rails·to·trails conservancy

The Adirondack Rail Trail
Lake Placid to Old Forge

Stage One: Lake Placid to Tupper Lake Trail Development Plan

CONTENTS

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Stage One: Lake Placid to Tupper Lake Trail Development Plan

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INTRODUCTION

PURPOSE AND NEEDS STATEMENT

The primary purpose of the Lake Placid to Tupper Lake Trail Development Plan is to evaluate the 34-mile rail corridor between Lake Placid and Tupper Lake as a first step in what can be a 90-mile recreational trail connecting Lake Placid and Old Forge.

A secondary purpose is to provide alternatives for the planned adjacent trail between Lake Placid and Saranac Lake, in the event this parallel path proves to be not feasible, not permitted or too expensive. In addition, the utilization of a railroad spur from the Tupper Lake railroad station to the central business district of Tupper Lake will be evaluated. This study investigates the opportunities and constraints affecting the proposed trail alignment and makes recommendations for proceeding with the next phases of implementation.

Rail-trail conversions are a proven, practical way to connect and enhance communities and improve local economies.

- **Health and Recreation.** Trails and greenways promote public health by creating safe opportunities for individuals and families to engage in physical activities, such as bicycling and walking.
- **Community Revitalization.** In both urban neighborhoods and rural communities, trails and greenways encourage economic and community revitalization by stimulating small business creation and improving quality of life.
- **Alternative Transportation.** While originally created for recreation, trails now provide thousands of bicycle commuters safe routes to get to work, thereby reducing traffic congestion and air pollution, while building physical activity into their daily lives.

Trails also produce important intangible benefits. When the opportunity to build a new trail arises, something remarkable often happens in a community. Individuals, state and local government, the private sector and community-based groups unite in the common purpose of building a trail to improve their community. **Trail building is community building.**

THE ADIRONDACK RAIL TRAIL

The 34-mile segment of the Adirondack Rail Trail covered in this report will connect the communities of Lake Placid, Saranac Lake and Tupper Lake (the Tri-Lakes Area) as they have never been connected before. Tourists, seasonal homeowners and permanent residents will all benefit from this rail-trail conversion. The recreational trail will serve young and old, families with small children, persons of all physical abilities, including wheelchair users, nature lovers and history buffs, cyclists, runners, walkers, bird watchers and snowmobilers in season.

In addition to linking three major Adirondack communities, this initial segment of the Adirondack Rail Trail will traverse remarkable countryside and wild lands, skirting the St. Regis Canoe Area on one side and a network of connected waterways on the other. Mountains, wetlands, lakes and ponds abound. The region's rich history, both natural and cultural, could be highlighted along the way.

When the final segment is completed between Tupper Lake and Old Forge, the 90-mile Adirondack Rail Trail will provide a truly memorable wilderness recreation route—comparable with some of the most successful rail-trails in the country, and all within a day's drive of 80 million people!


Lake Clear Junction
Saranac Lake
Lake Placid, NY
Tupper Lake
Image © 2012 TerraMetrics
© 2012 Google
Google earth
44°15'53.51" N 74°12'44.18" W elev 1597 ft
Eye alt 24.75 mi

PROJECT GOALS

The purpose of this study is to present options for the development of a recreational and economic resource for the Adirondack region between Lake Placid and Tupper Lake. This Trail Development Plan builds upon and refines work performed previously to evaluate the potential for using the nine-mile corridor between Saranac Lake to Lake Placid as a recreational path, and a 2011 study of the costs and benefits of either extending rail service another 25 miles to Tupper Lake or replacing the Lake Placid-to-Tupper Lake corridor with a recreation trail. This trail would be the first step in the development of a 90-mile rail-trail between Lake Placid and Old Forge.

The goal of this study is to define the trail and determine additional steps required to proceed to the design and construction stages.

PROJECT TASKS INCLUDED:

- Conducting a site assessment and providing a base map of the proposed trail corridor. Included in this analysis is the 34-mile rail corridor between Lake Placid and Tupper Lake, as well as an out-of-service spur corridor from the Tupper Lake railroad station to Demars Boulevard in the Tupper Lake business district.
- Providing accepted standards for the trail segments, including dimensions, orientation, minimum and maximum percent slope allowed, buffer areas and at-grade crossings (farm, residential, highway).
- Developing a list of site constraints that do not allow for meeting accepted standards.
- Researching and presenting case studies of other trails developed primarily through the use of volunteers, donated materials and local non-governmental funding.
- Identifying the need for and location of support facilities such as trailheads, parking areas, maintenance facilities, utilities, comfort facilities, information boards, tables, benches, etc. Included in this task was gathering information regarding proposed locations of such facilities.
- Evaluating Americans with Disabilities Act (ADA) concerns related to the proposed project.
- Providing a cost analysis for the construction of this trail segment.
- Using comparable projects to provide funding options for the development, management, maintenance and security for this trail segment.
- Using comparable projects to provide estimates of net spending by new visitors to the trail.
- Identifying municipalities and user groups to assist with long-term maintenance, management and security.
- Providing summary/conclusions based on an evaluation of the above information.

EXECUTIVE SUMMARY

- The upgrading of the rail corridor for train traffic as expected in the 1995 Unit Management Plan never took place.
- Other than the twice-a-year transfer of equipment to and from Lake Placid, the corridor between Old Forge and Saranac Lake is virtually out of service and of no economic value to the communities along its 81-mile length.
- The state's 1995 Unit Management Plan was to have been revised in 2000 taking into consideration the success of the tourist railroad. This revision was never done.
- During this 16.5-year period, there has been growing evidence that recreational trails built on former railbeds are major tourist attractions, link communities, provide new sources of revenue, create jobs and stimulate small-business formation.
- Based on other rail-trail conversions, we are able to project the following results and costs should the Adirondack Rail Trail fall in the mid-range of the six trails we found to be relevant and comparable. More detailed tables showing these figures appear in the body of this report.

  - Rock cuts, wetlands, bridges, causeways and culverts between Saranac Lake and Tupper Lake make a continuation of the proposed parallel path between Lake Placid and Saranac Lake impractical and unaffordable, even if necessary permits to fill wetlands and expand causeways could be obtained. Other projects involving a rail-with-trail (e.g. the Merrymeeting Trail documented later in this report) have cost up to $2 million per mile for construction.
  - The first phase of the rail-trail conversion, utilizing the 34-mile section of railbed between Lake Placid and Tupper Lake, could attract between 75,000 and 800,000 visitors annually with a midpoint of 224,260 visitors per annum [see table on page 10 for details].
  - Out-of-area visitors will spend between $63.86 and $99.30 per day, with an average of $86.02.
  - At this midpoint spending level, visitors will add $19.8 million in annual revenues to the local economies.
  - Local trail users will add $1.8 million in trail-related spending. However, this figure has not been included in the analysis on the presumption that these funds would have been spent somewhere in the area anyway (but possibly not locally).

- The cost of constructing the recreational trail to Tupper Lake on the rail corridor, whether from Saranac Lake from Lake Placid, should be between $15,000 and $214,000 per mile, with a midpoint based on comparable trails of $86,500 [see table for details].
- The cost of constructing a recreational trail on the railbed between Lake Placid and Saranac Lake, assuming the town of North Elba plan for a parallel bike path is not completed, would fall within the previous estimate, i.e., $778,500 for the nine-mile segment using the midpoint of similar construction costs.
- Based on comparable trail conversions, rail-and-tie salvage would yield $65,000 per mile. If these funds were applied to the conversion project, removing the rails from Saranac Lake to Old Forge would yield the following:

- Snowmobile operations that currently have limited access north of Old Forge, due to insufficient snow cover on the tracks, would be open for much of the five-month lease period, which could provide major revenue opportunities for the towns along the route.
- Salvaging 81 miles of track and rails between Saranac Lake and Old Forge would provide $5,265,000 in usable funds.
- The cost of constructing the entire 34-mile segment from Lake Placid to Tupper Lake, excluding the possibility of the first nine miles being served by a parallel path, would be $2,163,725, which could be offset by the $5,265,000 of salvage income. The $3,101,275 excess could be applied to a second project to surface the path from Tupper Lake to Old Forge, to support annual trail maintenance, or both.

SUMMARY OF FINDINGS

	Low	Midpoint	High
Trail Visitors — local	23,250	109,740	278,000
Trail Visitors — overnight	51,750	244,260	354,000
Revenue per local visitor per day	$9.14	$16.35	$30.30
Revenue per overnight visitor per day	$63.86	$81.02	$99.30
Trail Revenue from locals	$212,505	$1,794,249	$8,423,400
Trail Revenue from visitors	$3,304,755	$19,786,945	$35,152,200
Rail/Tie Salvage Value per mile	$26,190	$65,000	$78,571
Salvage Value, 81 miles (SLK-Old Forge)	$5,265,000	$5,265,000	$5,265,000
Construction Cost per mile	$15,000	$86,549	$214,286
Total Construction Cost, SLK-Tupper Lake	$375,000	$2,163,725	$5,357,150
Total Construction Cost, LP-Tupper Lake	$510,000	$2,942,666	$7,285,724
Overage usable for second phase	$4,890,000	$3,101,275	(92,150)

Note that taking the estimated salvage value and the highest estimated construction cost incurs a net cost of $2,020,724 for the 34-mile rail-trail conversion from Lake Placid to Tupper Lake. The proposed parallel trail between Lake Placid and Saranac Lake will cost an estimated $5,951,000 to $7,451,000—in short, the cost of a trail to attract 244,000 visitors is less than the cost of a trail to allow 14,000 visitors to continue to ride a tourist train each season.

This analysis does not include any projection of the increase in snowmobile users due to development of the corridor as a multi-use trail, or the extension of the useable length of the season. It is interesting to note that Tupper Lake and points north and east would be a major beneficiary of this first phase of project, as removing and salvaging the rails past Tupper Lake and south would open up that corridor to snowmobilers through the entire winter season, linking those points to the snowmobiling center of the Adirondacks in Old Forge.

REMSEN-LAKE PLACID TRAVEL CORRIDOR UNIT MANAGEMENT PLAN

In December 1995 the New York State Department of Environmental Conservation (DEC) published the Remsen-Lake Placid Travel Corridor Final Unit Management Plan/Environmental Impact Statement. The plan analyzed six management alternatives for the corridor:

1. Dismantle the corridor.
2. Maintain the integrity of the corridor, conduct no maintenance, and allow no public use.
3. Maintain the integrity of the corridor, conduct minimal maintenance, allow public use by short-term permit only.
4. Open the entire length of the corridor to compatible recreational trail uses, allow no rail uses.
5. Divide the corridor into rail/trail and trail-only segments.
6. Permit rail use over the entire length of the corridor, encourage compatible recreational trail uses in the corridor.

The resulting analysis, which reflected public comment and the opinions of the citizen's advisory committee, resulted in the selection of option 6 as the preferred alternative. The major features of this alternative were described as follows:

a. Title to the corridor lands will remain with the state. The corridor will retain its "travel corridor" classification.

b. Tracks will remain in place over the entire 119-mile length of the corridor during a rail-marketing period. The rails on the corridor will not be removed prior to revision of this management plan.

c. Private enterprise will be provided the opportunity to develop tourist-excursion and freight-rail services along the entire length of the corridor. Rail development will largely depend on privately secured funding sources because, although there are potential public sources, government funding availability cannot be guaranteed.

d. DEC will pursue the maximum degree of recreational trail development on the corridor, including suitability for hiking, bicycling and snowmobiling, all of which are compatible with rail uses and harmonious with the environment. Steps will be taken to deter trespass on adjacent private land and to minimize misuse of the corridor.

In the Implementation Strategy section of the report, a number of points are relevant to this Trail Development Plan.

