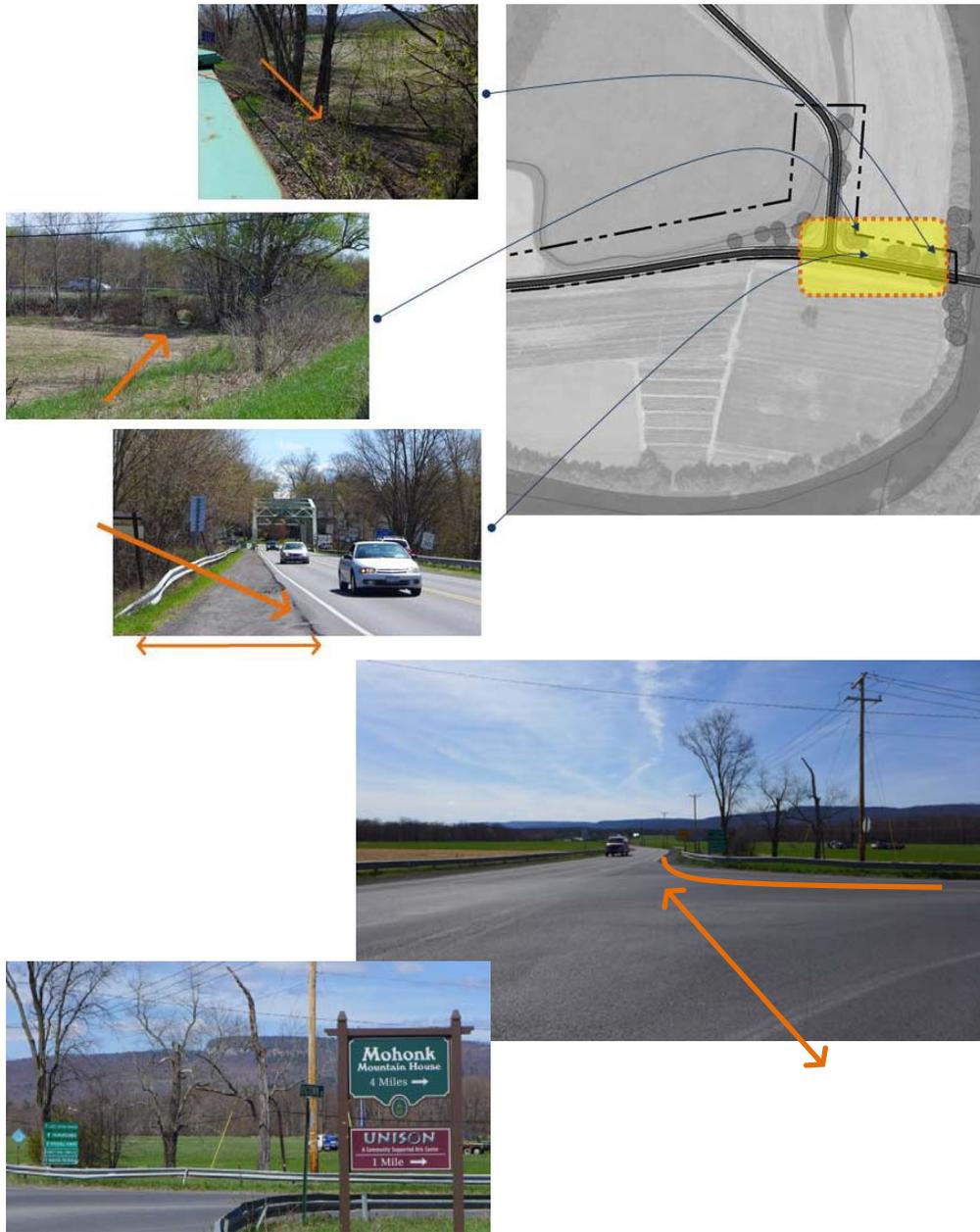
Area #1: Bridge /Transition

- The narrow walkway on the Carmine Liberta Bridge does not accommodate bicycles;
- The widths of roadway lanes are inadequate for automobile-bicycle sharing, and
- The Bridge pavement and transition are in need of repair.



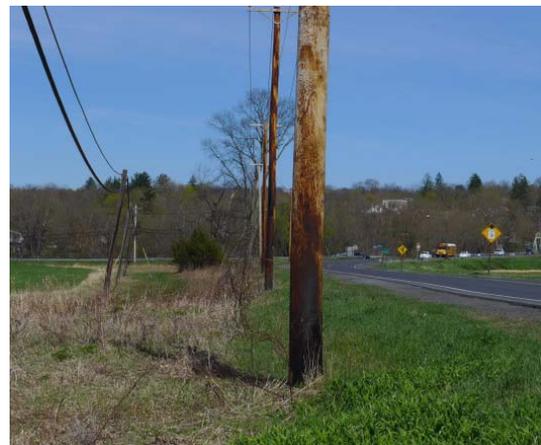
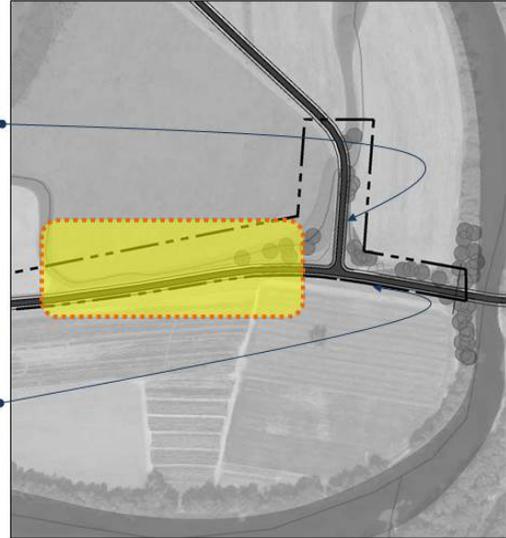
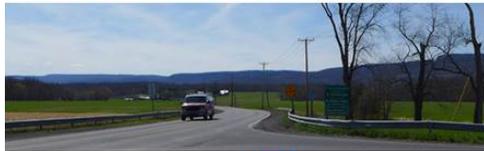
Area #2: Rt. 299 East Segment/ Springtown Road Intersection

- The shoulders to the north and south of the Route 299 roadway do not accommodate bicycles;
- There is a steep drop-off in topography within the public ROW. Creation of a trail, pathway or lanes for pedestrians and bicycles will necessitate significant regrading and structural improvements within the floodway /stormwater structure below roadway;
- The wide expanse of asphalt and unpredictable automobile speed and movement creates a dangerous environment for pedestrians and bicyclists, and
- Current informational signage is ineffective due to the scale of the lettering.



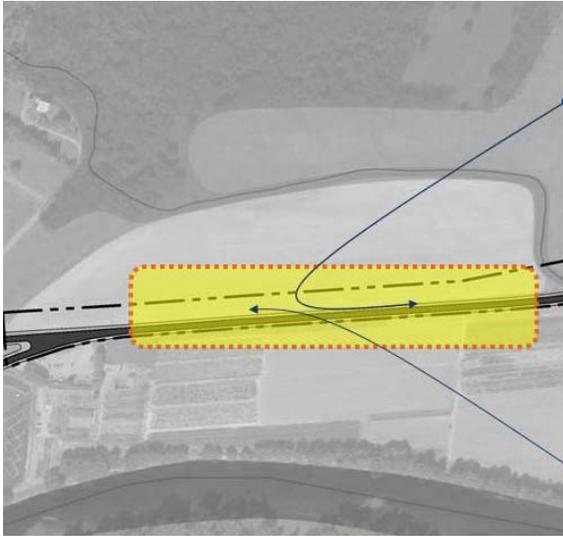
Area #3: Rt. 299 Middle Segment

- The unpaved, narrow shoulder does not accommodate bicyclists and is inadequate for expansion;
- Disturbance to wet area and mature vegetation will be required to expand roadbed;
- A bridge structure may be required at exiting waterway, and
- Utility poles with overhead wires provide a physical obstacle and diminish the quality of the view.



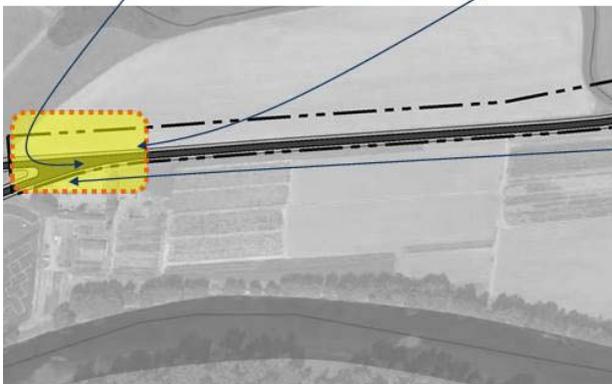
Area #4: Rt. 299 West Segment

- The existing drainage swale provides a physical and visual barrier between the ROW and the farmland. Design of the trail may require relocation of the swale northward.



