

# Saratoga Springs Greenbelt Trail Feasibility Study



**SARATOGA  
GREENBELT  
TRAIL**

*My soul has grown deep like the rivers.*

May 1, 2014



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# *Executive Summary*





## EXECUTIVE SUMMARY

The Saratoga Springs Greenbelt Trail is a visionary 24 mile/39 km shared use path that forms a continuous loop connecting the city of Saratoga Springs, NY. This is a unique project, with the potential to transform our community by creating a new green infrastructure for active transportation and recreation. The Greenbelt Trail will create a safe pathway for runners, bicyclists, pedestrians, equestrians, skiers, showshoers, dog walkers, and other trail users to travel around The City in The Country. The trail will build upon Saratoga's unique heritage of Health, History and Horses, with a design that highlights the local landscape, heritage and culture of Saratoga. The benefits of the trail will improve the economy, environment and quality of life for residents, visitors and businesses.

The Greenbelt Trail ties together the three existing rail-trails located in Saratoga Springs (Railroad Run, Bog Meadow Trail and Spring Run Trail) and the developing Geyser Road Trail. This connected loop will serve as the hub for the City's active mobility system, with complete streets forming spokes into the center of town and the Saratoga County Trails network, providing connections to the north and south. The annual economic opportunity that the Greenbelt Trail offers to the community is estimated to be \$2.7 million per year in transportation, public health, environmental and tourism potential. More children will be able to walk and bike to school, seniors will be able to 'age in place', people will be more connected to nature, and businesses will be more successful. The Saratoga Greenbelt Trail will be a legacy for future generations.

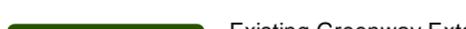
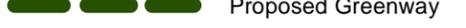
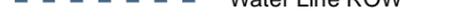
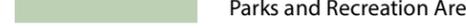
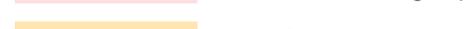
The Greenbelt Trail is envisioned as two primary loops. One loop travels to the east of downtown, connecting from Saratoga Spa State Park through beautiful wetlands. The loop continues along a right-of-way through the Saratoga National Golf Course to the existing Bog Meadow Trail, and incorporates a new tunnel under the Northway to connect with the Spring Run Trail. The other loop travels around the west side of the City, connecting from Maple Avenue Middle School parallel to the county water/sewer line past Skidmore College, the Saratoga

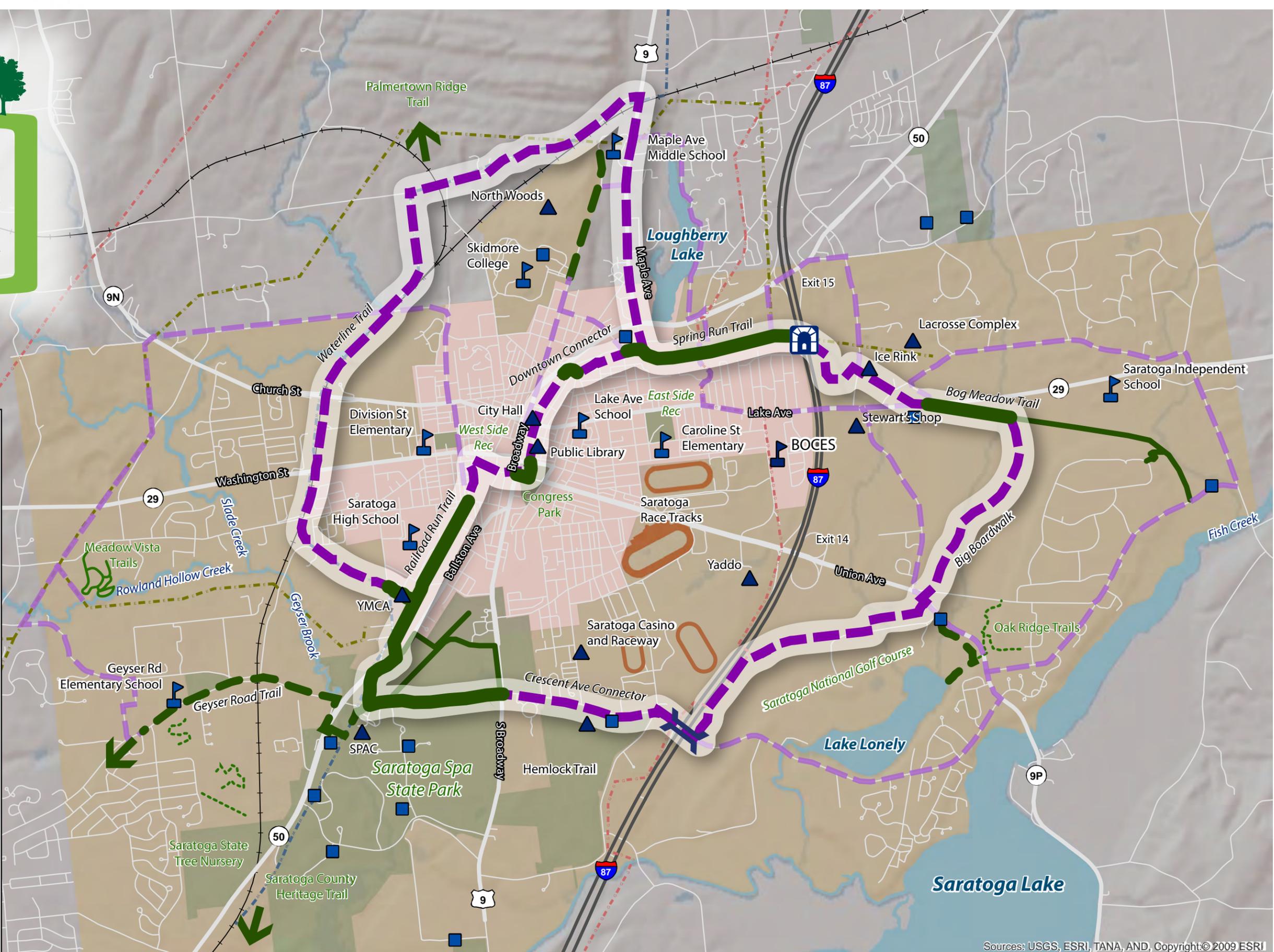
Train/Bus Station, Saratoga High School and back to the YMCA. A third downtown route will bring the Greenbelt Trail through downtown, provide connections to local businesses, services and destinations in the city's core. Trailheads will be located throughout the city for access to the trail. Ideally, every home, business and public place in Saratoga will be a trailhead.

Since the Greenbelt Trail will include existing trails and improved rights-of-way, it is essential to state that proposed alignments which include existing private lands can only become part of the trail with the willing cooperation of landowners. The alignment concepts that are presented in this plan represent the best potential routing for the trail, but each section will require detailed design, collaboration with adjacent properties, and public review. The Greenbelt Trail Plan is the first step in an ongoing partnership for the Saratoga Springs community.

The Greenbelt Trail is a challenging project, but Saratoga has a history of making these kinds of projects happen. The development of the Saratoga Spa State Park, SPAC, Skidmore College, the race tracks and our redeveloped downtown are all proof of the city's potential. While it is possible that the entire trail could be developed as a single project, it is realistic to present the Greenbelt Trail in phases that can be implemented as opportunities and resources become available. The phases of the Greenbelt Trail include, the Crescent Ave Connector, the Big Boardwalk, the Northway Crossing, the Maple Avenue Connector, the Waterline Trail, and the Downtown Connector. This Plan divides these phases into eight sections, providing a framework for an implementation strategy. The total cost of the Saratoga Greenbelt Trail is estimated to be between \$16,500,000 and \$19,850,000. The cost of this project will depend on the community's ability to integrate sections of the trail into ongoing capital projects. This will reduce the need for 'stand alone' funding for the trail. With support of partners in the public, private and non-profit sectors, the Greenbelt Trail will be part of the future of Saratoga Springs, The City in The Country.

# SARATOGA GREENBELT TRAIL

-  Point of Interest
-  Schools and Universities
-  Trail Parking
-  Tunnel
-  Bridge
-  Saratoga Greenbelt Trail
-  Greenbelt Trail Connector
-  Existing Greenway
-  Existing Greenway Extension
-  Proposed Greenway
-  Existing Subdivision Trail
-  Proposed Subdivision Trail
-  Gas ROW
-  Electric ROW
-  Water Line ROW
-  Rail Lines
-  Lakes
-  Parks and Recreation Areas
-  Downtown Saratoga Springs
-  City of Saratoga Springs



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# Introduction





The Saratoga Greenbelt Trail concept is the culmination of over 20 years of community initiatives aimed at enhancing Saratoga Springs's natural resources and providing citizens with recreation and active transportation opportunities. The City's Open Space PLAN (2002) and the construction of several significant trail projects have demonstrated continued interest and a commitment to the completion of a trail network for City of Saratoga Springs. The Greenbelt Trail will aid efforts to support the defining character of the "City in the Country".

The Saratoga Greenbelt Trail is a 24 mile/39 km shared use path that forms a continuous loop connecting the city of Saratoga Springs, NY. The Greenbelt Trail will provide for non-motorized mobility including recreation and transportation that ties together the three existing rail-trails located in Saratoga Springs (Railroad Run, Bog Meadow Trail and Spring Run Trail). The annual economic opportunity that the Greenbelt Trail offers to the community is estimated to be \$2.7 million per year in transportation, public health, environmental and tourism potential. The Saratoga Greenbelt Trail incorporates key destinations around the City, including:

- Downtown Saratoga Springs
- Railroad Run Trail, Bog Meadow Nature Trail, and Spring Run Trail
- Saratoga Spa State Park and the Saratoga Performing Arts Center
- Saratoga Casino and Raceway
- The wetlands east of I-87 (the Northway)
- Saratoga National Golf Course
- Congress Park
- The Lacrosse Complex and Ice Rink on Weibel Avenue

- Maple Avenue Middle School and Saratoga High School
- The Saratoga Mountain Bike Association (SMBA) trails
- The Saratoga Springs Amtrak Station
- The YMCA
- Skidmore College and the "North Woods"

The Greenbelt Trail is a challenging project, but it represents a significant legacy for future generations who will live, work and play in Saratoga. The majority of the Greenbelt Trail can be constructed off-road to minimize conflicts between trail users and motorists. The Saratoga Greenbelt Trail will connect people and nature along a continuous network that includes durable surfaced trails, trailheads, bridges, a new tunnel under the Northway, safe crossings, wetlands boardwalks, buffered bicycle lanes, and complete streets. The Greenbelt Trail will include unique, context-sensitive design features that represent the city's themes of Health, History and Horses. This Saratoga Greenbelt Trail will facilitate non-motorized transportation access to the greater Saratoga Springs area, and will connect with the Saratoga County trails system. This visionary trail system will enhance transportation and recreation options, lower carbon emissions, and act as an economic driver for the region.

## EXISTING TRAILS

There are three existing rail trails in the City of Saratoga Springs that will serve as the foundation of the proposed Saratoga Greenbelt Trail. These trails (Bog Meadow Trail, the Spring Run Trail and the Railroad Run Trail) along with the Saratoga Spa State Park trails and the developing Geyser Road trail can be connected to create the Greenbelt Trail. These existing trails and connections are described in the following sections.

### Bog Meadow Nature Trail

The Bog Meadow Trail, located on the eastern side of the City of Saratoga Springs, was built in the 1990s by a coalition of volunteers led by the Saratoga Springs Open Space Project. The trail is built on city-owned, abandoned railroad right-of-way and passes three wetland types including open marsh, wet meadow and forested wetland.

The trail begins at Lake Avenue/Route 29 at Old Schuylerville Road and terminates at Meadowbrook Road/CR 65. The first section of trail beginning from the Route 29 entrance is level with a bark-chip surface. The second section of the trail becomes uneven due to exposed railroad ties. There is a spur connection to Stony Brook Drive. The last section of the trail is approximately ½ mile of boardwalk, providing access to wetland areas. Visitors note the boardwalks as an excellent feature of the trail.

The trail is approximately two miles total in length and is approximately eight feet wide. The surface material is ballast, natural soil/bark chips, and wooden board-walk sections. Permitted uses include fishing, walking, and cross country skiing. The trail is maintained by the volunteers of Saratoga PLAN

### Spring Run Trail

The Spring Run Trail, located to the east of downtown Saratoga Springs, lies west of the Bog Meadow Trail and south of Loughberry Lake. The Saratoga Springs Open Space Project (now known as Saratoga PLAN) initiated the work for this trail in 1996 in an effort to preserve the trail corridor. In 2010, the city secured a \$1.6 million grant from the American Recovery and Reinvestment Act to fund the construction of the trail. The walking and bicycling path opened in late November 2010.

The Spring Run Trail is approximately 2 miles long and allows for recreation along a woodland corridor that includes historic springs. The surface material of the trail is asphalt.



Bog Meadow Trail (Photo: Saratoga Woods)



Spring Run Trail (Photo: AECOM)

Permitted uses include biking, walking, inline skating and cross country skiing. The path complies with the Americans with Disabilities Act (ADA). The 10 foot wide trail is owned and maintained by the City of Saratoga Springs. Saratoga PLAN coordinates volunteer workdays on the trail as needed.

## Railroad Run Trail

The Railroad Run Trail, located southwest of Congress Park, is the closest trail to downtown Saratoga Springs. This rail-to-trail along the former D & H Railway Company line will eventually connect to the Malta Global Foundries technology site to Hudson River along the Saratoga County / Zim Smith Trail system.



Ribbon cutting on the Railroad Run Trail

Railroad Run is a ½ mile “dual-trail”, in which the surface of one side of the trail is asphalt and the other side is stone dust. Permitted uses include biking, walking, and inline skating. The trail is ten feet wide and ADA compliant. In 2002, the city secured a \$100,000 Transportation Enhancements grant to construct the trail. In 2013, a new signalized “Crossway” was installed at Route 50 to connect Railroad Run to the Saratoga Spa State Park. Stakeholders along the trail include the Friends of Railroad Run, Saratoga Regional YMCA, Saratoga Spa State Park, the City of Saratoga Springs and the State of New York.

## Saratoga SPA State Park Trails

Several shared use paths cross Saratoga Spa State Park, providing visitors the opportunity to enjoy the park without a motorized vehicle. These include the path along the Avenue of the Pines, the former entrance road to the Gideon Putnam Hotel, and the new paths connecting to the Route 50 Crossway. These multi-use trails range from 8-10 feet wide, and are surfaced primarily with asphalt. There are also several natural surface trails that cross the park and other less prominent shared use paths. Cross country running is a very popular use of the Spa State Park trails system.

Table 2.1 - Saratoga Springs Existing Rail Trail Inventory

	Bog Meadow Trail	Spring Run Trail	Railroad Run Trail
<b>Surface Material</b>	Ballast, dirt, wood	Paved, asphalt	Asphalt
<b>Cross Section</b>	8ft	10ft	10ft
<b>Trail Length</b>	2 mi	2 mi	½ mi
<b>Permitted Uses</b>	Fishing, walking, cross country skiing	Biking, walking, inline skating, cross country skiing, wheelchair accessible	Biking, walking, inline skating, wheelchair accessible
<b>Maintenance</b>	Volunteers of Saratoga Plan	Owned and maintained by the City of Saratoga Springs	Partnership of the YMCA, Saratoga Spa State Park, City of Saratoga Springs, and the State of New York

## Saratoga National Golf Course Right-of-Way

In addition to the shared-use trails within the City, it is important to note that a trail right-of-way was created by the Saratoga National Golf Course as an easement held by Saratoga PLAN during the development and permitting of their original course layout. This right of way currently exists as a walking trail from Union Avenue / Route 9P along the western side of the course to Crescent Avenue. The existing right-of-way is a natural surface path. There is also a National Grid natural gas pipeline parallel to the Northway that can connect to the golf course right-of-way.

The Greenbelt Trail has the potential to connect into the developing Saratoga County Trails system via the Zim Smith trail to the south and the Palmertown Ridge trail to the north. These trails in turn will connect to the Champlain and Erie Canalway Trails, and the NY State bike route system. These connections will make Saratoga Springs an important destination for local, regional and long-distance trail users.

## EXISTING TRAILHEADS

Trailheads are the location at which a trail experience begins and often include vehicle parking, maps of the trail, and information about the trail. The current rail-trails and parks that exist in Saratoga Springs contain several of these facilities for trail users. The proposed Saratoga Greenbelt Trail system encompasses the following existing trailheads. Kiosks at each trailhead will have orientation maps that place the trail section at the site in its context of the overall Greenbelt Trail, including existing and planned sections.

### Trailheads within Saratoga Spa State Park

Spa State Park includes several locations with parking and wayfinding that act as trailheads within the park. As routes within Spa State Park are incorporated into the proposed route of the Greenbelt Trail System, these trailheads will serve both users of the park and users of the Greenbelt Trail.

### YMCA

The Saratoga Springs YMCA, located near the southern end of the existing Railroad Run Trail, offers parking, a CDTA bus stop and amenities for members. The YMCA offers direct off-street access to downtown Saratoga Springs via the Railroad Run Trail. Because of its placement directly on the proposed Saratoga Greenbelt Trail and its association with fitness and well-being, the YMCA can

serve as a major hub for activity along the Greenbelt Trail.

### Congress Park

The heart of downtown Saratoga Springs, Congress Park and the springs, museum, sculptures, and Arts Center located within it will act as a centerpiece for the Greenbelt Trail. Surrounded by downtown's urban amenities, Congress Park is an ideal place to begin and end a journey along the Greenbelt Trail. There is public parking in a surface lot and parking deck across from the park on Spring Street.

### Spring Run Trail

The Spring Run Trail, constructed on an old railroad right-of-way, is a major segment of the Saratoga Greenbelt Trail system. No formal trailhead exists for this trail segment although trail users park at a nearby private parking lot off of East Avenue. Adjacent to the beginning of the trail offers an opportunity for a formal trailhead.

### Bog Meadow Trail

Bog Meadow Trail, also constructed in an abandoned rail corridor, contains parking and trail maps directly adjacent to the trail at its western end along Route 29 at other access points along the trail. Improvements to Bog Meadow's trailhead will support development of the Greenbelt Trail and will help more users take advantage of the scenic beauty of Bog Meadow.

### North Broadway / Skidmore North Woods

At the end of North Broadway, the city-owned Old Glen Mitchel Road is a path that runs from Skidmore College to Maple Avenue Middle School. The path has trail kiosks and space for informal parking although no formal parking lots or lighting exists. These trailheads lead into the Skidmore College campus and provide access to Skidmore's North Woods learning and recreational area.

## Saratoga Mountain Bike Association (SMBA) / NYSDEC Daniel Road Access

The SMBA developed a remarkable trail network on lands north of Daniels Road near the Skidmore College Equestrian Stables. These lands were leased from Finch Pruyn Paper Company, and are in the process of becoming NY State DEC lands. This trailhead can provide mountain bike, equestrian, hiking and winter trail access, and a gateway to the developing Palmertown Ridge Trail connecting Saratoga Springs to Moreau Lake State Park.

## Key Trail Crossings

In addition to the existing linear trail sections, it is important to recognize that the Greenbelt Trail will include a number of trail/roadway crossings. This section addresses key potential at-grade conflicts between trail users and roadways.



Railroad Run Trail at New Street intersection  
(Photo: NY State GIS Clearinghouse)

## NEW STREET AND RAILROAD RUN

The Railroad Run Trail crosses New Street just east of Empire Avenue. The land uses in the northeast and southeast quadrants of the intersection are industrial, and the land uses in the northwest and southwest quadrants are commercial and light industrial. New Street is a two-lane roadway with sidewalks on each side. A crosswalk runs across New Street to the right of the Railroad Run trail. The crossing distance is approximately 50 feet. This existing crossing can be enhanced to improve the alignment and sight distances near the YMCA entrance.

## WEST AVE/YMCA

The proposed Greenbelt Trail crosses West Avenue near the YMCA, with farming and residential land uses along West Avenue. West Avenue is a two-lane roadway with no bike lanes, and a sidewalk begins approximately 110 feet north of the existing path at the YMCA.



Potential trail connection at the YMCA on West Avenue  
(Photo: NY State GIS Clearinghouse)

## WEST CIRCULAR AND BEEKMAN STREET

The Railroad Run Trail terminates at the intersection of West Circular Street and Beekman St. The land uses surrounding the intersection are primarily residential with some commercial uses in the southwest quadrant of the intersection. West Circular Street is a two-lane roadway, with sidewalks along the northern and southern sides of the intersection. One crosswalk crosses West Circular (approximately 45 feet

wide) east of Beekman Street. The intersection contains no pedestrian crossing devices.



West Circular and Beekman Street intersection  
(Photo: NY State GIS Clearinghouse)

### **SOUTH BROADWAY AND CRESCENT AVE**

A pedestrian entrance provides access to the east side of Spa State Park via Gideon Putnam Rd. (motor vehicles are not permitted). This entrance is located at the intersection of South Broadway (Rt. 9) and Crescent Ave / County Road 22. Spa State Park owns land west and northeast of the intersection and the parcel on the southeast corner of the intersection is commercial (Saratoga Honda). Route 9 is two bi-directional lanes with grass median to the north of the Rd. 22 intersection. There are currently no turning lanes at the intersection.

The intersection has two crosswalks; one crossing County Rd. 22 and connecting the sidewalk on the south side of

County Rd. 22 to the sidewalk that runs along the east side of Route 9. The second crosswalk crosses Route 9; a pedestrian refuge median allows pedestrians to cross the street in stages. The total crossing distance, including the median, is approximately 70 feet. The median is ten feet wide. This crosswalk connects to a sidewalk that begins along the west side of Route 9. This short sidewalk segment terminates at Gideon Putnam Rd (the entrance to Spa State Park). The intersection does not have pedestrian countdown signals. Both crosswalks and sidewalks are ADA compliant. There is one shoulder in the southeastern quadrant of the intersection.



South Broadway and Crescent Avenue  
(Photo: NY State GIS Clearinghouse)

### **ROUTE 50 AND GEYSER ROAD**

The intersection of Geyser Rd, Route 50, and the Avenue of the Pines is signalized. No crosswalks or pedestrian amenities exist at the intersection. Pedestrians are directed south

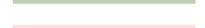


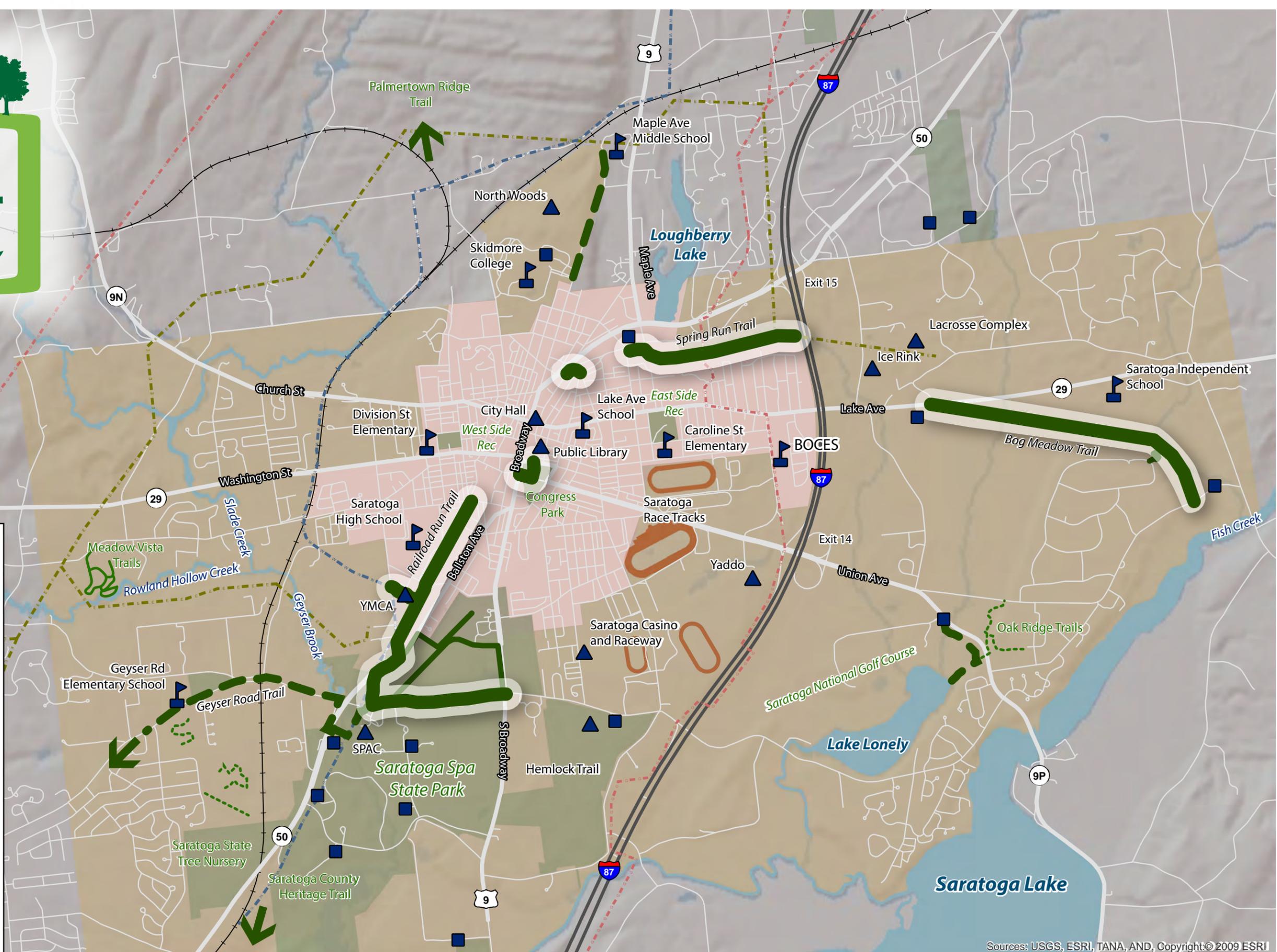
through signage to the pedestrian bridge. Improvements to this intersection are currently being designed and include bicycle and pedestrian accommodations and a connection to the Geyser Road Trail.



