

CHAPTER IV

ANALYSIS AND ALTERNATIVES

Before proposing specific trail construction elements and management policies, a focused look at the trail setting is necessary to identify the natural and cultural resources that may be sensitive to changes brought about by implementing the trail project.

In the sections that follow, natural and cultural resources sensitivity issues are identified for the varied landscapes proposed for the trail's development. The analysis section is followed by a discussion of trail development alternatives.

The objective to use abandoned railroad corridor and previously developed/disturbed land for the majority of the Black Diamond Trail is intended to minimize or avoid adverse impacts on natural and cultural resources located within the trail's study area. Through the inventory-gathering phase, which included detailed field visits, public information meetings, and meetings with individuals, groups and business owners, resource sensitivity issues were identified for several areas within the study corridor.

The following resource analysis section presents the natural and cultural resources found in the trail corridor that could be impacted by trail development and management.

RESOURCE ANALYSIS

The Natural Landscape

Flora

A variety of habitats exist along the 15-mile trail alignment supporting a wide variety of plant life. Over the majority of the length of the proposed trail alignment, the land has been disturbed by development activities including roads, a railroad, flood control structures, farming and suburban and urban development. Much of the vegetation that exists consists of second-growth species. In many places non-native, invasive species, such as

honeysuckle and multi-flora rose, have become well established.

The most biologically sensitive area proposed for trail development exists in the Cayuga Inlet Valley between Robert H. Treman State Park and the south end of the flood control channel in the city of Ithaca. Within this stretch exist pockets of remnant wetland and floodplain forest habitats. Both of these types of habitats declined dramatically during the years of settlement of the flats at the south end of Cayuga Lake.

The extensive wetland that once existed from the lake shore south to the area of Robert H. Treman State Park was drained and filled over the years to take advantage of the fertile soils for agriculture and accommodate the expanding population of the city of Ithaca. The pockets of vegetation that survived sustained some of the plant communities unique to the lowland habitats.

Over the years, farming has progressively decreased as urban and suburban land uses expand south, making it difficult for farmers to move equipment to their fields. Left undisturbed over the decades, pockets of wetland, wet meadow and floodplain species are reclaiming some of the abandoned agricultural areas.

As noted in Chapter III, in the biological resources section, field studies of the trail corridor located

populations of rare native plant species within the southern section of the corridor — Kentucky coffee tree and green dragon. Both of the plants are protected under New York State law. Measures will need to be taken to avoid them to ensure their long-term survival.

The Kentucky coffee tree is listed in New York State as endangered. Its occurrence is rare and it has a very small range in central New York. The two groves of the tree found within the trail corridor study area are located immediately adjacent to N. Y. S. Route 96 near Cass Park and N. Y. S. Routes 13, 34, 96 near the intersection with N. Y. S. Route 13A, within the trail segments linking Allan H. Treman State Marine Park to Robert H. Treman State Park. Trail alignment should avoid these two areas.

The green dragon is a floodplain forest species. It is listed in New York State as exploitably vulnerable, which means that the native plant could become threatened in the near future if causal factors continue unchecked. In this case, the causal factor would be the destruction of the remaining floodplain forest habitat.

Several populations of the green dragon were located in the pockets of floodplain forest that remain in the Inlet Valley. Due to the larger number of occurrences of the plant throughout the stream bottomland, building the trail through the area will require careful layout of a very specific trail alignment. The consultant botanist that conducted the field inventories tentatively flagged a trail route that will avoid any disturbance of the plant populations. Well in advance of the start of construction, a final field visit with the consultant botanist will be performed to verify the best trail route layout. Because these plants are dependent on rich, moist soils, trail construction in the vicinity of a population must not disturb the natural flow of surface or ground water.

Other plant life along the trail corridor is well represented in the area and New York State and will not require any special consideration during construction, operation and management for the recreational trail. However, to maintain the scenic

appeal, interpretive/educational value and habitat diversity value, trail construction and maintenance should strive to minimize the disruption and removal of native vegetation.

The field study also located many pockets of non-native, invasive plant species throughout the corridor. The removal of invasive, exotic species by prescribed methods should be undertaken when possible. Replacement with native plants should be pursued to restore the diversity that sustains the health of the native habitats.

Fauna

The biological sensitivity study also identified two animal species historically recorded to be present in the trail's study area—the bog turtle and tawny emperor butterfly.

The bog turtle has not been located in the Cayuga Inlet valley since the early 1940s and is suspected to have moved out of the area due to the dramatic alteration of its habitat in the valley.

The tawny emperor butterfly is likely still to be present in the area since its last sighting in 1993. The favored plant of the butterfly, the hackberry tree, is located in pockets in the southern half of the trail corridor study area, roughly from Allan H. Treman/Cass Park south to Robert H. Treman State Park. The majority of the tree groves are located at the outer limits of the study area. A very small grove of the tree was found within Buttermilk Falls State Park and trail alignment should avoid this grove.

Other wildlife dependent on the habitats within the trail corridor are well represented in the area and New York State. Of the many species present, those that may be most sensitive to introducing more human activity into an area are in the avian category. Birds that demonstrate secretive behavioral patterns, such as veery, brown thrashers and warblers, may be impacted by trail development in the Cayuga Inlet valley. The removal of vegetation thickets favored by these birds should be avoided. Also, vegetation clearing for trail construction and post-construction

maintenance should be kept to a minimum in all areas to reduce creating an edge effect that would encourage nest depredation.