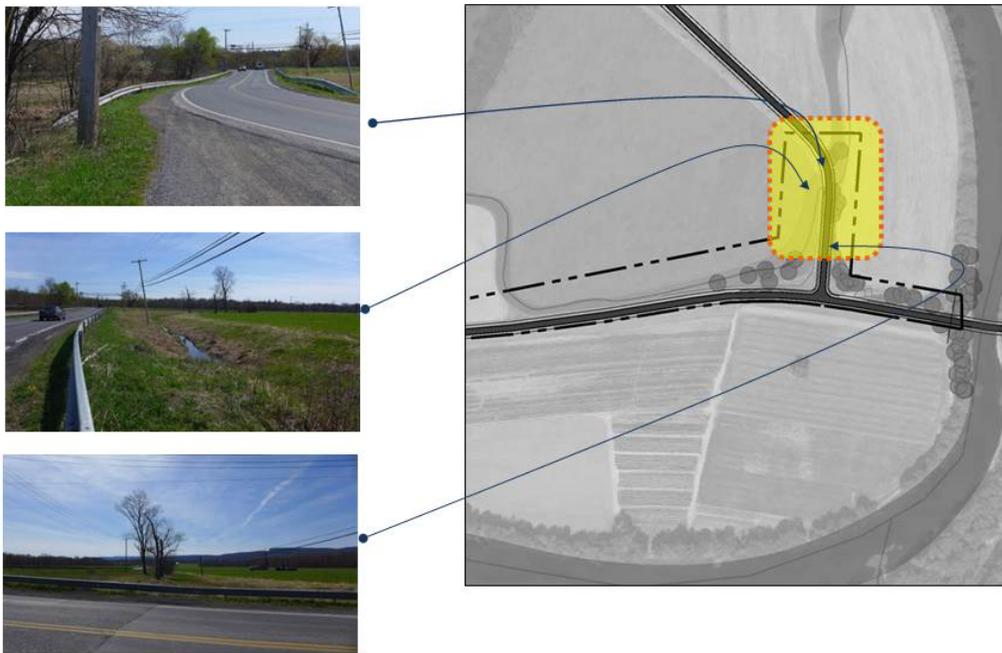
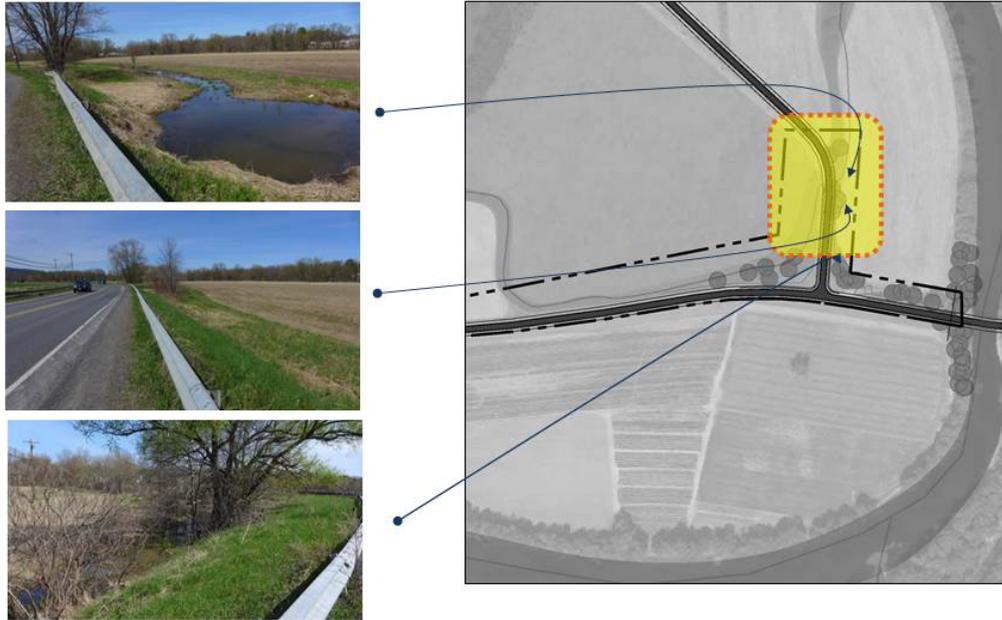
Area #5: Red Barn Road Intersection

- The complexity of traffic movements at this intersection creates a difficult and dangerous situation for pedestrian crossing.



Area #6: Springtown Road - North of Route 299

- The topography drops off on either side of the roadway to the elevation of the farmlands. Conditions at the toe of the slope are wet and provide as storm water storage.



D. Concept Development

Based on the Existing Conditions assessments, several location-specific design decisions points have been identified. These decision points are illustrated on the key map below (Figure 10). The decision matrix on the following page summarizes the analysis of these decision points in terms of design intent, identified constraints and available design options. This analysis provided guidance in the development of the two conceptual alternatives presented at the June 3rd Public Workshop.

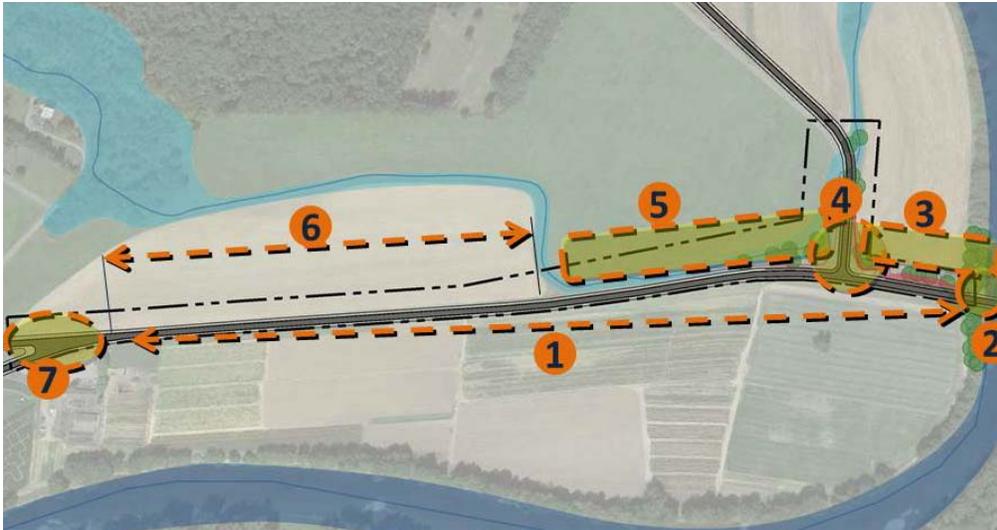


Figure 10: Key to InDesign Issue Location (see Decision Matrix)

Evaluation Criteria

Based on Project Team discussions, the following criteria were identified for evaluating the conceptual alternatives:

- Achievability
- Safety
- User Experience
- Maintaining Rural Character
- Cost
- Environmental Responsibility
- Accessibility and Convenience
- ADA Compliance

Decision Matrix

Issue #	Design Issue/ Intent	Identified Constraint	Design Option	Opt A	Opt B	Recommend Further Study
1	OVERALL USER EXPERIENCE	Open, monotonous views encourage high speeds	Employ design tools to refocus drivers and add variety	X	X	
			Locate trail to avoid conflict with vehicular traffic		X	
			Implement traffic calming measures	X	X	
2	TRANSITION FROM NARROW BRIDGES	Bridge does not accommodate demand for various travel modes	Expand pedestrian path with cantilevered extension			X
			Allow constraints at bridge to provide traffic calming affect	X	X	
3	TRAVEL LANES/ PATHWAY LOCATION/ LAYOUT	Narrow shoulder with steep drop in elevation and overgrown vegetation	Widen shoulder using fill, or cantilever walkway at elevation of the vehicular roadway	X		
			Redirect pathway to the elevation of fields		X	
4	PEDESTRIAN CROSSING OF MAJOR ROADWAY	Difficult intersection for pedestrian crossing due to width of pavement and a large turning radius which encourages speed	Revise roadway geometry			X
			Implement traffic control measures			X
			Implement traffic calming measures	X		
			Minimize the length of crossing with refuge island and/or bump-outs	X		
			Locate trail to avoid intersection		X	
5	TRAVEL LANES/ PATHWAY LOCATION/ LAYOUT	Narrow shoulder with drop in elevation to a wet areas with mature vegetation	Widen shoulder using fill	X		
			Use boardwalk and/or bridge to minimize disturbance to wet areas	X	X	
			Locate trail to avoid wet areas		X	
6	TRAVEL LANES/ PATHWAY LOCATION/ LAYOUT	Narrow shoulder with drainage swale and utility lines	Bury or relocate utility lines			X
			Locate trail to avoid utility poles	X	X	
7	PEDESTRIAN CROSSING OF MAJOR ROADWAY	Complex intersection with unpredictable traffic patterns	Revise roadway geometry			X
			Implement traffic calming measures	X	X	
			Implement traffic control measures			X
			Locate trail to avoid intersection	X	X	

E. Summary of Public Workshop

The first Public Workshop for the New Paltz Flats Bicycle/ Pedestrian Trail Project was held at the Town of New Paltz Recreation Center on June 3, 2014.

Workshop Program Description

AKRF developed and conducted the workshop designed to inform and encourage public participation. The workshop was divided into four segments as described below.

Introduction

The introduction included a brief presentation of the Project purpose and intent, an overview of the planning process, and a general description of existing conditions of the project site. The presentation discussed current and anticipated land ownership, identified site design constraints and highlighted design opportunities. An analysis of specific site challenges and potential design options were presented.

Mini Activity: A Tool for Evaluating Alternatives

The objective of the ‘mini activity’ exercise was to help the workshop participants develop a framework and language for evaluation of the conceptual alternatives developed by the NPFT committee. An activity sheet (see Figure 11) was distributed and the participants were asked to work individually, to prioritize the decision-making criteria provided.