Route 50 and Geyser Road intersection  
(Photo: NY State GIS Clearinghouse)

# SARATOGA GREENBELT TRAIL

-  Point of Interest
-  Schools and Universities
-  Trail Parking
-  Existing Greenway
-  Existing Greenway Extension
-  Proposed Greenway
-  Proposed Subdivision Trail
-  Gas ROW
-  Electric ROW
-  Water Line ROW
-  Rail Lines
-  Lakes
-  Parks and Recreation Areas
-  Downtown Saratoga Springs
-  City of Saratoga Springs



Sources: USGS, ESRI, TANA, AND, Copyright © 2009 ESRI



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## Benefits, Opportunities, Challenges, and Users





## TRAIL USERS AND USES

The City of Saratoga Springs is an active community where many people walk, run or bike, but safe places to participate in these activities are limited. As active mobility becomes popular creating this new infrastructure will help Saratoga compete with the best small cities in the U.S. Saratoga High School has a highly competitive cross-country running team; however, a majority of their training is done on City streets. Trips to school are often taken by motor vehicle even though schools are in close proximity to residential neighborhoods. The Greenbelt Trail will provide for transportation and recreation, for heritage tourism, environmental education, and other purposes.

The Greenbelt Trail will provide safe access to mountain bikers travelling to the Daniel Road trails, for people going to concerts at SPAC, to tourists learning about local history, for horseback riders at the Skidmore Stables, for people using wheelchairs, dog walkers, for students walking or biking to the Middle School, and runners from the High School. It is also possible that small electric vehicles or golf carts can have access to the trail, with charging stations from the proposed Solar park. The Greenbelt Trail will provide connections to residential neighborhoods and economic development sites and downtown. The trail can also provide for winter uses, such as cross country skiing and snowshoeing. These uses are summarized in Table 3.1.

## CULTURAL AND ECONOMIC CONNECTIONS

Saratoga County is one of the fastest growing upstate communities. This project will serve to directly enhance community cohesion providing pedestrian access to isolated neighborhoods and connecting businesses to residential areas. The trail will enhance the city's recreation

Table 3.1 - Trail User Types

User Group	Ideal Trail Type	Surface	Amenities	Overhead Clearance
<b>Pedestrians</b>	Soft	Rubber, Mulch, Crushed Rock	drinking fountains, benches, rest areas	7 feet
<b>Bicyclists</b>	Hard	Stone Dust, Paved	drinking fountains, benches, rest areas, bike racks	8 feet, 10 feet at bridges
<b>Mountain Bikers</b>	Rugged	Bare earth	drinking fountains, benches, rest areas, bike racks	8 feet, 10 feet at bridges
<b>Equestrians</b>	Soft	Loose or compacted dirt trails	drinking fountains, benches, rest areas, hitching posts	10 feet
<b>Cross-Country Skiers</b>	smooth	smooth trails are ideal, pavement or hard surfaces with snow	drinking fountains, benches, rest areas, warming huts	7 feet
<b>In-line Skaters</b>	hard	Paved	benches at trailheads for putting skates on	7 feet
<b>Motorized Users</b>	hard	Stone Dust, Paved	drinking fountains, benches, rest areas	10 feet
<b>Disabled Users</b>	Hard	Stone Dust, Paved	ADA compliant grades, railings, smooth surfaces	7 feet

resources and has the potential to positively affect religious, educational, business, and other recreation facilities. Notably,

### Schools and other educational institutions – safe routes to schools:

- Saratoga High school
- Maple Ave Middle school
- Skidmore College
- Empire State College

### Recreation facilities:

- Saratoga Spa State Park
- Saratoga Performing Arts Center (SPAC)

- Saratoga Polo Club
- Saratoga Mountain Biking Association
- Saratoga National Golf Course
- Saratoga Springs Weibel Avenue Ice Rinks
- Saratoga Regional YMCA
- Congress Park
- High Rock Park and Saratoga Farmers' Market

#### **Businesses and Economic Development:**

Open space conservation and trail development increases the quality of life for residents, enhances the experience for visitors, and attracts new businesses to growing markets. Trails can help attract and retain young workers - this is a key issue for the next generation of employment in Saratoga County. When built, the trail will provide quality of life and alternative transportation benefits to employees at some of the city's largest employers, such as:

1. Saratoga National Golf Course
2. Saratoga Casino and Racetrack
3. Saratoga Springs City School District
4. QuadGraphics
5. Saratoga Hospital
6. Skidmore College
7. Saratoga Honda
8. Four Winds
9. Ball Corporation

10. Adirondack Trust Company
11. Espey Manufacturing & Electronics Co.
12. Hilton Hotel and Conference Center
13. Gideon Putnam Hotel and Conference Center
14. Other Hotels, restaurants and retail businesses throughout the city, including bike shops, retailers, locally owned B&B's, Inns, and hotels near the trail such as the Inn at Saratoga, Saratoga Arms, Union Gables, Hampton Inn, Courtyard by Marriott, Residence Inn, Saratoga Hilton, Holiday Inn, and the now under construction Embassy Suites on Congress Street.

The trail will also connect the surrounding community to downtown and the many businesses that are located there, as well as places outside downtown including the Saratoga Brewery, and the new Fresh Market on Marion Avenue. All of these businesses add up to well over 10,000 daily trips by over 5,000 possible commuters.

### **BENEFITS OF TRAILS**

There are many benefits to implementing trails and extending the City of Saratoga Springs' trail network. Benefits include health, environmental, and economic benefits. Trails support and incentivize recreational opportunities and active forms of transportation, helping to promote good public health.

Health benefits of trails include:

- Increased opportunities for a variety of recreational physical activities; biking, walking, jogging etc.
- Alternative transportation options that link homes, neighborhoods, workplaces, schools, parks,



Table 3.2 - Economic Benefits of Shared Use Trails

Benefit	Description
Real Property Values	Past evidence that greenways and trails may increase nearby property values. Demonstrates how an increase in property values can increase local tax revenues and help offset greenway acquisition costs.
Expenditures by Residents	Spending by local residents on greenway-related activities can help support recreation-oriented businesses and employment, as well as other businesses which are patronized by greenway, and trail users.
Commercial Uses	Potential for concessions and special events within the greenway, which can boost local business as well as raise funds for the greenway itself.
Tourism	Greenways, rivers and trails which attract visitors to a community support local businesses such as lodging, food establishments, and recreation-oriented services. Greenways may also help improve the overall appeal of a community to visitors and increase tourism.
Estimating the Effects of Spending	Myriad of direct and indirect effects of greenway-related expenditures and how to estimate economic impacts of your project.
Agency Expenditures	By managing a river, trail or greenway can support local businesses by purchasing supplies and services. Jobs created by the managing agency may also help increase local employment opportunities and benefit the local economy.
Corporate Relocation & Retention	The quality of life of a community is an increasingly for retaining and attracting corporations and businesses, and that greenways, rivers and trails can be important contributors to the quality of life. Corporations bring jobs to a community and help support businesses which provide services and products to corporations and their employees.
Public Cost Reduction	The conservation of rivers, trails and greenways may help local governments and other public agencies to reduce long term costs for services such as roads and sewers; reduce costs resulting from injury to persons and property from hazards such as flooding; and avoid potential costly damages to natural resources such as water.
Benefit Estimation	The recreational benefits of rivers, trails and greenways can be estimated in monetary values. Users can be surveyed to estimate the value of a visit to a greenway.

recreational and cultural facilities and creating active forms of transportation (walking and biking).

Environmental benefits of trail systems include:

- Increased open space and protection of undeveloped land
- Can spur conservation easements in area
- Can help mitigate costs associated with air and water pollution, as well as flooding, and runoff issues
- By providing an alternate form of transportation, can decrease use of automobiles in the region

Table 3.3 - Potential Annual Benefits of Increased Bicycling in Saratoga Springs

	Current	Medium Goal: 20% Increase	High Goal: 50% Increase
<b>Bicycle Commute Mode Share</b>	1.0%	1.2%	1.5%
Annual VMT Reduced	381,000	460,000	570,000
<b>Air Quality</b>			
CO2 Emissions Reduced (pounds)	310,000	370,000	470,000
Other Vehicle Emissions Reduced (pounds)	12,000	14,000	18,000
Total Vehicle Emissions Costs Reduced	\$9,000	\$10,000	\$10,000
<b>Social Benefits</b>			
Reduced Traffic Congestion Costs	\$19,000	\$20,000	\$30,000
Reduced Vehicle Crash Costs	\$137,000	\$160,000	\$210,000
Reduced Road Maintenance Costs	\$57,000	\$70,000	\$90,000
<b>Individual Benefits</b>			
Household Vehicle Operation Cost Savings	\$215,000	\$260,000	\$320,000
Health Care Cost Savings from Physical Activity	\$29,000	\$30,000	\$40,000
<b>Total Benefits:</b>	<b>\$466,000</b>	<b>\$550,000</b>	<b>\$700,000</b>

*Note: Estimates reflect conceptual benefits that would be generated at given mode shares as if they existed in Saratoga Springs today. Values are not discounted and do not reflect future demographic growth, cost changes or other multiplier changes.*

Economic benefits for trails include:

- Job Growth - trail construction and maintenance, as well as recreational and tourism related businesses.
- Potential for new business opportunities: hotels, bike rentals, restaurants etc.
- Attraction of new businesses due to quality of life.

### Economic Benefit Analysis

Benefits of bicycling and walking are based on the number of regular walk/bicycle transportation users and miles traveled developed in the overall demand estimate. Numerous studies have estimated the dollar value of the benefits of bicycling and walking such as reduced pollution from the reduction of vehicle travel, improved health

Table 3.4 - Potential Annual Benefits of Increased Walking in Saratoga Springs

	Current 8.8%	Medium Goal: 20% Increase 10.5%	High Goal: 50% Increase 13.1%
<b>Walk Commute Mode Share</b>			
Annual VMT Reduced	1,837,000	2,200,000	2,760,000
<b>Air Quality</b>			
CO2 Emissions Reduced (pounds)	1,495,000	1,790,000	2,240,000
Other Vehicle Emissions Reduced (pounds)	60,000	72,000	90,000
Total Vehicle Emissions Costs Reduced	\$43,000	\$50,000	\$60,000
<b>Social Benefits</b>			
Reduced Traffic Congestion Costs	\$92,000	\$110,000	\$140,000
Reduced Vehicle Crash Costs	\$662,000	\$790,000	\$990,000
Reduced Road Maintenance Costs	\$276,000	\$330,000	\$410,000
<b>Individual Benefits</b>			
Household Vehicle Operation Cost Savings	\$1,038,000	\$1,250,000	\$1,560,000
Health Care Cost Savings from Physical Activity	\$189,000	\$230,000	\$280,000
<b>Total Benefits:</b>	<b>\$2,299,000</b>	<b>\$2,760,000</b>	<b>\$3,440,000</b>

*Note: Estimates reflect conceptual benefits that would be generated at given mode shares as if they existed in Saratoga Springs today. Values are not discounted and do not reflect future demographic growth, cost changes or other multiplier changes.*

from increased physical activity, and other benefits. Using figures from these studies, overall levels of bicycling and walking transportation activity can be expressed in terms of their dollar value to local residents and the community at large.

Although current levels of walking and bicycling in Saratoga Springs are roughly similar to national averages, local use of active transportation returns significant benefits to the community in the form of improved air quality, reduced transportation costs, and improved health. Frequently, most people do not recognize these factors in their daily routines. Using the estimated VMT reduction rates, and the multipliers, existing rates of bicycling and walking transportation are estimated to generate over \$2.7 million in annual benefits for Saratoga Springs.

Future growth in local bicycling and walking rates would generate economic, environmental and health benefits greater than the current estimate of \$2.7 million in annual benefits to Saratoga Springs. The Greenbelt Trail can be a catalyst to generate significant new levels of walking, biking and other trail uses. Table 3.2 provides monetized annual estimates of these benefits for bicycling at two example rates. Table 3.3 explores the potential annual benefits of increased walking rates.

The potential benefits of increased walking and bicycling rates in Saratoga Springs make a strong case for increased investment in active transportation infrastructure. For example, if walking and bicycling activity were to increase by 50%, the community could enjoy additional health, environmental and economic benefits valued at approximately \$1.40 million per year. By stimulating increased use, the new bicycling and walking facilities proposed in this plan could become valuable assets that improve the health, affordability and livability of Saratoga Springs.

## OPPORTUNITIES AND CHALLENGES

This section outlines opportunities and challenges associated with construction of the Saratoga Springs Greenbelt Trail. The identified opportunities are depicted on page 24, and the identified challenges within the project area are depicted on page 26. Input from the first public meeting and additional comments received informed the visualization of issues displayed in the accompanying chart. The chart of opportunities and challenges formed the basis of the following maps and helped direct the proposed trail alignment alternatives.

## Opportunities

Opportunities associated with the Saratoga Greenbelt Trail include existing trail infrastructure, pedestrian amenities, and signed bike routes. The City has a number of destinations that can be connected by the Greenbelt, Trail such as Spa State Park, hundreds of acres of wetlands, a bustling downtown and two racetracks. Several properties and rights-of-way could serve as potential alignment alternatives for the Greenbelt Trail – ensuring that the trail makes a continuous loop around the City.

## Challenges

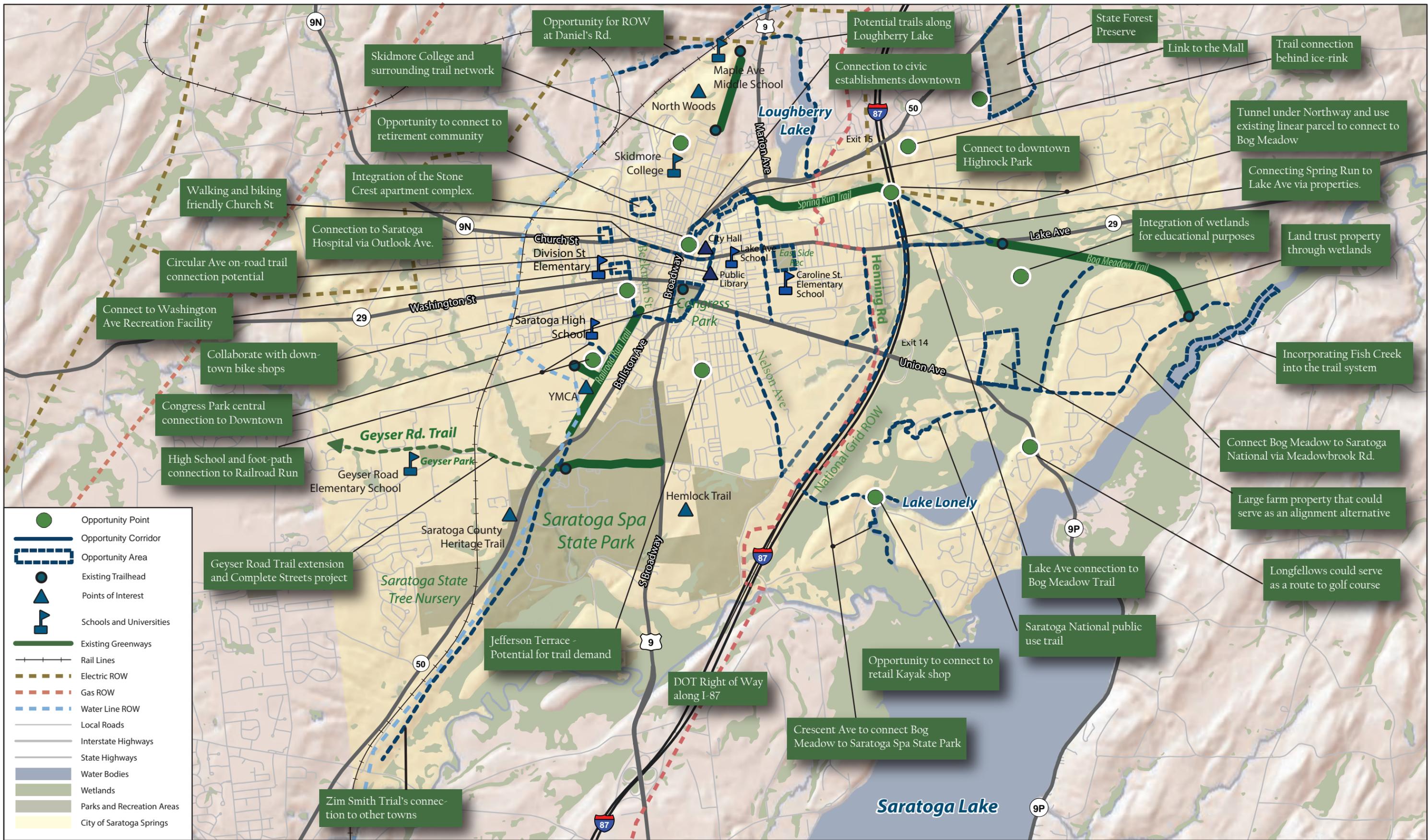
A key challenge facing the Saratoga Greenbelt Trail is Interstate 87 which creates a barrier between two halves of the City. Other challenges include high traffic speeds on key roadways, a lack of dedicated pedestrian and bicycling infrastructure, and lack of lighting on the existing shared used paths. The extensive wetlands east of the Northway are a significant environmental resource, and habitat for the Karner Blue Butterfly exists in the Saratoga Spa State Park on the lands north of Crescent Avenue.



Endangered Karner Blue Butterfly  
(Photo: Ohio Nature Conservancy)



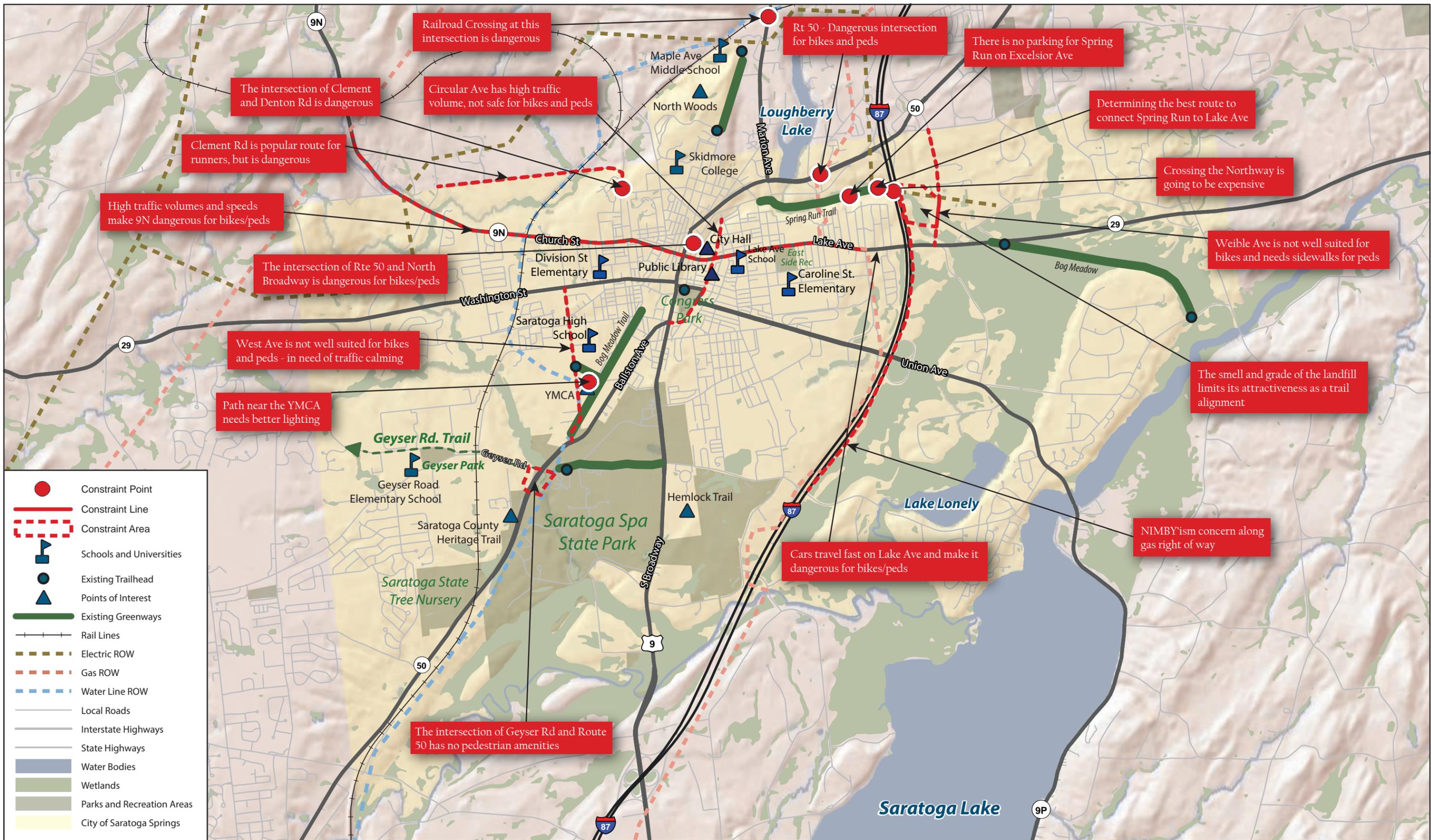
I-87 (the Northway) Barrier seen from the end of the Spring Run Trail



**Multi-Use and Greenway Trails: Opportunities Map**  
 - City of Saratoga Springs, NY -



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# Alignments + Trail Amenities





## ALIGNMENT ALTERNATIVES

The planning team developed three alignments for the Saratoga Greenbelt Trail Alternative:

- Alignment 1, the “eastern loop” alternative alignment, includes on-road and off-road sections, crossing the Northway at the Crescent Avenue bridge and again with a proposed tunnel at the Spring Run Trail.
- Alternative Alignment 2 follows the same alignment as Alternative 1 on the eastern side of the City, but deviates at the Spring Run Trail and travels around the city’s west side along the county water line.
- Alternative Alignment 3 provided a shorter term “sign and stripe” on-road option that can be implemented along existing shared roadways and complete streets

## PROPOSED ALIGNMENTS

The proposed alignments combined these alternatives into a phased system that can be built in sections as resources and opportunities allow. The primary Greenbelt Trail creates a complete loop around the city utilizing both the east and west side alignments, and connects through downtown to provide access to the center of town.

Starting at the YMCA and moving counterclockwise, the trail connects to Saratoga Spa State Park via the new Route 50 Crossway, and follows the existing trails located within the park to connect to the Crescent Avenue/South Broadway intersection. From there, a 10-foot wide shared use path on the south side of Crescent Avenue will be constructed to connect trail users to Nelson Avenue. The trail will briefly be aligned with the road network and will utilize the existing bridge to cross the Northway. An easement across private lands at the northeast corner

of the bridge would improve the alignment and reduce wetlands impacts for the trail. At this point the trail will turn north and follow a National Grid right-of-way parallel to the highway, until crossing lands owned by Yaddo and into the Saratoga National Golf Course. The Greenbelt Trail will then follow the existing public right-of-way established by the golf course and then along a re-aligned route that minimizes interaction with the course along the western edge of the property to Union Avenue.

From there, the Greenbelt Trail will cross Union Avenue and use a system of boardwalks to traverse the wetlands leading to the existing Bog Meadow Trail near Route 29. The Greenbelt Trail will then use a section of city-owned abandoned railroad right-of-way and a new tunnel under the Northway to connect the western end of Bog Meadow to the eastern end of the Spring Run Trail. This connection will facilitate a safe crossing of the Northway and provide convenient, non-motorized access to the Ice Rink, Lacrosse Complex, and residential and commercial areas east of the highway.

At the East Avenue trailhead for Spring Run Trail, the trail splits: one connection leads to the western loop around the City, and the second leads through downtown. To access downtown, the trail follows a path along “The Gut” and connects with Congress Park and back to Railroad Run using intersection improvements at Congress and South Franklin St. Going to the north from the East Avenue trailhead, the Greenbelt Trail continues to the western portion of Saratoga Springs via Maple Avenue towards the Maple Avenue Middle School using buffered bicycle lanes along Route 9. Beyond the middle school, the trail follows the easement for the county water and sewer line and crosses under the railroad tracks at Denton Road. From there, the trail continues south on the eastern side of the train tracks past Saratoga Polo and connecting to the

Amtrak Station. The trail alignment then re-joins the water line which leads back to the YMCA and the Railroad Run Trail.

