

# White Mountain National Forest



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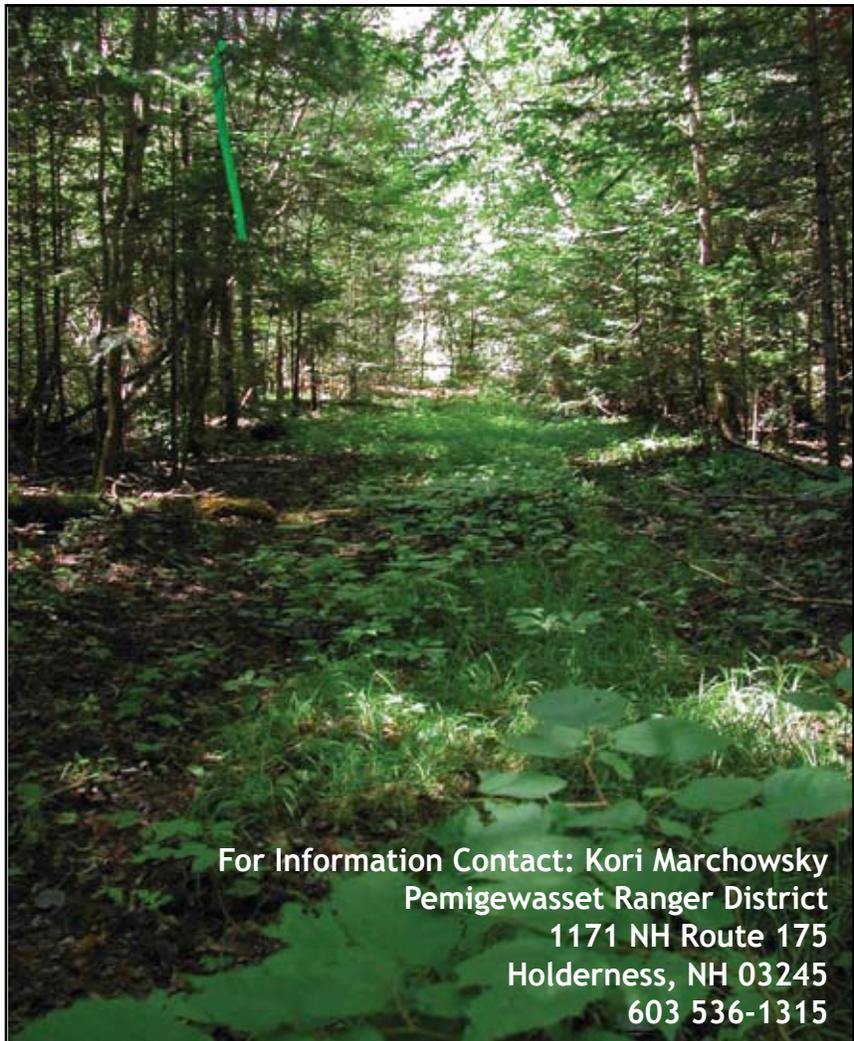
Forest  
Service

Eastern  
Region



## Twin Mountain Bicycle Path Project

**Environmental Assessment**  
Towns of Bethlehem, Franconia, & Carroll  
Grafton & Coos Counties, NH  
Prepared by the  
Pemigewasset Ranger District  
September 2007



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# Chapter 1 – Purpose and Need

## Introduction

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The US Forest Service (USFS) has prepared this Environmental Assessment (EA) in compliance with the National Environmental Policy Act of 1969 (NEPA), the Appeals Reform Act of 1993 (ARA), and other relevant federal laws and regulations.

This EA proposes a management action to be taken on the White Mountain National Forest (WMNF), explaining its purpose and why it is needed. It considers alternative means for accomplishing the action, based on identified issues and concerns. It describes the affected environment—those physical, biological, and social settings within the Forest and its surrounding area where the effects of the action might be felt. Then, for each alternative, the EA uses the best available science to disclose the direct, indirect, and cumulative impacts that would result over time.

These elements are considered within the framework of the Desired Condition of the Land stated in the 2005 Land and Resource Management Plan (Forest Plan), a vision of what the Forest will look like and what benefits it will provide in the future.