Mini Activity Sheet: Tool for Evaluating Design Alternatives

Achievability is *essential* when selecting a plan for the non-motorized access improvements
 criteria) (priority category)

<u>CRITERIA</u>	<u>PRIORITY CATEGORIES</u>
_____ Achievability	1-Essential
_____ Implementable in the short-term	2-Very Important
_____ Providing for Bicyclist and Pedestrian Safety	3-Desireable
_____ Improved Vehicle Safety	4-Not relevant
_____ Enjoyment of the user Experience	
_____ Maintaining the rural character	
_____ Controlling construction cost	
_____ Doing no harm to the natural environment	
_____ Improving the natural environment	
_____ Accessibility and convenience	
_____ ADA Compliance	
_____ Maintaining a constant speed of vehicle travel	
_____ Directness of the pedestrian path/ shortest route	
_____ Minimizing maintenance cost	
_____ _____	
_____ _____	
_____ _____	

Figure 11: Mini Activity Sheet

Presentation of Conceptual Alternatives

Following the mini activity, the conceptual alternatives for the trail layout and alignment were presented. Alternative 'A' (Figure 12) and Alternative 'B' (Figure 13) provided contrasting design concepts for the purpose of discussion.

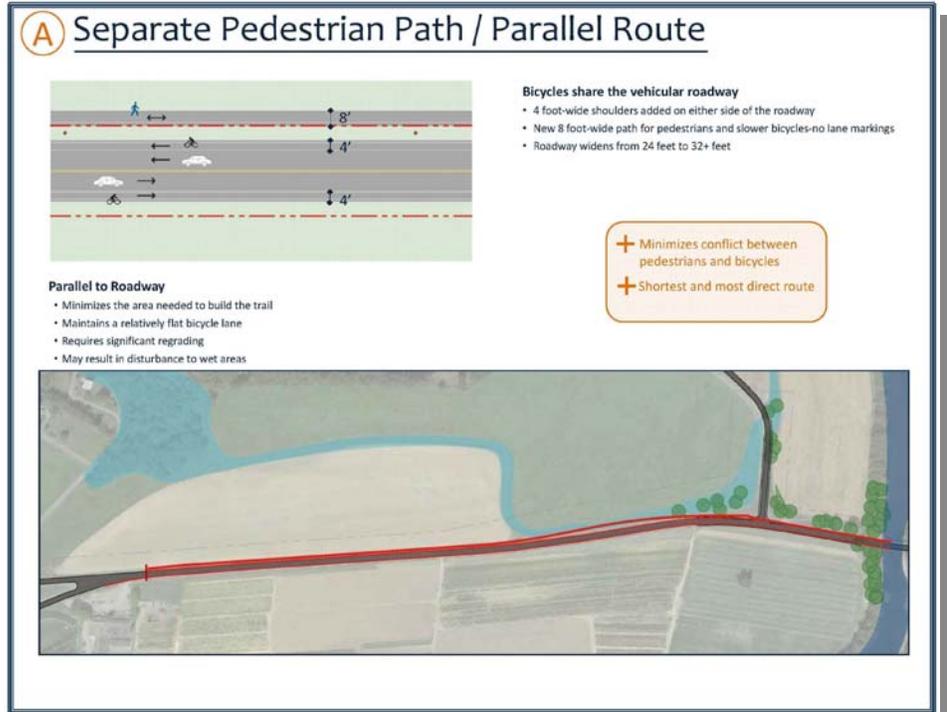


Figure 12: Conceptual Alternative A

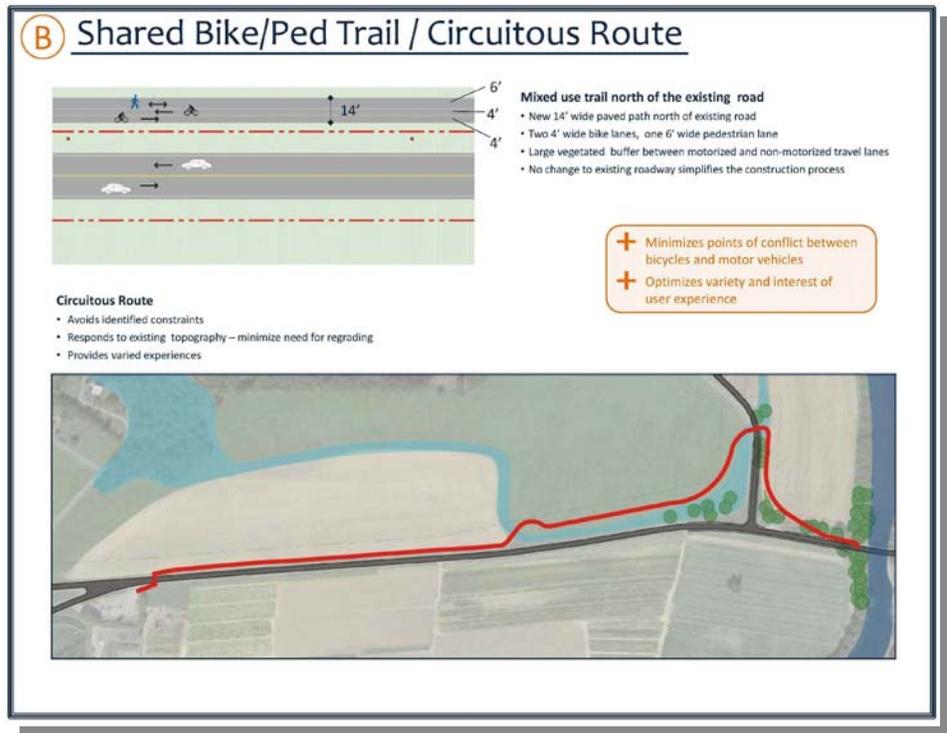


Figure 13: Conceptual Alternative B

Engagement Activity

The interactive portion of the workshop was the final segment. Twenty minutes were allotted to informal, small group discussions. Each group of 6 to 8 people was provided with large-scale hard-copies of the conceptual alternatives. The final thirty minutes of the workshop involved a monitored group discussion of priorities and preferences applied to the developed concepts

Mini Activity Observations

The objective of the ‘Mini Activity’ exercise was to help the workshop participants develop a framework and a language for evaluation of the proposed Trail Design Alternatives. Although this exercise was not designed to function as a survey, 12 participants activity sheets were submitted. Below is a recording of the information provided on the submitted sheet. The ratings scores recorded were based on the following:

- 1 = Essential
- 2 = Very Important
- 3 = Desirable
- 4 = Not Relevant (or left blank)

Criteria	Rating*											
Achievability	2	1	1	1	1	3	3	3	1	1	1	1
Providing for Bicyclist and Pedestrian Safety	1	1	1	1	1	1	1	1	1	1	1	1
Accessibility and convenience	2	2	2	3	3	2	1	1	1	1	2	1
ADA Compliance	1	1	4	3	4	2	1	1	3	3	2	1
Improved Vehicle Safety	2	4	1	1	1	3	1	3	4	3	1	2
Maintaining the rural character	1	1	1	1	1	1	4	3	3	3	4	3
Doing no harm to the natural environment	2	1	2	1	1	1	1	4	2	2	3	3
Implementable in the short-term	2	3	3	3	3	4	4	3	3	1	3	2
Enjoyment of the user Experience	3	2	3	3	2	2	2	4	3	4	2	3
Controlling construction cost	2	3	2	3	2	3	4	2	3	3	3	3
Improving the natural environment	1	4	2	4	3	1	4	4	3	4	3	3
Maintaining a constant speed of vehicle travel	3	4	1	2	3	2	3	4	4	3	4	3
Minimizing maintenance cost	3	3	3	3	2	2	3	3	3	2	2	2
Directness of the pedestrian path/ shortest route	3	4	3	4	4	2	1	3	4	4	4	4

Table 1: Activity Sheet Analysis

Activity Sheet Analysis: General Observations

- 1/3 of the respondents said that **'achievability'** of this link was not 'essential'. When not considered 'essential', 'achievability' was categorized as 'desirable' or 'very important'.
- All respondents categorized **'providing for bicycle and pedestrian safety'** as 'essential'.
- Half of the respondents categorized **'maintaining the rural character'** as 'essential'. The other half consider it either not a factor or a minor consideration in the decision making process.
- None of the respondents indicated that enjoyment of the user experience is **'essential'**, two indicated that it is not relevant.
- 7 of the 12 respondents indicated that **'directness of the path/ shortest route'** is not relevant.

Table 2 below presents the evaluation criteria organized in groups according to their importance (based on the 12 submitted mini activity sheets).

Essential requirements for the Trail Master Plan (1)	Achievability
	Providing for bicyclist and pedestrian safety
	Accessibility and convenience
	ADA compliance
Very important criteria to be considered in the selection of a preferred alternative (2)	Improved vehicle safety
	Maintaining the rural character
	Doing no harm to the natural environment
Should factor into the decision making process (3)	Implementable in the short-term
	Enjoyment of the user experience
	Controlling construction cost
	Improving the natural environment
	Maintaining a constant speed of vehicle travel
	Minimizing maintenance cost
Should not be considered as a criteria (4)	Directness of the pedestrian path/ shortest route

Table 2: Criteria Value Groups

Participant Comments

The following comments and suggested criteria were recorded from submitted activity sheets:

- Connection to Fairgrounds and Testimonial Gateway should be implemented concurrently;
- Include Trees and benches;
- The road crossings can be dangerous;
- Can shoulder be wider than 4' if extended?
- Clear signage and signals at intersections will be necessary;
- Is there an option for expansion along Route 299 or through farmland to Butterville Road?
- Shade trees, interpretive signage, rest areas and a trail to Mountain Rest Road should be incorporated;
- Child friendliness should be considered as a criteria for evaluation, and;
- Vehicle travel along Route 299 should be slowed down and the trail design should take into consideration the evening sun glare which affects the vision of drivers.