To facilitate implementation, the Greenbelt Trail is conceived in the following sections. Planning level costs are provided for each section. It is important to note the elements of the trail can be integrated into larger capital projects to reduce amounts of funding indicated:

- Section 1: YMCA to Spa State Park (existing, pending signage and wayfinding)
- Section 2: Crescent Avenue from Route 9/South Broadway to Nelson Avenue
- Section 3: Crescent Avenue from Nelson Ave across the Northway
- Section 4: Crescent Avenue through Saratoga National Golf Course to Union Avenue
- Section 5: Union Avenue to Bog Meadow Trail at Route 29 / Lake Avenue
- Section 6: Route 29 through the old rail 'cut' near the Ice Rinks, across the Landfill / Solar Park
- Section 7: New Tunnel under the Northway to the existing Spring Run Trail
- Section 8: Downtown Connector to Railroad Run via Congress Park
- Section 9: Maple Avenue / Route 9 from East to the Middle School
- Section 10: County Water / Sewer line parallel to Daniel Road to Bloomfield Road
- Section 11: County Water / Sewer line past the Railroad Station and to the YMCA at West Avenue

*Maps of Sections 1 through 8 are included at the end of this chapter.*



## Greenbelt Trail - Section 1 ALIGNMENT

Greenbelt Trail section 1 starts at the end of Railroad Run and the new signalized pedestrian crossing. The Greenbelt Trail continues with the Saratoga Spa State Park on the existing Gideon Putnam Road Trail. The trail continues along the roadway, past the Gideon Putnam Resort where the roadway ends and becomes an exclusive trail right-of-way. Improvements through this area will include signage and wayfinding. At the intersection of Broadway (NYS Route 9) and Crescent Avenue, the trail will cross on the south side of the intersection with newly installed crosswalks and pedestrian countdown timers. The Greenbelt Trail continues on the south side of Crescent Avenue on a 10 foot wide shared use path.

### ALTERNATIVE ANALYSIS

The path through the Saratoga Spa State Park was chosen based on the presence of existing trails and the connection to Railroad Run with the new pedestrian signal. A shared use path on Crescent Avenue is recommended due to the speed and volume encountered on the roadway. It is recommended that the path be located on the south side of Crescent Avenue to provide a direct connection to the Saratoga Spa State Park and to avoid the protected habitat on the northeast corner of Broadway and Crescent Avenue. The south side location will also provide a direct connection to the Hemlock Forest, which is state owned property.

### CROSS SECTIONS

There are three cross sections proposed in Section 1 of the Greenbelt Trail. The first section, through the Saratoga Spa State Park, is a shared use path on the north side of Gideon Putnam Road. The second cross section is exclusively a shared use path, approximately 15 feet in width, on Gideon Putnam Road, between the Gideon

Putnam Resort and Broadway (NYS Route 9). The third cross section, shown in Figure 1.4, is a 10 foot wide shared use path on the south side of Crescent Avenue.

Table 4.1 - Section 1 Crossing Analysis

	At-Grade North Approach	At-Grade South Approach	Underpass	Overpass
Broadway & Crescent Ave	Indirect route, utilizes existing crosswalk	Direct route, requires new crosswalk and timers	Expensive, limited ROW	Expensive, limited ROW

### PLANNING LEVEL COST

Intersection Improvements: \$40,000

Shared Use Path on Crescent: \$550,000

**TOTAL: \$550,000 - \$650,000**

## Greenbelt Trail - Section 2

### ALIGNMENT

Greenbelt Trail section 2 continues on the south side of Crescent Avenue with a 10 foot wide shared use path. A roundabout is proposed at the intersection of Nelson Avenue and Crescent Avenue to improve safety for both vehicles and trail users. Continuing on the south side of Crescent Avenue, the trail will cross I-87 on the existing bridge. Short term improvements include lane narrowing and providing bike lanes in the existing shoulders. The bridge is to be rehabilitated in the near future and should include a 10 foot wide path on the north side.

A few hundred feet east of the bridge, the trail will cross Crescent Avenue and travel north to connect to the National Grid Right-of-Way (ROW) along I-87. This requires a 10 foot side paved shared use path and a short segment of boardwalk. At the end of the National Grid ROW, a boardwalk will traverse the wetlands to connect to the Saratoga National Golf Course. A 10 foot wide shared use path will follow the golf course to the north to connect to Union Avenue.

### ALTERNATIVE ANALYSIS

Right-of-way and grades limit the ability to provide a shared use path along Crescent Avenue east of this location. The proposed alignment utilizes existing easements, including the National Grid ROW and the trail easement across the Saratoga National Golf Course.

### CROSS SECTIONS

There are three cross sections proposed in this section of the Saratoga Greenbelt Trail. The first is a continuation of the Crescent Avenue shared use path cross section (**Figure 1.4**). The second cross section is a 10 foot wide shared use path through the wooded area north of Crescent Avenue and east of I-87 and includes the National Grid ROW. The

third cross section includes a 10 foot wide boardwalk with 42 inch railings.

Table 4.2 - Section 2 Crossing Analysis

	At-Grade	Roundabout	Underpass	Overpass
Crescent Ave & Nelson Ave	Requires new crosswalk, intersection has limited sight distance	Slows down traffic and improves sight distance	Expensive, limited ROW	Expensive, limited ROW

### PLANNING LEVEL COST

Shared Use Path/Signage: \$1,000,000

Roundabout/Intersection Improvements: \$1,000,000

Boardwalk: \$500,000

Bridge Improvement: \$200,000

**TOTAL: \$2,500,000 - \$3,000,000**



## Greenbelt Trail - Section 3

### ALIGNMENT

Greenbelt Trail section 3 begins at the northern end of the Saratoga National Golf Course. A roundabout is proposed at the intersection of Union Avenue and Gilbert Road to slow traffic on Union Avenue and increase safety for the trail crossings proposed. Crossings are proposed on Union Avenue between the roundabout and the entrance to Saratoga National Golf Course and across Meadowbrook Road, both with rapid flashing beacons. The Greenbelt Trail will continue north along the creek, eventually crossing the creek at the corner of the Saratoga PLAN property. A long section of boardwalk will take the trail north to connect with the existing Bog Meadow Trail. The Greenbelt Trail will follow the Bog Meadow Trail to the end at Lake Avenue and cross at grade to the city owned abandoned railroad ROW.

### ALTERNATIVE ANALYSIS

The proposed trail alignment provides a primarily off-road alignment that will be desirable for all user types. This alignment also utilizes several easements or publicly owned properties. Only a portion of the alignment will require property easements or acquisitions. Other alternatives considered included providing a shared use path along Meadowbrook Road or Gilbert Road. The Meadowbrook Road alternative is indirect and would require a shared use path along the roadway and upgrading the full length of the Bog Meadow Trail. The Gilbert Road alternative was determined to be infeasible due to limited ROW and roadway width.

### CROSS SECTIONS

Two cross sections are proposed through Section 3. These include a shared use path and a boardwalk.

Table 4.3 - Section 3 Crossing Analysis

	At-Grade	Underpass	Overpass
Union Ave	Requires new crosswalk, Rapid flashing beacons are recommended due to rural area and higher speeds	Expensive, trail meets road at-grade	Expensive, long ramps (300') would be required
Meadowbrook Road	Requires new crosswalk, Rapid flashing beacons are recommended due to rural area and higher speeds	Expensive, trail meets road at-grade	Expensive, long ramps (300') would be required, limited ROW
Lake Ave	Requires new crosswalk	Expensive, trail meets road at-grade	Expensive, long ramps (300') would be required

### PLANNING LEVEL COST

Shared Use Path: \$650,000

Boardwalk: \$1,300,000

Crossings / Intersection / Roundabout Improvements: \$1,200,000

**TOTAL: \$2,800,000 - \$3,500,000**

## Greenbelt Trail – Section 4

### ALIGNMENT

Greenbelt Trail section 4 continues northwest along the abandoned railroad corridor and crosses Weibel Avenue at the driveway to the ice rink. Rectangular rapid flashing beacons are recommended at this crossing. The trail continues around the future solar park to I-87. A tunnel, just south of the existing culvert, will connect the Greenbelt Trail to the existing Spring Run Trail on the west side of I-87. A short term alternative utilizes the shared use path that is currently being Planned along Route 50 and crosses I-87 at Exit 15. This alternative includes extending the sidewalk on Weibel Avenue to the ice rink and also the installation of bike lanes in the existing shoulders. It also includes a short boardwalk section and shared use path extending north from the Spring Run Trail to link to Route 50.

### ALTERNATIVE ANALYSIS

The tunnel under I-87 is costly and is most feasible during maintenance on I-87. The Exit 15 alignment provides a short term alternative to provide the connection between the Spring Run Trail and the Greenbelt Trail on the east side of I-87. Route 50 is a high speed and volume roadway; however, and will not be comfortable for all users of the Greenbelt Trail system. The Exit 15 alternative should only be considered an interim alternative and a future spur connection for the Greenbelt Trail. A connection south to Lake Avenue, which provides an underpass crossing of I-87, is another alternative to provide this connection.

### CROSS SECTIONS

This section of the Greenbelt Trail only includes a shared use path. The Exit 15 alternative includes boardwalk, shared use path, and sidewalk with bike lanes on Weibel Avenue.

Table 4.4 - Section 4 Crossing Analysis

	At-Grade	Underpass	Overpass
Weibel Ave	Requires new crosswalk, Rapid flashing beacons are recommended due to rural area and higher speeds	Expensive, trail meets road at grade	Expensive, long ramps (300') would be required
I-87	Not allowed on interstate highways	Expensive, trail meets highway below grade	Expensive, long ramps (600') would be required to meet and exceed grade

### PLANNING LEVEL COST

Shared Use Path: \$500,000

Roadway Crossing: \$145,000

I-87 Tunnel: \$3,000,000

**TOTAL: \$3,500,000 - \$4,500,000**

### WEIBEL AVE ALTERNATIVE:

On-Road Improvements: \$250,000

Boardwalk: \$100,000

**TOTAL: \$300,000 - \$400,000**



## Greenbelt Trail – Section 5

### ALIGNMENT

Section 5 of the Greenbelt Trail starts the western loop at the end of the Spring Run Trail. The alignment follows Maple Ave north to Daniels Rd. Bike lanes are recommended on Marion Ave until the intersection with Maple Ave. Buffered bike lanes will be provided on Maple Ave, north to the intersection with Daniels Rd. At this intersection, the Greenbelt Trail heads west, following the alignment of the County water line. A 10 foot wide shared use trail will be provided on the south side of Daniels Rd, on top of the County water line ROW. Since the existing water line does not include surface rights for a trail, this alignment is only possible with the cooperation of adjacent landowners.

### ALTERNATIVE ANALYSIS

This alignment was chosen due to its connections with businesses and schools and the ease of implementation. Alternatively, an alignment around Loughberry Lake was considered and ultimately discarded due to the limited ROW and constraints between the roadway and the lake.

### CROSS SECTIONS

There are three cross sections proposed in this section of

Table 4.5 - Section 5 Crossing Analysis

	At-Grade	Underpass	Overpass
Marion Ave & Route 50	New crosswalks and colored bike lanes	Impractical for both sides of the roadway	Impractical for both sides of the roadway
Marion Ave & Maple Ave	New crosswalks and colored bike lanes	Impractical for both sides of the roadway	Impractical for both sides of the roadway
Maple Ave & Loughberry Lake Rd	New crosswalks and colored bike lanes, install a traffic signal	Impractical for both sides of the roadway	Impractical for both sides of the roadway
Maple Ave & Daniels Rd	New crosswalks	Impractical for both sides of the roadway	Impractical for both sides of the roadway

the Greenbelt Trail. They include bike lanes, buffered bike lanes, and a shared use path along a roadway.

### PLANNING LEVEL COST

Bike Lanes: \$75,000

Intersection Improvements: \$175,000

Shared Use Path: \$425,000

**TOTAL: \$600,000 - \$700,000**

**NOTE:** An additional connection from the Spring Run Trail to Skidmore College can be made from the Greenbelt Trail at High Rock Park, across Route 50 on Greenfield Ave and via bike lanes on North Broadway to the Glen Mitchell Road trail. This connection would enhance the primary Greenbelt Trail loop, but is not included in the planning level costs at this time.

## Greenbelt Trail – Section 6 ALIGNMENT

Section 6 of the Greenbelt Trail follows the County water line along Daniels Rd and Bloomfield Rd. This is proposed as a 10 foot shared use path adjacent to each roadway. High visibility crosswalks are needed at the intersections of Daniels Rd and Bloomfield Rd, and Bloomfield Rd and Denton Rd. Since the existing water line does not include surface rights for a trail, this alignment is only possible with the cooperation of adjacent landowners.

### ALTERNATIVE ANALYSIS

The other alternative considered in this section was to follow the railroad ROW. Since this is an active railroad line and is elevated on a narrow berm, this alternative presents several challenges. Also, the water line alignment comes in closer proximity to several destinations, such as the Saratoga Mountain Bike Association trails and the Saratoga Polo Club.

### CROSS SECTIONS

The cross section in this portion of the Greenbelt Trail provides a 10 foot wide paved shared use trail adjacent

### PLANNING LEVEL COST

Intersection Improvements: \$15,000

Shared Use Path: \$1,300,000

**TOTAL: \$1,300,000 - \$1,500,000**

Table 4.6 - Section 6 Crossing Analysis

	At-Grade	Underpass	Overpass
Daniels Rd & Bloomfield Rd	New crosswalks	Expensive, trail meets road at grade	Expensive, long ramps (300') would be required
Bloomfield Rd & Denton Rd	New crosswalks	Expensive, trail meets road at grade	Expensive, long ramps (300') would be required

to the roadway. The path will be located to the south of Daniels Rd and to the west of Bloomfield Rd.



## Greenbelt Trail – Section 7

### ALIGNMENT

The Greenbelt Trail Section 7 follows the railroad corridor to the south and connects to the Railroad Run Trail at the YMCA. The trail alignment is proposed on the east side of the railroad ROW and connects with the Saratoga Train Station. The trail will be located parallel to the railroad ROW with a fenced barrier. There are three roadway crossings located in this section. A tunnel through the bridge approaches at each roadway is proposed to provide a direct route for the Greenbelt Trail.

The existing county water and sewer line easement does not include a surface right-of-way for a trail. It is important to note that the proposed alignment for the trail runs parallel to a number of private properties adjacent to the railroad line. This alignment is only possible with the cooperation of these landowners.

### ALTERNATIVE ANALYSIS

Trail alignments on either side of the railroad ROW were considered. The County water line is located on the west side of the roadway and was considered as a potential alignment. The east side alignment is preferred since it provides a direct connection to the Saratoga train station. Also, there are fewer conflicts with railroad and commercial properties, and eliminates the need for a railroad crossing.

Table 4.7 - Section 7 Crossing Analysis

	At-Grade	Underpass	At-Grade on Bridge
Church St	Requires extending the trail to the east to cross at grade then transitioning back to the ROW	Short tunnel under bridge approach, direct and at grade	Ramp up to meet grade at bridge, expensive but provides a noise wall
Washington St	Requires extending the trail to the east to cross at grade then transitioning back to the ROW	Short tunnel under bridge approach, direct and at grade	Ramp up to meet grade at bridge, expensive but provides a noise wall
Grand Ave	Requires extending the trail to the east to cross at grade then transitioning back to the ROW	Short tunnel under bridge approach, direct and at grade	Ramp up to meet grade at bridge, expensive but provides a noise wall
West Ave	New crosswalks	Expensive, trail meets road at grade	Expensive, long ramps (300') would be required

### CROSS SECTIONS

The cross section proposed through this section is a 10 foot shared use path with a 30 foot separation from the railroad tracks. A fenced barrier is also proposed 15 feet from the edge of the trail.

### PLANNING LEVEL COST

Shared Use Path: \$1,900,000

Roadway Crossings: \$1,700,000

**TOTAL: \$3,500,000 - \$4,000,000**

## Greenbelt Trail – Section 8

### ALIGNMENT

Section 8 provides a downtown connection for the Greenbelt Trail. The downtown connection will start at the end of the Spring Run Trail and continue on the abandoned railroad ROW to Warren St. The trail will follow High Rock Avenue at Warren St to Nelson Avenue. There is an existing sidewalk that connects to Maple Avenue that starts at this intersection. The sidewalk will be widened to 10 feet to connect to Maple Avenue, where bike lanes will connect the Greenbelt Trail to Lake Avenue. Shared lanes are proposed on Putnam Street from Lake Avenue to Congress Park. It is recommended that the existing trail in Congress Park be widened to 10 feet. A roundabout at the intersection of Broadway and Congress Street will provide a safe crossing for trail users traveling the bike lanes on Congress Street. The bike lanes will connect to the shared lanes to be provided on Franklin Street. At the end of Franklin St, the Greenbelt Trail will complete the loop by connecting to the Railroad Run Trail.

### ALTERNATIVE ANALYSIS

There are several other roadway connections that were considered in this section, including High Rock Avenue; however, the proposed alignment provides the most direct connection into and out of Congress Park, with low traffic volumes and minimal turns.

### CROSS SECTIONS

Several cross sections are proposed in this section of the Greenbelt Trail. A shared use path is proposed in several areas, as well as bike lanes, and shared lanes for the on-street connections.

Table 4.8 - Section 8 Crossing Analysis

	At-Grade	Underpass	Overpass
High Rock Ave & Warren St	New crosswalk	Impractical to connect both sides of the roadway	Impractical to connect both sides of the roadway
High Rock Ave & Nelson Ave	New crosswalks	Impractical to connect both sides of the roadway	Impractical to connect both sides of the roadway
Maple Ave & Lake Ave	New crosswalks and colored bike lanes	Impractical to connect both sides of the roadway	Impractical to connect both sides of the roadway
Putnam St & Spring St	New crosswalks	Impractical to connect both sides of the roadway	Impractical to connect both sides of the roadway
Broadway & Congress St	Install roundabout	Impractical to connect both sides of the roadway	Impractical to connect both sides of the roadway
Congress St & S Franklin St	New crosswalks and colored bike lanes	Impractical to connect both sides of the roadway	Impractical to connect both sides of the roadway

### PLANNING LEVEL COST

Shared Use Path: \$250,000

Intersection Improvements: \$1,200,000

On-Road Connection: \$60,000

**TOTAL: \$1,500,000 - \$2,000,000**



## PROPOSED TRAILHEADS

The placement and amenities offered at trailhead sites is crucial for the success of the trail network. A good trailhead will offer more than simply information about the trail system and a safe place for users to park their cars or bicycles; well-planned trailheads will incorporate art, culture, sustainability, and economic opportunity by creating a destination for trail users and connecting the trail with the community as a whole. Several apparent trailhead placements emerge for the Saratoga Greenbelt Trail.

### YMCA

The Saratoga Springs YMCA acts as an existing trailhead at the southern boundary of the Railroad Run Trail. With an existing parking lot, its location along a bus route, a mission associated with fitness and well-being, and a location nearby Saratoga's downtown, the YMCA can act as a major hub for activity along the Greenbelt Trail.

### THE HEMLOCK TRAIL

Located along the south side of Crescent Avenue, the Hemlock Trail is a natural surface trail on the eastern portion of Saratoga Spa State Park. Three trail loops currently exist within the Saratoga Spa State Park's Master Plan targeting the area for significant expansion of its existing trails.

### GILBERT AND UNION AVENUE INTERSECTION

The intersection of Gilbert and Union Avenues near Saratoga National Golf Course would act as a resting place between the boardwalk proposed through the wetlands between Bog Meadow and Union Avenue and the off-road connection through Saratoga National Golf Course between Union and Crescent Avenues. The area around this site offers an important opportunity for the trail to complement the city's sustainability efforts.

### BOG MEADOW NATURE TRAIL

Bog Meadow Nature Trail, constructed in an abandoned rail corridor, contains parking and trail maps directly adjacent to the trail at its eastern end along Route 29. However, along its western end on Meadowbrook Road the parking for Bog Meadow contains no map and is nearly 800 feet from the trail with a natural surface path leading along Meadowbrook Road to the main trail. Improvements to both of Bog Meadow's trailheads will be necessary as the Greenbelt Trail is completed and more users take advantage of the scenic beauty of Bog Meadow.

### ICE RINK AND LACROSSE COMPLEX

The City's Ice Rink and the nearby Lacrosse Complex on Weibel Avenue are highly used athletic facilities year-round for Saratoga Springs. Parking for cars currently exists but greater numbers of bicycle parking facilities and wayfinding signage would direct trail users and visitors to the Saratoga Greenbelt Trail. A formal trailhead in this area would also provide pedestrian access to the proposed solar park planned for the parcel across the street.

### THE SPRING RUN TRAIL

A formal trailhead sited on the City-owned property directly to the north of the existing start of the Spring Run Trail can offer secure vehicle parking and highlight the history of the Spring Run Trail including the cleanup efforts spearheaded by local citizens and the construction of the trail as a result. Orientation and interpretative signage is currently under design.

### MAPLE AVENUE MIDDLE SCHOOL

Maple Avenue Middle School on Maple Avenue is close to the northern boundary of the Greenbelt Trail, the proposed Greenbelt Trail expansion around Loughberry Lake, and a destination for hundreds of children ten months out of

the year. Providing safe and convenient parking can serve not only those wishing to spend a day out on the Greenbelt Trail but also the children who deserve to have bicycle accommodations for their ride to school.

### THE SARATOGA MOUNTAIN BIKE ASSOCIATION (SMBA)

SMBA's trails on Daniels Road are a haven for cycling enthusiasts from around the country. A trailhead in this location would help incorporate SMBA's trails into the Greenbelt Trail system providing a natural partnership. These lands are in the process of being transferred to NYSDEC.

These locations represent central destinations, important links within the Greenbelt Trail, multimodal transportation connections, and areas with great existing economic opportunities that the trail and well-sited trailheads will strengthen.

### THE SARATOGA SPRINGS AMTRAK STATION

The Amtrak station at Saratoga Springs offers a multimodal connection for those traveling by trail and not wishing to use a car. Safe bicycle parking will allow rail users to use a bicycle as their means of travel to the station and visitors to the City a clear path to enjoy all that Saratoga has to offer.

### HIGH ROCK PARK

High Rock Park is the founding place of Saratoga Springs and the site of a farmer's market, a 9/11 memorial sculpture, and one of Saratoga's famous springs. The close proximity to the City Center and City Hall, the existing amenities, and the dense urban housing pattern that surround the site make it ideal for the placement of a trailhead.



Existing utility right-of-way



Possible trailhead rendering



Table 4.9 - Crossing Summary

	Intersection	Crossing Recommendation
1	Broadway & Crescent Ave	At Grade on South Approach - Direct route, requires new crosswalk and timers
2	Crescent Ave & Nelson Ave	Roundabout - Slows down traffic and improves sight distance
3	Union Ave	At Grade - new crosswalk, Rapid flashing beacons are recommended due to rural area and higher speeds
4	Meadowbrook Road	At Grade - new crosswalk, Rapid flashing beacons are recommended due to rural area and higher speeds
5	Lake Ave	At Grade - new crosswalk
6	Weibel Ave	At Grade - new crosswalk, Rapid flashing beacons are recommended due to rural area and higher speeds
7	I-87	Tunnel - trail meets highway below grade
8	Marion Ave & Route 50	At Grade - new crosswalks and colored bike lanes
9	Marion Ave & Maple Ave	At Grade - new crosswalks and colored bike lanes
10	Maple Ave & Loughberry Lake Rd	At Grade - new crosswalks and colored bike lanes, install a new traffic signal
11	Maple Ave & Daniels Rd	At Grade - new crosswalks
12	Daniels Rd & Bloomfield Rd	At Grade - new crosswalks, traffic calming, possible trailhead for SMBA
13	Bloomfield Rd & Denton Rd	At Grade - new crosswalks
14	Church St	Tunnel - short tunnel under bridge approach, direct and at grade
15	Washington St	Tunnel - short tunnel under bridge approach, direct and at grade
16	Grand Ave	Tunnel - short tunnel under bridge approach, direct and at grade
17	West Ave	At Grade - new crosswalks
18	High Rock Ave & Warren St	At Grade - new crosswalks
19	High Rock Ave & Nelson Ave	At Grade - new crosswalks
20	Maple Ave & Lake Ave	At Grade - new crosswalks and colored bike lanes
21	Putnam St & Spring St	At Grade - new crosswalks
22	Broadway & Congress St	Roundabout - increases safety and provides a gateway feature. Move the Civil War monument back to the center of the intersection
23	Congress St & S Franklin St	At Grade - new crosswalks and colored bike lanes

## CONGRESS PARK

The heart of downtown Saratoga Springs, Congress Park and the fountains, museum, sculptures, and gazebos located within it act as a centerpiece for the Greenbelt Trail. Wayfinding signage for the completed Greenbelt Trail system as well as the variety of nearby urban amenities will enhance Congress Park.

## RAILROAD RUN TRAIL

The northern end of the existing Railroad Run Trail is located on West Circular and Beekman Streets where several segments of the Greenbelt Trail system converge. This site is the most urban of the trailheads proposed for the western portion of Saratoga Springs. Based on the dense housing patterns nearby and the emergence of the west side arts district, the northern end of Railroad Run provides a well suited site for a trailhead.