- DEC was responsible for implementing the recreational trail component of the final corridor management plan. The details of trail development on the corridor were to unfold only after rail operations had become established. It was deemed inadvisable to invest in the costly development of a parallel trail on any corridor segment before it could be confirmed that rail operations would be viable on that segment.
- No viable rail operations have been established between Saranac Lake and Old Forge. This segment of the corridor is only used twice a year, in the spring and fall, to move railroad equipment between Lake Placid and Utica for storage and maintenance.
- Trail development was to be implemented using state funding and personnel, supplemented by various outside sources. NYSDEC was charged with seeking the active participation of local governments, snowmobile and/or hiking clubs, etc., to promote more effective maintenance and enforcement on the corridor.
- An approved rail developer was required to accommodate the development and use of recreational trails on the corridor.
- The Remsen-Lake Placid Corridor Unit Management Plan was to cover an initial five-year period. “At the time of the five-year revision (2000), the planning process will be reopened” according to the UMP. However, the plan has been in effect for 16.5 years with no review or revisions.

ADIRONDACK PARK AGENCY PROJECT PERMIT AND ORDER 2007-148

In November 2005, the Adirondack Park Agency received notice from the New York State Department of Transportation of a proposal to construct and operate a shared-use recreation path involving wetlands on state-owned land between Lake Placid and Saranac Lake, designated as a travel corridor.

The permit was issued in 2007 and recently renewed.

The project is planned to be constructed in two phases. The first phase will extend approximately 4.5 miles from Old Military Road in Lake Placid to the intersection of the railroad corridor with the Scarface Mountain Trail near the community of Ray Brook.

The path is planned to be hard-surfaced (asphalt or crushed stone) and 10-feet wide, except where there are adjacent wooded areas, steep slopes or wetlands, where it will be 8-feet wide.

The path is planned to be set back between 6.5 and 11 feet from the closest rail. A 3.5-foot fence is required when the trail is within 11 feet of the closest rail. A total of 6,745 feet of fence is proposed.

The path will consist of the following five types of construction (total linear feet and total percentage of total length from each construction types in parentheses):

Type A — Construction at grade (11,925 feet, 50.7%)

Type B — Side cut, no wetland disturbance (6,635 feet, 28.2%)

Type C — Fill near wetland (600 feet, 2.6%)

Type D — Fill in wetlands (4,240 feet, 18.0%)

Type E — Open water bridge/boardwalk (115 feet, 0.5%)

Existing culverts will be extended and concrete bridge wing-walls will be modified at 15 locations to accommodate the path.

A combined total of 0.71-acres of wetlands (0.70-acre wet meadow covertype and 0.01-acre shrub swamp covertype) will be displaced or permanently impacted by Type D and Type E construction. This wetland loss is to be compensated for by creation of 0.76-acres of wetlands at the village of Lake Placid snow dump site.

Separate agency review will be requested for the second and final phase of the project, which will involve the construction of the remaining 3.7 miles of the recreation path from Ray Brook to Saranac Lake.

The project is shown on a set of plans (26 sheets) entitled "Lake Placid to Ray Brook Trail," which was prepared by RUS Corporation and is dated February 2007.

Five path alignment alternatives were considered for the project. Three of these alternatives are for path alignments either along or west of Old Military Road; they are no longer under consideration. The two other alternatives (2A and 2B) are very similar in that they both follow the same side of the railroad except for a roughly one-mile section between stations 248+84 and 301+82. Alternative 2B extends along the north side of the rails until Station 248+84, at which point it crosses to the south side where it continues to the end of the path at its intersection with the Scarface Mountain Trail. Alternative 2B is the alternative proposed for agency review.

There is no guarantee that the Adirondack Park Agency will issue the necessary permits for the balance of this parallel path, that the cost of construction will be within the budgetary constraints set by the town of North Elba, or that the restrictions on wetland fill and other environmental constraints can be met.

This development plan for the Adirondack Rail Trail is therefore based on two assumptions: (i) that the recreational trail will connect to the North Elba parallel trail, and (ii) that the corridor between Saranac Lake and Lake Placid will be a continuation of the recreational trail on the old railbed between Saranac Lake and Tupper Lake.

TRAIL DESIGN CONSIDERATIONS

Trail Users

Trails are designed for the people who use them. The Adirondack Rail Trail should be a multi-use facility that would accommodate non-motorized uses and snowmobiles.

PEDESTRIANS

Pedestrians represent a wide variety of people, including walkers, hikers, joggers, runners, parents pushing baby strollers, wheelchair users and those who want to read interpretive signs or watch birds and other wildlife. These users travel at low speeds and tend to have fewer specific design requirements than other users. Many pedestrians prefer a surface that is softer than asphalt (such as crushed stone) to prevent knee, shin and foot strains. Other pedestrians may be attracted to hard surfaces so that they can walk faster (power walkers) or push a stroller more easily.

Trails designed as pedestrian-only pathways should have a minimum width of 6 to 8 feet. Trees and other vegetation should be trimmed to allow for a minimum overhead clearance of 7 feet.

BICYCLISTS

When considering trail design for bicyclists, it is important to keep in mind that there are several types of bicyclists: commuting, recreational and touring, as well as elderly and very young cyclists. There are also different types of bicycles: road or touring bikes, hybrids and cross-bikes, mountain bikes, three-wheel and four-wheel bikes, tandems and children's bikes with training wheels. Different types of cyclists and equipment have somewhat different requirements.

The American Association of State Highway and Transportation Officials (AASHTO) provides a Guide for the Development of Bicycle Facilities.

The AASHTO guidelines are viewed as the national standard for bikeway design. The NYS Department of Transportation also has standards for Recreational Walkways and Shared-Use Paths contained in Chapter 17 of the Highway Design Manual on Bicycle Facilities.

ASSHTO recommends a minimum 10-foot-wide tread for bicycle paths under most conditions, with at least a 2-foot-wide cleared, graded shoulder on either side of the tread. Depending on anticipated uses and volume, a 12- or even 14-foot-wide trail with shoulders may be advisable. An 8-foot-wide pathway is the absolute minimum for a multi-use trail that accommodates bicyclists. Vertical clearance for safe bicycle use is a minimum 8 feet.

To accommodate the speed of bicyclists, particularly on paved trails, the trail should be designed for a specific speed of travel, which is the maximum safe speed that bicyclists can maintain over a specific segment of the trail. A trail's design speed should be set at a level that is at least as high as the preferred speed of faster cyclists. AASHTO recommends developing shared-use paths for a minimum design speed of 20 mph for level terrain and 30 mph for a downgrade that exceeds 4 percent. On slower, unpaved pathways, a 15 mph design speed is adequate.

Providing adequate stopping distance (the distance required to bring a bicycle traveling at the pathway's design speed to a complete, controlled stop) is critical for bicycle and pedestrian safety. Paved or unpaved multi-use trails should maintain a minimum sight distance of 150 feet for bicyclists.

TRAIL CONSTRUCTION CONSIDERATIONS

The following trail considerations are presented to help further understanding of the trail-building process.

If a new trail is to be developed adjacent to the existing nine-mile railroad corridor between Lake Placid and Saranac Lake, an engineered solution building a new sub-grade, sub-base and trail surface will be required. This segment will also require the construction of bridges and boardwalks.

On the 25-mile segment between Saranac Lake and Tupper Lake, if the rails and ties are removed the existing railbed will serve as the sub-grade. The railbed between Saranac Lake and Tupper Lake consists of three different types of surface material. In some locations there is heavy stone ballast (around Floodwood Road), and in other locations there is very clean cinder ballast (around McMaster Road). However, over most of this segment there is cinder ballast that is highly contaminated with organic material (leaves, pine needles, rotten railroad ties, etc.). The heavy stone ballast will need to be moved to the sides of the trail or removed before a good trail surface can be applied. The clean cinder ballast may serve as a bike-friendly surface with just grading and rolling. The cinder ballast with organic matter will need to be moved to the side and a new surface applied (in time, as the organic material deteriorates, the old surface would become soft).

Sub-Grade, Sub-Base and Trail Surface

It is easy to assume that the difference between a smooth trail and a bumpy one is the material used to surface the trail. But that is rarely the case.

The sub-grade is the native soil mass of the surrounding landscape; the sub-base is a man-made layer of stone and rock constructed on top of the sub-grade; the trail surface is the material installed on top of the sub-base. Working together as a unit, the structural qualities of these three components determine the strength and quality of the trail. Properly evaluated, designed and constructed, these layers will result in a trail with a smooth surface that will require little maintenance over many years.

SUB-GRADE

The sub-grade is the trail's foundation. To be suitable for trail development, the sub-grade must accommodate the trail's intended uses. The suitability and structural properties of the sub-grade will determine how the sub-base and trail surface must be designed and constructed. A highly suitable sub-grade has moderate slopes, good drainage and firm, dry soils.

Soil composition is the most important factor in determining the sub-grade's structural suitability. The best foundation for a multi-use trail is firm, well-drained soil.

Proper drainage is defined as the efficient removal of excess water from the trail cross-section. Proper drainage of the surface and subsurface waters is the most important consideration in trail design, construction and management. Improper drainage will have the greatest detrimental impact on the surface and sub-grade of a trail.

SUB-BASE

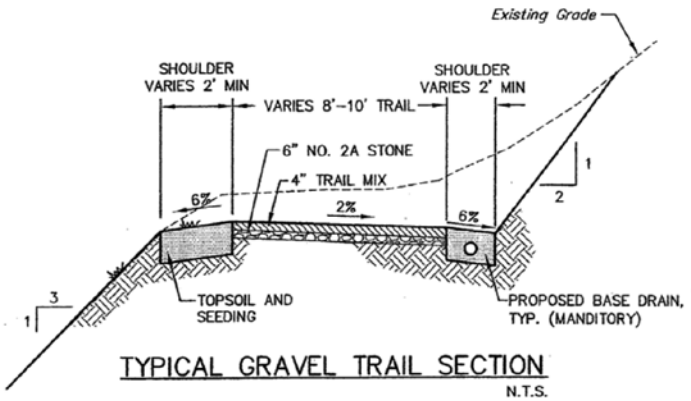
The sub-base lies between the sub-grade and the trail surface and serves as a secondary, built foundation for the trail surface. The purpose of the sub-base is to transfer and distribute the weight from the trail surface to the sub-grade. The sub-base serves a vital drainage function, preventing water from migrating up from the sub-grade into the trail's surface. It also allows natural cross drainage to flow through the trail cross-section.

The sub-base is usually made up of graded aggregate stone, which provides bearing strength and improves drainage. The thickness of the sub-base is dependent on the condition of the sub-grade. As a general rule, the sub-base should be 4 to 8 inches thick. Four inches is sufficient if the sub-grade is in excellent condition; up to 8 inches may be required if the sub-grade is in poor condition.

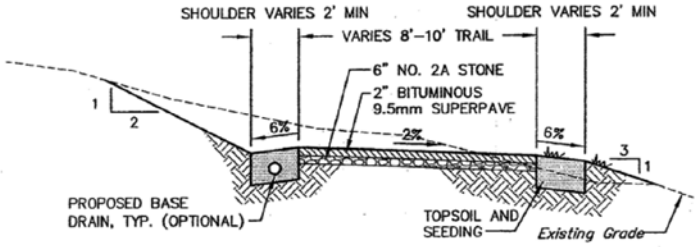
The sub-base can be placed by either hand or machine and should be compacted with a mechanical roller. The sub-base surface should be smooth and level because the trail surface will only be as firm, smooth and resilient as the sub-base and sub-grade.

Design Load

The trail's design load is another factor influencing depth of the sub-base. Design load is the maximum weight the trail can carry at any point along its length. The trail should be accessible by emergency vehicles, such as police cars and ambulances. The minimum design load based on static wheel load (at each axle) should be 5,000 pounds, and the minimum design load based on gross vehicle weight should be at least 12,000 pounds. The maximum speed for vehicles equaling the weight of the design load should be 15 mph.



TYPICAL GRAVEL TRAIL SECTION
N.T.S.



TYPICAL PAVED TRAIL SECTION
N.T.S.

Trail Surface

Many trail surface types are available for multi-use trails. Surface materials are either hard or soft, defined by the material's ability to absorb or repel water. Hard surfaces include soil cement, crushed stone, asphalt and concrete. Soft surfaces include wood chips and natural earth.

Hard-surface materials are more practical for multi-use trails. They are more expensive to purchase and install but require less maintenance and can withstand heavier use. Hard surfaces also accommodate the widest range of trail users.

Trail surfacing can be used to encourage or discourage particular types of use. If you want to encourage as many users as possible, choose one of the hardest surface types. Surface types can also be used to control the speed of travel on the trail. The softer the trail surface, the slower the speed.