Engagement Activity

The workshop attendees divided themselves into 6 to 8 person groups for 20 minutes of discussion on the presented conceptual alternatives. Following the breakout groups, the meeting attendees reconvened to share insight and comments to the Project Team and workshop participants. The following is a list of statements, comments, and concerns recorded during the public engagement portion of the Public Workshop.

Project Definition/ Purpose and Intent

- How does this fit into the larger picture/ system?
- Why not put the trail south of the 299?
- What is the perspective of the property owners?
- The destination is a private entity. It should be emphasized that this will be a first piece of a larger trail system.

Safety Concerns

- It is a dangerous situation when crossing the road (299) while on bike.
- Education of public will be required for safety.
- Is it safe to bring people to this intersection (at Wallkill Farms) without traffic controls in place?
- Traffic should be slowed down. Speed of 299 should be lowered.
- We need a safety study before implementation of the path.
- First step in education of drivers with signs, PR in newspapers, etc.
- Crossing road by Wallkill Farms is problematic.
- If you build it too many people will come.

- Concern for safety if there are more people in the area without addition of traffic controls.

Trail Design

- Separate bikes from walkers.
- Keep bikes and pedestrians off the road.
- Hybrid of the 2 concepts should be considered.
- Painting the bike lane green will sharpen the designation.
- Install rumble strip between cars and shoulder bike lane.
- Widen the shoulder to 5' or 6' as a bike lane.
- Biking on the Wallkill Valley Rail Trail surface is an unpleasant experience.
- Consider south side of the road for the proposed trail.

Amenities

- Structures and rest stops should not be a priority for short trails segment.

Programmatic

- There are organized races in the area that should be considered in the design.

Visual and Aesthetic

- Additional lighting should not be installed.
- Visual impact of wide road and wide path is undesirable.
- Suggests a larger, separate, more dramatic design.

Beyond Project Scope

- If the trail link is constructed, people will be emboldened to continue on to the Gatehouse area along the dangerous road.
- Consultant should put a roundabout at Springtown Road in the proposed plan.
- Walkways needed on Mountain Road.

Construction and Maintenance

- Path should be as durable as possible for flooding conditions.
- Path should not be plowed so it can be used as a cross-county ski trail in the winter.
- The rail trail surface is unpleasant experience.

F. Applicable Techniques and Standards

Based on Project Team meetings and input from the general public several technical issues and design tools have been discussed to address project objectives. The following section provides a brief introduction to various tools, techniques and standards which inform and support the Master Plan and Design Guidelines presented in Part II of this report.

Objective: Reduce Speed of Motor Vehicle Traffic

Traffic-Calming Techniques

Implementing traffic calming techniques will reduce the tendency for drivers to speed along the open expanse of the New Paltz Flats. Roadway design elements can also be implemented to assist in the predictability of vehicle behavior and improve the safety of pedestrians. Traffic calming involves changes in street alignment, installation of barriers, and other physical measures to reduce traffic speeds, decrease traffic volumes, and/or reduce traffic cut-through volumes, in the interest of street safety, livability, and other public purposes. Common traffic calming techniques and pedestrian amenities that may be suitable for the project site include:

- Speed tables
- Raised crosswalks
- Raised intersections
- Textured pavement
- Roundabouts
- Chicanes, neck-downs, chokers (curb extensions)
- Center islands

Traffic volume, speed, and safety assessments are generally conducted prior to the implementation of any of these measures in order to determine the specific needs for the area.

Roundabouts

The feasibility of roundabouts at Springtown Road and/or Red Barn Road will need to be studied further. An initial screening/ assessments of the physical characteristics of the area (terrain, grades, physical space available), traffic composition, speeds, and volumes and safety will determine the suitability of a roundabout at one or both of the intersection in the project area. If the conditions are appropriate, conceptual design can be developed and presented to NYSDOT for further consideration.

Reduction of Maximum Speed

Under current New York State law, towns with a population of 50,000 persons or less may request a speed limit adjustment and receive approval from the New York State Department of Transportation in order to change a speed limit on local roads and highways.

Objective: Safe and Convenient High-Speed Bicycle Travel

Shared Roadway/ Paved Shoulder (Bike Lanes)

A widened roadbed that accommodates both motor vehicles and bicyclists, without a physical barrier between the two modes of transportation, is considered a 'shared roadway.' Extension of the shoulders will be a minimum of 4' wide to create a bike lanes on either side of the existing roadways. The paved shoulders will be required to comply with NYSDOT standards. Typical roadway asphalt will be used for the paving material. The paved shoulder should be clearly marked as a designated bike lane with pavement markings and clearly separated from the motorized vehicle lane with wide painted line or striping. To minimize maintenance, the bike lane should have a typical asphalt appearance rather than a painted or integral color.

Objective: Safe Pedestrian and Low-Speed Bicycle Recreational Experience

Shared Use Path (Recreational Pathway)

The recreational pathway will have the characteristics of, what transportation planners refer to as, a 'shared use path.' Cross flow by motor vehicles will be minimized. The pathway will be physically separated from high-speed traffic by a wide vegetated open space. This path should be designed to be used by pedestrians, skaters, wheelchair users, joggers and other non-motorized users. It should function independently from nearby high-speed roadway.

The recommended paved width for a two-directional shared use path is 10 feet. A pavement width of 8 feet may be adequate based on the provision of bicycle lanes within the roadway for high-speed travel. If a width of 8 feet is used, horizontal and vertical alignment must provide safe and frequent passing opportunities. A minimum 2-foot-wide (3 foot is desirable where possible) graded area with a maximum 1:6 slope should be maintained adjacent to both sides of the path.

Midblock Pedestrian/ Bicycle Crossings

Midblock crossings must be a significant distance from roadway intersections. The pavement at the crossings should be highly visible through contrast and/or color. Raised platform crosswalks should be designed to define the roadway space and stress the need for motorists to yield to pedestrians within that space. Crossing distances should be shortened with neck-downs.

The midblock crossings are required to comply with NYSDOT design standards for pedestrian crossings, which are included in the NYSDOT Highway Design Manual. Included in these standards are pedestrian crossing grade and slope requirements, standards for intersection and mid-block crossings, and pavement markings at the crosswalks.

Objective: Environmental Responsibility

Protection of Natural Resources

If wetlands are identified within the project area based on delineation by a wetland ecologist, then direct disturbance (clearing/filling) to the delineated wetlands will require permitting from the Army Corps of Engineers in accordance with Clean Water Act Section 404. In addition, wetland and wetland buffer impacts must be permitted in accordance with Town of New Paltz Code § 139. (Wetland Buffers are 100'; Wallkill River has a 200' buffer). These permits will apply to the proposed trail and any bridge/boardwalk components located in regulated wetland or buffer areas. The project site is not mapped as NYS wetland, therefore the NYS Freshwater Wetland Program does not apply.

Other laws potentially applicable to project site:

- NYS Agriculture and Markets Law
- Floodplain Management: New Paltz Town Code – Section § 139 82: Flood Damage Prevention Assessment of ecological resource including threatened and endangered species is required as part of SEQR review (ECL § 11-0535 - State Endangered Species Act)
- Stormwater Runoff (NYS SPDES General Permit No. GP-0-10-001) coverage under this permit required for 1.0+ acre of disturbance.

Pervious Pavements

Based on successful experiences in similar projects (www.americantrails.org, Middleton, WI project), the use of porous asphalt should be considered for the recreational pathway. The porous asphalt mixture can include recycled materials from local sources. It has been tested to be 20 percent softer than standard asphalt or concrete, which may reduce stress on runners' joints. Studies have shown that that removal of most pollutants at the geotextile soil interface is very good and ice and snow melt away quickly on the porous asphalt surface compared to traditional surfaces. Twice yearly maintenance will include sweepers or blowers to remove accumulations of leaves or dirt and annual vacuuming to maintain the initial level of porosity, reducing the need for winter plowing.