## CROSSING SUMMARY

There are 23 roadway crossings involved in the Greenbelt Trail. A majority of these crossings are recommended to be at-grade crossings with new high visibility crosswalks. Two roundabouts are proposed to facilitate crossings at these intersections. Four tunnels are proposed to cross under elevated or higher volume roadways. One new signal is proposed to facilitate crossings at the Maple Ave Middle School.



Yaddo Artist Community



Race track 1/8th pole mileposts

## TRAIL AMENITIES

The City of Saratoga Springs is known for Health, History, and Horses. Each of these elements will be incorporated into the trail amenities. This can be done through public art, wayfinding, information signage, bike racks, and milepost markers.

1. Famous quotes and poems along the Boardwalk Railings

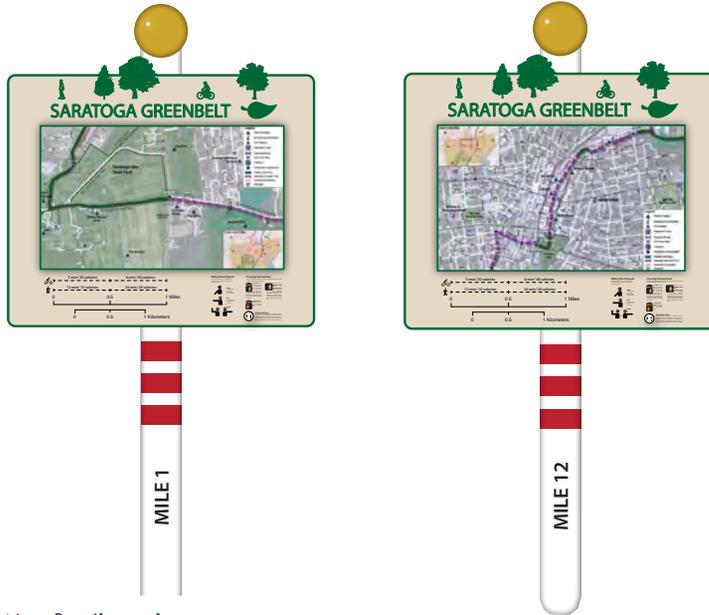
To further incorporate historic elements and provide educational pieces along the Greenbelt Trail, famous quotes and poems can be written along the Boardwalk railings in the eastern portion of the Greenbelt Trail. For example, “my soul has grown deep like the rivers” by Langston Hughes, who stayed at Yaddo, is included in the rendering on the cover of this report.

2. Community: “Health, History and Horses” Elements

Saratoga Springs is rich in history. The Greenbelt Trail can be a useful education tool to illustrate this history. At various points along the corridor, informational signage can tell the story of significant places and the history of Saratoga Springs. Examples along the Greenbelt Trail include the history of the Yaddo Artist Community, created in 1900, and the National Historic Landmark, Congress Park, with landscaping designed by Fredrick Law Olmstead.

3. Benches and Picnic Areas

Benches and picnic areas provide a place for trail users to stop, rest, and enjoy the surrounding environment. Several of these areas are already provided in Saratoga Spa State Park and Congress



Wayfinding signage



Art horse  
(Photo: Leon Reed)

Park. Additional possible locations along the trail include along the boardwalk section, Saratoga National, at the SMBA trails, and at the end of the Spring Run Trail.

4. Race Track 1/8th Pole Mileposts

The race track is an important part of Saratoga Spring’s history and a distinguishing feature. The red and white striped 1/8th mileposts are easily recognizable. This theme can be carried throughout the Greenbelt Trail by using these posts as mile markers. Keeping with the theme, these should be placed every 1/8th mile.

5. Greenbelt Trail Specific Wayfinding Signage

Wayfinding signage is an important component to any trail. Wayfinding lets trail users know where they are, where they are going, how far it is, and can also provide pertinent information regarding trail amenities, and nearby businesses such as ice cream shops, bike shops, and restaurants. Wayfinding signage can provide both distance information and calorie counts between points and destinations.

6. Nature Interpretation Signage

Saratoga Springs is surrounded by a variety of natural habitats. Part of the Saratoga Spa State Park is protected habitat for the Karner Blue Butterfly. The Hemlock Forest is home to some of the oldest trees in New York State. The Greenbelt Trail offers a unique opportunity to educated the public about these natural resources and encourage conservation.

## 7. Local Artist Displays

Saratoga Springs is home to many local and nationally recognized artists, including the Yaddo Artist Community. The Greenbelt Trail is a unique opportunity for artists to display their artwork, particularly sculptures. This also adds another level of visual interest for trail users.



Horse head bike racks

## 8. Horse Head Bike Racks

Horse head bike racks are already installed in downtown along Broadway. This theme should be continued around the Greenbelt Trail with bike racks located at each trailhead.

## 9. Solar Lighting

Trail lighting allows the trail to be used before dawn and after dusk. Lighting increases safety and also

the perception of safety for trail users. The Greenbelt Trail will pass through the proposed Saratoga Solar Park, on the old landfill site, providing a key opportunity to provide lighting along the whole trail through solar power.

## 10. 18 Hole Trailheads

Saratoga National is a key destination both in Saratoga Springs and along the Greenbelt Trail. This famous golf course can be incorporated into the Greenbelt Trail by designating each trailhead or key destination as one of 18 holes. Saratoga National Golf Course, a perfect start and finish point, would be hole 19, where trail users can grab a meal after completing the 24.4 mile loop.

## GREENBELT TRAIL DETAILED GRAPHICS

The maps on the following pages depict the proposed alignment of the Saratoga Greenbelt Trail at two different levels of detail. The maps with ground imagery backdrop display the alignment that the trail will take in relation to key points of interest and existing trails. Figure numbers highlight important intersections, cross sections and other characteristics of the trail. The trail attributes are then illustrated in more detail on the corresponding Section Map. Together, these graphics show that the Greenbelt Trail is indeed feasible.



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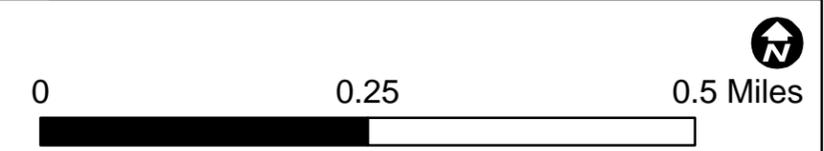
**Legend\***

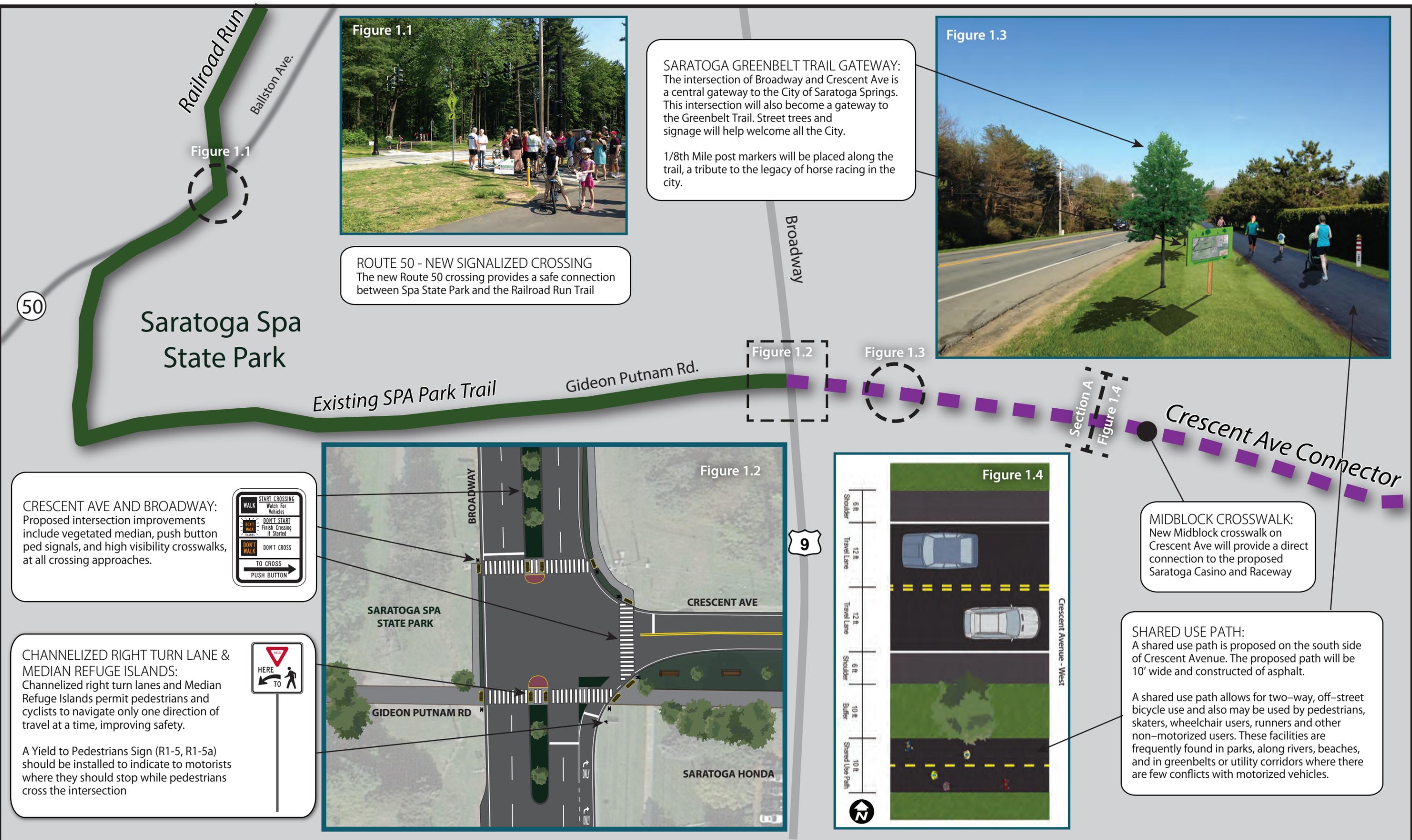
-  Point of Interest
-  Schools and Universities
-  Trail Parking
-  Proposed Tunnel
-  Proposed Bridge
-  CDTA Bus Stop
-  Trailhead
-  Intersection Improvement
-  Existing Greenway
-  Saratoga Greenbelt Trail
-  Greenbelt Trail Connector
-  Wetlands

\*Abbreviated legend. For complete legend refer to Overview Map.

**CRESCENT AVE CONNECTOR (Detail Map 1 of 8)**  
**Saratoga Greenbelt Trail Feasibility Study**  
**- City of Saratoga Springs, NY-**

**alta** Source: NY State GIS Clearinghouse, CDTC  
 Date: September 2013  
 Author: Sam Piper  
 PLANNING + DESIGN





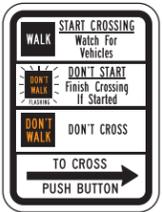
**ROUTE 50 - NEW SIGNALIZED CROSSING**  
The new Route 50 crossing provides a safe connection between Spa State Park and the Railroad Run Trail

**SARATOGA GREENBELT TRAIL GATEWAY:**  
The intersection of Broadway and Crescent Ave is a central gateway to the City of Saratoga Springs. This intersection will also become a gateway to the Greenbelt Trail. Street trees and signage will help welcome all the City.

1/8th Mile post markers will be placed along the trail, a tribute to the legacy of horse racing in the city.

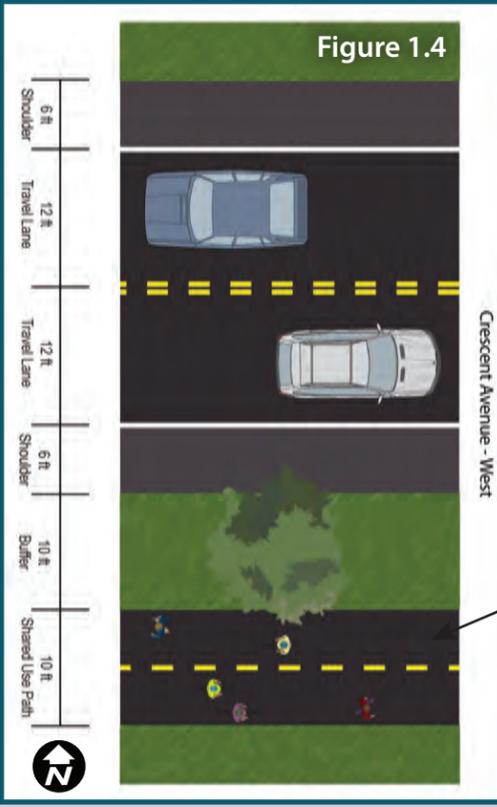
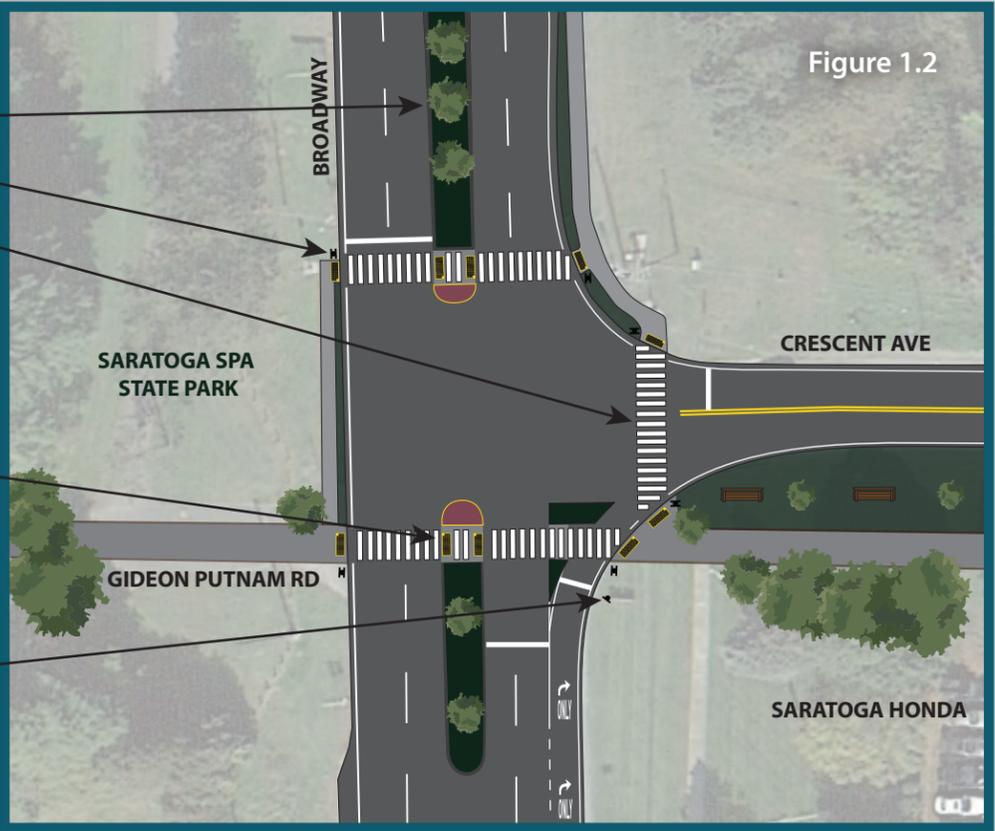


**CRESCENT AVE AND BROADWAY:**  
Proposed intersection improvements include vegetated median, push button ped signals, and high visibility crosswalks, at all crossing approaches.



**CHANNELIZED RIGHT TURN LANE & MEDIAN REFUGE ISLANDS:**  
Channelized right turn lanes and Median Refuge Islands permit pedestrians and cyclists to navigate only one direction of travel at a time, improving safety.

A Yield to Pedestrians Sign (R1-5, R1-5a) should be installed to indicate to motorists where they should stop while pedestrians cross the intersection



**MIDBLOCK CROSSWALK:**  
New Midblock crosswalk on Crescent Ave will provide a direct connection to the proposed Saratoga Casino and Raceway

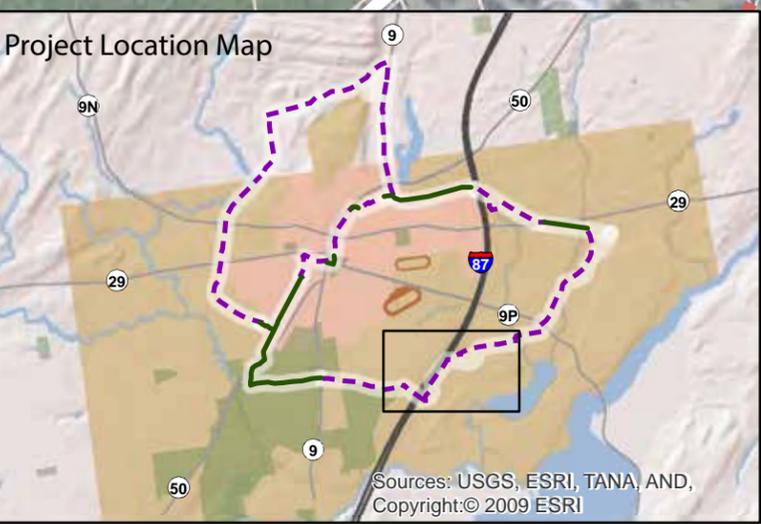
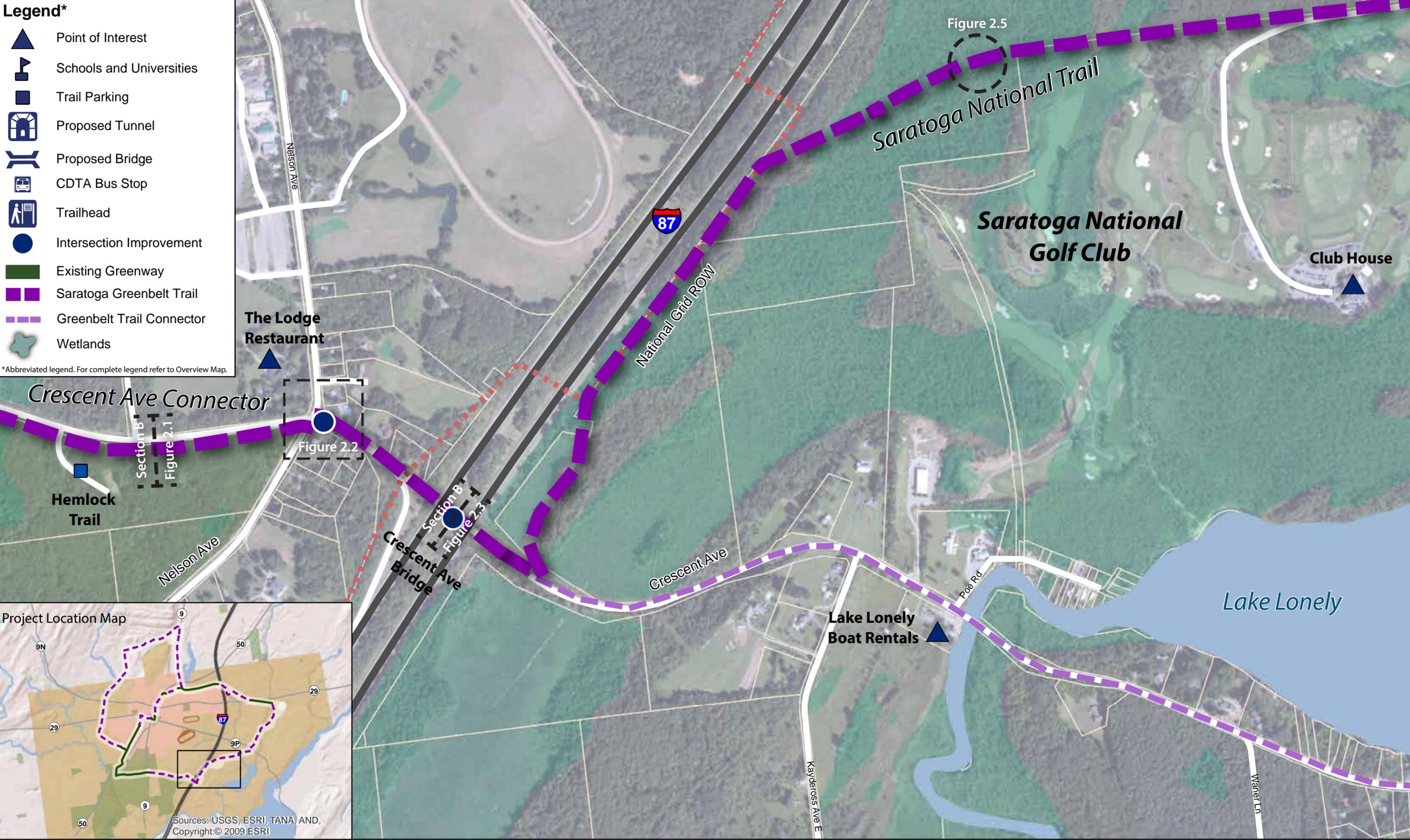
**SHARED USE PATH:**  
A shared use path is proposed on the south side of Crescent Avenue. The proposed path will be 10' wide and constructed of asphalt.

A shared use path allows for two-way, off-street bicycle use and also may be used by pedestrians, skaters, wheelchair users, runners and other non-motorized users. These facilities are frequently found in parks, along rivers, beaches, and in greenbelts or utility corridors where there are few conflicts with motorized vehicles.

**CRESCENT AVE. SHARED USE PATH (SECTION MAP 1 OF 8)**

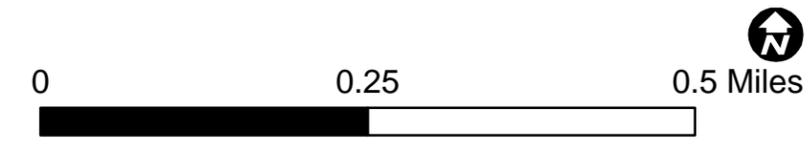
- Legend\***
-  Point of Interest
  -  Schools and Universities
  -  Trail Parking
  -  Proposed Tunnel
  -  Proposed Bridge
  -  CDTA Bus Stop
  -  Trailhead
  -  Intersection Improvement
  -  Existing Greenway
  -  Saratoga Greenbelt Trail
  -  Greenbelt Trail Connector
  -  Wetlands

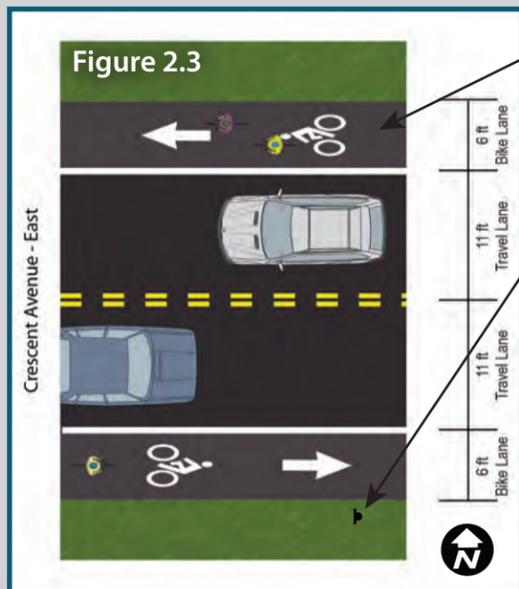
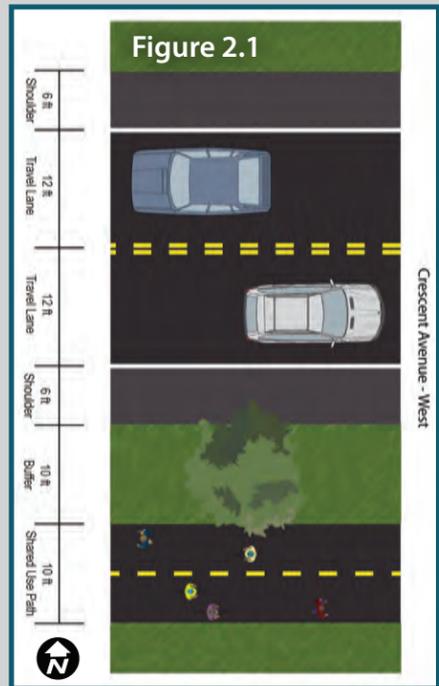
\*Abbreviated legend. For complete legend refer to Overview Map.



**alta** Source: NY State GIS Clearinghouse, CDTC  
 Date: September 2013  
 Author: Sam Piper  
 PLANNING + DESIGN

**SARATOGA NATIONAL TRAIL CONNECTOR (Detail Map 2 of 8)**  
**Saratoga Greenbelt Trail Feasibility Study**  
**- City of Saratoga Springs, NY-**





**CRESCENT AVE BRIDGE BIKE LANES:**  
Bike lanes designate an exclusive space for bicyclists through the use of pavement markings and signage. Bike lanes should be a minimum of 5 feet wide.

Bike lane signage (R3-17) should be used to indicate the beginning of the bike lanes.