When selecting a trail surface, a number of factors need to be considered: availability of the surface material, purchase cost, installation cost, life expectancy, accessibility, maintenance cost and user types.

Keep in mind the trail surface can be upgraded at some future time if construction funding is insufficient or usage dictates a more substantial surface. Dozens of high-quality rail-trail projects have been developed in this way. After a trail is open, even with a less than ideal surface, support for it grows quickly and public pressure builds to develop a higher-quality facility.

Hard Surface Types

Crushed Stone

Crushed stone is very popular because it accommodates a wide variety of trail users and can be compacted into a firm surface. It can be composed of a variety of different stone types, the most common being limestone. The rock is crushed into a fine material and densely compacted to hold up extremely well under heavy use. This surface is most compatible with the natural environment and complements the aesthetic appeal of surrounding landscapes and historical transportation corridors.

If this surface is finely crushed and properly packed, it can accommodate virtually every trail user, from runners to cyclists. It also works well for people using wheelchairs as long as the stone diameter is less than 3/8 inch. Mixing stone dust with the stones provides a smoother surface because the dust can act as a binding agent, decreasing the "marble" effect of gravel. This surface type, however, is not suitable for inline skates or skateboards, and it is not ideal for some road or touring bikes with skinny tires.

For the best surface, the stone should be spread 4 inches thick with a paving machine over a prepared sub-grade and then be compacted to 2 inches using a motorized roller.

Crushed-stone trails require a minimum amount of maintenance. Generally they will need to be resurfaced every 7 to 10 years. Spot repairs and some re-grading will be required during that time.

Crushed-stone trail surfaces are most prone to damage in the spring when the frozen trail surface begins to thaw. Even cyclists can put a "groove" into a crushed-stone surface during "mud season."

Asphalt

Popular in a wide variety of trail settings, this surface works particularly well on trails that are used for bicycle commuting and inline skating. Cross-country skiers and snowmobilers find that snow tends to melt more quickly on asphalt surfaces because the black pavement absorbs the heat from the sun.

Asphalt is actually cement comprised of tar, oils and stone. In an asphalt concrete surface, a graded aggregate stone is mixed with asphalt. Small aggregate stones result in a smooth surface with few voids. Coarse grades of stone result in a rough, porous surface.

Asphalt conforms to the contours of the sub-grade and sub-base. If it has been prepared properly, the surface will be smooth and level. Asphalt should be installed 2 inches thick with a paving machine and compacted by a roller.

Wollastonite

The NYS Department of Environmental Conservation has wollastonite listed in the following link, under BUD #152-5-16 (page 2, NYCO Minerals), as "road base": www.dec.ny.gov/docs/materials_minerals_pdf/budnum.pdf. Based on the physical properties of the mineral, it could work well as a trail surface. It has sufficient hardness and good particle interlock. Plus it would make a visually appealing trail surface. A major advantage is that this material is mined locally, in Essex County.

Continued

Boardwalks

In general, bikeways and trails should avoid swamps, marshes and other wetland areas whenever possible. However, constructing a trail adjacent to the rail corridor between Lake Placid and Saranac Lake will require the crossing of several wetlands. In such cases, elevated boardwalks provide the best solution for minimum impact on no-flow wetland areas. The boardwalk crossing should provide the same conditions and ease of use as the approaching trail. These crossings should be level with the trail surface and at least as wide as the approaching trail. Approach aprons can be used to help alert users to the lack of shoulders. Railings should be installed on both sides of the boardwalk with a height of 54 inches to accommodate cyclists. Side barriers should be installed at the deck level to prevent bicycle and wheelchair tires from dropping off the edge of the boardwalk. Line of sight needs to be such that users can see the approaching boardwalk, supplemented by warning signs of a "change in surface." Snowmobiles will not be allowed on this parallel trail.

A number of different configurations are available for setting the pilings in place that will support the boardwalk structure. The type of piling construction is determined following an analysis of the soil conditions for support of the foundation. Test pits should be excavated at each location to determine the underlying soil condition. Once the piling configuration is determined, the superstructure of the boardwalk can be designed.

Pin-style footings that do not require excavation and do not disturb the finished grade provide a stable footing for the superstructure and are well-suited to organic soils.

Most boardwalks are constructed of pressure-treated wood with 4x4 or 6x6 pilings, 2x10 rafters and 2x8 or 2x10 decking. To reduce maintenance costs, composite decking may be used if sufficient funding is available.

Bridges

Bridges are utilized to cross moving bodies of water such as streams and lake outflows. As with boardwalks, bridges should match the width of the trail. Approach aprons help to alert users to the lack of the additional shoulder width.

The bridge design must meet the anticipated weight load of potential users. If intended for pedestrian and bicycle use only, the deck should support at least 85 pounds per square foot.

On the other hand, if the trail and bridge are to be utilized to provide emergency services to trail users, then a motor vehicle load capacity will be required.

A pre-manufactured steel bridge with an all-weathering finish may be the most appropriate design for the rail-with-trail segment between Lake Placid and Saranac Lake.

Decking on bridges can be pressure-treated wood laid perpendicular to the direction of travel. This surface has a tendency to be slippery when wet. A concrete deck provides better traction when wet and has lower maintenance requirements. Railings should be included on all bridges with a minimum height of 54 inches, as specified in the NYS DOT Bicycle Facility Design Manual.

AT-GRADE CROSSINGS

The proper design of roadway and railroad track crossings is an important component of a well-deigned trail.

For road-crossing design, the top priority is safety. That means proper signage to warn trail users of an approaching road crossing, and signage to make roadway drivers aware of an approaching pedestrian crossing. Sightlines should be clear for a distance that will allow trail users to determine a safe interval between vehicles to cross the roadway.

All at-grade road crossings should be designed to be perpendicular to the traffic flow, i.e., not at an angle.

On light-volume roads that serve fewer than 4,000 vehicles per day and have a posted speed of 30 mph, a crosswalk with appropriate signage for both road and trail users is considered an acceptable standard. On higher-volume roads of 4,000 to 6,000 vehicles per day, and with a posted speed above 40 mph, a traffic signal that is activated by trail users is the accepted standard. Lowering the speed limit to under 40 mph should be considered if a traffic signal isn't desirable.

To control trail access from roadways, bollards or gates should be installed. If gates are used, a 5-foot side opening is required to permit passage of bicycles and wheelchairs.

If the trail needs to cross railroad tracks, it should be at a right angle to the rails. The more the crossing deviates from this angle, the greater the potential for a cyclist's front wheel to be trapped in the rail flangeway, causing loss of steering control. It is important that the trail crossing be at the same elevation as the rails.

Consideration should be given to the materials of the crossing surface and to the flangeway depth and width. If the crossing angle is less than 45 degrees, consider widening the trail to give cyclists adequate room to cross the tracks at a right angle. If this is not possible, compressible flangeway fillers can enhance cyclists' safety while allowing trains to continue operating. Place "railroad crossing" warning signs and pavement markings on the trail.

CASE STUDIES

The following case studies of trail projects in the northeastern United States present various development scenarios.

DOWN EAST SUNRISE TRAIL

Location: Washington Junction (just east of Ellsworth) to Ayers Junction, Maine

Length: 85 miles

Status: Opened July 2010

Developer: Maine Department of Transportation and Maine Department of Conservation via the Bureau of Parks and Lands

Website: www.sunrisetrail.org

Trail Description: The scenic rail corridor runs along the entire Down East coastal area, connecting conservation areas and intersecting with salmon rivers through a beautiful and wild portion of Maine.

The trail occupies part of the 127-mile Calais Branch rail corridor, which linked Brewer to Calais. From 1898 to 1954, Maine Central Railroad trains rumbled north through then-booming Washington and Hancock counties, bringing tourists, mail and commodities to points north before hitting a turntable at the end of the line, flipping around and transporting lumber, gravel and blueberries south. The right-of-way stays fairly close to the coast. The ocean is often visible, especially near Machias, which is on the water. Other sections of railbed are as much as 15 miles inland.

The trail runs through thick stands of birch and conifers as it connects charming communities where fresh coffee and blueberry pie are never too far away.

The Down East Sunrise Trail is a wide, compact, gravel-based trail managed for the use of snowmobiles, ATVs, pedestrians, bicyclists, cross-country skiers and equestrians. The Sunrise Trail Coalition is the supporting nonprofit membership organization that acts as the management committee working with the trail manager (employee of Bureau of Parks and Lands, Maine Department of Conservation).

Surface: Crushed stone

Construction: Single-track rail corridor. Rails and ties were in place at the start of the construction phase of the project. Construction of entire 85 miles completed in 27 months, 2008-2010.

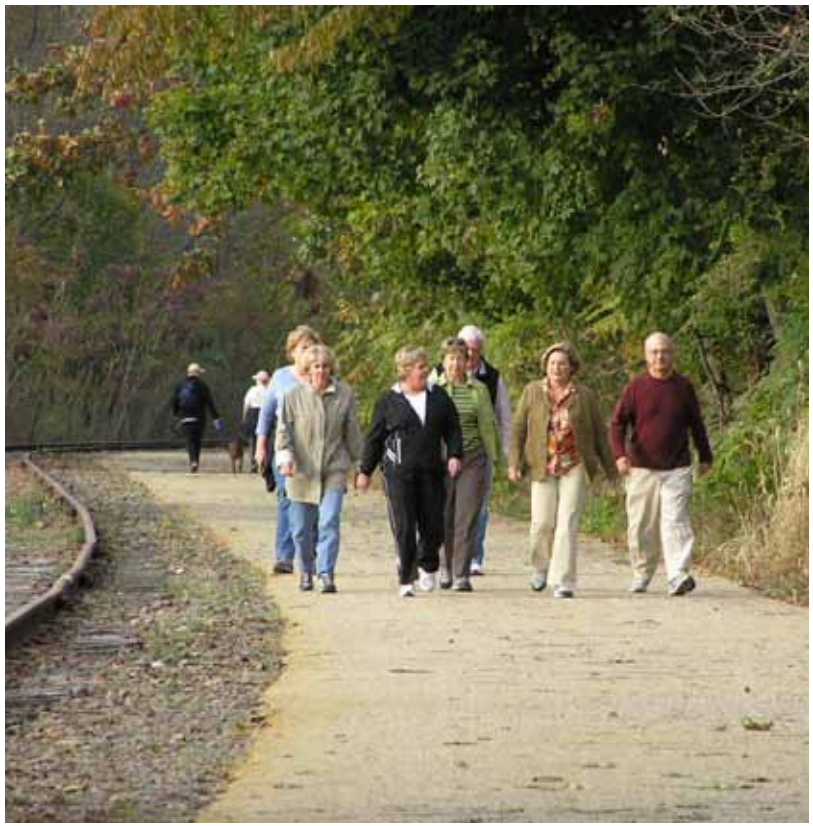
Construction costs: $3,889,996

Estimated salvage value of rail, plates, spikes and ties: $6,600,000

Other bidders' rail salvage estimates varied from $2.2 to $4.5 million. Disposal of ties varied from a credit of $600,000 (low bidder) to a cost of $1.9 million.

Average construction cost per mile: $46,309.48

HERITAGE RAIL TRAIL COUNTY PARK



Location: Maryland state line to city of York, Pa.

Length: 21 miles

Status: Constructed in five phases beginning in 1990. Total length opened in August 1999

Developer: York County Rail Trail Authority

Website: www.yorkcountyparks.org/parkpages/railtrail.htm

Trail Description: The Heritage Rail Trail County Park winds for 21 miles through urban and rural landscapes between the city of York and the Maryland line. It connects Maryland's Torrey C. Brown Rail Trail with the historical district of York.

The Heritage trail starts in York behind the town's replicated colonial courthouse. Heading south, the trail passes through an urban landscape along the banks of Codorus Creek. Soon the trail leaves the city and enters the countryside, where it is flanked by fields and forests.