To assist with future operation and maintenance policy decisions post trail construction and to support the interpretive/educational programming for the trail, an ongoing inventory/monitoring of the animal species observed in the vicinity of the trail should be implemented.

Ecological Communities

Wetlands and floodplain forest habitats historically vulnerable to destruction for human development are located in the southern half of the trail's study corridor. The pockets of these habitats that remain through the Cayuga Inlet stream valley are now reclaiming acreage as land once used for agricultural purposes is abandoned and allowed to revert to natural habitat.

In recognition of the biological value of these areas, several parcels of land are now under public and not-for-profit organization ownership and/or stewardship and will be forever protected. Through the Black Diamond Trail development program, several parcels, totalling 131 acres, surrounding the Cayuga Inlet stream between Buttermilk Falls and Robert H. Treman State Parks will be acquired and protected through New York State ownership. Trail development through the stream bottomland habitat areas will require careful planning and design. Construction and operation should follow "best practices" techniques.

Wetlands

Wetlands are an essential part of the natural landscape. A functioning wetland filters surface and ground water—removing toxins, sediments, and nutrients—and stores floodwater, reducing the extent of a flood event. Wetlands also promote ground water recharge and provide a valuable and diverse habitat for many species of wildlife, which may include threatened or rare species.

Rich in wildlife, recreational opportunities such as hunting, fishing, bird watching and other

non-consumptive uses occur in wetland areas. Construction of commercial or residential structures in wetlands can be limited by the features that make them valuable including wildlife sensitivity, high water table, and low-bearing-strength soils.

The small pockets of wetland in the trail's study area are located between Robert H. Treman and Buttermilk Falls State Parks. These areas have been mapped and through careful planning with the field assistance of a wetlands consultant and the NYSDEC Wetlands Unit they can be avoided.

Floodplain Forest

As noted earlier, the valley south of the head of Cayuga Lake was once a vast wetland habitat including cattail marsh and floodplain forest. Drained and filled over time, the lion's share of these ecological communities disappeared from the landscape. The remnants of floodplain forest that remain are located along the Cayuga Inlet stream south of the city of Ithaca and in Allan H. Treman State Marine Park and Cass Park. The majority of the pockets of forest are or will be protected from further degradation or loss through public ownership.

Trail alignment between Robert H. Treman and Buttermilk Falls will require passing through segments of the floodplain forest habitat. Field assistance of a botanist will be used to identify the most appropriate final alignment through the area to minimize impact on the forest.

Water Resources

Most prominent in the trail's study area is Cayuga Lake. The lake is a resource for domestic and commercial water supplies, many water-based recreational activities, and habitat for many aquatic-dependent plant and animal species. The destruction of wetlands at the head of Cayuga Lake, elevated levels of sediment and pollutants carried by increasing volumes of stormwater runoff from the expansion of impervious surfaces, and failed septic systems, however, have begun to take a toll on the waters in the southern end of Cayuga Lake. Recognition and action to reverse the trend

is needed in all public and private sectors in the Cayuga Lake watershed.

Throughout the length of the Black Diamond Trail's corridor, waterways large and small pass by and under the proposed trail alignment on their way north and east to Cayuga Lake. The majority of the stream crossings anticipated along the course of the proposed trail already exist. Any new construction or rehabilitation of existing structures will require using best-management construction practices to eliminate the potential for contributing sediment load or pollutants to Cayuga Lake.

In addition, trail design elements should be included to minimize stormwater run-off and discourage stream-bank erosion caused by trail patrons leaving the trail corridor and cutting paths to the waterways.

The Cultural Landscape

Archaeological Resources

A search of records chronicling the history of Tompkins County identified sites and structures within the study area important to documenting the past lives of residents of the area. Knowledge of these resources is significant to guide trail construction and plan interpretive/educational materials that will enhance the trail user's experience.

Once again, the area identified as requiring additional investigation and care during construction is in the Cayuga Inlet valley. The resources provided by the fertile valley, including water, plant and wild game for sustenance, lead archaeologists to recommend the need to investigate the area for relics of pre-historic cultures that settled in the area before European settlement.

As these areas come under public ownership, historic preservationists will have an opportunity to conduct site-specific investigations of the land. In some areas, trail construction will require ground disturbance to land not previously used for development or agricultural purposes. These areas

will require field surveys to ensure that pre-historic and historic resources are not destroyed by trail construction.

Agricultural Resources

As noted in the inventory chapter, the preferred alignment of the Black Diamond Trail will pass through agricultural lands in the north end of the corridor in the Town of Ulysses. The Town of Ulysses is one of three towns in Tompkins County that still supports active agricultural economic resources due to the location of the most productive soils and level to moderately-sloped topography.

Both Tompkins County's and the Town of Ulysses' comprehensive plans recommend implementing land-use planning initiatives that support and protect agricultural land uses. As a high priority at both governmental levels, consideration will be given, through local land-use control mechanisms, to how non-agricultural focused development will impact the operation of farms and the demand to convert farm land to residential or business enterprises. Once land converts from farming to development, it is usually a permanent loss to future agriculturally-focused activity.