Figure 2.4

Saratoga National Trail

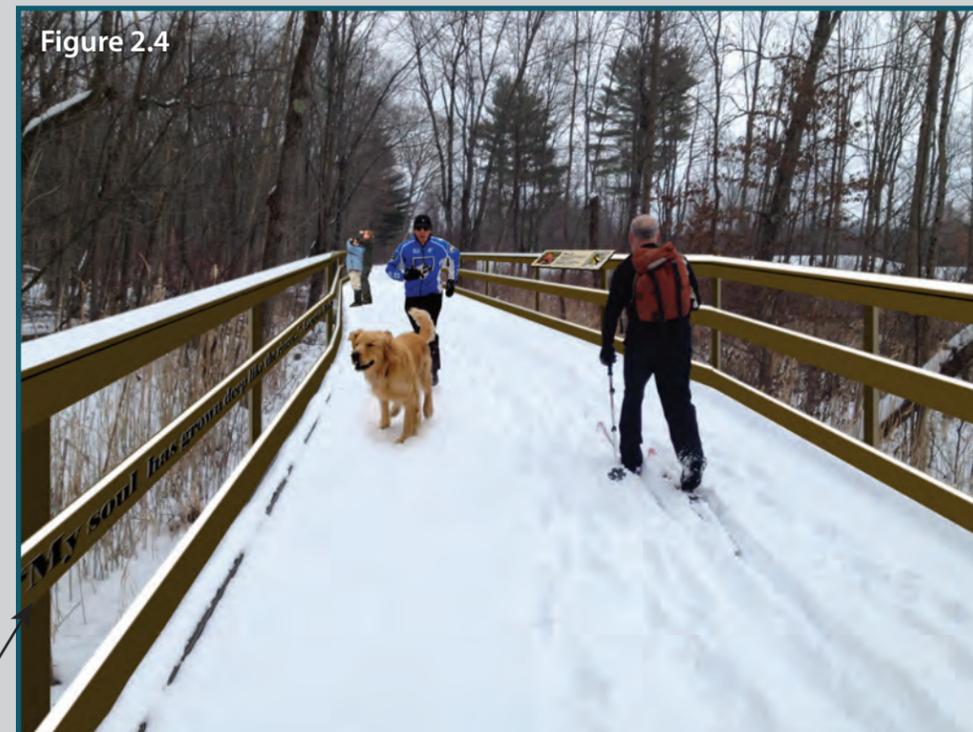


Figure 2.4

**PUBLIC ART:**

The Greenbelt Trail will provide many opportunities to exhibit public art, from both past and present artists. One example would be to engrave sayings from famous residents of Yaddo, such as the Langston Hughes quote displayed here: "My soul has grown deep like the rivers"

**SARATOGA NATIONAL BOARDWALK:**

Boardwalks provide access to sensitive habitats, and when designed correctly, have a minimal impact on the environment. The Saratoga National Boardwalk is proposed as a 10' wide boardwalk with 5' high railings where required. The boardwalk will provide access to the wetlands for a variety of trail users, including: walkers, runners, cyclists, and winter recreation activities. The boardwalk will be constructed to meet ADA accessibility requirements.

Crescent Ave Connector

Figure 2.2

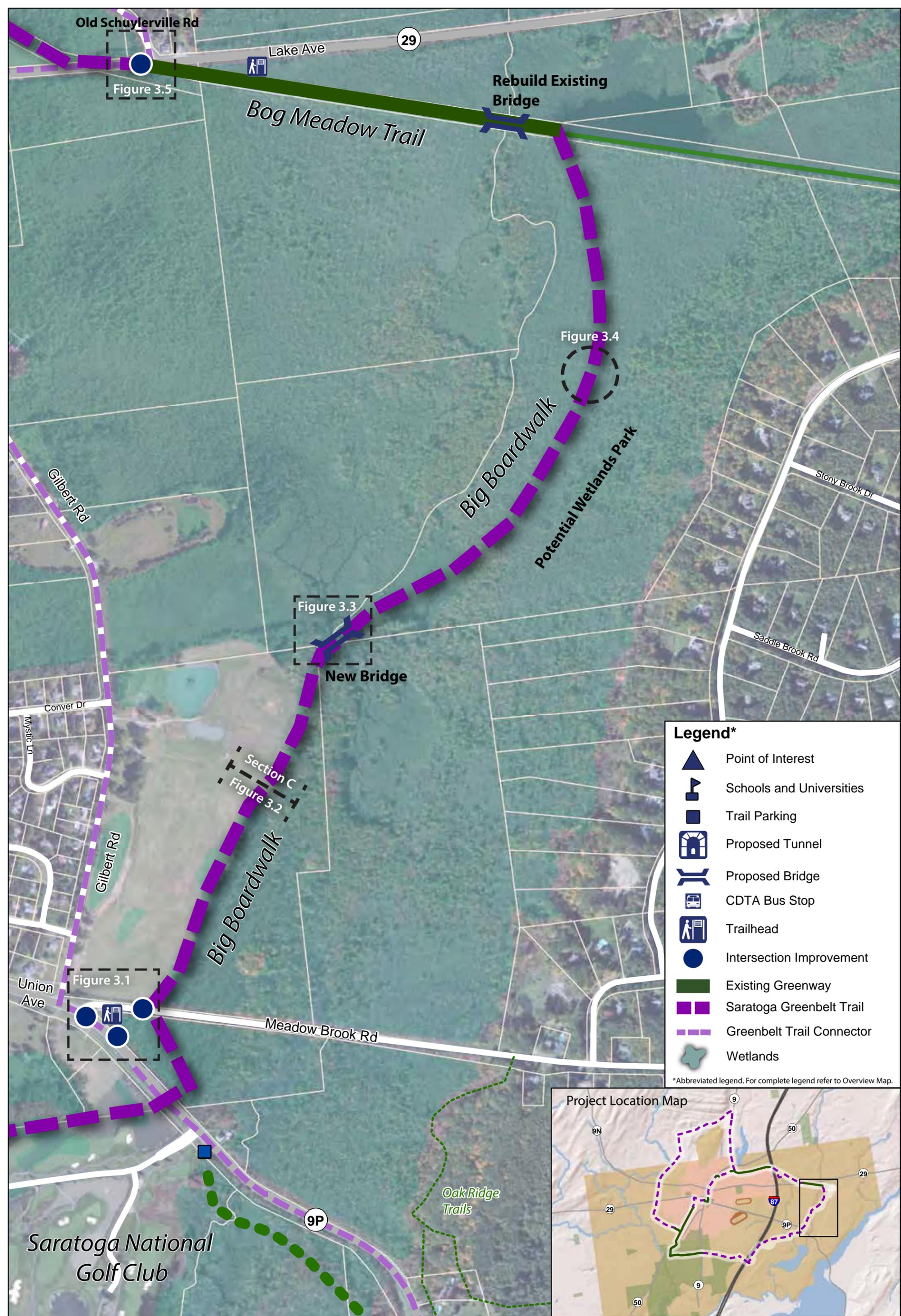


**CRESCENT AVE + NELSON ROUNDABOUT:**

Roundabouts improve the safety and comfort of non-motorized roadway users at intersections. Average travel speeds through roundabouts are comparatively lower than traditional signalized intersections, and crossing distances are shorter and enhanced by the presence of short crosswalks and refuge islands. These features allow pedestrians and cyclists to navigate only one direction of travel at a time.

A 5 foot sidewalk is proposed on the north side of Crescent Ave, and striped 5 foot bike lanes are proposed along Crescent Ave east of the roundabout.

**SARATOGA NATIONAL SHARED USE PATH (SECTION MAP 2 OF 8)**



**Legend\***

- Point of Interest
- Schools and Universities
- Trail Parking
- Proposed Tunnel
- Proposed Bridge
- CDTA Bus Stop
- Trailhead
- Intersection Improvement
- Existing Greenway
- Saratoga Greenbelt Trail
- Greenbelt Trail Connector
- Wetlands

\*Abbreviated legend. For complete legend refer to Overview Map.

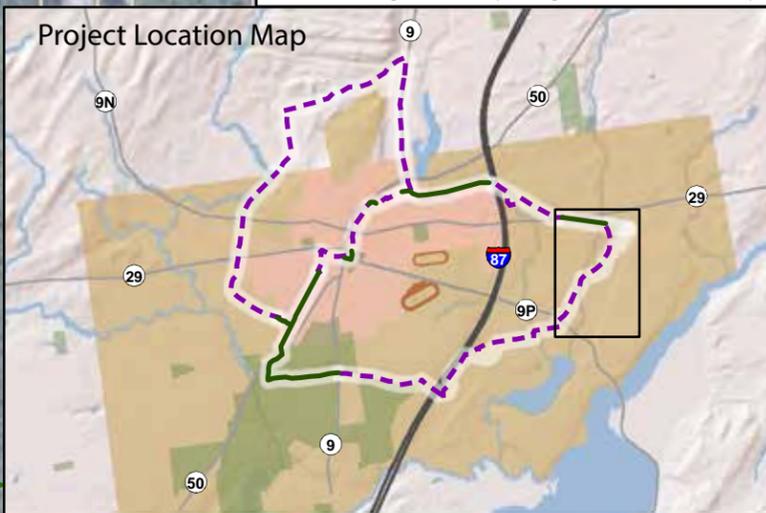
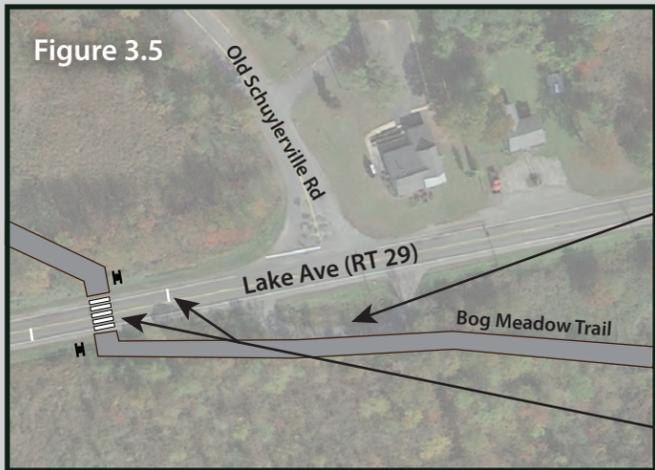


Figure 3.5

Lake Ave

Bog Meadow Trail



**LAKE AVE CROSSING:**  
The Saratoga Greenbelt trail will continue across Lake Ave, via the Bog Meadow Trail trailhead.

A high visibility crosswalk will be provided across Lake Ave, along with RRFB signals for trail users. Stop bars will be painted on the approaches to the crosswalk to indicate to motorists where to stop while trail users cross.

**'BIG BOARDWALK' SECTION:**

The wetlands on the eastern side of Saratoga are relatively inaccessible to the City's residents and visitors, with the exception of the Bog Meadow Trail. The 'Big Boardwalk' section of the Saratoga Greenbelt Trail will open these pristine lands to recreational activities, including: walking, biking, running, birding, scholastic field trips, and in the colder months, cross country skiing, snow shoeing, and hiking. All in all, The Big Boardwalk will provide a low impact opportunity to explore this unique and beautiful habitat.

Figure 3.4

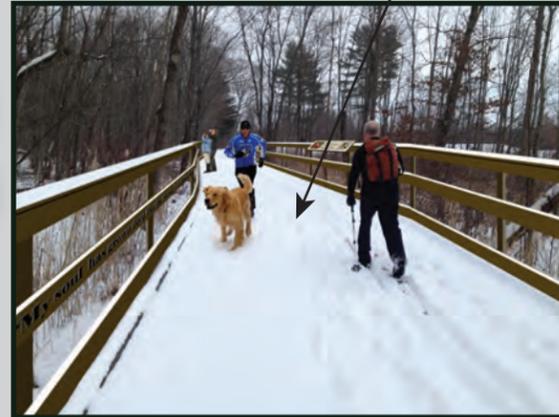
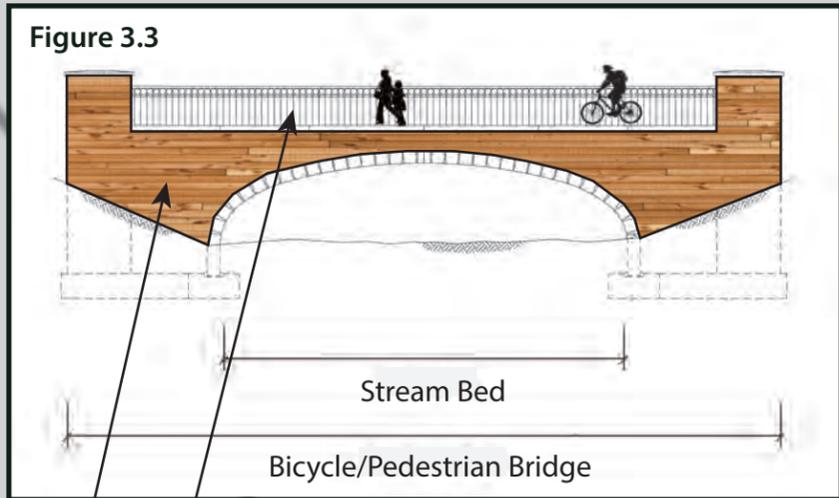


Figure 3.4

Figure 3.3



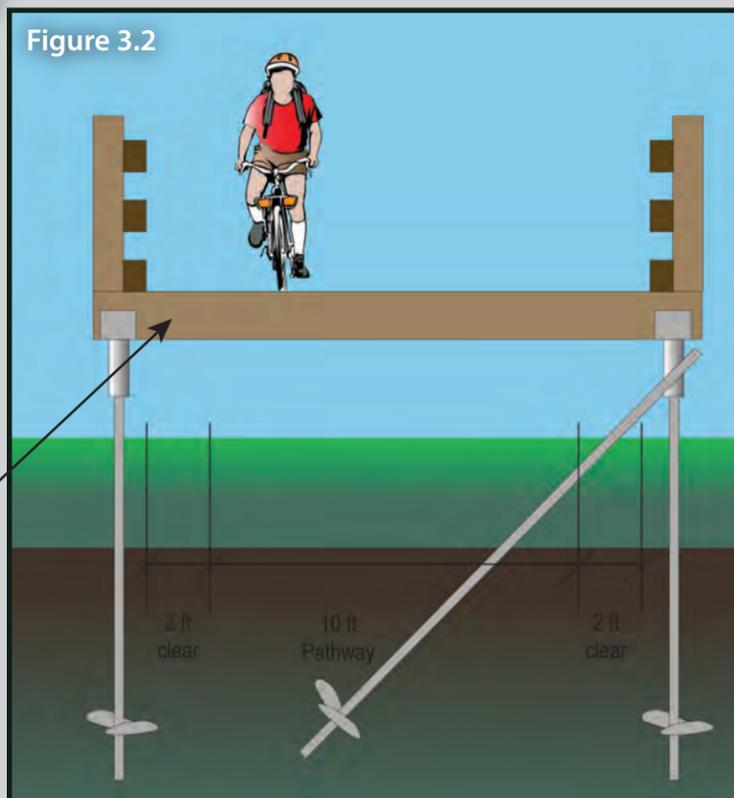
**BRIDGE OVER STREAM:**  
The stream that runs through the eastern wetlands will need to be bridged. A wooden non-motorized bridge will therefore need to be constructed over the stream. The bridge should be constructed of rustic materials, consistent with its context. The bridge should be ADA accessible, with 42" high hand rails.

Figure 3.3



**BOARDWALK:**  
Board walks provide access to sensitive habitats with minimal disruption to the environment. The boardwalk through the eastern wetlands will be constructed of wood planks, and will have 42" railings where necessary. The boardwalk will have a 10' pathway, with 2 feet of clear space on either side of the boardwalk where railings can be placed.

Figure 3.2



Gilbert Rd

Section C  
Figure 3.2

Union Ave

Figure 3.1

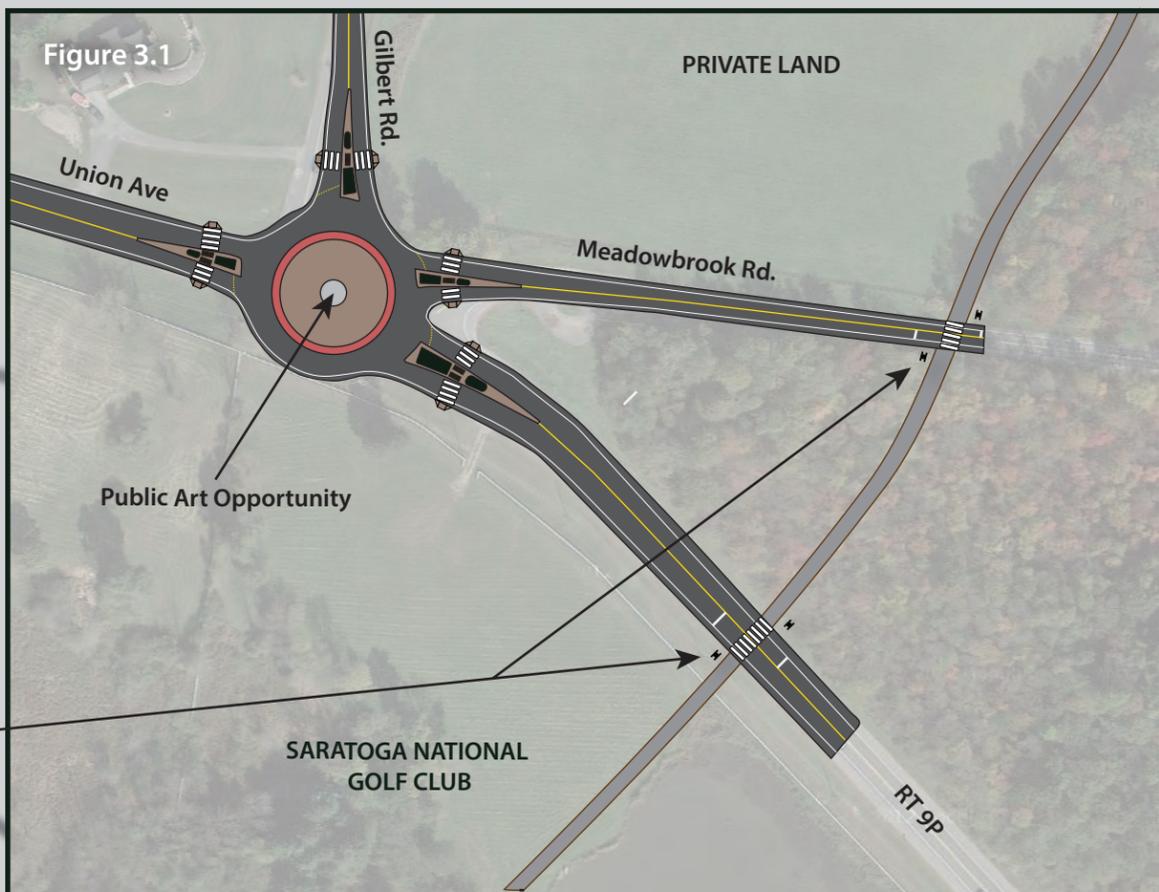
Meadowbrook Rd.

9P

**RECTANGULAR RAPID FLASH BEACONS (RRFBs)**  
RRFBs are designed to alert motorists to the presence of a pedestrian entering the crosswalk. They have been shown to dramatically improve motorist yield behavior.



Figure 3.1



**"BIG BOARDWALK" BOG MEADOW CONNECTOR (SECTION MAP 3 OF 8)**





**NORTHWAY CROSSING (Detail Map 4 of 8)**  
**Saratoga Greenbelt Trail Feasibility Study**  
**- City of Saratoga Springs, NY-**

Figure 4.4



source: AECOM

**SPRING RUN TRAIL:**  
The Spring Run Trail is approximately 1 mile long and allows for recreation on the historic railroad line that had existed in area for much of the 1800s. The surface material of the trail is paved asphalt. Biking, walking, in-line skating and cross country skiing are all permitted uses. The trail is ADA compliant.

Figure 4.3



Exit 15



**PROPOSED ROUTE 50 CROSSING:**  
As a shorter term alternative to constructing a tunnel under the Northway, the Greenbelt Trail will connect the Spring Run Trail to the Bog Meadow Connector via Weibel Ave and the NYSDOT Exit 15/Route 50 Crossing.

Figure 4.4



Spring Run Trail

50

Figure 4.2

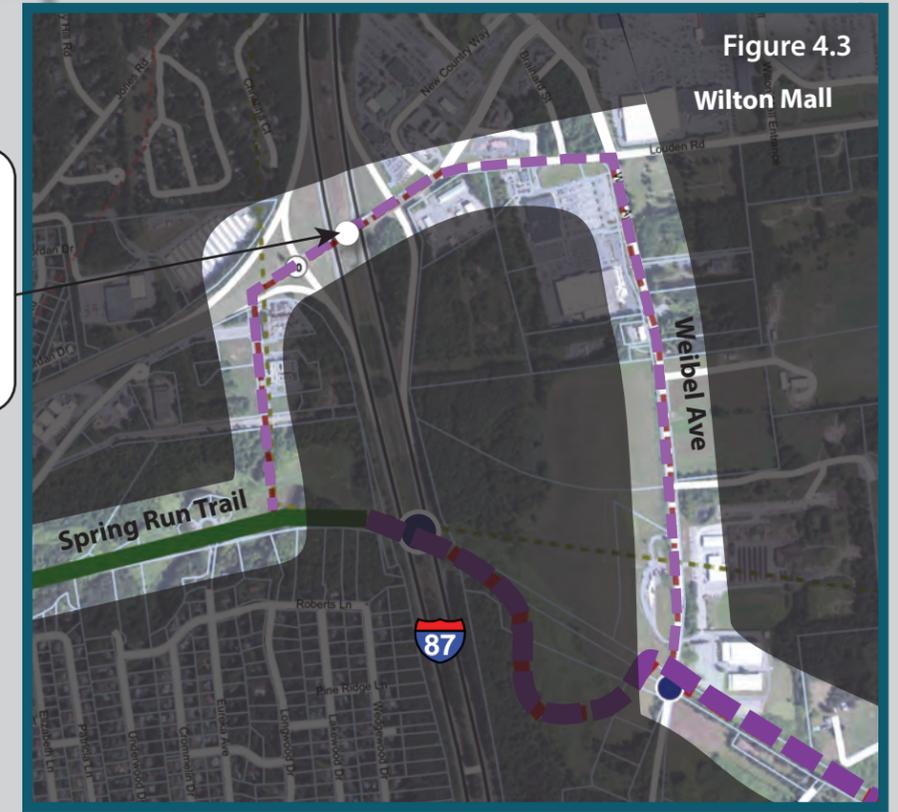


Figure 4.3

Wilton Mall

Weibel Ave



Weibel Ave

Section D  
Figure 4.1

Bog Meadow Trail Connector

**NORTHWAY TUNNEL:**  
After analyzing bridge and tunnel alternatives, it was determined that a tunnel would be the most cost effective and practical solution to overcoming the Northway barrier. The tunnel will be the most important connection that needs to be made in the Greenbelt Trail system. The tunnel will provide access for downtown residents to the Spring Run Trail, athletic facilities and wetlands in the eastern section of the City.



Figure 4.2



Figure 4.1

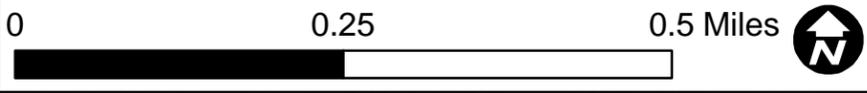
ICE RINKS

WEIBEL AVE

LAKE AVE

**BOG MEADOW TRAIL CONNECTOR**  
The Greenbelt Trail will extend upon the existing Railroad ROW that runs north-west of Lake Ave. The trail will then cross Weibel Ave, and continue to the south-west along the proposed Solar Park. RRFBs will be installed at both road crossings, along with crosswalks.

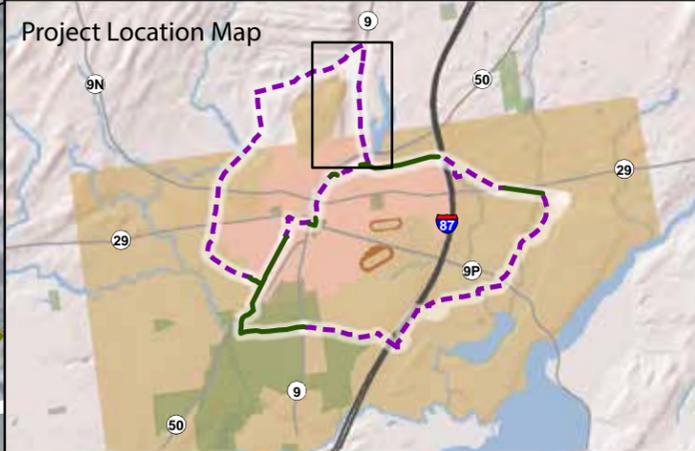
**NORTHWAY CROSSING (SECTION MAP 4 OF 8)**



# MAPLE AVE CONNECTOR

## Saratoga Greenbelt Trail Feasibility Study

### - City of Saratoga Springs, NY -



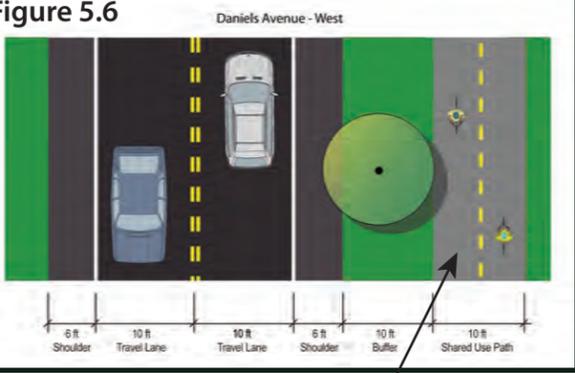
Date: September 2013

Source: NY State GIS Clearinghouse, CDTC  
Author: Sam Piper

- Legend\***
- Point of Interest
  - Schools and Universities
  - Trail Parking
  - Proposed Tunnel
  - Proposed Bridge
  - CDTA Bus Stop
  - Trailhead
  - Intersection Improvement
  - Existing Greenway
  - Saratoga Greenbelt Trail
  - Greenbelt Trail Connector
  - Wetlands
- \*Abbreviated legend. For complete legend refer to Overview Map.