Minor Bridges

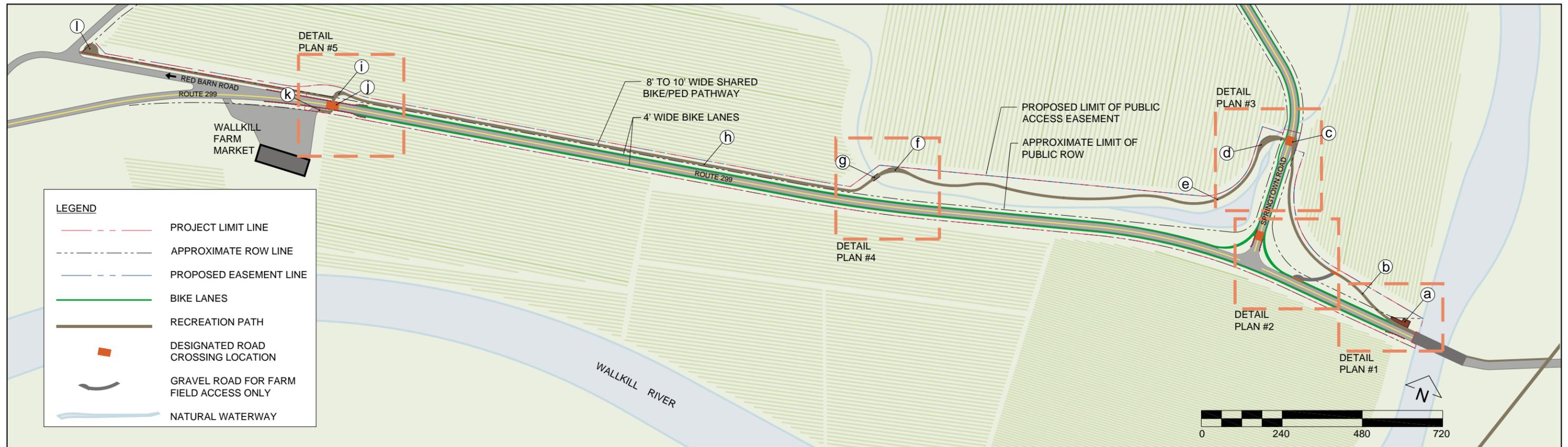
A minor bridge structure will be required to cross the unnamed stream on the project site. The bridge should be carefully designed to minimize impacts on the stream bed, banks and potentially designated wetland.

Part II: Master Plan and Design Guidelines

A. Master Plan

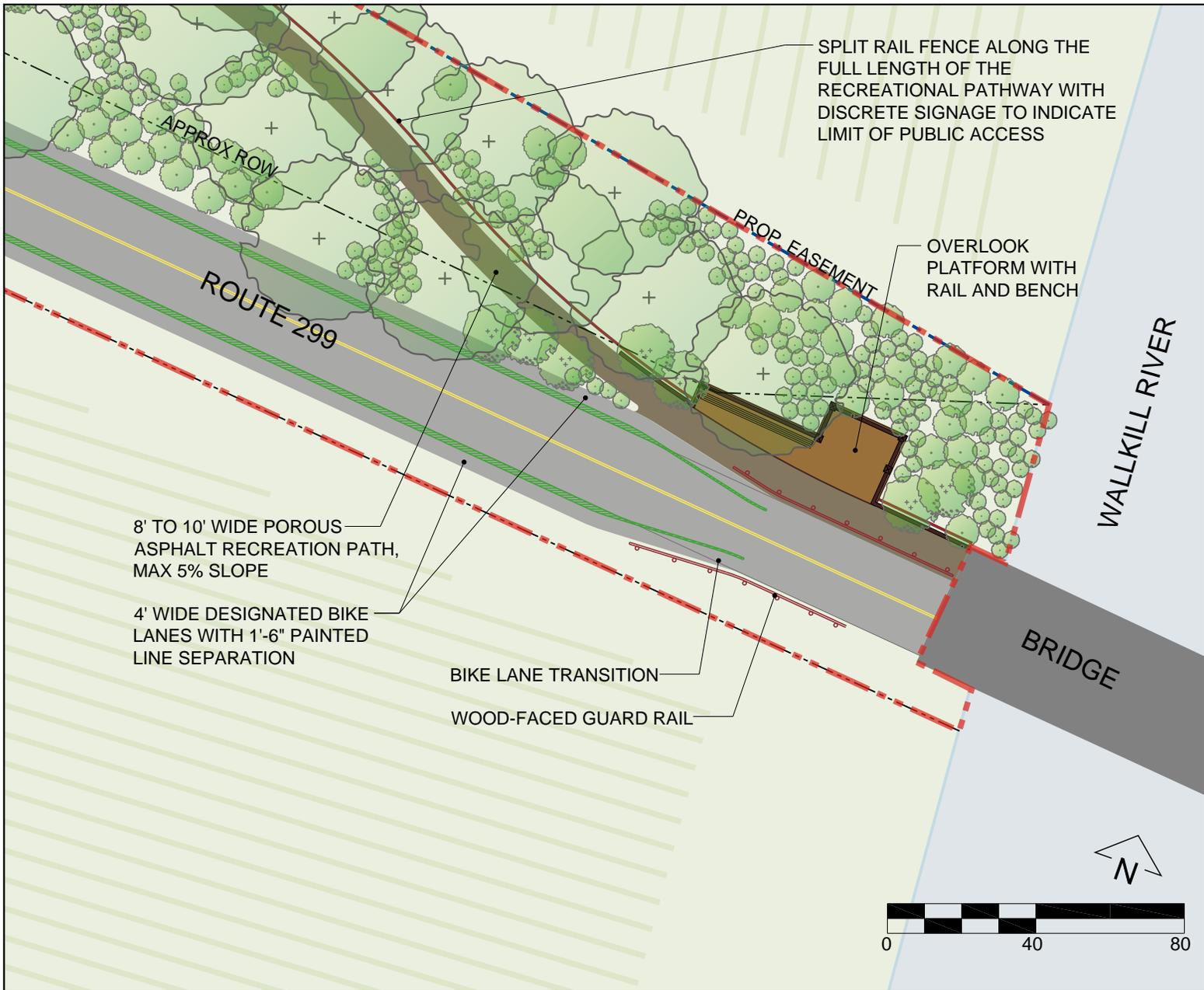
Illustrative Master Plan

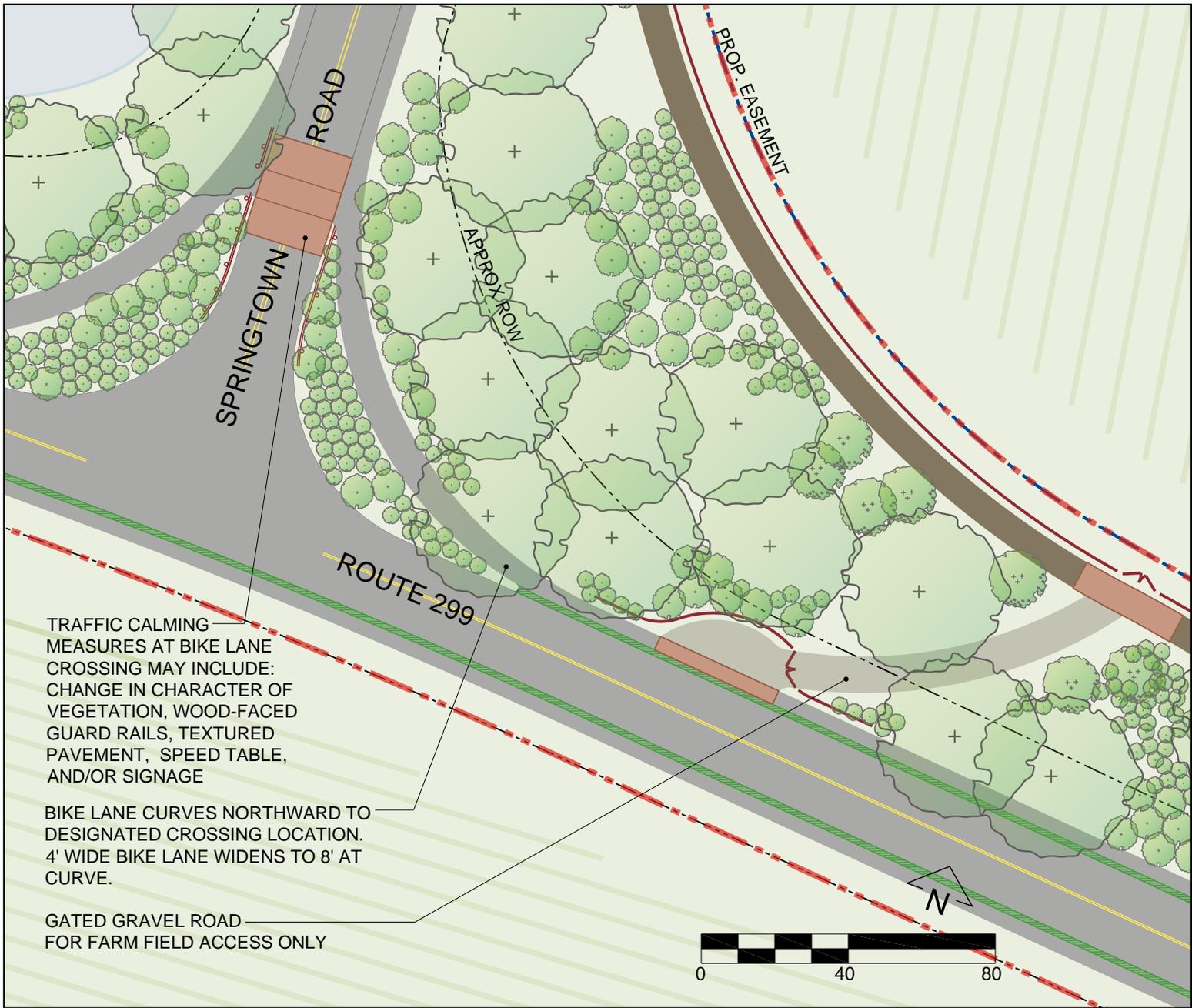
The proposed Master Plan for the New Paltz Flats Bicycle /Pedestrian Trail is illustrated on the following pages. The Illustrative Master Plan includes six drawings; an overall site plan (11"x17" sheet) and five larger scale detail area plans (8 ½" x 11" sheets). These drawings have been developed to documents the design decisions made to-date and to provide guidance for the future design development process.