The Town of Ulysses, in support of its Comprehensive Plan goal to promote agricultural enterprise in the town, has created in its new zoning ordinance an agricultural zone. The intent of the zone is to encourage appropriately-scaled land development in the areas of the town where agriculture is still the primary land use. The new zoning ordinance was adopted on August 30, 2005.

The Black Diamond Trail trail alignment in the Town of Ulysses takes advantage of an existing corridor developed for railroad transportation. Thus, the acquisition of agriculturally-dedicated land will not be necessary to develop the trail. Also, the trail is located in an area of the town that is zoned rural residential development, recognizing that the area has less productive soils, encompasses the steeper slopes of the Cayuga Lake basin and is in the process of converting to rural residential.

Through the public scoping process for the trail, meetings with adjacent landowners engaged in farming businesses and members of the Tompkins County Farmland Protection Board were held to focus specifically on how trail development and operation could impact traditional farming practices. Issues discussed included eliminating or regulating farmfield access where the farmer must cross the trail to access fields on the opposite side, crop damage from trail patrons trespassing on private land and trail users objecting to the application of herbicides and pesticides on crops.

The concerns expressed by the Tompkins County farm community have been echoed across the United States where other trails have been proposed for development through agricultural lands. To assist trail planners working on new trail development projects, the Rails-to-Trails Conservancy (RTC) reaches out to trail managers across the country to gain feedback on whether farmers' concerns materialized and how they were handled. The information gained from the real-world experience allows trail planners to identify the most appropriate design and management policy options to build into a new trail's master plan. In the case of the Black Diamond Trail, the three main issues expressed by farmers in the corridor can be adequately addressed employing the recommendations documented by the RTC.

With respect to impacts on movement to or between agricultural lands, a review of historic railroad acquisition records provides documentation that rail corridor crossings for multiple land uses were secured for adjacent owners. This provision ensures that current owners of adjacent lands continue to enjoy the right to cross the former rail corridor. When OPRHP acquired the former rail lands, title was taken with the knowledge that these agreements are to be honored.

Retaining and supplementing the dense vegetation growing between the trail tread and adjacent land is one of the most effective ways to minimize trespassing. Posting trail property boundaries should also be employed to discourage trail users from leaving the trail corridor. In addition, installing appropriate and adequate orientation

signage communicates to trail users where and how they can obtain support services along the trail to reduce the chances of them leaving the corridor to seek out support services on private property.

In areas where pesticide or herbicide applications occur to enhance crop production, protecting both the farmer and trail users can be handled by posting the trail to alert trail patrons of the spraying or closing the trail segment during the application period. Either action requires a close working relationship between the farmer and the trail manager.

Recreational Resources

Overall, the impact of developing the Black Diamond Trail on recreational resources in the trail's service area will be positive. Sensitivity to two existing recreational activities however, will be necessary during construction and operation of the trail.

Crew Racing

The Cornell University and Ithaca College crew courses utilize the Cayuga Inlet Flood Control Channel for intercollegiate crew races. Before the construction of the flood control channel, the races were held on Cayuga Lake. Rough lake waters frequently disrupted the ability to conduct races. During the construction of the flood control channel in the 1960s, Cornell University worked with the flood control structural designers to incorporate the intercollegiate course into the alignment of the new flood channel. In addition to the preferred alignment, placement and spacing of the highway bridge piers were designed to meet the needs of the crew course. Bridges added over time have also been designed to maintain the crew course alignment.

The Black Diamond Trail alignment through the City of Ithaca may require the construction of a new bicycle/pedestrian bridge over the Cayuga Inlet Flood Control Channel. Should the new bridge span require pier supports placed in the flood control channel, they will need to match the spacing of the

three bridges to the north so as to maintain the crew course alignment.

Hunting

In the rural landscape of Tompkins County, small- and large-game hunting are still actively pursued at various times throughout the year. Privately-owned lands adjacent to the proposed Black Diamond Trail alignment between the city of Ithaca and Taughannock Falls State Park are still hunted by property owners, their family and friends.

Trail development through tracts of land that are still hunted will result in more human traffic through areas previously seeing low and intermittent use. Two primary hunting seasons that could be impacted by trail development are the white-tail deer season, beginning in October and ending in December, and the fall and spring turkey seasons, running from the end of October to mid-November and the month of May.

As has been documented by the RTC and OPRHP, hunting and trails activities can and do co-exist in the landscape. While hunting will not be permitted on the Black Diamond Trail property, hunting will continue to occur on the private adjacent lands. To encourage a safe and enjoyable climate for both outdoor user groups during hunting seasons, signs posted at all trailheads and periodically along the length of the corridor will alert trail users to the opening and closing days of hunting season and remind them to practice hunter-safety precautions, such as wearing bright orange clothing.

Additionally, where vegetation cover makes it difficult for trail users and hunters to observe one another in the landscape, segments of trails can be temporarily closed.

Transportation System

Integrating the Black Diamond Trail into the existing transportation system will benefit Tompkins County's transportation plan to develop a fully multi-modal system. To ensure that the trail maximizes its contribution to the County's system, safety features, including signs and gates, will

be necessary at all points where the trail crosses streets, roads, highways and the active railroad line.