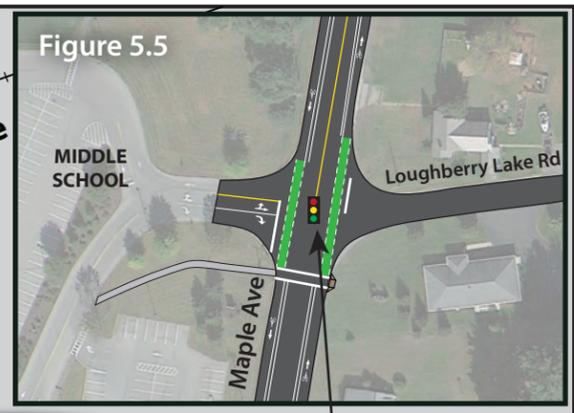
Figure 5.6



**DANIELS RD:**  
A 10 foot wide, asphalt shared use path is proposed on the south side of Daniels Rd, from Maple Ave to Bloomfield Rd.

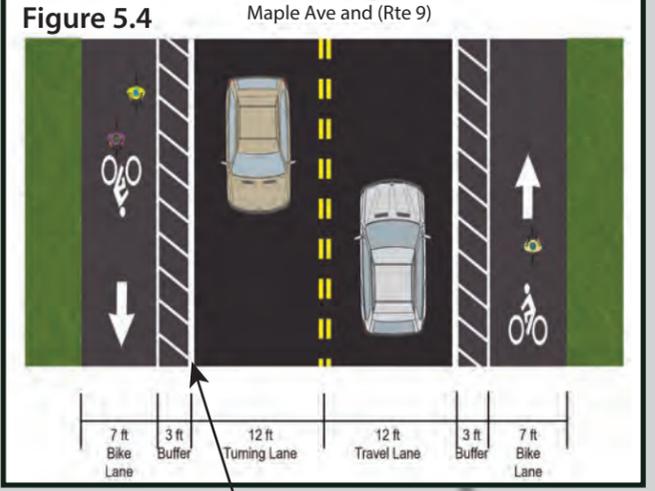
**COLORED PAVEMENT MARKINGS:**  
Colored pavement within a bicycle lane increases the visibility of the bicycle facility. Use of color is appropriate for use in areas with pressure for frequent encroachment of motor vehicles, to clarify conflict areas, and along enhanced facilities such as contra-flow bicycle lanes and cycle tracks.

Figure 5.5



**NEW SIGNAL:**  
A new signal is proposed to make this intersection safer, as are green bike lanes through the intersection and a crosswalk across Maple Ave.

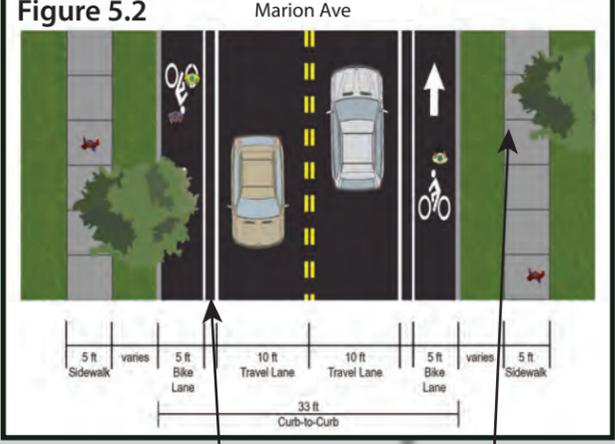
Figure 5.4



**MAPLE AVE, NORTH:**  
7 foot Buffered bike lanes are proposed on Maple Ave, between Marion Ave and Daniels Rd to the north. The 7' lanes will provide a shared space for cyclists and pedestrians.

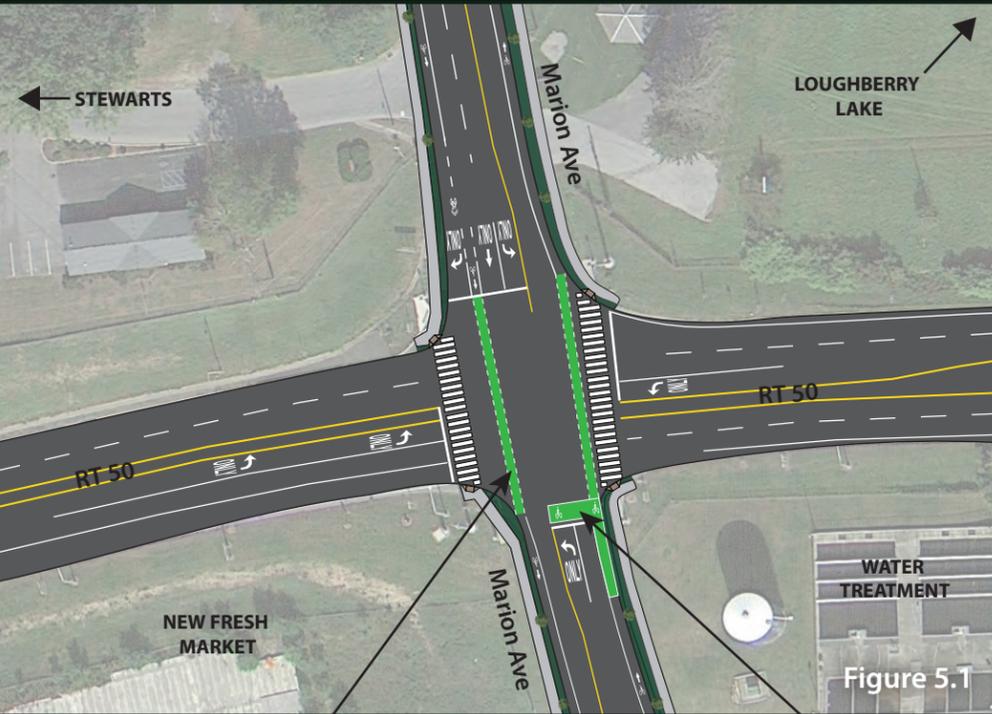
Buffered bike lanes are conventional bicycle lanes paired with a designated buffer space, separating the bicycle lane from the adjacent motor vehicle travel lane. Buffered bike lanes are designed to increase the space between the bike lane and the travel lane. This treatment is appropriate for bike lanes on roadways with high motor vehicle traffic volumes and speed or a high volume of truck or oversized vehicle traffic.

Figure 5.2



**MARION AVE:**  
5 foot Buffered bike lanes are proposed on Marion Ave, between the Spring Run Trail and Maple Ave to the north. 5 foot sidewalks will be provided for pedestrians in addition to the bike lanes.

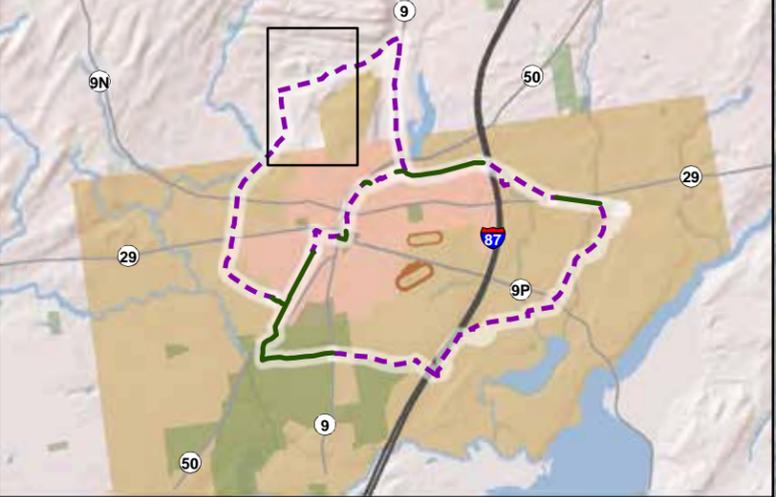
**MAPLE AVE + MARION AVE:**  
Buffered Bike lanes will continue north and south through the intersection of Marion Ave and Maple Ave. The wide (7') buffered lanes will provide a shared space for cyclists and pedestrians. Optional flexible bollards can be installed to heighten the level of safety.



**MARION AVE + RTE 50:**  
Green bike lanes are proposed north/south through the intersection. Colored pavement within a bicycle lane increases the visibility of the bicycle facility. Sidewalks are proposed on the north and southbound approaches of the intersection

A bike box is proposed at the northbound approach to the intersection. A bike box is a designated area located at the head a traffic lane that provides bicyclists with a safe and visible space to get in front of queuing motorized traffic during the red signal phase. Motor vehicles must queue behind the white stop line at the rear of the bike box.

**MAPLE AVE CONNECTOR (SECTION MAP 5 OF 8)**



**Legend\***

- Point of Interest
- Schools and Universities
- Trail Parking
- Proposed Tunnel
- Proposed Bridge
- CDTA Bus Stop
- Trailhead
- Intersection Improvement
- Existing Greenway
- Saratoga Greenbelt Trail
- Greenbelt Trail Connector
- Wetlands

\*Abbreviated legend. For complete legend refer to Overview Map.

Figure 6.2



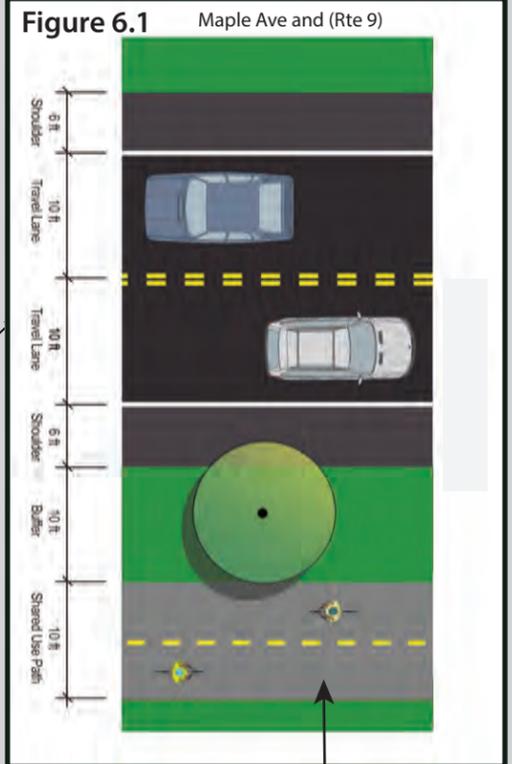
**DANIELS RD + BLOOMFIELD RD**  
 The Saratoga Greenbelt Trail will cross Bloomfield Rd, and continue south on the west side of Bloomfield Rd. A crosswalk is proposed across Bloomfield Rd, along with a stop bar in the north bound lane of Bloomfield Rd to provide a safe crossing location for trail users.

The improvements to the intersection will also provide direct access to the new DEC mountain bike facilities to the north of Daniels Rd.

**Skidmore Stables**



Figure 6.1  
 Section F



**Skidmore Lands**



**DANIELS RD + BLOOMFIELD RD PATH**  
 The Saratoga Greenbelt Trail will continue as a 10 foot wide, asphalt multi-use path on the south side of Daniels Rd. The trail will cross bloomfield Rd, and continue southbound as a shared use path on the west side of Bloomfield Rd to Denton Rd.

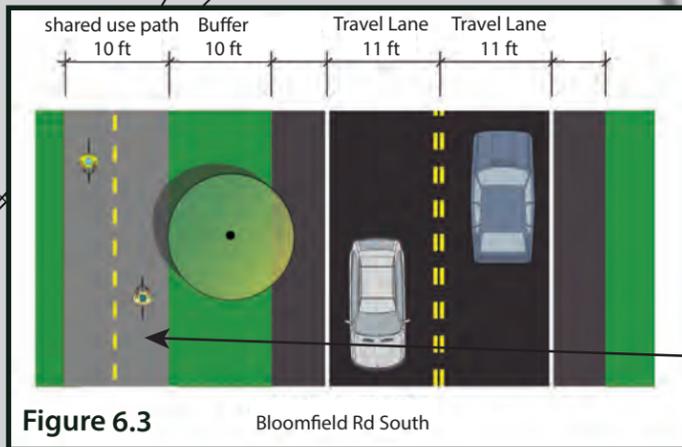


Figure 6.3 Bloomfield Rd South



**BLOOMFIELD + DENTON RD**  
 The 10 foot wide, asphalt shared use path will continue south to Bloomfield Rd. Just before Bloomfield Rd ends, the trail will cross the road east/west, and then cross Denton Rd in a north/south direction.

The trail will then continue southbound along the existing rail road right of way. The cross section of this portion of rail with trail is described in more detail on Section Map 7.

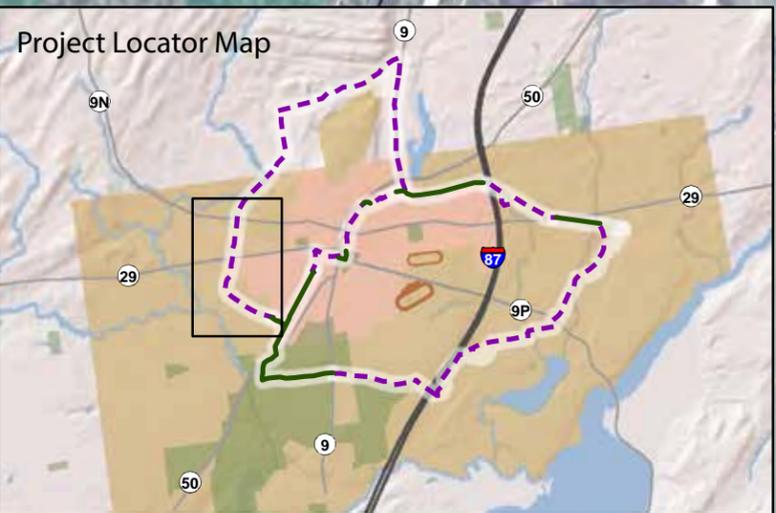
**WATERLINE CONNECTOR NORTH (SECTION MAP 6 OF 8)**



**Legend\***

-  Point of Interest
-  Schools and Universities
-  Trail Parking
-  Proposed Tunnel
-  Proposed Bridge
-  CDTA Bus Stop
-  Trailhead
-  Intersection Improvement
-  Existing Greenway
-  Saratoga Greenbelt Trail
-  Greenbelt Trail Connector
-  Wetlands

\*Abbreviated legend. For complete legend refer to Overview Map.



**RAIL AND ROAD CROSSINGS:**

The Amtrak line that runs North/South through the west side of the city provides an ideal opportunity to construct a "Rail with Trail". The existing railroad corridor is bridged by three roads: Church St.; Washington St.; and Grand Ave. The planning team has devised three solutions to continue the Greenbelt Trail through these constrained intersections.

One solution is to build a tunnel under the roadway, separate from the existing railroad tunnel. Another option is to construct a ramp which would bring the trail to the grade of the roadway. The third solution would be to go around the intersection.

Each of the three options is appropriate for each of the three bridge locations.

Figure 8.1

Church St

**TUNNEL OPTION:**

One solution to continue the trail through the railway and road crossings is to tunnel under the roadway. The tunnel would be constructed separate from the railroad tunnel. The tunnel would be 18 feet wide, and would provide two way access for trail users traveling along the Greenbelt trail.

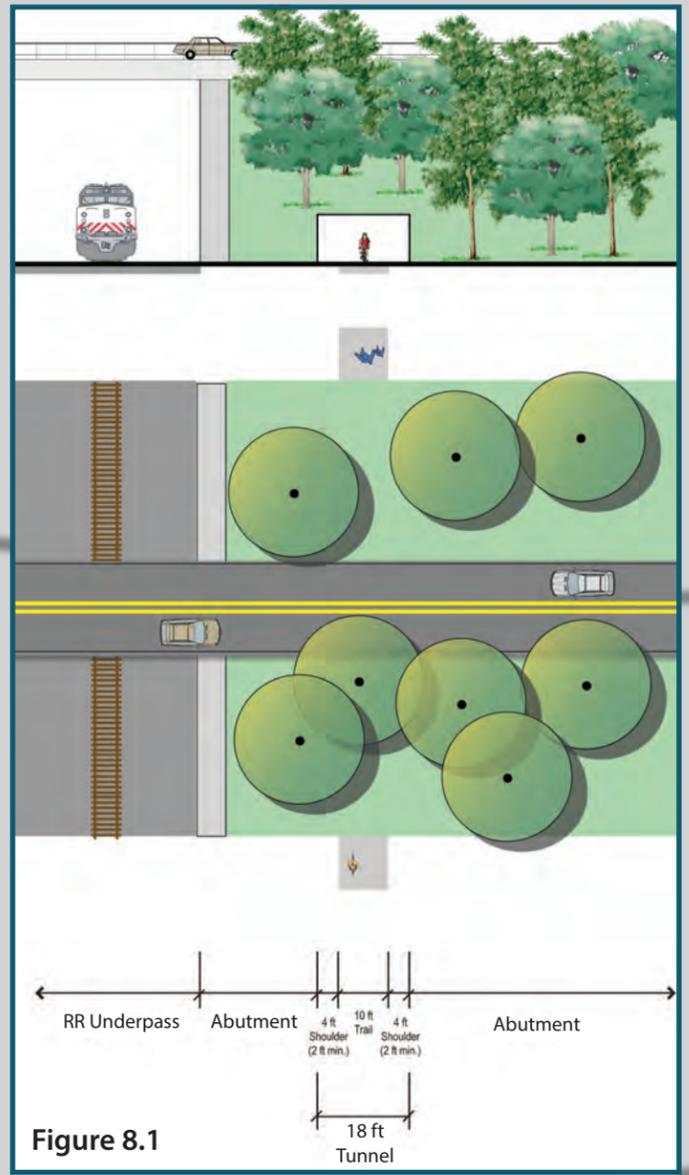


Figure 8.1

West Side Greenbelt Trail

Section G  
Figure 8.2

Figure 8.3

Washington St

**RAMP OPTION:**

An alternative option for the road and railway crossings is to construct ramps on the north and south bound side of the roadway, which would bring the trail up to the grade of the roadway. The trail user would then cross the road at grade. RRFBs and high visibility crosswalks would be installed to alert motorists to the presence of crossing trail users.

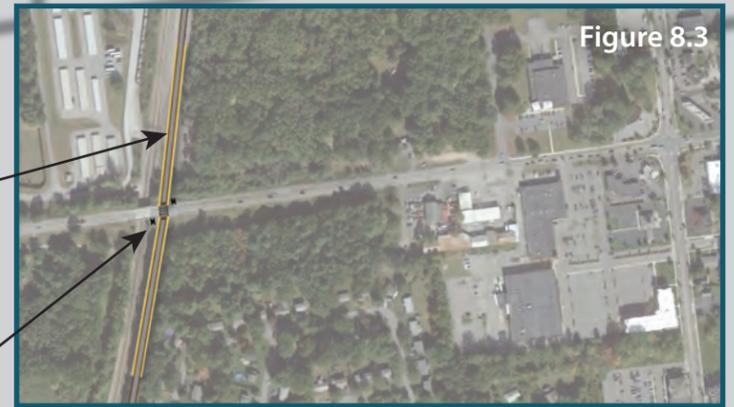


Figure 8.3

Grand Ave

Figure 8.4

**"GO AROUND" OPTION:**

An alternative option to a tunnel or a ramp is to 'go around' the roadway and railway crossing.

This would be achieved by acquiring ROW and then determining an appropriate location to cross the roadway at grade. The trail would then return to the Rail ROW after the roadway crossing. This option would be less construction intensive, but would require the acquisition of additional ROW.



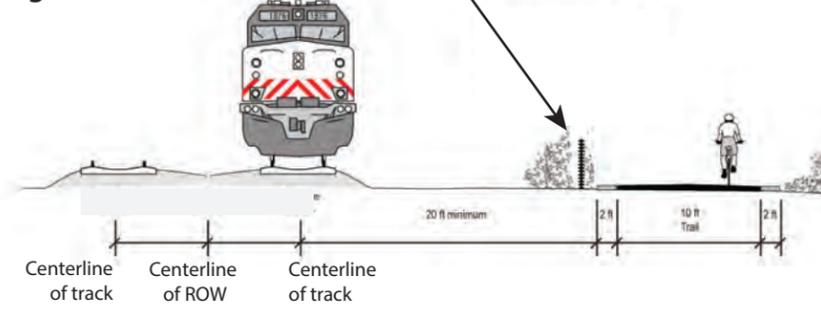
Figure 8.4

**RAIL WITH TRAIL SECTION:**

Constructing trails adjacent to active rail corridors has proven to be a safe and effective way to provide linear trail systems along existing Rights of Way

5 foot high barriers between the trail and rail line will buffer the visual impact of passing trains, improving the comfort of trail users.

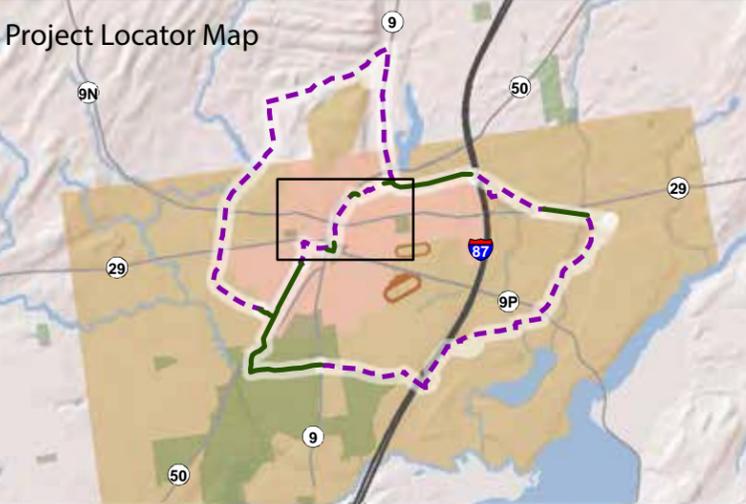
Figure 8.2



West Ave

Railroad Run Trail

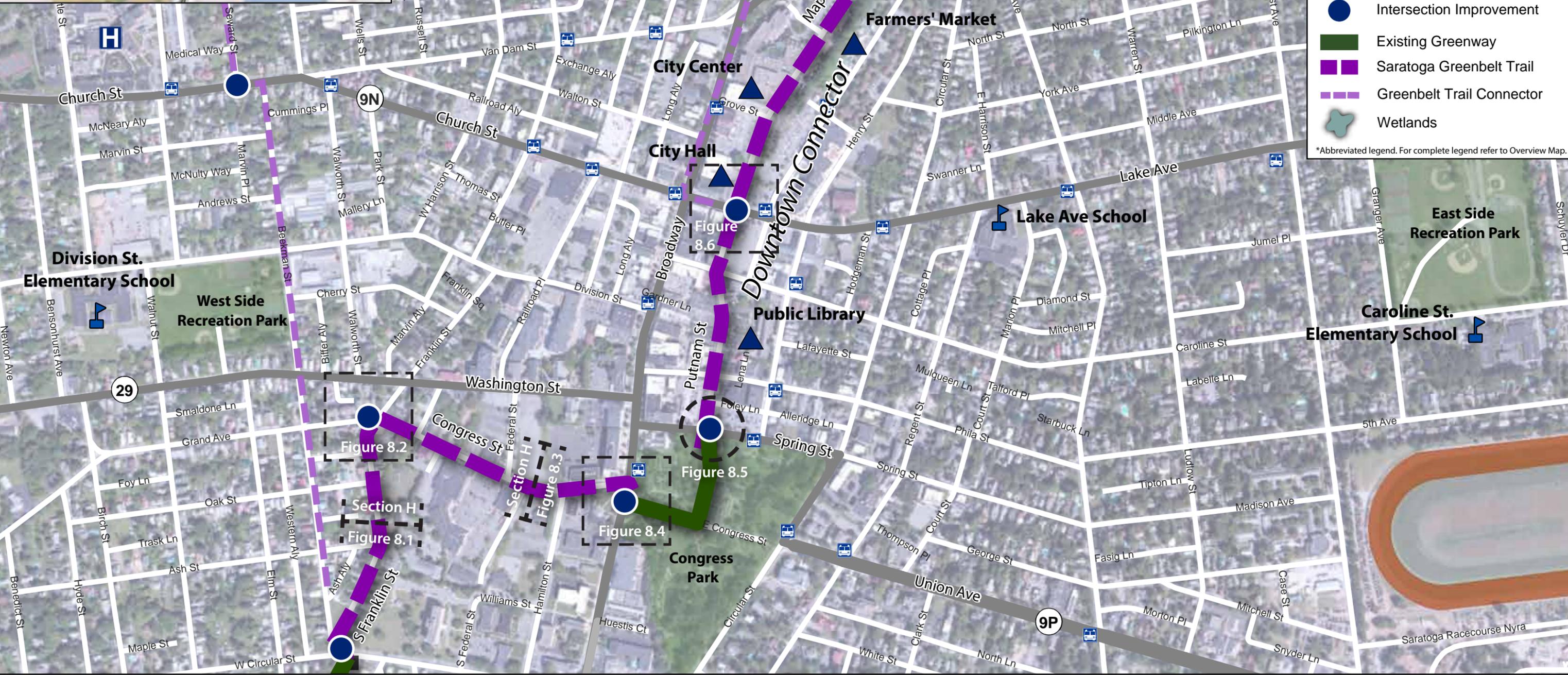
**WATERLINE CONNECTOR SOUTH (SECTION MAP 7 OF 8)**



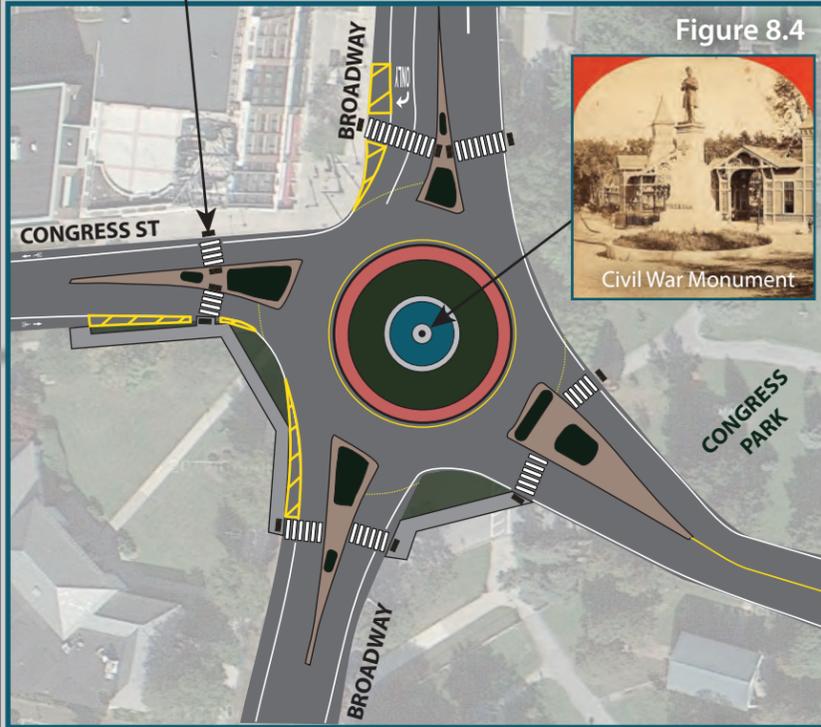
**Legend\***

- Point of Interest
- Schools and Universities
- Trail Parking
- Proposed Tunnel
- Proposed Bridge
- CDTA Bus Stop
- Trailhead
- Intersection Improvement
- Existing Greenway
- Saratoga Greenbelt Trail
- Greenbelt Trail Connector
- Wetlands

\*Abbreviated legend. For complete legend refer to Overview Map.