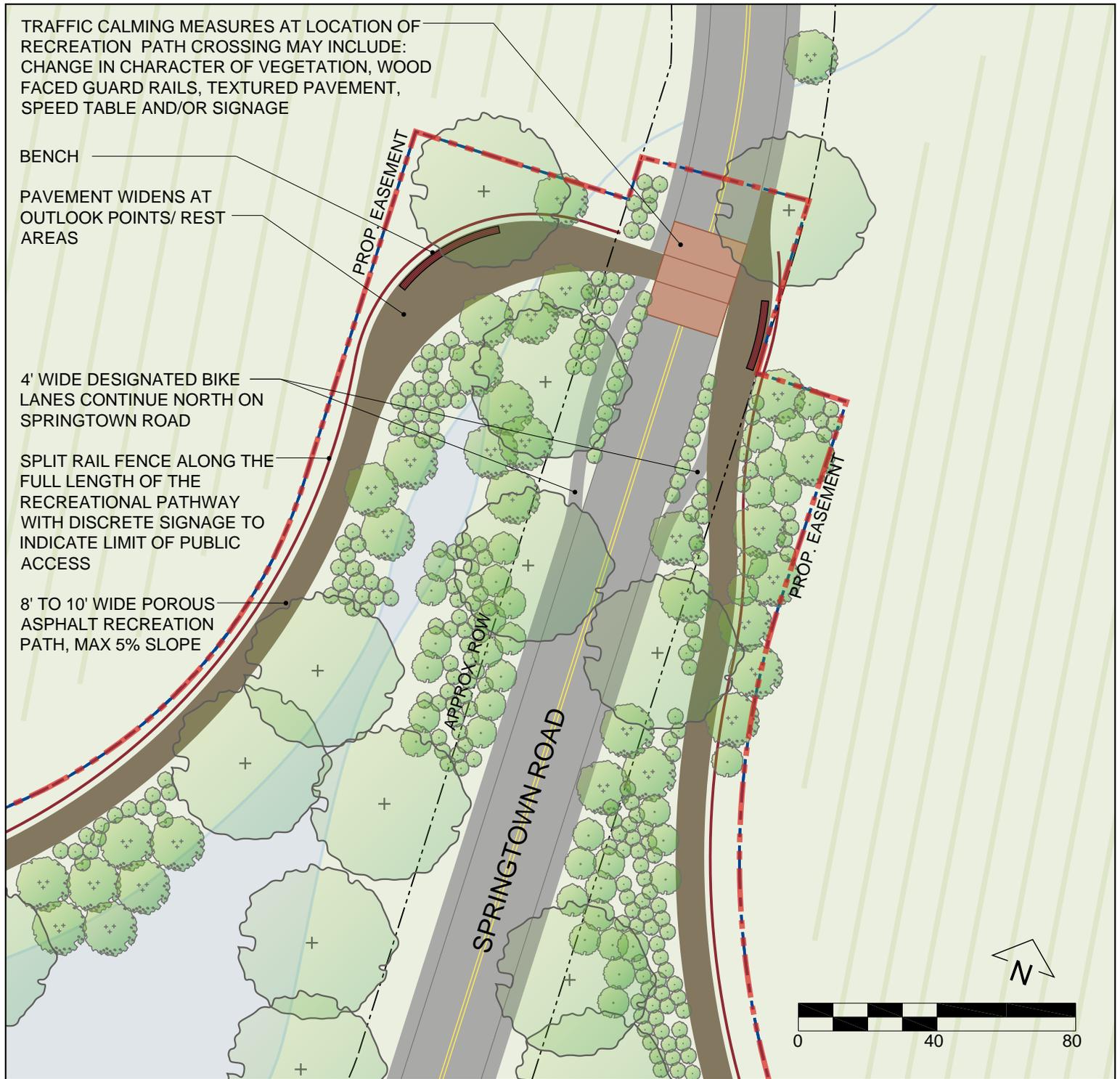


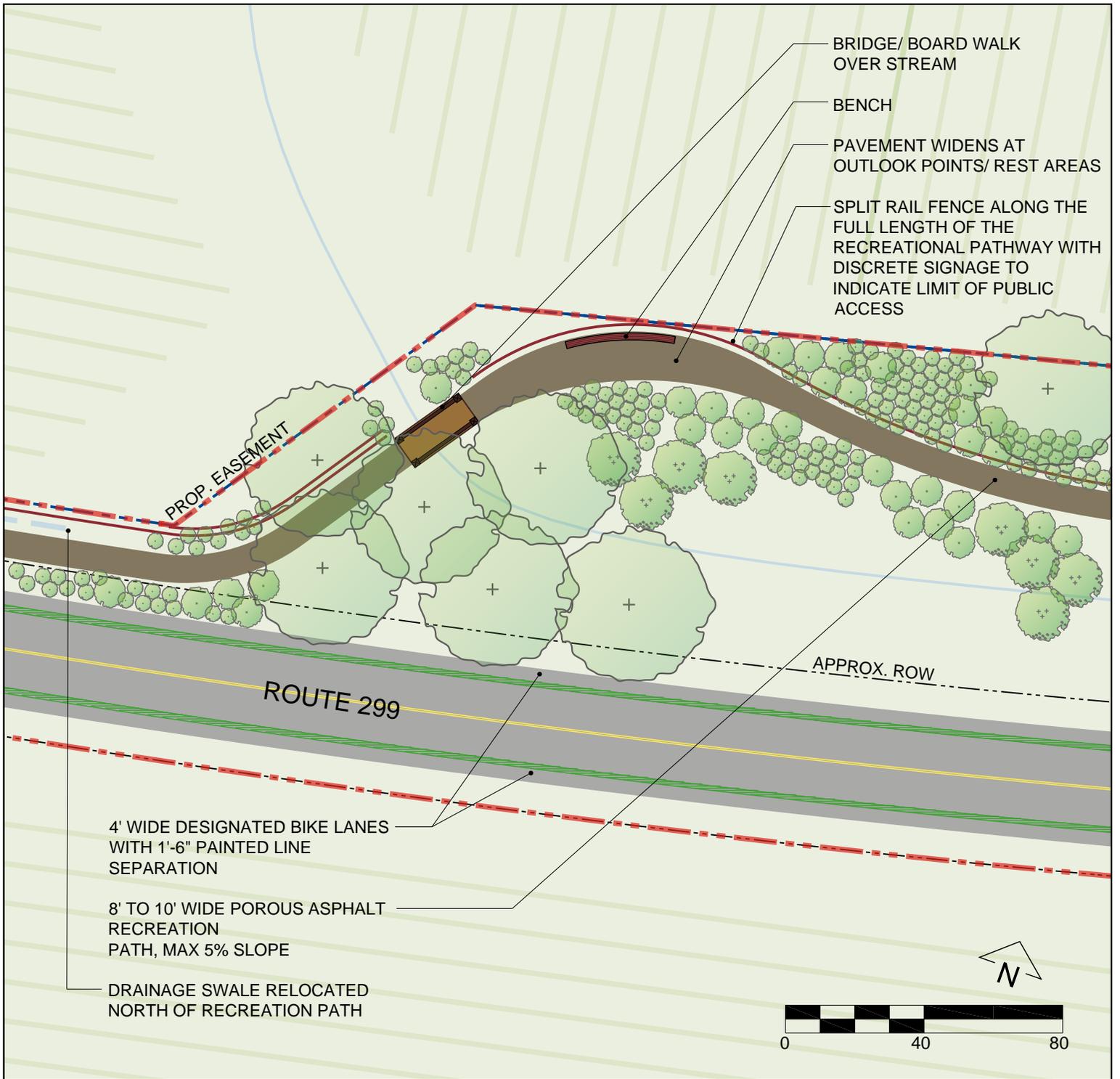
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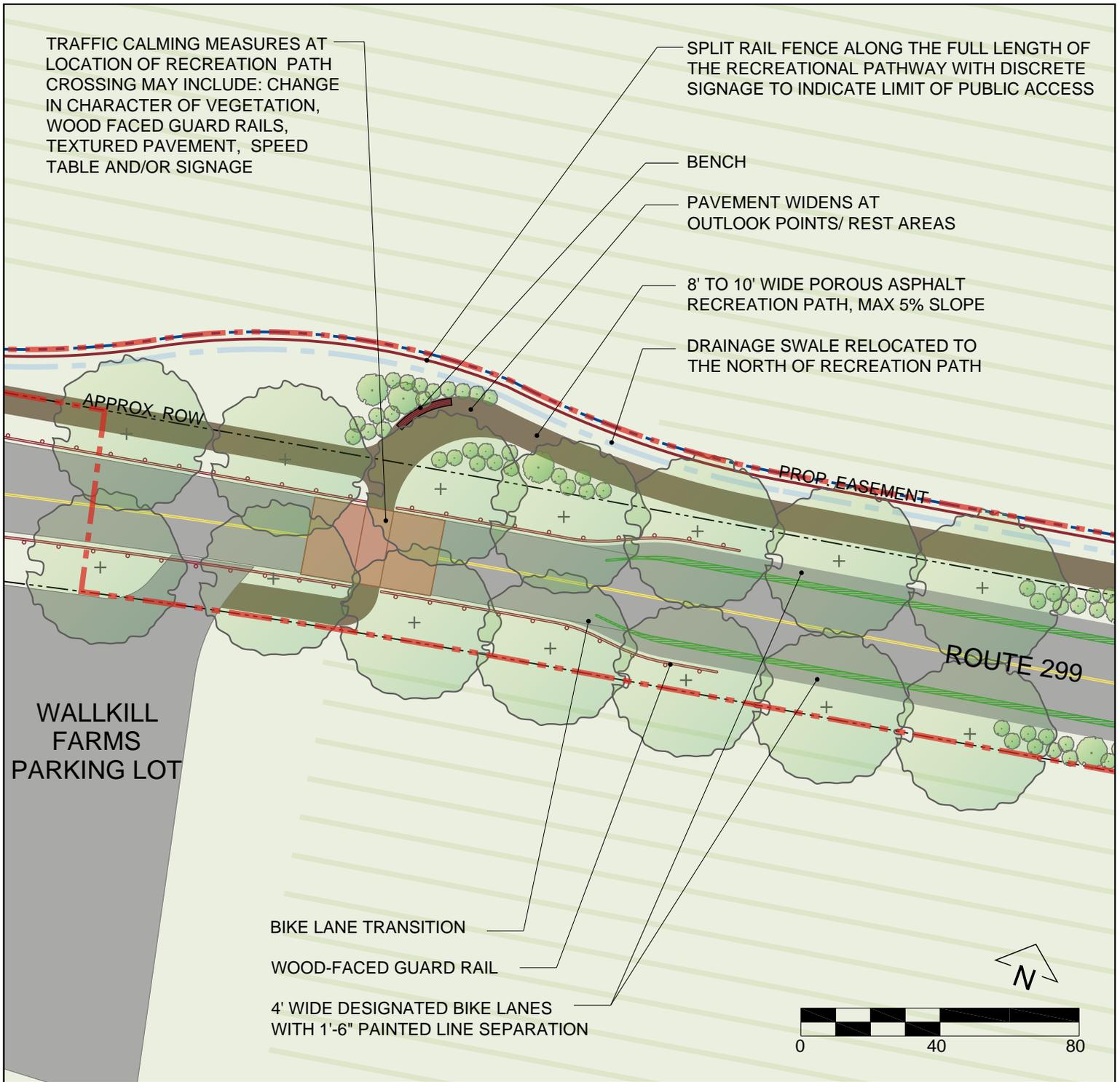
- a. The Wallkill River overlook platform
- b. Gently descent
- c. Pedestrian crossing
- d. Rest area
- e. Potential wetland ecology observation
- f. Rest area
- g. Bridge at stream crossing
- h. Straight-away segment
- i. Rest area
- j. Pedestrian crossing
- k. Trail termination at Wallkill Farms
- l. Rest area and trail termination at Lewis Lane.