One of the main objectives of the Black Diamond Trail is to provide an off-road connection between the four state parks in Tompkins County. Along the way, the trail will provide users the opportunity to reach many other destinations in the Towns of Ulysses and Ithaca and the City of Ithaca. Spur connections from multiple locations along the Black Diamond Trail alignment should be encouraged and planned for by OPRHP in concert with town, city and county officials.

Other support infrastructure, including commuter parking and bicycle racks at trailheads, should be considered where the trail will, or in the future could, interface with the County's transit system.

Community Resources

Adding to the transportation options available in Tompkins County, providing a recreational venue for people of all ages and abilities, and promoting a healthier lifestyle through walking or bicycling are the benefits to developing the Black Diamond Trail. With the development, however comes change in the use of lands that have not seen activity for several decades. The reuse of the former railroad corridor, particularly in the Town of Ulysses, drew the most discussion at public informational meetings held about the proposed trail development.

For the people that live along the abandoned rail corridor, the conversion of the corridor back to a traveled way will result in a noticeable change to their surroundings. The concerns adjacent residents cited most included the loss of privacy in their backyards with people moving along the trail corridor past their homes, the potential for trail users to trespass on their property seeking water, bathrooms or other assistance and lastly, the potential for criminal incidents, including vandalism and theft.

These issues cited by future neighbors of the Black Diamond Trail are not new to multi-use, multi-purpose trail development in general. Once again,

drawing on research conducted by the RTC on existing trails nationwide and information gained from local trail managers, real-world data provides valuable guidance on how and/or if the issues actually manifest with trail development.

Generally, the concerns cited by adjacent residents do not arise with development of a multi-use, multi-purpose trail. Overall, the majority of people using the trails are out for the values the trail provides and are focused on pursuing the trail-based activity.

To continue the success of multi-purpose trail development, it is important to work cooperatively with adjacent owners and build a long-term positive relationship by including infrastructure to minimize impacts. Design elements that can decrease impacts include infilling existing vegetation to increase the buffer between the trail and neighbors' yards, installing appropriate fence structures to create physical barriers where a residence is close to the corridor, providing adequate services at or near trailheads, posting the property limits of the trail corridor and providing orientation information about support services locations at all trail access points.

TRAIL ALTERNATIVES

Identifying and understanding the sensitivity of the natural and cultural landscape in the proposed BDT corridor lays the groundwork for considering trail development alternatives. The goal of selecting the preferred alternative is to avoid impacts to resources to the greatest extent possible and reasonable and where resources cannot be avoided to mitigate impacts by following prescribed methods for construction and management.

As the review of the resource sensitivity issues progressed, the resource issues noted as potentials in advancing the trail development divided out, for the most part, by association with three distinct settings—stream valley bottomland, urbanized area and rural residential/agriculture. With respect to the trail's location to meet the objective to link the four state parks in Tompkins County, the three landscapes equate to three trail segments:

- ◆ Robert H. Treman State Park to Buttermilk Falls State Park - stream valley bottomland setting
- ◆ Buttermilk Falls State Park to Allan H. Treman State Marine Park - urbanized area setting
- ◆ Allan H. Treman State Marine Park to Taughannock Falls State Park - rural residential and agricultural setting

Table IV-2, on the following page, summarizes the resource issues by each trail segment. Generally, natural resources impacts are expected primarily in the segment proposed to connect Robert H. Treman to Buttermilk Falls. While cultural resources impacts are expected in the two segments linking Buttermilk Falls to Allan H. Treman and Allan H. Treman to Taughannock Falls.

TABLE IV-2
Resource Sensitivity Issues by Trail Segment

RESOURCES	TRAIL SEGMENTS		
	Robert H. Treman to Buttermilk Falls	Buttermilk Falls to Allan H. Treman	Allan H. Treman to Taughannock Falls
	Flora Location of Kentucky coffee tree and green dragon.	Water Bridge crossings of the Cayuga Inlet and Flood Control Channel required.	Water Bridge crossings of hillside intermittent streams required.
	Fauna Possible tawny emperor butterfly habitat, good avian habitat.	Recreation Design of bridge over the Flood Control Channel must consider crew racing course.	Agriculture Active agricultural use still exists adjacent to trail.
	Ecological Communities Small pocket wetlands located in area.	Transportation Active railroad line is located along this segment.	Recreation Hunting occurs on adjacent private lands.
	Water Bridge crossings of the Cayuga Inlet required.		Transportation Trail crosses several county and town roads.
	Archaeological Potential for pre-historic resources located in area.		Community Trail passes close to rural residential properties.
	Transportation Active railroad line is located along this segment.		

Using the trail segment breakdown, trail development alternatives can be proposed for consideration. Decisions about trail treadway location, treadway surface treatment, who the trail will serve, treadway width, support amenities, access and spur trails can be recommended for each segment considering the types of resource issues associated with the setting. The following sections present general trail development alternatives.

Park Land Classification

In the 1970s, the OPRHP established a park land classification system to help in preparing park master and management plans and Statewide Comprehensive Outdoor Recreation Plan. The system helps to identify appropriate recreational program and resource management activities for lands under OPRHP and DEC jurisdiction. The system uses natural and cultural resource characteristics, levels of improvements, physical capacity and other management related data to assist the agency in setting operation and management policies for a state park facility. The system is continually assessed and updated as new information is gathered.