### Tiering to the 2005 Forest Plan

The analysis for this project is “tiered” to the Final Environmental Impact Statement and Record of Decision for the 2005 White Mountain National Forest Land and Resource Management Plan (USDA-Forest Service, 2005b, Final Environmental Impact Statement [FEIS]). Tiering is described in Forest Service Handbook (FSH) 1909.15 as a process of summarizing and incorporating by reference from other environmental documents of broader scope to eliminate repetitive discussions of the same issues and to focus on the actual issues ripe for decision (USDA-Forest Service, 1992, FSH 1909.15, Chapter 42.1). The Handbook specifically notes that the EIS for a land and resource management plan is an example of a “broad” EIS prepared for a program or policy statement (USDA-Forest Service, 1992, FSH 1909.15, Chapter 22.31).

The Forest Plan is the “principal tool for preserving, protecting, and managing the resources that comprise the White Mountain National Forest, while at the same time making those resources available to the public for a variety of uses.” (USDA-Forest Service, 2005b, FEIS) The Forest Plan is a programmatic document that implements the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA), as amended by the National Forest Management Act of 1976 (NFMA). The Forest Plan implements NFMA by providing “for diversity of plant and animal communities based on the suitability and capability of the [White Mountain National Forest] in order to meet overall multiple-use objectives and within the multiple-use objectives of a land management plan.” (16 USC 1604(g)(3)(B)).

The White Mountain National Forest is allocated to fifteen Management Areas (MAs), and the Forest Plan identifies a purpose, desired condition

for the land, and standards and guidelines for each MA. The Plan sets management direction for the Forest through the establishment of short-term (10-15 years) and long-range goals and objectives. It prescribes the standards, practices, and the approximate timing and vicinity of potential actions that are necessary to achieve these goals and objectives. The Forest Plan also identifies monitoring and evaluation needs to ensure that direction is carried out, measuring quality and quantity of actual operations against predicted outputs and effects.

### **What is the Forest Service Proposing?**

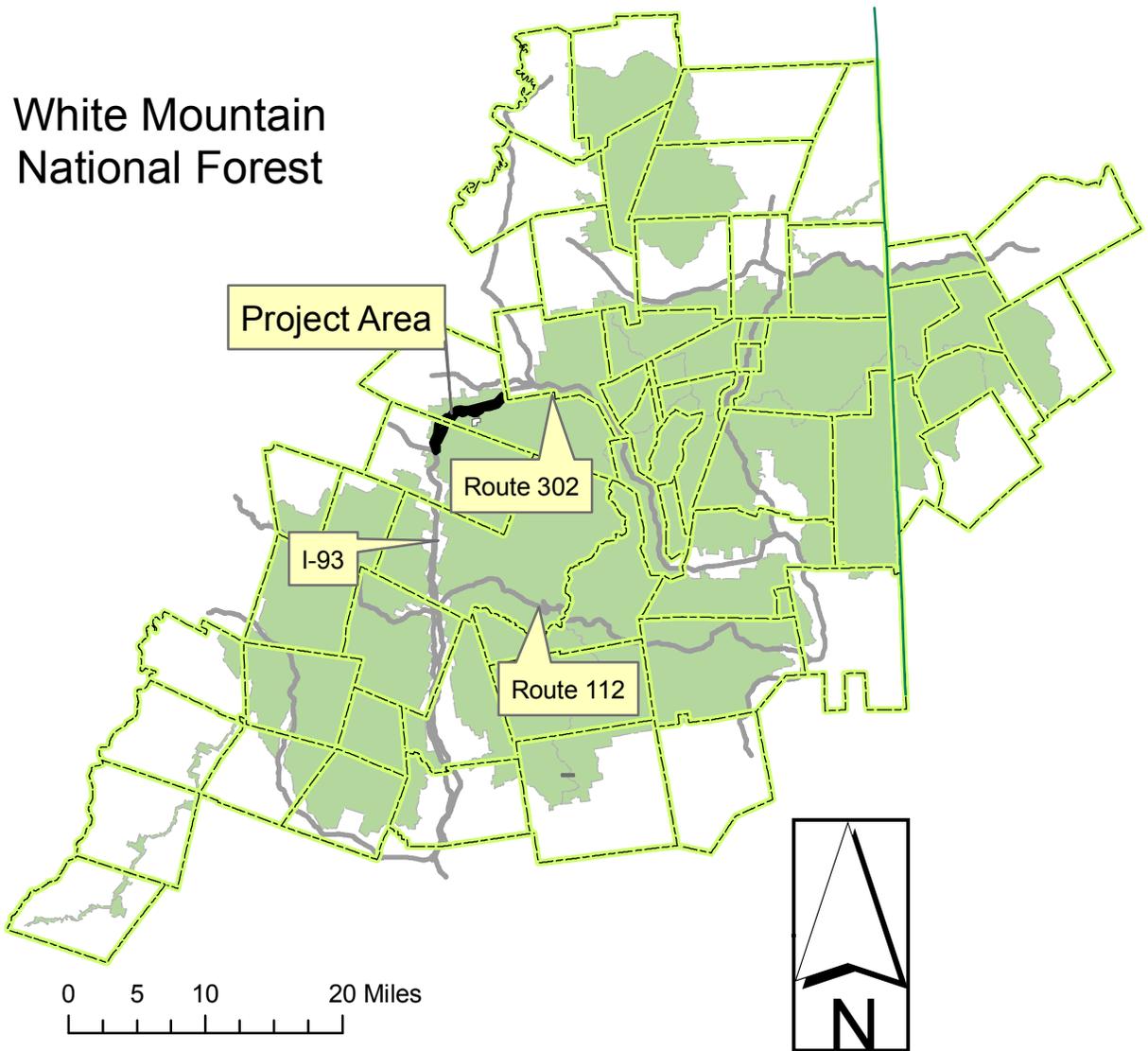
The Pemigewasset Ranger District of the White Mountain National Forest is proposing to construct a bicycle path connecting the existing bicycle path and snowmobile trail through Franconia Notch with the commercial district of the community of Twin Mountain. The bicycle path would be approximately nine miles long. Portions of it would be open seasonally for snowmobile use and portions would be reserved for non-motorized winter use. At areas of special interest, signs interpreting cultural and natural resources would be posted.