About 1.5 miles south of the Brillhart Station trailhead is the 370-foot-long Howard Tunnel. At milepost 11 the borough of Seven Valleys provides an opportunity for refreshments at the cafe, tavern or wine shop. About a half-mile mile farther south is the restored Hanover Junction train station. The next four miles run through farmlands and along the banks of Codorus Creek. After that, the next nine miles pass through Glen Rock, Railroad and New Freedom, each town providing opportunities to explore the area's rich history. From New Freedom's restored railroad station, it is just 1.5 miles to the Mason-Dixon Line and the connection to Maryland's Torrey C. Brown Trail, also known as the Northern Central Railroad Trail.

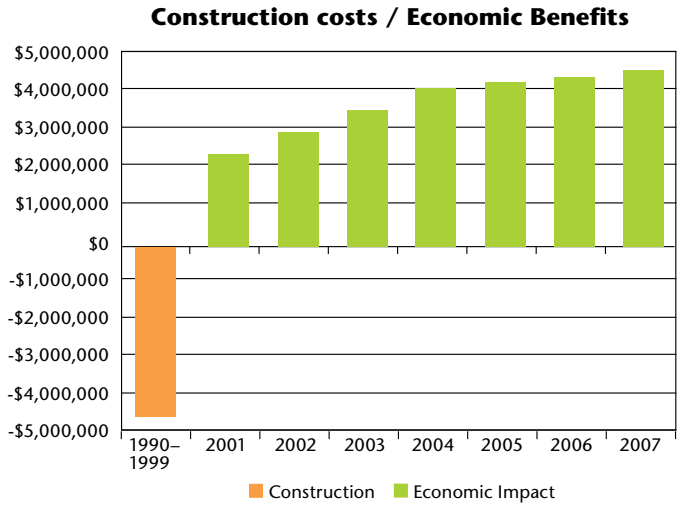
Surface: Crushed stone

Construction: Double-track corridor, one set of rails removed. Constructed in five phases during a period of nine years at a total cost of $4.5 million. Federal Transportation Enhancement grants amounted to a little more than $1 million. Grants from the state's Department of Conservation and Natural Resources totaled $250,000. A private capital campaign raised $750,000. A fiber-optic cable easement contributed $515,000, and another property easement added $200,000. County matching funds totaled $1.66 million.

Average construction costs per mile: $214,285.71

The following information is from the Trail User Survey and Economic Impact Analysis 2007—York County Rail Trail Authority

- Estimated annual user visits: 394,823
- Estimated annual "soft goods" expenditure (meals, snacks, beverages, etc.): $4.1 million
- Estimated annual overnight accommodation expenditures: $1.7 million
- Average per-night expenditure for overnight accommodations: $51.15



Source: Heritage Rail Trail County Park 2007 User Survey and Economic Impact Analysis : York County Department of Parks and Recreation; www.yorkcountyparks.org/PDF/2007%20Rail%20Trail%20User%20Survey%20Report%20VERSION%204.1.pdf

LAMOILLE VALLEY RAIL TRAIL

Location: Swanton to St. Johnsbury, Vt.

Length: 93 miles

Status: Phase 1 at 25 percent design submitted to Vermont Transportation in 2010. On February 27, 2012, preliminary construction plans for Phase 1 were filed to supplement the conceptual plans. Phase 1 of the project is going through the Vermont Act 250 Environmental Review process during 2012.

Developer: Vermont Agency of Transportation and Vermont Association of Snow Travelers

Website: http://lvrt.org

Trail Description: While the old Lamoille Valley Railroad is now a part of Vermont history, its footprint is part of the state's future. The railway served as a vital east-west transportation corridor from 1877 until its closing in 1994. After an extensive review process, the state determined that a proposal from the Vermont Association of Snow Travelers (VAST) to convert the railway into a four-season transportation and recreational trail was the best use of this important asset—and the Lamoille Valley Rail Trail (LVRT) was born. Currently a partnership of the Vermont Agency of Transportation (VTrans) and VAST, it is managed by the Lamoille Valley Rail Trail Committee.

When completed, the LVRT will span the breadth of Vermont from St. Johnsbury to Swanton, crossing 18 communities along the route. At 93 miles, the LVRT will be the longest rail-trail in New England, offering spectacular vistas and local hospitality and services for hikers, bikers, equestrians, snowmobilers, snowshoers, dog mushers, cross-country skiers and many others.

The LVRT has important economic implications for Vermont and the communities along the trail. The year-round influx of visitors promises to be a long-term boon to tourism, and the estimated two-year construction of the LVRT will boost the regional economy in the near term.

Surface: Crushed stone

Construction: Single-track rail corridor. Rails and ties were removed in 2005.

Cost estimate: $7,459,692

Trail will be built in three phases.

Estimated construction cost per mile: $80,211.74

NORTHERN RAIL TRAIL

Location: Merrimack County, N.H.

Length: 34 miles, of which 25 miles have been completed

Status: First section opened in 1996. Additional phases followed with the most recent opening in 2007.

Developer: Friends of the Northern Rail Trail in Merrimack County, a 501(C)3 nonprofit. Trail is owned by New Hampshire Bureau of Trails.

Website: www.fnrt.org/index.htm

Trail Description: The Northern Rail Trail extends 25 miles from West Franklin to just north of Danbury, where it connects with the Grafton County Rail Trail. With the exception of the last two miles, the trail is 10-feet wide and composed of compacted stone dust, an easy ride for hybrid and mountain bikes. The last two miles are graded and compacted cinder ballast, which is slightly softer then stone ballast but still doable for hybrid or mountain bikers.

The southern end of the trail starts at Holy Cross Road off Route 3 in West Franklin and the site of the Old Webster Farm. Parking is available on Holy Cross Road. From West Franklin the trail climbs out of the Merrimack River Valley, following a brook two miles to Webster Lake, which has a public swimming beach and seasonal restrooms. The next four miles follow the brook to East Andover and the Highland Lake Inn.

The trail goes around Highland Lake and continues four miles to Blackwater Park in Andover. Two miles beyond Andover is the preserved railroad station in Potter Place. The station is open weekends in the summer and has an excellent display of railroad memorabilia.

Leaving Potter Place, the trail follows Fraser Brook north, climbing at a 1 percent grade for another eight miles to Danbury. A mile north of Danbury the trail becomes narrow and the surface is packed cinder for another two miles to Zaccaria Road, where it connects with the Northern Rail Trail in Grafton County.

Surface: Stone dust

Construction: Trail is being built as funding becomes available.

Average construction cost per mile: $15,000

PINE CREEK RAIL TRAIL

Location: Jersey Shore to Wellsboro, Pa.

Length: 62 miles

Status: First section opened in September 1996. Additional phases followed with the most recent opening in 2007.

Developer: Pennsylvania Department of Conservation and Natural Resources.

Website: www.explorepatrails.com/singletrail.aspx?id=151

Trail Description: One of the premier rail-trails in the Northeast, the Pine Creek Rail Trail offers travelers a spectacular journey through the area commonly referred to as the "Grand Canyon of Pennsylvania." With numerous trailheads, comfort stations, campgrounds and small towns along the route, the well-maintained trail is ideal for an afternoon excursion or multi-day trek.

The Jersey Shore, Pine Creek & Buffalo Railroad began operating here in 1883, carrying timber to sawmills in towns along the floor of the gorge. The railroad also transported coal north to New York State. The last freight train passed through in 1988. The trail runs from Ansonia south to Jersey Shore, traversing Tioga and Tiadaghton state forest lands. For 55 of its 62 miles, the corridor hugs Pine Creek, with views of dramatic rock outcrops and waterfalls, and access to whitewater rafting and canoeing in the spring. Travelers will sometimes see an eagle, osprey, coyote or even a black bear on the hillsides adjacent to the trail. Other wildlife includes deer, wild turkeys, herons, hawks, river otters and beavers.

Several access points with parking are located south of Blackwell along Route 414. The parking lot at Rattlesnake Rock is a popular drop location for canoe and bicycle shuttle services. Another large parking lot is located at the southern end of the trail just north of Waterville. A trail map and detailed maps of the state forests are available at the Bureau of Forestry Offices in Wellsboro and in South Williamsport.

Surface: Crushed stone

Construction: $5.7 million

Average construction cost per mile: $91,935.48

MERRYMEETING RAIL-WITH-TRAIL

Location: Topsham through Bowdoinham and Richmond to Gardiner, Maine

Length: 25 miles

Status: Feasibility study completed June 2011

Developer: Corridor is owned by the Maine Department of Transportation. Feasibility study was prepared for Midcoast Council of Governments and the Merrymeeting Trail Committee consisting of representatives of the four municipalities.

Website: http://merrymeetingtrail.org

Trail Description: The goal of the Merrymeeting Trail Initiative is to use the existing railroad corridor to create a 25-mile regional rail-with-trail from Topsham through Bowdoinham and Richmond to Gardiner.

The Merrymeeting Trail as proposed will connect the Androscoggin River Pedestrian Bike Path in Topsham, which links Brunswick to Topsham, to the village area in Bowdoinham, the village area in Richmond, the village area in Gardiner, and the Kennebec River Rail Trail that links Gardiner, Farmingdale, Hallowell and Augusta.

The Merrymeeting Trail will connect Brunswick to Augusta as an alternative transportation route. Additionally, the Merrymeeting Trail could serve as an alternate route on the East Coast Greenway. Building this pathway will strengthen and improve local communities, furthering community and downtown revitalization. The trail would serve as an economic engine bringing consumers, tourists, businesses and jobs to historical downtown villages.

Additionally, the Merrymeeting Trail will enhance connections to several major water bodies, including Merrymeeting Bay, a 20,000-acre tidal estuary renowned for sailing, kayaking, swimming, walking, bird watching, fishing and duck hunting.

Surface: Gravel or asphalt

Construction: Single-track rail corridor adjacent to the existing tracks, leaving the rails in place for future rail service.

Cost estimate: 24.5 miles for $49,630,000

Estimated cost per mile: $2,025,714.29

SUMMARY OF RAIL-TRAIL CONVERSIONS

Trail, State	Developer	Configuration	Length in miles	Surface	Construction cost	Average construction cost per mile
Down East Sunrise Trail, Maine	ME DOT	Single-track corridor, rails removed, built on railbed	84	Crushed stone	$3,889,996	$46,310
Heritage Rail Trail County Park, Pa.	York County Rail Trail Authority	Double-track corridor, one set of rails removed, built on railbed	21	Crushed stone	$4,500,000	$214,286
Lamoille Valley Rail Trail, Vt.	VT DOT and VAST	Single-track corridor, rails removed, built on railbed	93	Crushed Stone	$7,459,692	$80,212
Northern Rail Trail, Merrimack County, N.H.	Friends of the Northern Rail Trail in Merrimack County	Single-track corridor, rails removed, built on railbed	25	Stone dust		$15,000
Pine Creek Rail Trail, Pa.	PA DCNR	Single-track corridor, rails removed, built on rail corridor	62	Crushed stone	$5,700,000	$91,936
Average						$86,549

Construction Cost Per Mile	
Low	$15,000
Average	$86,549
High	$214,286

SUMMARY OF RAIL-WITH-TRAIL CONVERSIONS

Trail, State	Developer	Configuration	Length in miles	Surface	Construction cost	Average construction cost per mile
Merrymeeting Rail Trail, Maine	Merrymeeting Trail Committee	Single-track corridor, new adjacent corridor proposed for trail	24.5	Crushed stone and asphalt	$49,630,000	$2,025,714

OTHER STUDY COMPARISONS

In 2011, ADK Action commissioned a study by Camoin Associates to determine the economic impact of the Adirondack rail corridor by either extending rail service to Tupper Lake or converting the 34-mile corridor into a rail-trail.

In 2012, Stone Consulting produced a report sponsored by North Country Chamber of Commerce, Mohawk Valley Chamber of Commerce and Oneida County Visitors Bureau to examine the economic impact of the Adirondack Scenic Railroad, which included projections for extending rail service between Utica and Lake Placid.