The current system consists of five (5) major classification categories—Parks and Land Resources, Water Access, Historic Resources, Linear Systems, Underwater Sites and Environmental Education—with 23 subcategories.

Facilities classified in the Parks and Land Resources category include land areas that can sustain active and passive day-use and overnight recreational program opportunities. Water Access facilities' main functions are to provide boat facilities to a wide range of water resources in the state. Historic Resources are sites, parks, buildings and landscapes that have historical significance. Linear systems include recreation ways, parkways and trails that provide movement corridors that link recreation areas to population centers and other trip-destination resources. Many of the recreationway and trails facilities are gaining recognition for expanding transportation opportunities within communities in addition to serving as recreation opportunities. Underwater Sites cover historic

or recreational resources that exist under water. Environmental Education covers sites and areas with a focus or specialization on natural resources such as fish hatcheries, environmental education centers and summer camps.

With respect to the Black Diamond Trail, the facility could be classified under two of the categories—Parks and Land Resources or Linear Systems. Since the trail will link the four existing state park facilities, the BDT could be viewed as an extension of the existing parks, thus pointing to a classification of the Parks and Land Resources category. As a trail, the Linear Systems category seems an appropriate classification for the BDT.

Under the Parks and Land Resources category, there are seven subcategories—Metro Park, Recreation Park, State Campground, Scenic Park, Management Areas, Forest Preserve and Park Preserve. Three of the categories, State Campground, Management Areas and Forest Preserve, apply specifically to lands within the Adirondacks and Catskill Regions. Generally, for the four that remain for OPRHP, the facilities classified provide a varied and wide-range of recreational program opportunities. Recreational programming for the BDT will be singularly limited to trail-based recreation with primary support facilities provided at the existing parks. Therefore, it is not recommended that the BDT be classified in the Parks and Land Resources category.

More appropriately, the BDT fits the Linear Systems classification. Under this category there are four subcategories—Parkways, Linear Parks, Recreationways, and Primitive Trailway - Wild and Scenic Rivers. The BDT is expected to provide a venue for a variety of trail-based recreational opportunities and provide a transportation link between community destinations including the state parks. Parkway are limited-access highway facilities for auto traffic focusing on linking parkland resources. Linear Parks encompass a landscape feature, such as a waterway, which may include multiple small park sites that provide a variety of activities that are linked by a recreationway. The Recreationways subcategory applies to lands dedicated to trails that can serve many types of uses including pedestrian,

bicycle, equestrian and snowmobile. The final subcategory, Primitive Trailway - Wild and Scenic Rivers, include areas that are natural facilities that encourage primitive, usually non-motorized uses requiring a low intensity of development.

In considering how the BDT will be operated and managed, it is recommended that the trail facility stand alone rather than be considered an extension of the existing parks. As the trail will also serve the function as an alternate transportation facility and be jointly developed and managed with other local entities, the operations and management policies need to be flexible and unique to the facility to allow it to serve as a multi-purpose, multi-use trail facility, e.g. after dark use. Including it under the umbrella of the other parks could cause confusion and misinterpretation for use of existing trail facilities within Robert H. Treman, Buttermilk Falls and Taughannock which are strictly pedestrian-only trails.

As a separate facility, it is recommended that the Black Diamond Trail be classified as a Recreationway.

Trail Location

Establishing the preferred trail alignment is primarily guided by three objectives: link the four state parks together by a trail network, provide an off-road trail connection between the four state parks, and provide opportunities to link other community destinations to state parks by a trail network. These parameters focus trail development to a specific area within Tompkins County, the trail corridor study area.

More specifically, over the years that the trail has been studied and progressed, significant financial investments have been made by New York State and the City of Ithaca to locate the trail within a defined corridor. The investments also commit the trail's location to a specific area.

Within the study area, following the guiding objectives, two viable location alternatives exist for trail development:

- ◆ A corridor within or immediately adjacent to highway/road rights of way.
- ◆ A corridor significantly separate from road rights of way.

Considering these two options, alternatives for each segment of the Black Diamond Trail can be presented and evaluated.

Robert H. Treman State Park to Buttermilk Falls State Park

To establish a corridor between Robert H. Treman and Buttermilk Falls state parks involves either the acquisition of a trail corridor along N. Y. S. Routes 13, 34, 96 or within the Cayuga Inlet valley. To use the existing investment in trail infrastructure completed by the New York State Department of Transportation, the preferred alignment between the two parks places the trail on the east side of the highway corridor. Focusing in on this area, listed below are the resources and development issues related to each location option.

Trail Developed in the N. Y. S. Routes 13, 34, 96 Corridor

Several residential and commercial properties are located very close to the highway right of way. Establishing the corridor along the highway would require acquisition of buildings as well as land.

Utility lines occupy the same corridor that would be used for the trail. Poles and lines would need to be relocated.

Steep banks exist along the highway. Significant fill and stabilization would be needed to create a platform on which to build the trail.

A grove of the Kentucky coffee tree is located along the highway and would be impacted by establishing the trail along the highway.