### **Where is the Twin Mountain Bicycle Path Project?**

The Twin Mountain Bicycle Path Project is located on the Pemigewasset Ranger District of the White Mountain National Forest within the towns of Franconia, Bethlehem, and Carroll in Grafton and Coos Counties, New Hampshire. The Project Area generally parallels US Route 3 between the Skookumchuck Parking Area at the top of Franconia Notch and the commercial district of the community of Twin Mountain (please refer to maps 1 and 2).

The project area consists of approximately 1,400 acres and includes the proposed bicycle trail corridor, the lands immediately adjacent to the proposed trail, and surrounding areas considered for alternate trail locations. The project area is entirely within Management Area 2.1—General Forest Management, and does not enter into any Inventoried Roadless Areas. The majority of the project area is in the Gale River Habitat Management Unit (HMU), with only the section south of Route 3 between Haystack Road and the community of Twin Mountain in the Little River HMU. The lands within the project area have been, and are currently being, managed with both even- and uneven-aged silvicultural systems.

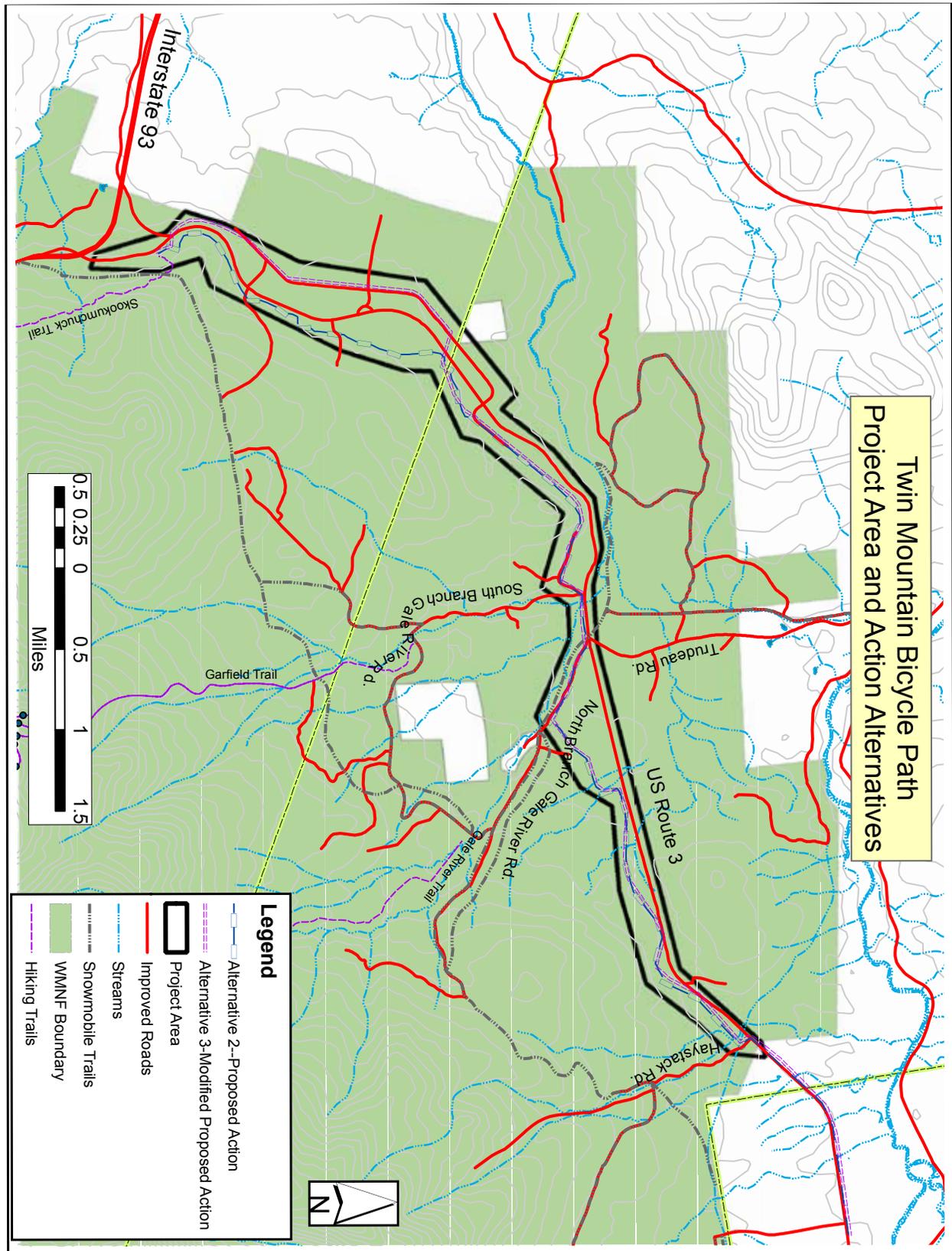
**Map 1-1. Twin Mountain Bike Path Project Vicinity.**



### **Funding**

The Forest Service is conducting the planning and analysis for the proposed project. The costs for this work are being provided by Forest Service program funds. If a decision is made to implement the project — as proposed or as modified in an alternative, it is expected that funding for trail construction and maintenance, either in whole or in part, would come from sources external to the Forest Service. These sources may include state, local, and individual grants as well as donations of funds, material, labor, equipment, and supplies. An organized