**INTERSECTION IMPROVEMENT AT CONGRESS ST AND BROADWAY:**  
 Currently, the intersection of Congress St and Broadway is challenging for non-motorized roadway users. The proposed roundabout improvement will mitigate many of the issues that cause the intersection to be uncomfortable. Crossing distances will be decreased and segmented, and a safe connection to Congress park will be provided through the installation of high visibility crosswalks. The roundabout will also allow the city to relocate the historic civil war monument to its original location. This improvement will welcome residents and visitors to Downtown Saratoga.



**SOUTH FRANKLIN + CONGRESS ST IMPROVEMENTS**  
 Crosswalks are to be improved, and directional signage installed to direct trail users to different sections of the Greenbelt Trail. Shared Lane Markings are proposed on both South Franklin St and Congress street. Additionally, signals will be modified to permit longer crossing periods for trail users.

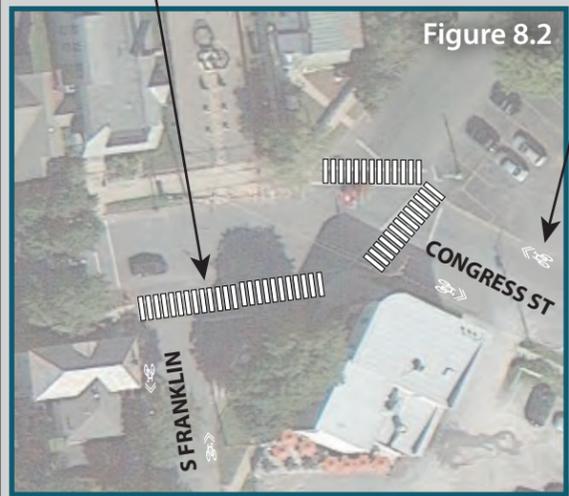
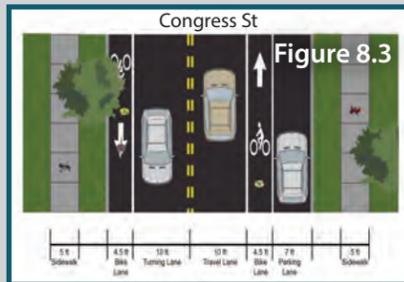
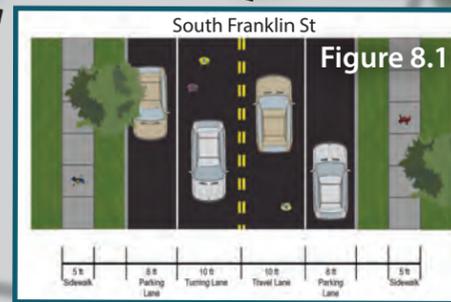


Figure 8.2  
 Section H  
 Figure 8.1



**LAKE AVE + MAPLE AVE TREATMENTS**  
 Shared Lane Markings (sharrows) are proposed south of Church St, and 5 foot bike lanes north of the intersection. Colored bike lanes are to be provided through the intersection to highlight conflict areas and alert motorists to the presence of cyclists.

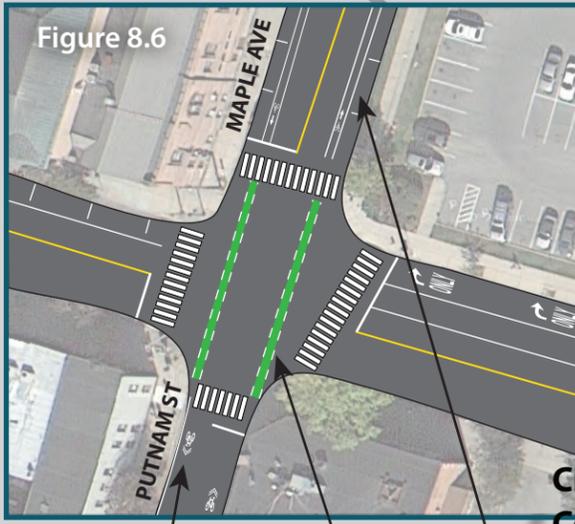
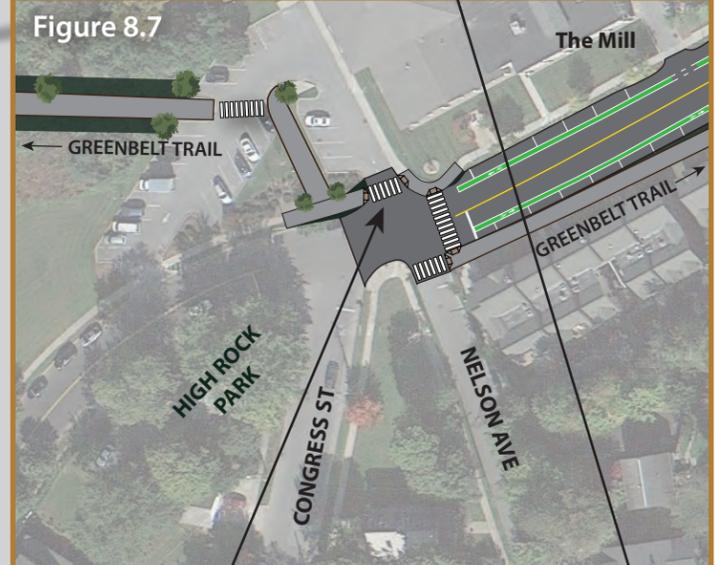
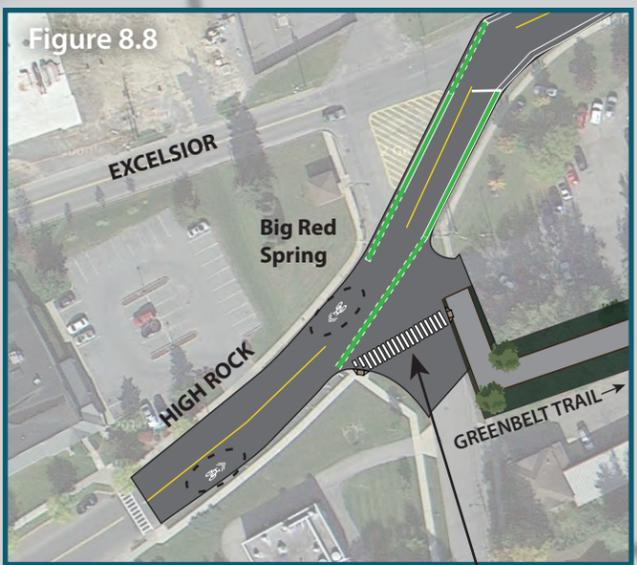


Figure 8.6  
 Putnam St



**PUTNAM AVE SHARED STREET:**  
 Several improvements are proposed to make Putnam Ave a destination for visitors and residents alike. Putnam Ave is envisioned to become a European style, curbsless street - with bollards separating vehicular and bicycle traffic from the pedestrian space. Street cafes and street vendors will help to make the street a lively and active locale.



**HIGH VISIBILITY CROSSWALKS:**  
 High visibility crosswalks provide safe crossing locations for all trail users. This type of crosswalk is recommended because they alert drivers of the presence of pedestrians well in advance of the crosswalk.

**DOWNTOWN CONNECTOR (SECTION MAP 8 OF 8)**

## PLANNING LEVEL COST SUMMARY

The Saratoga Greenbelt Trail has been divided into eight logical sections. These sections include: the Crescent Ave Connector, the Saratoga National Trail, the Big Boardwalk, the Northway Crossing, the Maple Ave Connector, the Waterline Trail North, the West Side Greenbelt Trail, and the Downtown Connector. These sections of the Greenbelt Trail could feasibly be completed as one single project, or as independent projects.

A planning level cost estimate was conducted for each of the eight sections of the trail. The cost estimates took into consideration many factors, including facility type, materials, right-of-way acquisition and labor. The total cost for the Saratoga Greenbelt Trail is estimated to be between \$16,500,000 and \$19,850,000. Table 4.10 provides the planning level costs of the eight sections, including both a low projected cost and a high projected cost, and sums the section costs to calculate the total cost for the Saratoga Greenbelt Trail.

There are significant opportunities to include elements of the trail in ongoing capital projects. For example, the Crescent Avenue Bridge and the Northway Tunnel could be developed in collaboration with NYSDOT during future reconstruction projects. Integrating the Greenbelt Trail into larger projects will enhance the return on investment for the community and project partners.

Table 4.10 - Planning Level Cost Summary

Greenbelt Trail Section #	Greenbelt Trail Section Name	Low Estimate	High Estimate
1	Crescent Ave Connector	\$550,000	\$650,000
2	Saratoga National Trail	\$2,500,000	\$3,000,000
3	Big Boardwalk	\$2,800,000	\$3,500,000
4	Northway Crossing	\$3,500,000	\$4,500,000
5	Maple Ave Connector	\$600,000	\$700,000
6	Waterline Trail North	\$1,300,000	\$1,500,000
7	West Side Greenbelt Trail	\$3,500,000	\$4,000,000
8	Downtown Connector	\$1,500,000	\$2,000,000
<b>TOTAL COST</b>		<b>\$16,250,000</b>	<b>\$19,850,000</b>



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# Implementation Strategy



Saratoga Greenbelt Trail	
Ice Rinks	1.0 mi.
Lacrosse Fields	1.5 mi.
Bog Meadow Trail	1.8 mi.
Saratoga National Golf Course	4.0 mi.





## IMPLEMENTATION STRATEGY

There is growing support for trails in New York State, and the Greenbelt Trail is well positioned to capitalize on this trend. A number of similar projects have received significant state, federal and private funding in recent years, including the NYC Highline, Walkway Over the Hudson, Wallkill Valley Rail Trail, Genessee Valley Greenway in Rochester, Albany's Mohawk-Hudson Bikeway, and others. To advance the Greenbelt towards completion, the following implementation steps are recommended.

**Concept Plan Adoption:** The Saratoga Springs City Council and the Saratoga County Board of Supervisors can adopt resolutions in support of the Greenbelt Trail. This will allow for public support of the project and help continue the momentum created by the feasibility study. The City of Saratoga Springs can include ongoing funding in its capital budget, and engage PLAN for landowner outreach as the City's agent for securing land and easement acquisitions.

**Friends of the Greenbelt Trail:** Establish, either as a project of an existing non-profit or as a new organization, a 'friends' organization to develop partnerships, visibility and resources for implementation.

**Generic EIS:** Complete an Environmental Impact Statement to comply with NY State SEQRA requirements. This will allow for natural, cultural and community impacts to be addressed for the entire loop, and will result in moving towards full 'shovel ready' status for individual projects. This project can be coordinated with a NEPA review to ensure access to federal funding sources.

**Integration into Capital Projects:** Where possible, sections of the Greenbelt Trail can be implemented through inclusion in ongoing capital projects. This process can involve Planning Board site plan reviews, traffic/environmental impact mitigation, inclusion in public works projects, and

collaboration with developers to build sections or provide secure alignments for future construction.

**Funding Options:** There are a wide range of public, private and nonprofit sources available for the Greenbelt Trail. For most federally funded transportation projects, 20% of the cost is required in local matching funds. A local Greenbelt Trail fund can be established through a combination of grants, private donations, development impact fees, the sale of bonds, and the municipal budget process. An important grant source is the annual NY State Consolidated Funding Application (CFA).

**"Adopt a Greenbelt" Program:** In order to ensure long term support, each section of the Greenbelt Trail can be 'adopted' by local community partners. The adoption process can include working to secure funding and resources for each section, and eventually to serve as a community building effort for long term trail maintenance and operations.

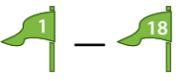
**Branding / Marketing:** It is important to use a consistent "brand" for the Greenbelt Trail logo, website and promotional materials. The identity of the project will serve as a defining feature in the community. Where possible, the wayfinding signage and graphics can be provided on existing trails, as new sections are built, and to identify future alignments.

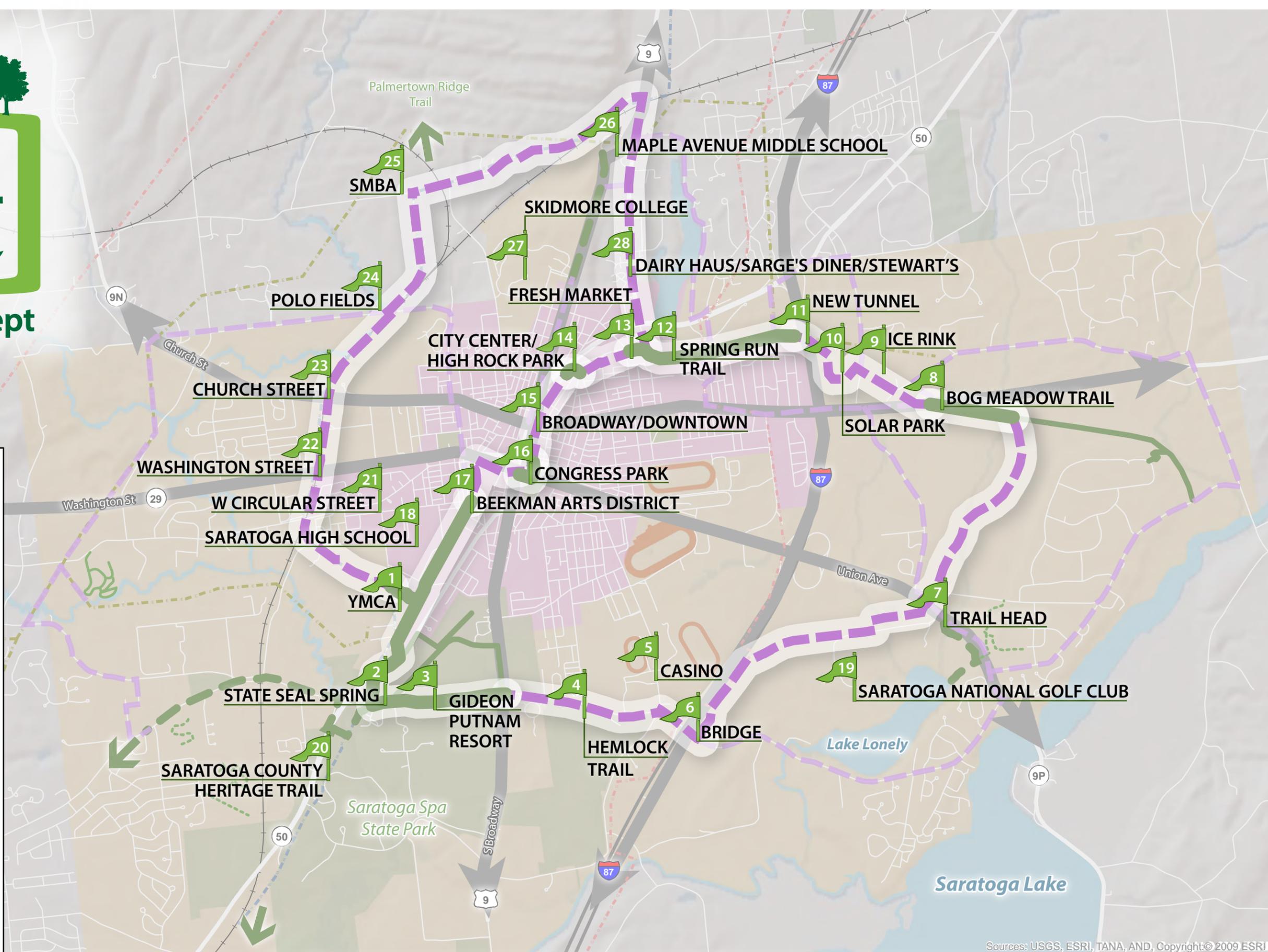
**Celebrations:** Where possible, every step forward on the project should be celebrated publicly. National Trails Day, Walk/Bike to School Day, parades and other events are opportunities to keep the project visible. One suggestion is to host a "Green Belt / Black Tie" fund-raiser to highlight the project and celebrate the future of the trail.



# SARATOGA GREENBELT TRAIL

"18 Holes" Concept

-  Greenbelt Course
-  Greenbelt Short Course
-  Saratoga Greenbelt Trail
-  Greenbelt Trail Connector
-  Existing Greenway
-  Existing Greenway Extension
-  Proposed Greenway
-  Existing Subdivision Trail
-  Proposed Subdivision Trail
-  Gas ROW
-  Electric ROW
-  Water Line ROW
-  Rail Lines
-  Lakes
-  Parks and Recreation Areas
-  Downtown Saratoga Springs
-  City of Saratoga Springs



Sources: USGS, ESRI, TANA, AND, Copyright © 2009 ESRI



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# Design Guidance

WAYFINDING SIGNAGE

FURNISHING ZONE

SHARED-USE PATH

ORIENTATION SIGNAGE

10'-12'



## GREENBELT TRAIL DESIGN GUIDANCE

The Saratoga Springs Greenbelt Trail will include shared-use paths separated from motor vehicle traffic, sections of on-road facilities, and safe crossings. The primary facilities types are:

- Shared-use paths
- Boardwalks
- Cycle tracks
- Shared streets
- Roadway crossings, including bridge, tunnel and at-grade locations.

In this section, design guidance is provided for each of these facility types.



Shared Street



Cycle Tracks



Unsignalized + Signalized Crossings



Paved Shared Use Path



Overcrossings + Undercrossings



Boardwalk



Signage

## SHARED USE PATH

Shared-use paths are the primary facility type for the Greenbelt Trail. These facilities provide access for users of all skill levels and separation from motorized traffic.

### Design Guidance

#### WIDTH

- 10-12' is recommended in most situations and will accommodate pedestrians, wheelchairs, in-line skaters, skiers, runners, bicyclists and low-speed electric vehicles. Where right-of-way allows, 2' crushed stone shoulders are recommended for runners and equestrian use. In constrained areas, 8-10 sections can be provided for short distances.

#### LATERAL CLEARANCE

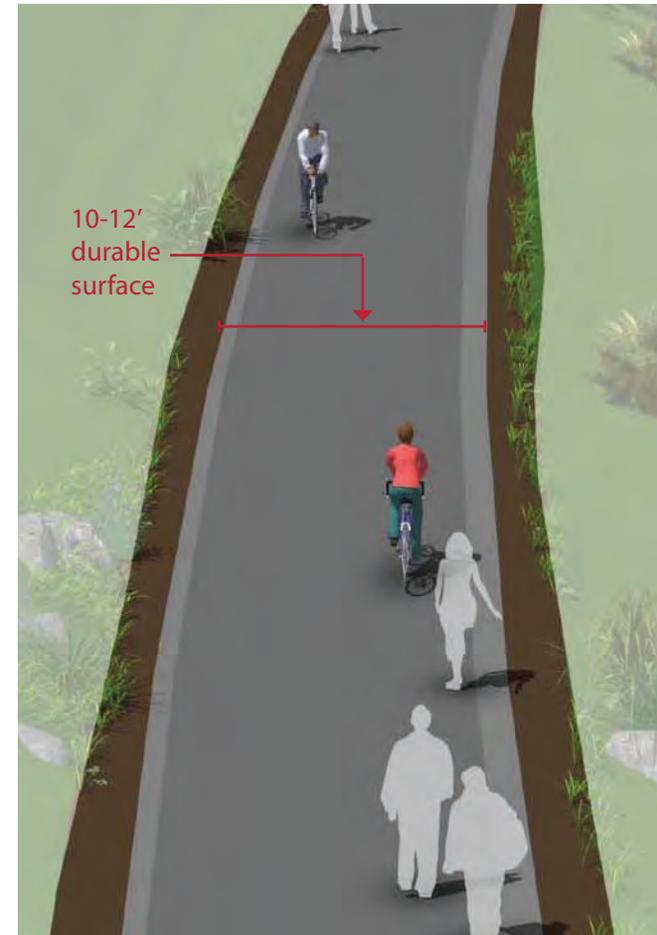
- A minimum 2' clear zone on both sides of the path should be provided. An additional foot of lateral clearance (total of 3') is required by the MUTCD for the installation of signage or other furnishings.

#### OVERHEAD CLEARANCE

- Clearance to overhead obstructions should be 8 feet minimum, with 10 feet recommended.

#### STRIPING

- When striping is used, install a 4 inch dashed yellow centerline stripe with 4 inch solid white edge lines.
- Solid centerlines can be provided on curved sections, and on the approaches to roadway crossings



### Materials and Maintenance

Asphalt is the most common surface for shared-use paths. The use of concrete for paths has proven to be more durable over the long term. Saw cut concrete joints rather than troweled improve the experience of path users.

## BOARDWALK

Boardwalk sections of the Greenbelt Trail will be provided to cross wetlands and provide a unique opportunity to connect people and nature. These sections will be designed to minimize impacts, and can be constructed from wood or recycled materials. A number of low-impact support systems are available that reduce the disturbance within wetland areas to the greatest extent possible.

### Design Guidance

#### WIDTH

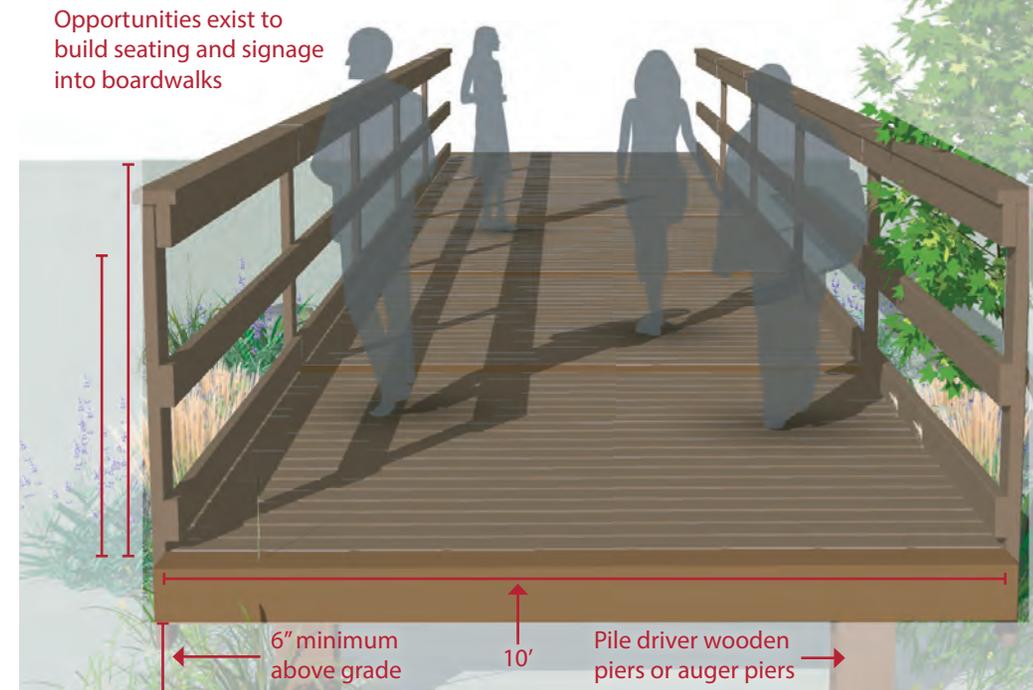
- Boardwalk width should be a minimum of 10 feet when no rail is used. A 12 foot width is preferred in areas with average anticipated use and whenever rails are used.