Why are the visitor numbers and expected revenues in the 2011 Camoin report so much lower than RTC's?

a. Camoin estimated all expected trail users (73,586), then factored that down to non-local users (47 percent), and then again to bicycle riders only (55 percent), thus reducing the number of trail users to 18,847 per annum. RTC estimates a higher percentage of out-of-area visitors (56 percent) and notes that people will spend the same amount whether biking, hiking, running, etc., so factoring revenue to bikers only is a significant mistake.

b. Camoin based its visitor estimates on the assumption that trail use is proportional to trail length, i.e., a 100-mile trail will attract four times as many people as a 25-mile trail. A review of the trails used in both the Camoin study and this report will show that this assumption is false, e.g., the Heritage Trail is only 21 miles long yet attracts 394,000 visitors, while the Virginia Creeper Trail is 2.5 times as long but attracts only 35 percent as many people. If one assumes, as the data suggest, that the attractiveness of the venue rather than the length of the trail is the draw, then the 34-mile section of the Adirondack Rail Trail connecting Lake Placid to Tupper Lake should rank at or near the top of all national rail-trails in terms of popularity. Using a composite visitor-per-mile figure distorts the analysis.

c. Camoin based its per-day spending on a half-day visit ($62.23) to the trail. This assumption seems unreasonable given the length of even the first 34-mile stretch from Lake Placid to Tupper Lake, which, without stops at an average biking speed of 10 mph, would require more than three hours each way. Not all users would bike the 34 miles, but even those who started in Saranac Lake to bike the entire 25 scenic miles to Tupper Lake would have to spend much of the day going and coming. These visitors would likely go to the Wild Center in Tupper Lake, stop to swim in Rollins, Hoel or other attractive adjoining lakes along the way, perhaps stop for lunch in Lake Clear or Tupper Lake. We therefore used a full-day expenditure estimate in this report. Note, however, that Camoin estimates $124.46 for a full day, and this report uses $81.02.

Why is Camoin's study estimated cost to build a rail-trail so much higher than RTC's—actually double RTC's highest per-mile estimate?

a. Camoin's estimate assumes that all of the bridge and culvert repairs needed for train restoration would apply equally to a recreation trail. RTC found such a need to be highly unlikely and unnecessary.

b. Camion's used best-practice construction standards, including Installation of an "eight-foot wide, three-inch thick stabilized stone dust surfacing over six inches of compacted sub-base and geo-textile fabric," 1-foot shoulders along the entire length of the trail, and replacement of asphalt at every road crossing. Building the trail on the existing railbed eliminates the need for the 6 inches of compacted sub-base.

c. Camoin noted that "lower costs may be achieved in any of the scenarios through volunteerism, donations of time and materials, and alternative designs (for trail conversion)." RTC's estimates are based on other trails that took advantage of all of these options, as the Adirondack Rail Trail would surely do.

Where do the other consultant studies (the 2011 Camoin report and the 2012 Stone Consulting report) agree and disagree, and why?

a. Camoin and Stone are close on estimating additional riders from restoration of rail service: 8,400 for Camoin and 7,000 for Stone. Note, however, that Stone's estimate is for restoration of the entire 90-mile run from Old Forge to Lake Placid, whereas Camoin's estimate covers only the 34-mile section between Lake Placid and Tupper Lake.

b. Stone, Camoin and RTC all fall within a narrow range on expenditures per visitor per day, from a low of $62.23 (Camoin) to a high of $92.69 (Stone).

c. Stone's estimate for upgrading the tracks and ties between Lake Placid and Tupper Lake (using their per-mile construction cost) comes out to less than half of Camoin's, for the same reasons noted above—specifically, that Camoin used the highest-level engineering and construction standards and contract labor.

d. The biggest differences are in the projected economic impacts. The RTC study's midpoint for net new overnight visitors is 244,260 if a rail-trail is built, whereas Camoin estimates only 43,792, which RTC considers far too low.

e. Net economic impact is where the numbers really diverge. RTC estimates that almost $20 million a year in new spending could result from a recreational trail. Camoin estimates just $2.5 million in new spending from a trail and $522,732 in new spending for train restoration. Stone estimates $648,855 in new spending for train restoration only.

THE KEY FIGURES FROM EACH STUDY ARE SHOWN IN THIS TABLE:

	Trail		Train	
	RTC	Camoin	Stone	Camoin
New overnight visitors, summer and winter	244,260	28,053	7,000	8,400
Direct annual visitor spending	$19,789,945	$1,540,536	$648,855	$522,732
Highest cost to construct, SLK-TL	$5,357,150	$11,000,000	$4,592,754	$10,600,000
Cost/vistor	$21.93	$392.11	$656.11	1,261.90
Net revenue per $ spent	$3.69	$0.14	$0.14	$0.05

TRAIL DEVELOPMENT PLAN

SEGMENT 1: OLD MILITARY ROAD, LAKE PLACID, TO SCARFACE MOUNTAIN TRAIL, RAY BROOK — 4.5 MILES

The first segment of development of the Adirondack Rail Trail could be the construction of a parallel trail within the rail corridor between Old Military Road in Lake Placid and the Scarface Mountain Trail in Ray Brook.

The town of North Elba contracted with URS Corporation to develop an engineering plan for this phase of the project, which served as the basis for the issuance in 2007 of an Adirondack Park Agency Permit and Order #207-148 for construction of the trail.

Segment 1 will be approximately 4.5 miles. A "hard surface" was specified in the plans, and we recommend a high-grade, crushed-stone surface. An aggregate formula used to surface the Northern Rail Trail in Merrimack County, N.H., was submitted to Graymont Quarry in Saranac Lake. The quarry indicated they are unable to match this particular formula. They may, however, be able to provide crushed stone or stone dust. Iowa Pacific Holdings LLC has recently received permission from the federal Surface Transportation Board to begin operations to remove tailings from the former NL mining complex in the hamlet of Tahawus. The company stated that the tailings could be used for "road construction" and may also be appropriate for a trail surface. Other mining sites in the Adirondacks might also have tailings that could serve as an acceptable trail surface material.

The NYS Department of Environmental Conservation has Wollastonite listed as a road base. Based on the physical properties of the mineral, it could also work well as a trail surface. It has sufficient hardness and good particle interlock. Plus, it would make a visually appealing trail surface.

A test bed will be developed and used prior to the application of any surface material.

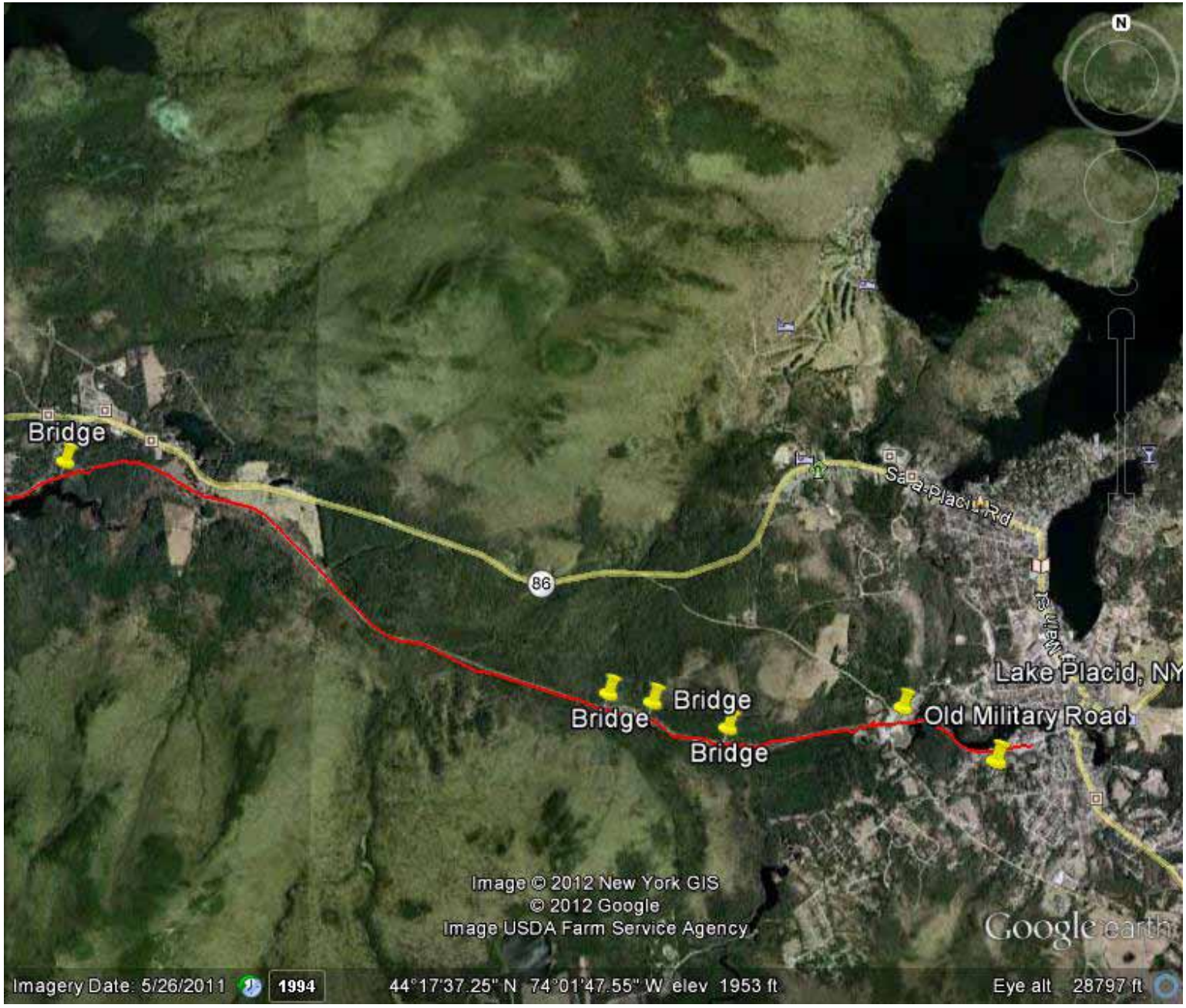
The design specifies a 10-foot trail width, except where there are adjacent wooded areas, steep slopes or wetlands, where it will be 8 feet in width. In both cases, two-foot-wide shoulders should be included in the construction except on bridges and boardwalks.

Setback from the railroad track (closest outside rail) was specified to be between 6.5 and 11 feet. Where the trail is within 11 feet of the rail, a 3.5-foot post-and-cable fence is required. A total of 6,745 feet of fence was proposed in the drawings. Approximately 3,000 feet of fencing between stations 145+20 and 178+60 is to be removed to accommodate snowmobile grooming operations. A plan for design and responsibility for removal and reinstallation of the fence need to be developed. Once developed, the plan must be submitted to the Adirondack Park Agency for review and approval.

The path will consist of the following five types of construction:

Type A — Construction at grade	**11,925 feet**	**50.7%**
Type B — Side cut, no wetland disturbance	**6,635 feet**	**28.2%**
Type C — Fill near wetlands	**600 feet**	**2.6%**
Type D — Fill in wetlands	**4,240 feet**	**18.0%**
Type E — Open water bridge/boardwalk	**115 feet**	**0.5%**

Wetlands will be impacted by bridge/boardwalk at three locations, and fill and/or culvert extensions at another eight separate locations. A combined total of 0.71 acres of wetlands will be displaced or permanently impacted. This wetland loss will be offset by the creation of 0.76 acres of wetlands at the site of the Lake Placid Snow Dump.


Bridge
86
Bridge
Bridge
Bridge
Old Military Road
Lake Placid, NY
Image © 2012 New York GIS
© 2012 Google
Image USDA Farm Service Agency
Google earth
Imagery Date: 5/26/2011
1994
44°17'37.25" N 74°01'47.55" W elev 1953 ft
Eye alt 28797 ft

Trailheads will be located at Old Military Road, County Road 35 in Lake Placid, and at the Scarface Mountain Trailhead on County Road 32 in Ray Brook. It is important not to underestimate the parking demands at the trailheads. Consideration should include full extension of the trail to Saranac Lake and beyond, which will increase demand and cars hauling snowmobile trailers. Adequate parking is essential, because in overflow situations trail users will park along nearby roads and cause traffic congestion (which can jeopardize neighborhood relations).

The town of North Elba has approximately $3.3 million in grants for the construction of Segment 1. A request for proposal for construction is scheduled to be released during 2012 after some technical issues regarding the grants have been resolved.