group from the local communities is committed to procuring funding sources for the implementation and long-term maintenance of the proposed project. The completion of this Environmental Assessment does not obligate the Forest Service to provide funding for the implementation or maintenance of this project.

Map 1-2. Twin Mountain Bicycle Path Project Area.



## Purpose and Need

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### Why is the Forest Service proposing activities in the Twin Mountain Bicycle Path Project Area?

In 2004, several business owners from Twin Mountain approached the Pemigewasset Ranger District of the WMNF requesting the construction of a bicycle path that would connect the north end of an existing dual use trail through Franconia Notch with the commercial area of Twin Mountain. Since that time, Forest Service personnel have met with a consortium of organizations advocating for this project's development. Together, the Forest Service and the partner groups refined the Bicycle Path proposal and identified additional issues, ideas, and opportunities associated with it.

The purpose and need of the Twin Mountain Bicycle Path Project is to respond to public requests for construction of a bicycle path between the top of Franconia Notch and the community of Twin Mountain, and to implement White Mountain National Forest Plan direction in the project area. This project is proponent-driven; it was proposed and is advocated by individuals outside the Forest Service. When the proponents approached the Forest Service about the project, it was their view that the communities around Twin Mountain would benefit from a connection with the Franconia Notch State Park Recreational Trail. They advocated for the construction of a bicycle trail that caters to bicyclists and pedestrians of all ages and physical abilities.