A new at-grade crossing of the active railroad line would be necessary to be able to utilize the bridge abutments constructed by the New York State Department of Transportation south of Buttermilk Falls State Park for a trail bridge.

Establishing a dedicated trail corridor on the N. Y. S. Routes 13, 34, 96 bridge over the railroad and Cayuga Inlet south of Buttermilk Falls State Park could impact the traffic flow as designed for by the N. Y. S. Department of Transportation.

Future expansion of the N. Y. S. Routes 13, 34 & 96 segment in the Inlet Valley to four lanes could eliminate the trail corridor.

Trail Developed in the Cayuga Inlet Valley Corridor

Acquisition of property in the Cayuga Inlet bottomlands involves only vacant land.

Pockets of wetlands and floodplain forest could be impacted by trail development.

Potential flooding of the bottomland could periodically affect trail use.

Crossing the existing active railroad line can be accomplished by developing an underpass at an existing railroad bridge.

Weighing the issues associated with the two trail location options for this segment, the preferred alternative is to establish a new corridor in the Cayuga Inlet bottomland area. The cost and complexities of purchasing and developing a corridor along the state highway would be significantly higher and would create a project beyond the scope of what OPRHP could accomplish.

Buttermilk Falls State Park to Allan H. Treman State Marine Park/Cass Park

The trail connection between these facilities has been studied and discussed since the mid-1970s. In the later 1980s corridor acquisition was progressed

by OPRHP and the City of Ithaca along a defined course which included abandoned railroad corridor and property along the Cayuga Inlet Flood Control Channel.

Considering the previous investment by both entities, the preferred route continues to be establishing a new corridor using abandoned railroad corridor running northwest from Buttermilk Falls State Park to the intersection with the channelized portion of the Cayuga Inlet, then adjacent to the flood control channel to the intersection with the Cayuga Waterfront Trail. This alternative will require constructing a new bicycle and pedestrian bridges over Buttermilk Creek and two new bridges over the flood control channel.

The alternative alignment would require establishing a separate corridor along either N. Y. S. Route 13 through the heart of the City of Ithaca's commercial area or along N. Y. S. Route 13A. Both of these highway corridors pose significant financial and physical constraints, i.e. right of way acquisition and utility relocation.

Allan H. Treman State Marine Park/Cass Park to Taughannock Falls State Park

In the late 1980s, OPRHP added the link to the fourth state park, Taughannock Falls, to the Tompkins County trail project. At the time, several corridor alternatives were explored for the trail including establishing the trail along N. Y. S. Route 89. Over the course of the study and development for the current Black Diamond Trail project, OPRHP had the opportunity to secure abandoned railroad corridor between the City of Ithaca and the Village of Trumansburg for the trail. The corridor meets the objective of having a separate, dedicated corridor property for the trail.

Considering the investment already made by OPRHP in the property for the Allan H. Treman to Taughannock Falls segment, the preferred alternative for this segment is the abandoned railroad corridor.

Treadway Surface Treatment

To assist in identifying options for trail treadway surfacing, direction set down by the federal Americans with Disabilities Act (ADA) is key. Where reasonable, new facilities need to accommodate people with disabilities. For trail surface materials to meet ADA guidelines, they must provide a firm and stable surface. Materials that have proven to meet the ADA standard and that will be considered for the Black Diamond Trail include: compacted stone and stonedust, asphalt, concrete, boardwalk and fabricated surfaces.

Selection of a preferred ADA-recommended surface should also consider the physical setting of the trail and type of uses appropriate for the trail segment.

Recreational and Travel Mode Options

Throughout the years that the Black Diamond Trail has been discussed and planned, one of the main objectives has been to provide a multi-purpose trail resource for non-motorized¹ uses. This objective will continue to be pursued for the Black Diamond Trail through the master plan process; although consideration will be given on a case-by-case basis to some winter use by snowmobiles. In particular, snowmobile use will be considered allowable where the Black Diamond Trail can serve to connect snowmobile trail segments which are established and maintained by a state-recognized snowmobile club.

The decision to provide opportunities primarily for non-motorized uses is supportive of the goals and objectives set forth for the trail. It also supports several of the goals and objectives of the Ithaca-Tompkins County Transportation Council for trail transportation resources to serve the segment of the County's population that travels by walking and bicycling.

¹ The term "motorized" used in this document refers to any means of transporting or moving people or objects for any purpose by a mechanism that uses petroleum products or battery power. Mechanisms used by people with disabilities such as wheelchairs will be allowed per ADA requirements.

Developing facilities primarily for non-motorized transportation modes is also guided by the federal Transportation Enhancements fund, which is earmarked to support the development of pedestrian and bicycle facilities. The Black Diamond Trail received funding through the federal Enhancements program in 1992. Additional funding from the current program, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), will be pursued in the future to complete trail construction.

One of the two exceptions to the non-motorized regulation for the trail will be to meet the objective to make the trail accessible to people with disabilities in support of the ADA. Motorized wheelchairs will be allowed on the trail.

As noted earlier, short segments of the trail will be considered to be made available to snowmobile clubs to allow for a pass-through opportunity between private and public lands. This allowance supports OPRHP's mission to provide trail opportunities for snowmobiles within state parks. ATVs and other all-terrain, off-road vehicles are prohibited from state park lands and will not be allowed to use the Black Diamond Trail.