OPINION OF PROBABLE COST

Based on the breakdown and recent similar projects, probable cost for this 4.5-mile segment will be between $3 and $4 million. The cost per mile will run between $666,666 and $888,889.

SEGMENT 2: OPTION A, SCARFACE MOUNTAIN TRAIL, RAY BROOK, TO BRANDY BROOK AVENUE, SARANAC LAKE — 3.7 MILES

Trail specifications for Segment 2 should be the same as those developed for Phase 1. That means a hard-surface trail (crushed stone surface recommended) with a 10-foot trail width, except where there are adjacent wooded areas, steep slopes or wetlands, where it will be 8 feet wide. In both cases, 2-foot-wide shoulders should be included in the construction except on bridges and boardwalks. Specified setback from the railroad track (closest outside rail) is between 6.5 and 11 feet.

The rail corridor passes near the Adirondack Correctional Facility (a state prison in Ray Brook) and crosses a couple roads into the facility that appear to be lightly used. Stop signs on the trail and signage warning of a pedestrian crossing should be installed at these crossings.

Near the main road into the prison is an old railroad depot that could be rehabilitated to serve as a trail-information center, museum or café, or a combination of these or other amenities. The rehabilitation of many old depots has been done by volunteers with donated materials.

The rail corridor and trail cross Oseetah Lake Road and then parallel the road for approximately .3 miles. A trail easement may be possible along this private road that would help to reduce construction costs (there is a similar use of a short section of private road along the Lebanon Valley Trail in Pennsylvania). Research may be required to determine if the road is actually an easement in the railroad right-of-way.

Leaving Osteetah Lake Road, the rail corridor swings north through an area where the trail could be constructed at grade with the railroad on the west side of the corridor. This segment is approximately .8 miles in length.

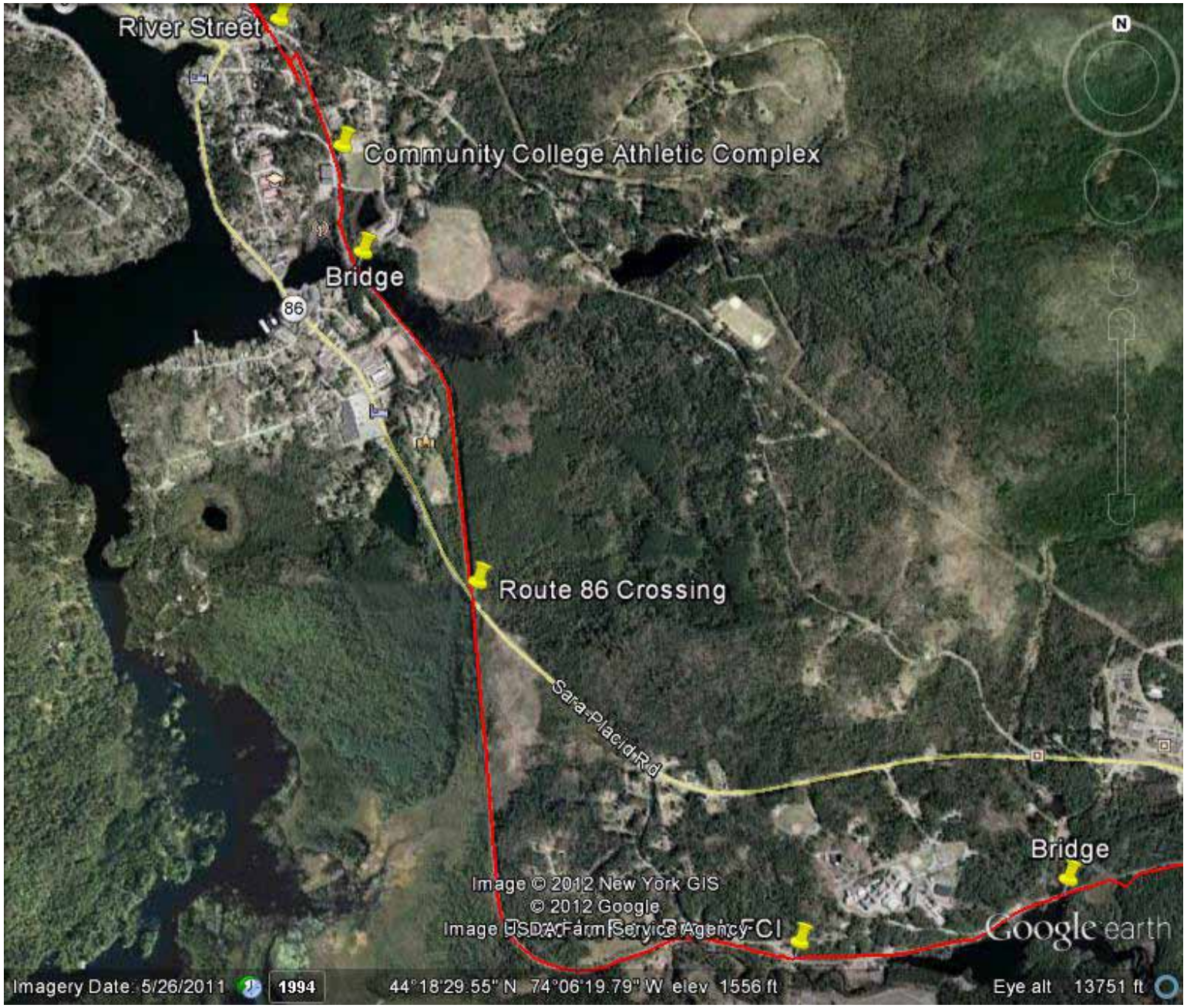
The biggest challenge in this phase is getting trail users safely across Route 86 (Sara-Placid Road). The sightlines at this road crossing are good, but the rail crosses at a slight angle. Trail crossings of all roadways are recommended to be at 90 degrees. Gates requiring cyclists to dismount would be advised. A pedestrian-activated crossing signal should also be investigated. Pedestrian-crossing signs along the roadway and a reduced speed limit are also advised.

A trailhead parking area should be developed at the intersection of the corridor and Route 86, with a capacity for at least 50 cars.

After crossing Route 86, the trail can continue on the west side of the railroad corridor. A boardwalk and a bridge will be required as the corridor skirts Lake Flower and passes over a connector between two segments of the lake before reaching Brandy Brook Avenue in Saranac Lake. There are no parking facilities except along the road at this location.

OPINION OF PROBABLE COST

Detailed engineering has not been completed and the timing of construction is unknown. Probable construction costs in 2012 dollars would be $1.5 to $2 million. Cost per mile would range from $405,405 to $540,541.


River Street
Community College Athletic Complex
Bridge
86
Route 86 Crossing
Sara Placid Rd
Bridge
Image © 2012 New York GIS
© 2012 Google
Image USDA Farm Service Agency
FCI
Google earth
Imagery Date: 5/26/2011
1994
44°18'29.55" N 74°06'19.79" W elev 1556 ft
Eye alt 13751 ft
N

SEGMENT 3: BRANDY BROOK AVENUE TO SARANAC LAKE DEPOT — 1 MILE

Segment 3 introduces a new set of challenges to the development of the Adirondack Rail Trail.

The Saranac Lake Recreational Path begins at Brandy Brook Avenue. This existing path beside the railbed could be improved and used to extend the Adirondack Rail Trail another half mile to Pine Street. The Recreational Path is currently primarily a narrow dirt surface, but there is sufficient space to widen the path to 8–10 feet. The path uses a portion of a dirt road along the boundary of Pine Ridge Cemetery and a short section of Fawn Street.

Just beyond Pine Street, the rail corridor crosses the Saranac River, and 100 yards later crosses over Woodruff Street on another bridge. Construction on these two bridges to accommodate a rail-with-trail would probably cost $1 million or more each.

It is recommended that an on-street bikeway be developed to get trail users to the Saranac Lake business district and the Saranac Lake Depot.

OPINION OF PROBABLE COST

This phase of the project would entail primarily bikeway directional signage along Dugway, Main Street, Church Street, Bloomingdale Avenue and Depot Street. Probable costs in 2012 dollars would be less than $3,000.


Saranac Lake Station
Margaret St.
Bloomingdale Ave
Stevenson Ln
Rockledge Rd
Bridge
E. Pine Street
E Pine St
Woodruff St
Main St
Saranac Lake
Pine Street
Fawn Ave
Fawn St
Labrador Ln
Helen St
Shepard Ave
Franklin Ave
Church St
Academy St
3
86
Clinton Ave
Image © 2012 New York GIS
© 2012 Google
Riverside Dr
River Street
Google earth
Imagery Date: 4/1/2006
1994
44°19'38.43" N 74°07'33.31" W elev 1608 ft
Eye alt 4809 ft

SEGMENT 4: SARANAC LAKE DEPOT TO LAKE CLEAR — 6.2 MILES

The recommended development plan for Segment 4 will require a revision to the Remsen-Lake Placid Travel Corridor Unit Management Plan/ Environmental Impact Statement of 1995. The plan stated that the "Final Corridor Management Plan will be reviewed and updated by the Interdepartmental Planning Team at five-year intervals." To date, nearly 17 years after the plan was adopted, there has been no review.

The 81-mile rail corridor between Saranac Lake and Old Forge is not used for rail service except to move the tourist train from Lake Placid to Utica in October for storage and maintenance, and then back to Lake Placid in April. The expense (fuel and labor) of maintaining 81 miles of track for the twice-yearly movement of rolling stock would be much better spent on the development of maintenance and storage facilities in Lake Placid. The current use of the 81-mile corridor between Saranac Lake and Old Forge, for the sole purpose of moving the tourist train twice a year between Lake Placid and Utica, effectively monopolizes the railbed, precluding recreational use of the corridor during the warmer months, and severely curtailing snowmobiling in the winter.

With a Lake Placid maintenance facility, the need for track between Saranac Lake and Old Forge would be eliminated, and the railroad corridor would be opened for trail development.

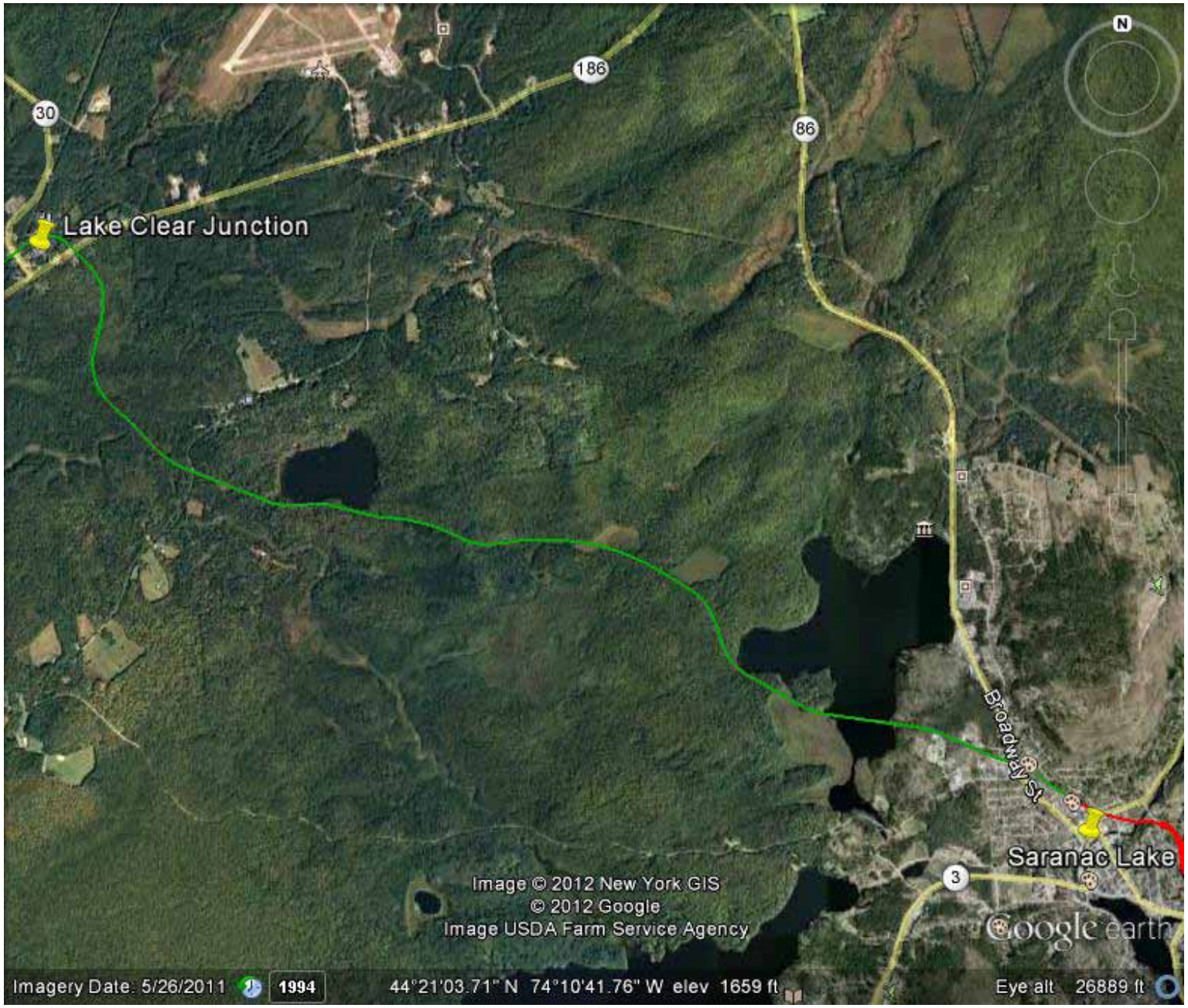
As stated in the management plan: "At the time of the five-year revision, the planning process will be reopened. Revisions to the Remsen-Lake Placid Management Plan/EIS will be considered and drafted with public involvement before any decision is made to remove the rails."