The project's proponents have specified that the purpose of the Bicycle Path is to:

- increase visitation and commerce in the community of Twin Mountain and surrounding towns, particularly in the summer months, by broadening the range of recreation opportunities;
- provide bicycle riding opportunities that are safe and secure; and
- encourage health and fitness for the community and its visitors.

While further refining the proposal and working with other agencies and groups, the proponents identified additional purposes of the Bicycle Path, which are to:

- eliminate certain sections of snowmobile trails within the Twin Mountain area which were problematic due to topography and snow conditions;
- provide for non-motorized winter recreation opportunities on some portion of the path; and
- provide interpretation opportunities for natural and cultural features along the path.

In order for the Forest Service to consider this proposal, a number of conditions must be met, among them compliance with the WMNF Forest Plan. The "purpose and need" of the proposed project would meet the goals

and objectives specified in the Forest Plan by providing an accessible, logical extension to a popular existing bicycle path through Franconia Notch. Site-specifically, extending the existing trail and providing a connection with the community of Twin Mountain, the project will provide opportunities for healthy, widely available recreational pursuits in a concentrated use area along US Route 3. As discussed further in Chapter 3, the project will also help strengthen the economy and improve the quality of life of a rural New Hampshire area by directing visitors and associated commerce to Carroll, Bethlehem, and Franconia area businesses (Forest Plan, pp. 1-3, 1-10, 1-13).

### **What decisions will be made for the project area?**

This Environmental Analysis (EA) evaluates site-specific issues, considers alternatives, and analyzes the effects of the activities described in the Proposed Action and in alternatives to that proposal. Based on the needs identified for the Twin Mountain Bicycle Path Project, the scope of the project is limited to decisions concerning the development of a bicycle path, sections of which may allow winter motorized use (snowmobile trails), within this project area.

This EA provides the deciding official, the Pemigewasset District Ranger, with the information necessary to make the following decisions with regard to the Twin Mountain Bicycle Path Project:

1. Are there additional issues or alternatives that should be analyzed in detail?
2. Which of the alternatives best addresses relevant issues raised by the public and the Interdisciplinary Team?
3. Would the Proposed Action and its alternatives pose any environmental impact to warrant the need for an environmental impact statement?

## **Public Involvement**

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### **How is the public involved in this decision?**

The first meeting regarding this project was held in March, 2004, and included local business owners, State of NH personnel, and the USFS. Since then, several other meetings have occurred among project proponents, State of NH personnel, and the USFS, including a public information meeting presented by the NH Department of Transportation, held at the Carroll Town Hall in May, 2006. The project was described in the White Mountain National Forest Schedule of Proposed Actions (SOPA) beginning in April, 2006.

The Twin Mountain Bicycle Path Project Scoping Report was mailed to approximately 225 individuals, agencies, and groups on June 16, 2006. Approximately fifty individuals, agencies, and groups commented on the proposed action during the scoping process. Comments were used to identify issues, to develop alternatives, and to analyze effects of the project.

On August 3, 2007, the Twin Mountain Bicycle Path 30-Day Comment Report was sent to parties who expressed interest in receiving it or who responded to the Scoping Report, and it was posted on the Forest website for the formal 30-day comment period. The 15 comments received were used to strengthen our analysis, fine tune the documentation, and provide a basis for the responsible official to make a decision.

## Issues

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### What issues were identified during scoping?

The purpose of scoping is to determine issues that will be analyzed in depth (40 CFR 1501.7). All comments and concerns raised in scoping are considered throughout the planning process, and some of these issues ultimately drive development of unique alternatives. Other issues may be addressed in design features or mitigation measures common to all alternatives, may be already decided by law or regulation, may be conjectural or not supported by factual evidence, or may be determined to be beyond the scope of this project. A full report of comments received during scoping is available in the Project File.

While many comments were helpful in refining and improving the proposal, two issues were raised through public scoping that resulted in the development of alternatives to the Proposed Action. Each issue has one or more measurement indicators that measure existing conditions and the potential effects of management activities. These indicators highlight differences among alternatives, and are both quantitative and qualitative. They also provide a meaningful measure that enables the reader to clearly track the issue throughout the environmental analysis document.