Design Narrative

As shown in the Illustrative Master Plan drawings on the previous pages, the proposal for non-motorized access improvements for the New Paltz Flats consist of two main components: 1) New bicycle lanes on Route 299, and 2) A separated recreational pathway. By providing two separate routes based on speed of travel the master plan will maximize the safety and comfort of pedestrian travel while providing high-speed bicyclists a safer and more direct travel option. In addition to improving non-motorized access, the proposed master plan creates a new linear park; a recreation trail which will become a convenient and accessible destination for exploration and discovery.

Route 299 Roadway Improvements

Bike lanes will be located on the shoulders on either side of Route 299 and Springtown Road within the project limits. The 4-foot wide bike lanes will be paved with asphalt similar to the automobile lanes and according to NYSDOT standards. For the majority of the route, a 1 ½ feet-wide painted buffer area will separate the bike lanes from the automobile travel lanes. At either end of the project area, painted lines will taper, providing a transition from designated bike lane to shared travel lanes beyond the project limits. At the transition locations, signage and traffic-calming measures will be used to reduce the speed of traffic and notify drivers of the beginning and end of designated bike lanes. The separation between the vehicular and bicycle travel lanes will be clear and unmistakable by utilizing green paint for the buffer striping and periodic pavement markings (symbols, words and arrows) within the bike lanes. The use of upright traffic signs (on posts) will be minimized and used only where necessary.

At the Springtown Road/ Route 299 intersection, the westbound bike lane will be redirected northward. The change in direction and curve will cause bicyclists to reduce their speed and alert the riders of the potential for conflict with automobile traffic. Traffic-calming measures will be implemented along the roadways at the approach to the designated bicycle crossing. These measures may include raised pavement, a change in pavement color and/or texture, wood-faced guardrails, and vegetation to narrow the field of vision and focus the drivers' attention. At the road crossing location, bicyclists will have the option of proceeding northward on the roadway's widened shoulder or crossing Springtown Road to rejoin Route 299. The shoulder bike lanes on either side of Springtown Road within the project area will be 4 feet in width, painted with bike-lane symbols and separated from automobile travel lanes by a single painted line.

New Recreational Pathway

The new recreational pathway will provide an accessible, convenient and interesting pedestrian experience westward from the Village. Pedestrians crossing the river within the pedestrian walkway of the Carmine Liberta Bridge will continue along a 10 foot-wide, ADA compliant, porous asphalt pathway. The paved recreational trail will provide opportunities for passive recreation, scenic viewpoints and unique perspectives for observation of the rural landscape.

The new Wallkill River overlook platform, visible from the east side of the bridge, will be the gateway element to the Flats Trail. The platform will function as a point of arrival providing initial views to the farmland as well as back to the river and village.

The pathway will gently descend to the elevation of the fields, following the edge of the wet, vegetated area. Dense vegetation and a continuous split-rail fence will mark the edge of the publicly accessible area. Discrete signage attached to the fencing will direct pathway users not to enter the private property. Trees, shrubs and grasses will screen, frame and/or reveal views to provide additional interest and dramatic sequence to the pathway experience.

At the approach to Springtown Road, the pathway will ascend to meet the elevation of the roadway. Special paving, design techniques and signage will alert the bicyclists that pedestrians have the priority at the point where northbound bike lane intersects with the pedestrian pathway. Traffic-calming measures will be implemented along the roadways at the approach to the designated pedestrian crossing. These measures will include raised pavement, a change in pavement color and/or texture, wood-faced guardrails and vegetation to narrow the field of vision and focus the drivers' attention.

West of Springtown Road, the pathway will widen to create a rest area with simple wooden backless benches.

The pathway will follow the edge of the wet, vegetated area on the boarder of the farm fields. There is an opportunity at this location to create a wetland habitat as a recreational amenity, to attract wildlife and improve stormwater storage and treatment. On the north side of the pathway, dense vegetation and a continuous split-rail fence will be used to mark the edge the publicly accessible area. Discrete signage attached to the fencing will direct pathway users not to enter the private property. Trees, shrubs and grasses will be located to screen, frame and/or reveal views to provide additional interest and dramatic sequence to the pathway experience.

Approximately 1,000 feet west of Springtown Road, the trail once again widens to provide a rest area. Here, dramatic views of the rural landscape can be appreciated in a setting buffered from roadway traffic by distance and vegetation.

The waterway flowing through the project site will be spanned with a bridge designed to minimize disturbance to sensitive vegetation.

The approximately 1,500 foot straight-away segment west of the proposed bridge will run parallel to Route 299 buffered from the roadway by a 10 foot wide vegetated area. The land will be graded to relocate the drainage swale to the

north of the new pathway. The swale will provide an additional physical deterrent to entry onto the private farmlands.

A pedestrian crossing area will be provided to traverse Route 299 approximately 50 feet east of the entrance to the Walkkill Farm Market parking lot. North of the crossing, the pathway will widen to create a rest area with simple wooden backless benches. The pathway will continue westward south of Route 299 and terminate in at the Walkkill Farm Market parking lot.

North of the roadway, the pathway will continue westward parallel to Red Bard Road and terminate at Lewis Lane with a rest area. Simple wooden backless benches will be located here within a widened pavement area. There is an opportunity at this location to incorporate public artwork or interpretive signage.

A continuous split rail fence will mark the limit of the public access area. Existing access roads for farm vehicles at locations east of Springtown Road and at Lewis Lane will remain. Gates, paving and safety improvements will be provided at these access points as part of the project.

Traffic-calming measures will be implemented at the designated pedestrian crossing and along the roadway, including: raised pavement, a change in pavement color and/or texture, wood-faced guardrails and vegetation to narrow the field of vision and focus the drivers' attention. Based on roadway conditions and NYSDOT safety standards, it may be necessary to implement traffic control measures, such as a push-button pedestrian traffic signal or a stop sign.

Project Design Guidelines

The roadways within the project area, Route 299 and Springtown Road, are part of the NYS designated Shawangunk Mountains Scenic Byway. The Plan for Tourism, Transportation, Preservation of Resources and Management of the Shawangunk Mountains Scenic Byway (Byway Plan) and the NYS Scenic Byway Design Manual provide standards and guidance on the design of signage for byway identification, tourist oriented directional signage, destination marker, etc. The Byway Plan also provides guidance on the design of site design elements such as guardrails and gateway structures, which are standard to the scenic byway to reinforce a regional identity. Recommendations specific to Ulster County Route 299 from the Wallkill River Bridge to US44/NY55 provided in the Byway Plan were taken into consideration during the development of the New Paltz Flats Bicycle/Pedestrian Trail Master Plan and Design Guidelines.

Signage: A signage plan will coordinate all signage within the project area. The plan's objectives will be to minimize visual disruption to the existing rural character and potential negative effects on the exceptional scenic views. The signage program for the project site will follow the guidance found in the Byway Plan. Traffic signs on vertical posts will be minimized and only used where necessary for safety. Locations will be identified to provide interpretive signage to enhance the meaning and relevance of the natural and historic resources.