The plan states, "Trail development will be implemented using State funding and personnel, supplemented by various outside sources." The plan further states that "on those Corridor segments which will be temporarily unoccupied by rail service, NYSDEC will be responsible for costs that are incurred for construction which will be done to improve the rail bed on those segments for trail use."

The trail-development recommendation for Segment 4 is that the rail be removed and the trail developed within the rail corridor. The rail, along with associated components such as spikes, tie plates and ties, can be sold to salvage companies to provide some if not all of the funding to cover trail construction costs (see case study for Down East Sunrise Trail).

This 6.2-mile segment from Saranac Lake Depot to Lake Clear Junction includes the causeway between Lake Colby and Little Colby Pond, passes along the southern shore of McCauley Pond, and crosses McMaster Road before reaching Lake Clear Junction.

Leaving the Saranac Lake Depot, the at-grade crossings of Cedar Street and Broadway will be encountered. The Broadway crossing of the rail is not at a 90 degree angle and will need to be modified. Broadway is a major artery through Saranac Lake and will require signage and perhaps signals for the safe passage of trail users.


Lake Clear Junction
186
30
86
N
Broadway St
Saranac Lake
3
Image © 2012 New York GIS
© 2012 Google
Image USDA Farm Service Agency
Google earth
Imagery Date: 5/26/2011
1994
44°21'03.71" N 74°10'41.76" W elev 1659 ft
Eye alt 26889 ft

The rail corridor passes behind the village Department of Public Works facility, and it may be advisable to construct a fence to keep trail users from wondering into the facility.

The causeway at Lake Colby is 16-feet wide and will accommodate the multi-use trail. For safety, it is recommended that a timber rail or similar fence be installed on both sides over the entire length (approximately 1,000 feet) of the causeway.

A trailhead location should be developed at Lake Clear Junction. The Charlie's Inn Junction campground and restaurant would be an ideal trailhead location.

OPINION OF PROBABLE COST

Based on recent construction estimates of trails in former railbeds, the probable cost to construct this phase in 2012 dollars is between $1.5 and $2 million if state DOT or federal funding is required. This cost will be at least partially offset by the salvage value of rails and ties. The cost per mile to develop this segment would be between $241,935 and $322,581.

With volunteer help and donations of materials, as well as other local funding, this segment could be constructed at an average cost of $75,000 to $100,000 per mile.

SEGMENT 5: LAKE CLEAR TO TUPPER LAKE — 17.8 MILES

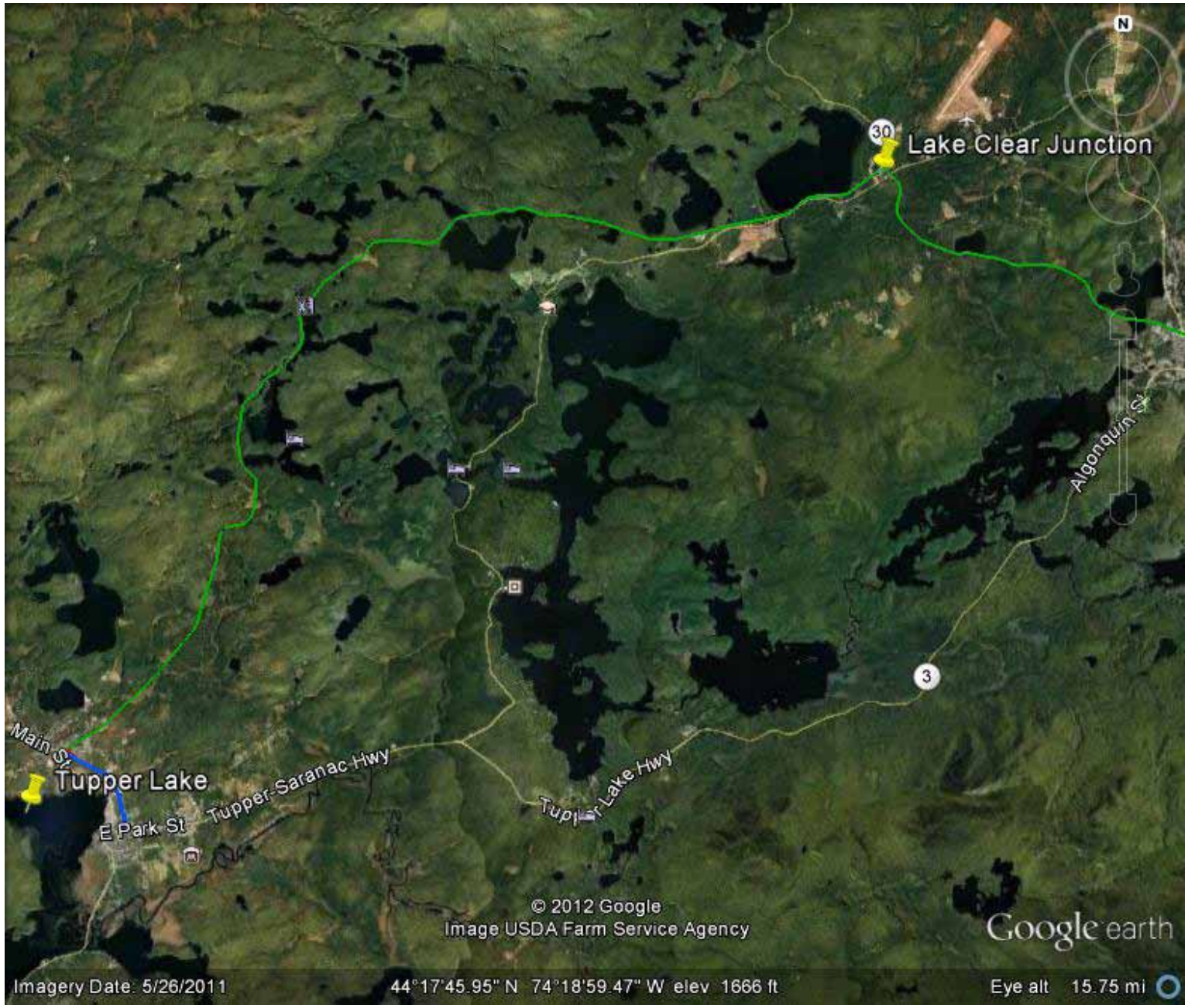
As described in Segment 4, the recommended development plan for Segment 5 will require a similar revision to the Remsen-Lake Placid Travel Corridor Unit Management Plan of 1995.

Heading west from the Lake Clear trailhead, the corridor parallels Route 30 for about 2.5 miles, where it is sandwiched between the shore of the lake and the roadway. There are a number of homes and cottages between the roadway and the corridor through this segment.

The corridor skirts the edge of several ponds before intersecting with Floodwood Road. St. Regis Canoe Outfitters is located here and could provide a canoe rental service for trail users who could leave their bikes behind to paddle in the St. Regis Canoe Area on one side of the trail or the interconnected lakes and ponds on the other side. The corridor continues between Floodwood Pond and Paradise Lane for about 1.5 miles past a number of cottages.

The corridor continues past the outlet of Rollins Pond that flows into Floodwood Pond. The nearby Rollins Pond and Fish Creek Pond State Campgrounds attract nearly 200,000 visitors each summer. Providing the campers access to the rail-trail corridor via a bridge and short connecting trail could be an added economic boon for Tupper Lake, Lake Clear, Saranac Lake and Lake Placid.

Lead Pond Road is the only other road crossing of the corridor before it reaches the depot at Tupper Lake. A formal parking lot and trailhead would be established at the depot location. The depot itself could serve as a welcome center, museum, café or bike shop. Two restaurants are located near the depot.


N
30
Lake Clear Junction
Algonquin St
3
Main St
Tupper Lake
E Park St
Tupper-Saranac Hwy
Tupper Lake Hwy
© 2012 Google
Image USDA Farm Service Agency
Google earth
Imagery Date: 5/26/2011
44°17'45.95" N 74°18'59.47" W elev 1666 ft
Eye alt 15.75 mi

OPINION OF PROBABLE COST

Assuming that the Unit Management Plan is revised as recommended above, the probable cost to construct this phase in 2012 dollars is between $4.5 and $5 million if state DOT or federal Transportation Enhancements funding is required. This cost will be at least partially offset by the salvage value of rails and ties. Cost per mile would run between $252,809 and $280,899.

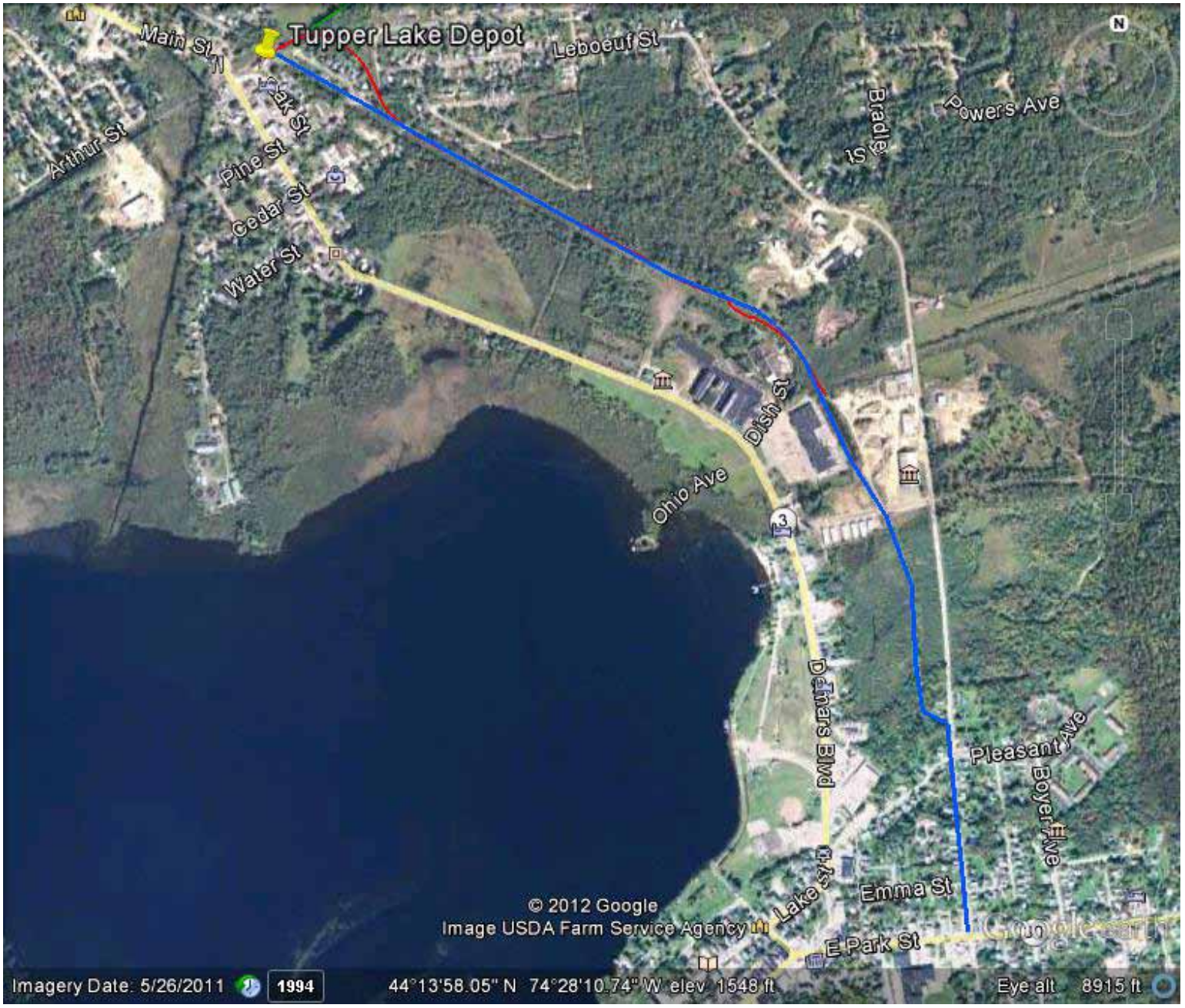
With volunteer help and donations of materials, as well as other local funding, this segment could be constructed at an average cost of $50,000 to $75,000 per mile.