#### *Issue 1*

*Safety concerns regarding at-grade crossings of US Route 3 by a bicycle path geared for users of varying ages and abilities (Agency and Public Comment)*

The bicycle path would require between one and three crossings of US Route 3, posing potential safety concerns for bicyclists, pedestrians, motorists, and snowmobilers.

The measure used to evaluate how the alternatives address the issue will be:

1a) The number, location, and type (at-grade/surface crossing or tunnel) of bicycle path crossings of US Route 3.

#### *Issue 2*

*Safety concerns regarding locating the trail too far from or too close to US Route 3 (Public Comment)*

Seven possible bicycle route “sections” were identified in the initial scoping package. Some sections were a significant distance from US Route 3

or any other road access, making search and rescue efforts more challenging. These sections also required a longer commitment to the path for all path users without an “escape” back to the road. Conversely, some sections were close to, or along the shoulder of, US Route 3. If these sections were not properly located, they might pose other hazards, specifically the risk of snowmobile headlights blinding oncoming vehicles on the highway.

The measures used to evaluate how the alternatives address the issue will be:

2a) Proximity to US Route 3 for all bicycle path users.

2b) Distance between path and US Route 3 when snowmobile travel is near enough to the highway to potentially impact night vision of highway vehicle traffic.

Numerous comments expressed concerns regarding funding for implementation and future maintenance of the proposed project. The project proponents are not anticipating receiving Forest Service funding for the implementation and future maintenance costs of this project. Project proponents have identified numerous likely funding sources, but issues associated with funding for implementation and future maintenance are considered outside the scope of this analysis and will not be addressed further in this document.

## Chapter 2 – Alternatives

### Introduction

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This Environmental Assessment explores the differences between the Proposed Action and two possible management alternatives for the Twin Mountain Bicycle Path project area. Each alternative could be implemented if selected, and together they provide a framework for analyzing different ways to meet the purpose and need stated in Chapter 1. This chapter includes:

- A description of the management area in which the management activities are considered.
- How the alternatives were developed.
- A description of alternatives considered in detail and design features.
- A comparison of alternatives (Table 2-1).

### Management Areas

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The Forest Plan allocated all White Mountain National Forest land among fifteen different Management Areas (MAs). Each MA has a unique purpose, a desired condition of the land, and standards and guidelines for its management (see Chapter 3 of the Forest Plan). The Twin Mountain Bicycle Path project area is located entirely within MA 2.1 lands.

The purpose of MA 2.1, as described in the Forest Plan, is to provide for high quality sawtimber and other timber products on a sustained yield basis, a balance of wildlife habitats, and a range of recreation opportunities from low-use hiking trails to highly developed campgrounds (Forest Plan, p. 3-3).

The Proposed Action would move the project area closer to its “Desired Future Condition” for MA 2.1, as described in the Forest Plan:

Recreation opportunities will be diverse, including activities such as hiking, mountain biking, driving for pleasure, snowmobiling, hunting and fishing, roadside camping, and developed camping. Some roads and trails will receive limited use, while others will be heavily used at certain times (Forest Plan, p. 3-3).

### Alternatives

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As stated in Chapter 1, public comment was sought on the Proposed Action for the Twin Mountain Bicycle Path Project. These comments helped identify two issues: safety concerns regarding at-grade crossings of US Route 3 and safety concerns regarding the proximity of the bicycle path to US Route 3. Following an interdisciplinary approach, the Pemigewasset Ranger District used these issues to lay the groundwork for the management alternatives in this EA.

The Interdisciplinary Team developed two alternatives in addition to the proposed action and no action alternatives. These additional alternatives

were in response to the issues raised during scoping. While all four alternatives provide a wide range of multiple uses, goods, and services, each addresses the issues in a different way. As is explained in this chapter, only three of the initial alternatives were further considered in this environmental analysis. Each alternative considers in detail different management approaches for the Twin Mountain Bicycle Path project area. The alternatives being analyzed in detail meet goals and policies common to the Forest Plan. They differ in the emphasis given to particular issues and goals.