Trail-based travel modes that may be accommodated on the Black Diamond Trail include: walking, jogging, bicycling, in-line skating, in-line skiing, skateboarding, horseback riding, cross-country skiing, snowshoeing and to a limited extent snowmobiles.

Treadway Width

Factors that guide the decision on width of the trail treadway include how the trail will be used (i.e. recreation, transportation, both), who will use the trail (i.e. the number of different types of users by mode), volume of traffic and trail location. For single-purpose trails, recommended widths vary from 6 feet to 14 feet. Where multiple uses and purposes will be accommodated, a minimum width of 10 feet to 14 feet is recommended. Multiple uses may also be accommodated on separate treadways that run parallel to one another within the same

corridor. This option is recommended for trails that will accommodate horseback riding.

Support Amenities

Support facilities include several elements that when provided can enhance the effectiveness and experience of the trail for the multiple users. Included in this category are: benches, bathrooms, picnic tables, traffic safety signs and gates, lighting, emergency contact systems, orientation signs, interpretive signs, bicycle racks and lockers, fencing and gates and vehicle parking.

Access

Access to the Black Diamond Trail can include primary and secondary points of entry. It can also include access for only maintenance and operation functions.

A primary point of entry is referred to as a trailhead. Trailheads can provide a variety of elements in addition to parking and orientation signage such as bathrooms, picnic tables, interpretive signs, etc. Secondary points of entry include access to a trail where it intersects with a road or street, a gated fence from a neighborhood, or a spur trail,

which provides a connection to other important destinations near but not directly accessible from the main trail treadway.

Spur Trails

The intent of the Black Diamond Trail is to develop an off-road, multi-use, multi-purpose trail link between the existing state park facilities in Tompkins County. The trail will pass by and through many other properties serving many other community uses along the way. To maximize the trail's utility as a transportation venue in the community, spur trails linking other facilities to the main trail corridor are recommended.

Alternatives by Trail Segment

The following tables present a summary of the alternatives considered for the trail development generally by segment followed by tables summarizing the issues considered in selecting the preferred alternatives by segment. The recommendations consider trail goals and objectives presented in Chapter II, natural and cultural resource sensitivity issues and general development options presented in this chapter.



The existing setting the trail will occupy helped direct selection of trail development alternative. A farm lane in Cayuga Inlet stream corridor between Robert H. Treman and Buttermilk Falls State Parks provides an opportunity for trail location.

TABLE IV-3
Trail Development Alternatives

Alternatives	Segment 1 Robert H. Treman to Buttermilk Falls	Segment 2 Buttermilk Falls to Allan H. Treman	Segment 3 Allan H. Treman to Taughannock Falls
Classification Parks and Land Resources - Recreation Park			
Linear Systems - Recreationway	X	X	X
Trail Location Within or adjacent to highway/road rights of way			
Separate from highway/road rights of way	X	X	X
Treadway Surface Treatment Compacted stone and stonedust	X		X
Asphalt	X	X	
Concrete			
Boardwalk or fabricated surfaces			
Recreational and Travel Mode Options Walking, jogging	X	X	X
Bicycling	X	X	X
In-line skating, in-line skiing, skateboarding		X	
Horseback riding			X
Cross-country skiing, snowshoeing	X	X	X
Snowmobiles - limited			X
Treadway Width Single-purpose trails - 6 feet to 14 feet wide			
Multiple-purpose trails - 10 feet to 14 feet wide	X	X	X
Support Amenities Bathrooms	X	X	X
Benches	X	X	X
Picnic tables	X	X	X
Signs - Interpretive	X	X	X
Signs - Orientation	X	X	X
Bicycle racks or lockers	X	X	X
Safety gates and bollards	X	X	X
Fencing and gates	X	X	X
Vehicle parking	X	X	X
Access Primary	X	X	X
Secondary	X	X	X
Spur Trails Within state parks	X	X	X
To adjacent destinations (services, neighborhoods)	X	X	X

TABLE IV-4
Robert H. Treman to Buttermilk Falls State Park Trail Alternatives

This 2.3-mile trail segment is more specifically defined as the proposed trail from the day-use area in Robert H. Treman to the abandoned railroad corridor north of West Buttermilk Falls Road.