Lighting: No additional lighting is proposed as a part of the proposed non-motorized Flats Trail.

Landscape Planting: All species of vegetation selected to be planted within the project area will be native to the region and considered non-invasive. The placement of plant types (i.e. shrubs, trees, grasses) will be intentionally designed with specific objectives to frame views, add seasonal interest, direct attention away for unsightly elements of the landscape (i.e. utility lines) and to develop an interesting and dramatic sequence of experiences. The landscape design will recognize ecological groupings of species and the expected succession of vegetation with minimal maintenance requirements.

Benches: Natural materials such as wood and/or stone will be used for all seating elements. A contemporary, clean-lined wood backless bench is suitable (see images below). Or, alternatively, unique hand-made benches designed by local artists may be used.



Fencing: A rustic-style split rail fence will be used along the northern edge of the recreational pathway (see image below).



Guardrails/ Guiderails: Existing w-beam guiderails will be replaced with the standard box-beam guiderails called for in the Byway Plan or wood-faced guard rails. Where pedestrians and bicycle crossings are located, a wood-faced guardrail will be used to reinforce the rustic (see image below).



Structural Elements, bridge, boardwalks, outlook platform: The images below illustrate the character of the structural elements called for as a part of this Master Plan.



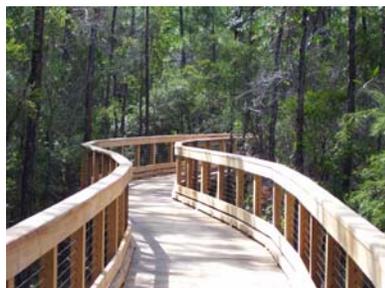
Overlook platform



Bridge at Stream Crossing



Boardwalk



Public Art and Interpretive Signage: Informational, insightful and thought provoking art and interpretation will be incorporated along the recreational pathway.

Maintenance: The bike lanes on Route 299 will be maintained (i.e. snow removal and occasional street cleaning) as a part of the vehicular roadway. Snow accumulation on the recreational pathway will allow for cross country skiing opportunities in the winter. Sand and salt will not be applied to the porous asphalt. The recreational path can will be vacuumed biannually to improve porosity over the long-term and will be cleaned with a street sweeper immediately after flooding events.

The porous asphalt used on the recreational pathway has an improved rate of drainage, reduced occurrences of frozen puddles and black ice and reduced racking and potholes when compared to conventional asphalt. When cracking and potholes do occur, a conventional patching mix can be used.

C. Recommendations for Future Projects

The Master Plan recommends exploration of the following projects to improve the safety, accessibility, comfort and user-experience of non-motorized travel in and near the project site.

- Study the potential for using roundabouts to improve traffic flow and safety at the intersections of Route 299/ Springtown Road and Route 299/Libertyville Road;
- Coordinate trail and bikeway access as a part of anticipated improvements to the Carmine Liberta Bridge;
- Apply to NYSDOT to reduce the legal speed limit within the project site;
- Continue the recreational pathway westward to link to the Mohonk Preserve trail system and the Ulster County Fairgrounds;
- Extend shoulders along Springtown Road north of the project site;
- Improve and/or create wetland conditions as a recreational amenity, to improve stormwater storage and treatment and to improve wildlife habitat;
- Relocate the existing utility poles and electric lines electric lines in subgrade conduits, and
- Improve visual and physical connections to the Walkkill River with selected removal of vegetation.

D. Cost Estimate

ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
Demolition				
Clearing and grubbing	4	AC.	\$ 15,400.00	\$61,600
Misc. removals allowance	1	EA.	\$ 35,000.00	\$35,000
Earthwork				
Regrading	6,000	C.Y.	\$ 33.00	\$198,000
Erosion straw matting	10,000	S.Y.	\$ 2.00	\$20,000
Paving				
Full depth asphalt (assumes 6' width on each side of road)	38,500	S.F.	\$ 4.50	\$173,250
Raised traffic crossings - reinforced concrete	2,000	S.F.	\$ 9.00	\$18,000
Porous Asphalt (assumes 10' wide path)	46,000	S.F.	\$ 4.50	\$207,000
Gravel (assumes 12")	1,700	C.Y.	\$ 133.00	\$226,100
Surface Painting				
Streetbond colored asphalt coating (for bike line demarcation)	9,500	S.F.	\$ 4.50	\$42,750
Recreation path striping and symbols	4,600	L.F.	\$ 1.00	\$4,600
Traffic Controls				
New signal with pedestrian push button	3	EA.	\$ 7,500.00	\$22,500
Site amenities				
Signage - Large (allowance)	8	EA.	\$ 1,200.00	\$9,600
Signage - Small (allowance)	8	EA.	\$ 600.00	\$4,800
Bench (assumes 6' length)	20	EA.	\$ 1,350.00	\$27,000
Cedar split rail fence	4,600	L.F.	\$ 20.00	\$92,000
Timber guide rail	820	L.F.	\$ 16.00	\$13,120
Pedestrian bridge and stream culvert (allowance)	1	EA.	\$ 35,000.00	\$35,000
Overlook platform (allowance)	1	EA.	\$ 35,000.00	\$35,000
Landscaping				
#7 Trees (minimum 7' height)	40	EA.	\$ 180.00	\$7,200
#5 Shrubs - landscaped areas	400	EA.	\$ 44.00	\$17,600
#1 Perennials landscaped areas	1,500	EA.	\$ 7.00	\$10,500
Seeding	85	M.S.F.	\$ 58.00	\$4,930
Mulch	1,200	S.Y.	\$ 6.31	\$7,572
Subtotal				\$1,273,122
CONSTRUCTION MANAGEMENT				
Construction subtotal				\$1,273,122
General Conditions (Includes Survey (3%) and Mobilization (5%))				\$101,850
Bonds (2%)				\$25,462
Contingency (20%)				\$254,624
Inflation Rate (6%)				\$99,304
TOTAL				\$1,754,362

E. Next Steps

Secure Funding for Design and Construction

The following is a list of potential funding sources. A good reference for funding sources can be found in the appendices of the Ulster County Non-Motorized Transportation Plan. That document includes detailed descriptions of and contact information for some of the sources listed below.

- NYSDOT- Transportation Enhancements Program (TEP)- Recreation Trails Program
- NYSDOT- Surface Transportation Planning (STP)
- NYSDOT- Hazard Elimination Program
- Governor’s Traffic Safety Committee - Section 402 highway safety funds
- Consolidated Local Street and Highway Improvement Program (CHIPS)/ Municipal Streets and Highway Program
- Land and Water Conservation Fund/ Municipal Parks Matching Grant Program
- Environmental Protection Fund (EPF) - Title 7, Title 9
- Empire State Development Corporation (Metropolitan Economic Revitalization Funds MERF)
- NYS Department of Health, Healthy Heart Program
- National Scenic Byway Program
- USDOT – recreation Trails Program
- American Hiking Society
- Recreational Equipment, Inc. (REI) Recreation and Conservation Grants

Selection of Design and Environmental Consultant Team

An interdisciplinary design team, led by a landscape architect or design professional with proven experience in design of recreation areas, will be selected to develop the master plan for environmental review, approvals and construction. The consultant team will include, at a minimum, civil engineers, traffic engineer, structural engineer, and natural resource professionals.

The consultant team will be familiar applicable guidelines and specifications such as the Procedures for Locally Administered Federal-Aid Projects Manual, AASHTO specifications, the NYSDOT Standard Specifications (Construction and Materials), the NYSDOT Highway Design Manual, and the Manual for Uniform Record Keeping Under all previous NYSDOT and LDSA project designations.

Environmental Review, Permitting and Approvals Process

The environmental review process can proceed immediately based on the Master Plan. The Town of New Paltz City will likely assume the role of lead agency for the environmental review process. Depending on funding sources the project may be subject to both SEQRA and NEPA requirements. It is anticipated that the project will require a Full Environmental Assessment Form with expanded technical analysis (i.e. traffic impacts or wetland impacts).

For purposes of environmental review and site plan approval, the master plan will be developed into set of large scale drawing sheets. This drawing set will also be submitted for all required permits and approvals from other outside agencies having review and approval authority over the project. The site plan application package will include the following sheets: Survey, Site Layout Plan, Grading & Drainage Plan, Planting Plan, Sediment and Erosion Control Plan and Construction Details.

Design Development Phase

The drawings submitted as part of the site plan approval package will be further develop. The consultant team will develop the design of the trail as well as associated accessories. A detailed topographic survey of the project site will be necessary prior to design development work. The design development plans will identify and detail trail surface, integrated environmental and sustainable design features, signage, pedestrian crossings/signalization, storm water control including culverts and drainage features, street furniture, landscaping, gates, safety rails and vehicle barriers. The design may also include improvements to or relocation of public utilities, maintenance and protection of traffic during construction.

Construction Documentation Phase

The consultant team will prepare final design and construction drawings, plans, specifications and cost estimate. Final design will include plans for the maintenance and protection of traffic during construction. The approved designs will be prepared for public bidding and will meet all state and federal requirements related to the grants and funding.

Bid and Construction

The consultant team will participate in the bid phase to insure the bids contain all of the costs necessary for the trail and its accessories to be built as designed. The consultant team will provide construction support, review of shop drawings and provide on-site construction inspection and oversight to ensure the quality of construction and conformity with the final plans and specifications.