TUPPER LAKE SPUR — 1.7 MILES

Near the Tupper Lake Depot, a spur corridor in state ownership heads toward Tupper Lake's main business district. For much of the length of this unused corridor, the rail and ties are still in place. It appears from a recent reconnaissance that the corridor is used by ATVs.

OPINION OF PROBABLE COST

The probable cost to construct this phase in 2012 dollars, using volunteers and donated materials, is between $45,000 and $50,000. This cost will be at least partially offset by salvage value of rails and ties.


Tupper Lake Depot
Main St
Leboeuf St
Arthur St
Pine St
Cedar St
Water St
Bradley St
Powers Ave
Dish St
Ohio Ave
Delhars Blvd
Pleasant Ave
Boyer Ave
Lake St
Emma St
E Park St
© 2012 Google
Image USDA Farm Service Agency
Imagery Date: 5/26/2011
1994
44°13'58.05" N 74°28'10.74" W elev 1548 ft
Eye alt 8915 ft

ADIRONDACK RAIL TRAIL COST ESTIMATES

Trail Segment	Developer	Configuration	Length in miles	Surface	Construction Cost (Estimated)	Average construction cost per mile
Old Military Road to Scarface Mountain Trail	Town of North Elba	Single-track corridor, new adjacent corridor proposed for trail	4.5	Crushed stone, boardwalk	$3,000,000 to $4,000,000	$666,666 to $888,889
Scarface Mountain Trail to Brandy Brook Avenue	Town of North Elba	Single-track corridor, new adjacent corridor proposed for trail	3.7	Crushed stone, boardwalk	$1,500,000 to $2,000,000	$405,405 to $540,541
Pine Street to Saranac Lake Depot	Village of Saranac Lake	Improve existing recreational path and on-street/sidewalk	1.0	Crushed stone, on-street and sidewalk	$3,000	NA
Saranac Lake Depot to Lake Clear Junction	NY DEC, ARTA	Single-track corridor, rails removed, built on railbed	6.2	Crushed stone	$558,000	$90,000
Lake Clear Junction to Tupper Lake	NYS DEC, ARTA	Single-track corridor, rails removed, built on railbed	17.8	Crushed stone	$890,000	$50,000

ECONOMIC IMPACT

Rail-trails offer economic opportunities not readily available to other trails simply because of the inherent characteristics of railroad corridors. The nature of the rail system—its proximity and connectivity to community business centers—ensures a rail-trail's popularity, accessibility and economic benefits. Trail-user surveys reliably reveal that:

- Biking is the primary activity.
- Health and recreation are the top reasons for using the trail.
- The majority of users are 45 years and older.
- Gender percentages vary about 10 percent or less, with the majority of users being male.

Rails-to-Trails Conservancy (RTC) has been conducting trail-user surveys and economic-impact analyses of trails since 2006. RTC has also collected a library of user studies conducted by other agencies and organizations. The following table summarizes survey results from trails that have characteristics similar to the proposed Adirondack Rail Trail.

SUMMARY OF RAIL-TRAIL SURVEYS

Trail, State, Survey Date	Avg. $ soft goods *(local users)*	% purchasing	Avg. $ per overnight stay	% overnight	Annual user visits	Avg non-local user expenditure/day *(soft goods + overnight)*	Total Annual Expenditures
Pine Creek Rail Trail, PA, 2006	$30.30	86%	$69	26%	138,227	$99.30	$6,081,712
Heritage Rail Trail County Park, PA, 2007	$12.86	79%	$51	12.5%	394,823	$63.86	$6,528,161
Ghost Town Trail, PA, 2008	$13.62	72%	$78	7.3%	75,600	$91.62	$1,171,830
Great Allegheny Passage, PA/MD, 2007–2011	$13.00	67%	$65	40.8%	612,991	$98.00	$21,595,673
Virginia Creeper Trail, VA, 2004	$19.20	NA	$47	33.5%	103,172	$66.20	$1,624,443
Torrey C. Brown Trail, MD, 2005	$9.14	72%	$61	.05%	800,000	$70.14	$5,508,640
Average	$18.73		$61.83		354,135	$81.02	$7,085,077

PROJECTED ECONOMIC IMPACT AND USE OF PROPOSED ADIRONDACK RAIL TRAIL

TRAIL USER DAILY EXPENDITURE

Daily Trail User Expenditure	Local	Non-local
Low	$9.14	$63.86
Average	$16.35	$81.02
High	$30.30	$99.30

ESTIMATED ANNUAL TRAIL USER VISITS

Estimated Annual Trail User Visits (= 1 day)	Local	Non-Local	Total
Low	23,250	51,750	75,000
Average	109,740	244,260	354,000
High	278,000	552,000	800,000

POTENTIAL FUNDING SOURCES

FEDERAL FUNDING SOURCES

Bicycle and pedestrian projects are broadly eligible for funding from almost all major federal-aid highway, transit, safety and other programs. Bicycle projects must be principally for transportation rather than recreation purposes and must be designed and located pursuant to the transportation plans required of states and metropolitan planning organizations. Additional federal funding sources not directly related to transportation can be used creatively to enhance and restore open space, wetlands and wildlife habitat along trails and also fund interpretation of cultural and natural resources.

COMMUNITY DEVELOPMENT BLOCK GRANTS (MAY BE APPROPRIATE FOR SEGMENT 3)

The U. S. Department of Housing and Urban Development (HUD) provides these grants to communities for neighborhood revitalization, economic development and improvement of community facilities and services, especially in low- and moderate-income areas. These grants require no match of funds or services from the community. HUD provides grants to each of these communities annually, and the community develops its own program and sets funding priorities.

More information can be found on the HUD website:
www.hud.gov/offices/cpd/communitydevelopment/programs/

LAND AND WATER CONSERVATION FUND

The Land and Water Conservation Fund (LWCF) was established in 1965 to help provide "close-to-home park and recreation opportunities throughout the nation." Money for the fund comes from the sale or lease of non-renewable resources, primarily federal offshore oil and gas leases and surplus federal land sales. A large portion of the annual LWCF allocation goes toward acquisition of land for federal land-management agencies; however, a portion of the money is provided to cities, counties and park districts to acquire land and develop parks. LWCF funds are provided to each state annually by the National Park Service. State funding is based on a population formula. A state administers the program through a state liaison officer, who recommends projects to the National Park Service for approval. Local governments are eligible applicants. Communities must be able to match LWCF grants with a 50 percent provision of funding or services.

To qualify for funding, a project must meet two criteria. First, the project must be primarily for recreation purposes, not transportation. Second, the organization leading the project must guarantee that the project will be maintained in perpetuity for public recreational use. Any deviation from recreational use must be approved by the National Park Service, and property of at least equal recreational value must be provided to replace the loss.

Additional information can be found on the National Park Service website at: www.nps.gov/lwcf, and at the address below:

Danielle Dwyer
Saratoga Spa State Park
19 Roosevelt Drive
Saratoga Springs, NY 12866-6214
Phone: 518.584.2000
Fax: 518.584.5694

FEDERAL SURFACE TRANSPORTATION PROGRAM AND TRANSPORTATION ALTERNATIVES

Surface Transportation Program (STP) funds may be used for the construction of bicycle facilities and pedestrian walkways. Proposed projects must be designed primarily for transportation rather than recreation.

In June 2012 Congress enacted Moving Ahead for Progress in the 21st Century (MAP-21) which includes a number of substantial changes to the Transportation Enhancement (TE) activities defined in Title 23. The activities are now termed "transportation alternatives" (TA).

How this new legislation will be put into practice in New York is currently uncertain. It is recommended that the district TEP Coordinator be contacted regarding any Transportation Alternative funding requests.

Mary Anne Mariotti
Region 1 TEP Coordinator
New York Department of Transportation
50 Wolf Road
Albany, NY 12232
Phone: 518.485.6000
MaryAnne.Mariotti@dot.ny.gov

FEDERAL RECREATIONAL TRAILS PROGRAM

Funded through the Highway Trust Fund, this program was originally created as the National Recreational Trails Trust Fund to provide for and maintain recreational trails that are part of Statewide Comprehensive Outdoor Recreation Plans.

Recreational Trails Program funds may be used for:

- Construction of new trails (motorized and non-motorized).
- Maintenance and restoration of existing recreational trails (motorized and non-motorized).
- Access to trails by persons with disabilities.
- Purchase and lease of trail construction and maintenance equipment.
- Acquisition of land or easements for a trail, or for trail corridors.
- Operation of educational programs to promote safety and environmental protection as related to recreational trails.

Information regarding the New York Recreational Trails Grant Program is available at: http://nysparks.com/grants/recreational-trails/default.aspx

FOUNDATIONS AND OTHER PRIVATE GRANT PROGRAMS

Parks & Trails New York maintains an extensive list of non-governmental funding sources at: www.ptny.org/greenways/funding/#non

RAIL AND TIE SALVAGE

A major source of funding for Segments 4 and 5 of the Adirondack Rail Trail would be the salvage value of the rails, rail components and ties. As "commodities," the value of these items fluctuates constantly.

MANAGEMENT, MAINTENANCE AND SECURITY

When developing a long-distance transportation and recreational trail, it is important to begin early on in the process to identify how that facility will be managed and maintained for the long-term, and who will be overseeing security issues.

For the Adirondack Rail Trail, a number of communities will be directly impacted by the trail. Lake Placid, Saranac Lake, Lake Clear and Tupper Lake will all have trail segments within their boundaries. The town of North Elba, which overlays Lake Placid and parts of Saranac Lake, also has a vested interest in assuring that the trail is managed, maintained and secure.

Adirondack Recreational Trail Advocates (ARTA) is a nonprofit citizen group dedicated to development of the trail. As soon as the first phase of the project is constructed, ARTA must determine what its role will be with regard to management and maintenance of the trail. A cooperative agreement or memorandum of understanding with the municipalities should be developed so that each entity agrees on and knows its role.

Other community organizations can also be brought in to help with the management, maintenance and security tasks. Many trails in New England rely on local snowmobile clubs to help with trail management and security functions during the winter months.

Volunteers can play a key role in helping to maintain the trail.

Northeast Regional Office / 2133 Market Street, Suite 222 / Camp Hill, PA 17011
tel 717.238.1717 / fax 717.238.7566 / www.railstotrails.org

National Headquarters / 2121 Ward Court, NW, 5th Floor / Washington, DC 20037
tel 202.331.9696 / fax 202.223.9257 / www.railstotrails.org