Trail Location	Separate from Highway Right of Way: Trail to follow the Cayuga Inlet corridor. Where previously disturbed areas exist (i.e. farm field access roads, property access roads, utility corridor) these areas should be considered first before developing a new route through floodplain vegetation areas. Considering the meandering nature of the Cayuga Inlet, the trail should be developed significantly away from the creek.
Treadway Surface Treatment	The trail's location within the Cayuga Inlet corridor requires consideration of the impacts of periodic flooding of the area on the trail surface and the aesthetics of the natural setting. The use of compacted limestone dust is recommended for this section because it will be less expensive and easier to repair after a major flood event and resembles the farm-road appearance formerly present in the valley. For the portion of this trail segment within the boundary of Buttermilk Falls State Park, the trail surface is recommended to be asphalt in keeping with the NYSDOT developed trail and the future link with the City/Town of Ithaca Gateway Trail which will be paved.
Recreational and Travel Mode Options	The recommendation to use compacted limestone dust as a surface for the Cayuga Inlet corridor segment limits the use of the corridor by skateboards, rollerblades and roller skis. The short trail segment and lack of connection to other trail options for horseback riders also limits use by horseback riders. The uses to be accommodated therefore include: walking, jogging, bicycling, snowshoeing and cross-country skiing. Within Buttermilk Falls State Park the paved surface will allow in-line skaters and skateboarders to use the trail.
Treadway Width	Considering the natural setting of the trail and the lower number of modes to be accommodated, the treadway width is recommended to be 10' wide.
Support Amenities	Benches and interpretive signs highlighting the natural and cultural features in the segment are appropriate. Their design should fit the setting and potential for flooding. Traffic safety and orientation signs should also be included where necessary. Vehicle-access control gates and bollards should be installed at entry points.
Access	Primary Access - Trailheads at the two state parks where parking, bathrooms, emergency contact system and picnic areas already exist. Trail specific amenities such as bike racks and orientation signs need to be added. Secondary Access - Administrative access (for maintenance purpose only) should be obtained at a near halfway point.
Spur Trails	To Robert H. Treman for access to trails, swimming area and camping area. To commercial areas along N.Y.S. Route 13. To Buttermilk Falls State Park south side.

TABLE IV-5**Buttermilk Falls to Allan H. Treman State Park and Cass Park Trail Alternatives**

This 2-mile trail segment is more specifically defined as the proposed trail from the abandoned railroad corridor north of West Buttermilk Falls Road to the west side of the Cass Park baseball/softball fields area.

Trail Location	Separate from Highway Right of Way: Trail to follow abandoned railroad corridor and top of bank of the flood control channel. Majority of corridor already owned by OPRHP and the City of Ithaca.
Treadway Surface Treatment	Asphalt is the recommended surface for this portion of the trail as it will serve the urban population of the City of Ithaca. It will also connect to the City of Ithaca's Waterfront Trail, a paved trail, and the future Gateway Trail, that will also be paved.
Recreational and Travel Mode Options	Use is expected to be the highest along this segment of trail due to the location within the City of Ithaca, the connection to the Cayuga Waterfront Trail and the City's on-street bicycle routes, and links to neighborhoods and the Southwest Park business area. Uses to be accommodated will include: walking, bicycling, in-line skating and skiing, skateboarding. Winter use may vary if the City desires to plow the trail.
Treadway Width	Considering the high use expected and likely higher travel speeds, a 12' to 14' width is recommended. A parallel path system could be considered whereby a softer surface is provided for walkers and joggers.
Support Amenities	Benches, interpretive and orientation signage. Traffic safety and vehicle-access control infrastructure for road and railroad intersections, including signs, gates and bollards. Lighting may be considered as the trail interconnects with the Cayuga Waterfront Trail.
Access	Primary Access - Trailheads at Buttermilk and Allan H. Treman/Cass Park where parking, bathrooms emergency contact system and picnic areas already exist. Trail specific amenities such as bike racks and orientation signs need to be added. Secondary Access - Patron and administrative access from city streets. Patron access from neighborhoods and businesses.
Spur Trails	To Buttermilk Falls State Park north side. To Southwest Park Commerical District To Allan H. Treman State Marine Park and Cass Park



Top of bank along the Cayuga Inlet Flood Control Channel through the City of Ithaca between Buttermilk Falls and Allan H. Treman State Parks/ Cass Park.

TABLE IV-6**Allan H. Treman/Cass Park to Taughannock Falls State Park Trail Alternatives**

This 8.4-miles trail segment is more specifically defined as the proposed trail from the west side of the Cass Park baseball/softball fields area to the Jacksonville Road parking area of Taughannock Falls.

Trail Location	Separate from Highway Right of Way: The trail will follow an abandoned railroad corridor already owned by OPRHP.
Treadway Surface Treatment	Compacted limestone dust is the recommended surface for this portion of trail. Much of the trail passes through undeveloped forest land or agricultural land. Installing a compacted stone is more in keeping with the aesthetics of the area.
Recreational and Travel Mode Options	This segment of trail is expected to be used at a moderate level for both transportation and recreation. The uses to be accommodated include: walking, jogging, bicycling, horseback riding, cross-country skiing and snowshoeing. Snowmobile use on a segment near Taughannock Falls State Park is being considered to allow snowmobiles to travel between private trail segments.
Treadway Width	Considering the number of uses to be accommodated, the trail width is recommended at 10' to 12' wide. Consideration may be given to providing a parallel trail system to separate horseback riders from other trail users.
Support Amenities	Benches, interpretive and orientation signage. Traffic safety and vehicle-access control infrastructure, including gates and bollards, for road intersections. Gates and fencing where appropriate along transition with private adjacent residences.
Access	Primary Access - Trailheads at Cass Park, Cayuga Nature Center (Houghton Road area) and Taughannock Falls. Support facilities will need to be constructed at Cayuga Nature Center and Taughannock Falls. Orientation signage will be needed at Cass Park. Secondary Access - Administrative and patron access at road crossings.
Spur Trails	To Palentological Research Institute To Cayuga Nature Center To Taughannock Falls State Park day-use and camping areas. To Village of Trumansburg.



Abandoned railroad corridor between Allan H. Treman/Cass Park and Taughannock Falls State Parks

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