#### HEIGHT CONSIDERATIONS

- When the height of the boardwalk exceeds 30 feet, railings are required.
- For shared-use boardwalks, railings need to be built 54" above the surface of the boardwalk.

#### STRUCTURAL INTEGRITY

- If access by vehicles is desired, boardwalks should be designed to structurally support the weight of a small truck or a light-weight vehicle.



#### Materials and Maintenance

Decking should be either non-toxic treated wood or recycled products. Long-term maintenance can be minimized through good design and the use of quality materials.

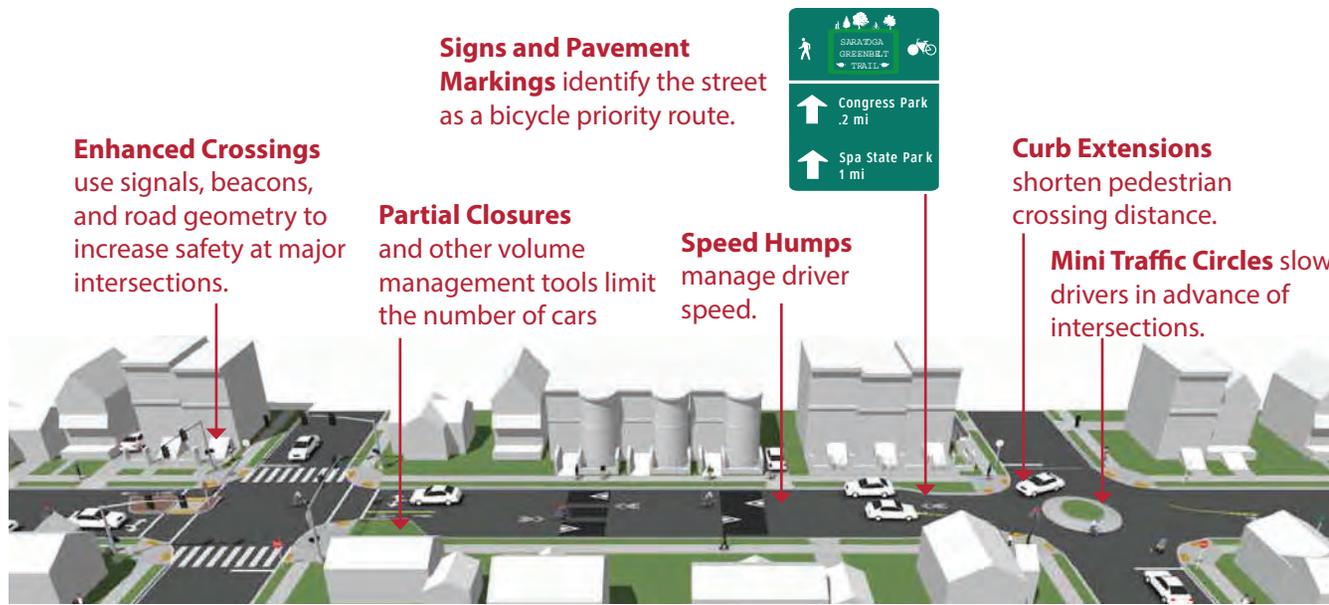
## SHARED STREET

Shared Streets are low-volume, low-speed streets modified to enhance bicyclists and pedestrians 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 and pedestrians while discouraging similar through-trips by non-local motorized traffic.

- Target motor vehicle volumes range from 1,000 to 3,000 vehicles per day.
- Intersection crossings should be designed to enhance safety and minimize delay for bicyclists.

## Design Guidance

- Signs and pavement markings are the minimum treatments necessary to improve shared streets.
- Use traffic calming to maintain an 85th percentile speed below 22 mph.



## CYCLE TRACK

Protected bikeways or “cycle tracks” provide an increased level of separation from motor vehicles through physical barriers, which can include bollards, parking, a planter strip, an extruded curb, or on-street parking. Cycle tracks using these protection elements typically share the same elevation as adjacent travel lanes.

Raised cycle tracks may be at the level of the adjacent sidewalk or set at an intermediate level between the roadway and sidewalk to separate the cycle track from the pedestrian area.

### Design Guidance

- Cycle tracks should ideally be placed along streets with long blocks and few driveways or mid-block

access points for motor vehicles. Cycle tracks located on one-way streets have fewer potential conflict areas than those on two-way streets.

- In situations where on-street parking is allowed, cycle tracks should be located between the parking lane and the sidewalk (in contrast to bike lanes).

### Discussion

Sidewalks or other pedestrian facilities should not be narrowed to accommodate the cycle track as pedestrians will likely walk on the cycle track if sidewalk capacity is reduced. Visual and physical cues (e.g., pavement markings & signage) should be used to make it clear where bicyclists and pedestrians should be travelling. If possible, separate the cycle track and pedestrian zone with a furnishing zone.



## MARKED/UNSIGNALIZED CROSSING

A marked/unsignalized crossing typically consists of a marked crossing area, signage and other markings to slow or stop traffic. The approach to designing crossings at mid-block locations depends on an evaluation of vehicular traffic, line of sight, pathway traffic, use patterns, vehicle speed, road type, road width, and other safety issues such as proximity to major attractions.

When space is available, using a median refuge island can improve user safety by providing pedestrians and bicyclists space to perform the safe crossing of one side of the street at a time.

## Design Guidance

Maximum traffic volumes

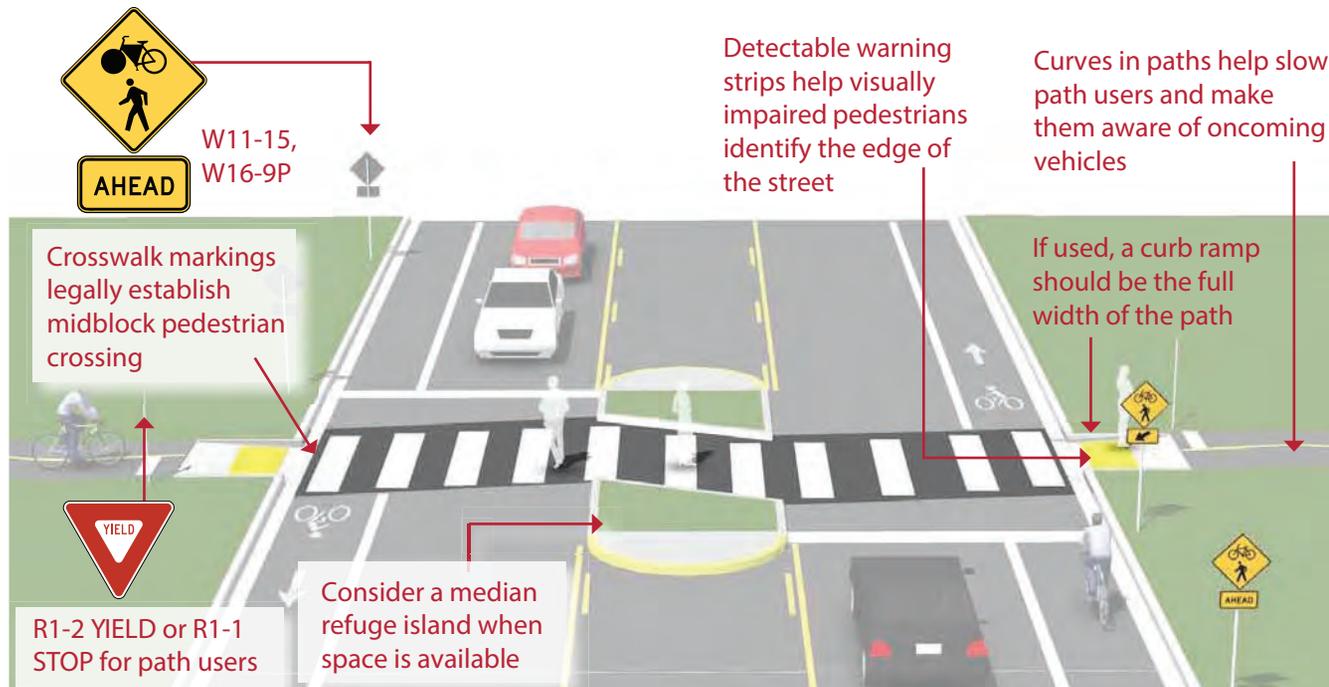
- ≤9,000-12,000 Average Daily Traffic (ADT) volume
- Up to 15,000 ADT on two-lane roads, preferably with a median
- Up to 12,000 ADT on four-lane roads with median

Maximum travel speed

- 35 MPH

Minimum line of sight

- 25 MPH zone: 155 feet
- 35 MPH zone: 250 feet
- 45 MPH zone: 360 feet



## SIGNALIZED/CONTROLLED CROSSING

Signalized crossings provide the most protection for crossing path users through the use of a red-signal indication to stop conflicting motor vehicle traffic. The two types of path signalization are full traffic signal control and hybrid signals.

A full traffic signal installation treats the path crossing as a conventional 4-way intersection and provides standard red-yellow-green traffic signal heads for all legs of the intersection.

Hybrid beacon (HAWK) signal installation (shown below) faces only cross motor vehicle traffic, stays dark when inactive, and uses a unique 'wig-wag' signal phase to indicate activation. Vehicles have the option to proceed after stopping during the final flashing red phase, which can reduce motor vehicle delay when compared to a full signal installation.

### Design Guidance

Hybrid beacons (illustrated here) may be installed without meeting traffic signal control warrants if roadway speed and volumes are excessive for comfortable path crossings.

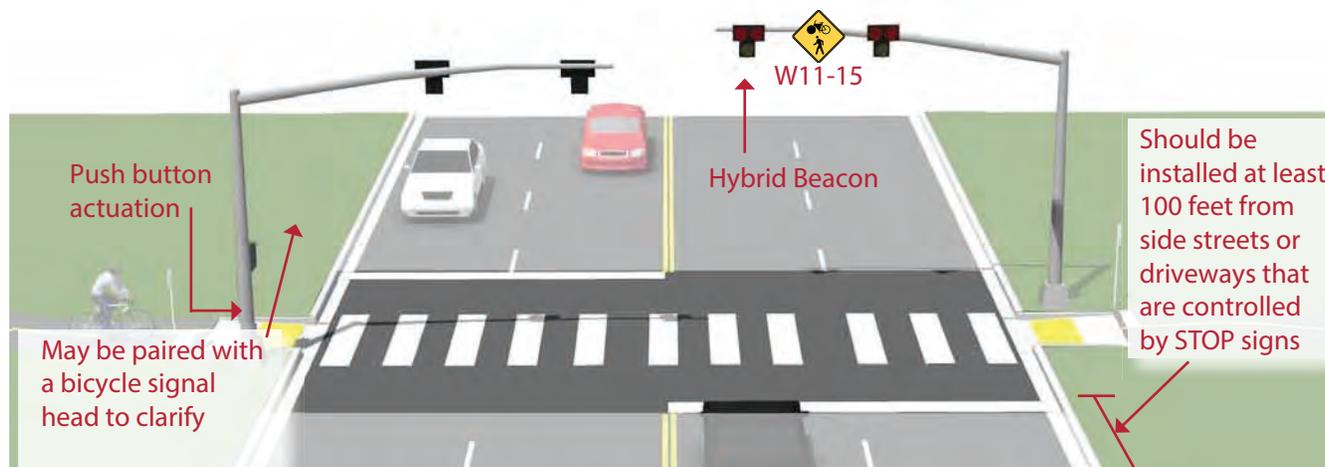
Full traffic signal installations must meet MUTCD pedestrian, school or modified warrants. Additional guidance for signalized crossings:

- Located more than 300 feet from an existing signalized intersection
- Roadway travel speeds of 40 MPH and above
- Roadway ADT exceeds 15,000 vehicles

### Discussion

Shared-use path signals are normally activated by push buttons but may also be triggered by embedded loop, infrared, microwave or video detectors. The maximum delay for activation of the signal should be two minutes, with minimum crossing times determined by the width of the street.

Each crossing, regardless of traffic speed or volume, requires additional review by a registered engineer to identify sight lines, potential impacts on traffic progression, timing with adjacent signals, capacity and safety.



## UNDERCROSSINGS

The Saratoga Greenbelt Trail alignment includes a major tunnel under the Northway, and other smaller tunnels throughout the system. Bicycle/pedestrian undercrossings provide critical non-motorized system links by joining areas separated by barriers such as I-87 and the railroad lines that flank the western side of the City.

Grade-separated crossings are advisable where existing bicycle/pedestrian crossings do not exist, where ADT exceeds 25,000 vehicles and where 85th percentile speeds exceed 45 miles per hour.

### Design Guidance

- 14 foot minimum width, greater widths preferred for lengths over 60 feet.
- 10 foot minimum height.
- The undercrossing should have a centerline stripe even if the rest of the path does not have one.

- Lighting should be considered during the design process for any undercrossing with high anticipated use or in culverts and tunnels.

### Discussion

Safety is an important concern with undercrossings. Shared-use path users may be temporarily out of sight from public view and may experience poor visibility themselves. To mitigate safety concerns, an undercrossing should be designed to be spacious, well-lit, completely visible for its entire length from end to end and may be equipped with emergency cell phones at each end.

Undercrossings for bicycles and pedestrians typically fall under the Americans with Disabilities Act (ADA), which strictly limits ramp slopes to 5% (1:20) with landings at 400 foot intervals, or 8.33% (1:12) with landings every 30 feet.



## OVERCROSSINGS

The Saratoga Greenbelt Trail includes a major bridge over the Northway as well as multiple smaller bridges (two in the Bog Meadow, one at the Solar Park, among others). Bicycle/pedestrian overcrossings provide critical non-motorized system links by joining areas separated by barriers such as waterways or major transportation corridors.

Overcrossings require a minimum of 17 feet of vertical clearance to the roadway below versus a minimum elevation differential of around 12 feet for an undercrossing. This results in potentially greater elevation differences and much longer ramps for bicycles and pedestrians to negotiate.

### Design Guidance

8 foot minimum width, 14 feet preferred. If overcrossing has any scenic vistas additional width should be provided to

allow for stopping. A separate 5 foot pedestrian area may be provided for facilities with high bicycle and pedestrian use.

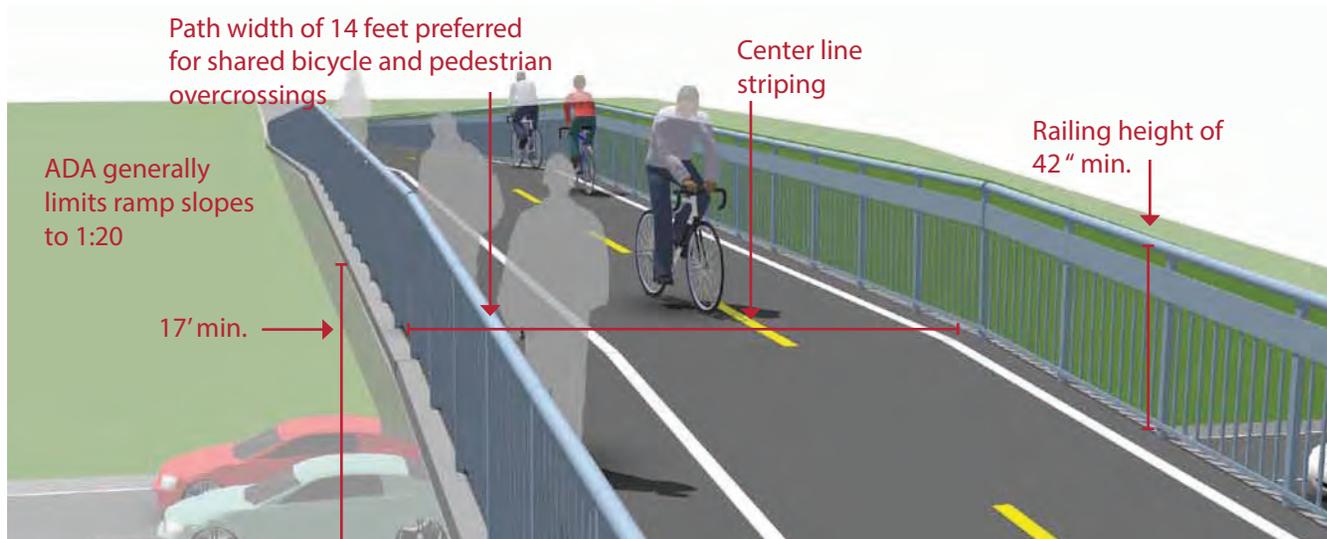
10 foot headroom on overcrossing; clearance below will vary depending on feature being crossed.

- Roadway: 17 feet
- Freeway: 18.5 feet
- Heavy Rail Line: 23 feet

The overcrossing should have a centerline stripe even if the rest of the path does not have one.

### Discussion

Overcrossings for bicycles and pedestrians typically fall under the Americans with Disabilities Act (ADA), which strictly limits ramp slopes to 5% (1:20) with landings at 400 foot intervals, or 8.33% (1:12) with landings every 30 feet.

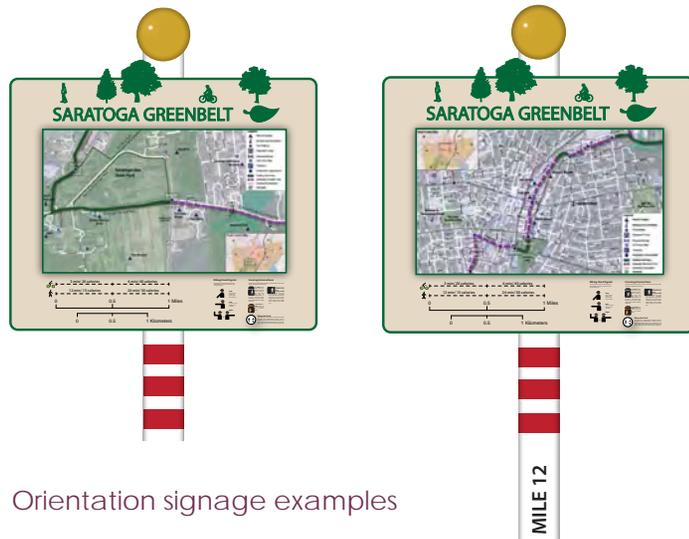


## WAYFINDING + ORIENTATION SIGNAGE

Signage is necessary at trailheads and intersections in the network to guide trail users to their destination. In most situations two wayfinding signs are recommended in each direction at an intersection. These comprise a decision sign before the turn and a confirmation sign after the turn. In some situations it may also be useful to add turn fingerboards to provide clarity at complex intersections, or waymarkers to highlight routes.

This image to the right displays the typical configuration of wayfinding signs at a decision point. Each direction has a decision sign on the approach and a confirmation sign on the exit. In normal situations the default approach is to use two signs for each arm of an intersection.

Wayfinding signage should be used in conjunction with orientation signage placed at key locations throughout the trail system. Orientation signage should include a map of the trail system, and have a place marker which indicates to the trail user where they are located within the system. Key points of interest should be identified too.



Orientation signage examples

### Wayfinding Signage Examples

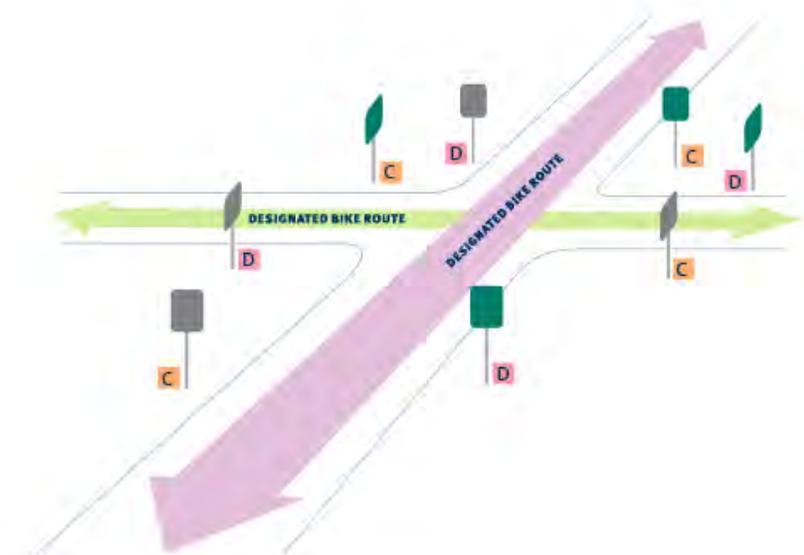


**D** Decision sign

On the approach to a decision point, decision signs point the direction to control destinations.

**C** Confirmation sign

After decision points, confirmation signs reassure cyclists of their direction and confirm additional destinations reached along that route.



Placement of wayfinding signage at a typical intersection.



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PO Box 454, Saratoga Springs, NY 12866

Sustainable Saratoga  
2/28/14

Greenbelt Trail proposed language:

### Environmental Considerations

Developing trails in natural areas is often considered desirable, by giving the public an opportunity to observe and appreciate natural settings and wildlife. Public commitment to retain and respect nature often stems from the ability to access and observe natural features and landscapes that may otherwise go unnoticed and unappreciated. Trails can provide an opportunity to heighten the environmental IQ of the citizens who use them. However, any trail that is located in or near natural settings will have at least some impact on wildlife and the natural environment in which it is sited.

The Greenbelt Trail takes a sustainable approach to the development of the trail in rural or remote areas of the community and in natural settings. Sustainability is often defined as addressing the needs of the present without compromising the quality of the environment for future generations. In the case of the Greenbelt Trail, sustainable trail development means enjoying the trail without diminishing the ability of future generations to enjoy the trail's natural benefits, including wildlife, trees, plants, and undisturbed natural beauty. The Greenbelt Trail effort is committed to retaining the biodiversity and ecological integrity of the natural areas it is designed to showcase.

In order to provide trail access while maintaining a high degree of ecological and environmental value, the "zone of influence" of the trail will be minimized by adhering to the following principles and practices:

- Trail alignment through undeveloped, pristine, or sensitive environmental areas will be minimized to the greatest extent possible. Furthermore, wetlands, floodplains, and wooded areas are among the most sensitive and vulnerable of our local environments. Trail impacts in those areas will be avoided to the utmost extent possible.
- Care will be taken to avoid siting the trail where ecosystems meet, which are often sites of increased biological activity and sensitivity.
- Preference will be given to trail alignments that are located within previously developed or degraded areas rather than disturbing undeveloped areas.
- The location and alignment of the trail will be chosen so as to avoid steep slopes that may lead to erosion due to stormwater runoff. Where this is unavoidable, the design will

utilize mitigation measures such as climbing turns, switchbacks, bench cuts, and grade dips to reduce erosion potential.

- The narrowest width necessary to meet the needs of trail users will be used, particularly in sensitive natural areas. Natural vegetation will be retained to the utmost extent possible, in order to avoid altering tree and shrub canopies and natural drainage patterns. Construction will utilize the smallest equipment feasible so as to avoid unnecessary adjacent impacts beyond the footprint of the trail tread.
- Elevated boardwalk systems and bridges are preferred when traversing aquatic systems or drainage patterns. If such designs are unfeasible, culverts will be properly sized and installed so as to best maintain natural connectivity for both water flows and aquatic/semi-aquatic species.
- The type, style, and size of materials used in trail and trailhead design and construction will impose the least amount of impacts to the trail area. Porous trail surfaces will generally be preferred.
- Interpretive features, such as trailhead signage, trail markers, kiosks, and ancillary structures will be constructed of local, native materials when possible and complement the character of the trail and its surroundings.
- Care will be taken to avoid the introduction of invasive species through the construction process. Best Management Practices such as equipment and machinery washing, as well as the use of clean fill, will be used to decrease the likelihood of any harmful introductions.
- Artificial lighting of any kind will be avoided in undeveloped areas. Unlit trail sections should be designated for use from dawn to dusk only.
- Notice will be provided at all trailheads to inform visitors that motor vehicle use and unleashed dog walking are prohibited. Temporary, site-specific closures may be warranted for the protection of wildlife, such as for birds during critical nesting periods.
- The trail will be monitored, managed, and maintained with these environmental goals in mind.

With effective planning and environmental stewardship as the guiding principles, the Greenbelt Trail will provide opportunities for the public both to enjoy nature and to be educated about the natural environments they observe.