### Which alternatives were initially considered for the Twin Mountain Bicycle Path Project?

The Interdisciplinary Team initially considered four alternatives for the Twin Mountain Bicycle Path Project:

- Alternative 1: No Action;
- Alternative 2: Proposed Action;
- Alternative 3: Trail primarily follows old Route 3 from Skookumchuck Parking Area to Haystack Road, then follows highway right-of-way to Twin Mountain; and
- Alternative 4: Eastern segment of trail (from Trudeau Road to community of Twin Mountain) follows railroad grade north from Trudeau Road/Route 3 junction, then remains on old railroad grade to Twin Mountain.

### Why was Alternative 4 eliminated from detailed consideration?

*Alternative 4 — Construct the trail using the railroad grade north of US Route 3 between Trudeau Road and Twin Mountain commercial area (pre-scoping public input).*

Some members of the public were interested in using a longer portion of the existing railroad grade as part of the Twin Mountain Bicycle Path for several reasons. Some snowmobile interests expressed a desire to have this portion of the path available for snowmobile use. Combined with a new link from Franconia Notch to Trudeau Road, it would enable snowmobilers to access Twin Mountain from Franconia Notch, completely avoiding the existing system south of Route 3, some parts of which may be difficult to negotiate under marginal snow conditions.

The Interdisciplinary Team examined this alternative and determined that it does not adequately address Issue 2a. The bicycle path would be too far from US Route 3 (or any other public access) to adequately address safety concerns for bicycle path users with a wide range of abilities. The team concluded that this alternative consequently does not meet the purpose and need of the proposed project, and it was dropped from consideration.

## Which alternatives are being considered in detail?

The three alternatives described in this chapter and by resource effects in Chapter 3 are being considered in detail in this Environmental Analysis.

If an action alternative is implemented, the actual level of activities accomplished on the ground, as measured in acres or miles, may differ slightly from current estimates. All variances would be evaluated to ensure that any effects are within the parameters of the effects analyzed and would be documented in the Project File.

Construction techniques, based on Forest Plan standards and guidelines, would take into account resource conditions including topography, soil type, stream habitat, water quality, and heritage resource concerns within the project area in order to protect natural and cultural resources. A culture resource inventory was completed for this analysis and is available in the Project File.

See Table 2-1 for a summary comparison of the activities proposed for all alternatives.

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### **Alternative 1 No Action**

Under Alternative 1, current and on-going management activities within the project area would continue, but no new bicycle path construction or resource interpretation would occur. Existing bicycle use along US Route 3 would continue. Other activities in the project area, such as road or parking area maintenance, might occur through current management direction. Management decisions might also result in other activities in the project area, including road construction, vegetation management, and parking area improvements.

This alternative addresses Issues 1 and 2 by not constructing a bicycle path. No tunnels or at-grade crossings would be proposed, and no path would be constructed near or distant from Route 3. There would be no safety issues associated with designated road crossings or additional snowmobiling near Route 3. Any current safety concerns with the existing designated bicycle route along Route 3 would remain the same.

This alternative provides a foundation for describing and comparing the magnitude of environmental effects associated with Alternatives 2 and 3.

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### **Alternative 2 Proposed Action**

Alternative 2 is based on the Proposed Action described in the Scoping Report mailed in June, 2006. This alternative considers an approximately nine mile multi-use bicycle path from the Skookumchuck Parking Area to the community of Twin Mountain. The Proposed Action would involve some new trail construction, some use of the historic Route 3 footprint, and some off-Forest use of the existing Route 3 right-of-way. The specific segments are as follows (please refer to Map 1-2):

**Skookumchuck Trailhead to Priest Hill Road (Forest Road [FR] 181), new construction:** The path travels approximately 2.5 miles from the trailhead to FR 181 primarily through rocky mature hardwood areas. This section traverses some north-facing slopes and follows old skid trails when possible. All of this section has been logged in the past.

**FR 181 to South Branch of the Gale River Road:** The path travels approximately 1.5 miles along old Route 3 (portions of which are also called FR 181—Priest Hill Road and FR 180—Abbott Hill Road) to meet the South Branch of the Gale River Road (FR 92). This remnant section of old Route 3 is in very good condition and portions of it are used for timber sale operations (see Timber Resources section in Chapter 3). It is anticipated that minimal reconstruction will be required for this section other than preparing the roadbed for, and applying, the new surface.

**South Branch (FR 92) to North Branch (FR 25) of the Gale River Road, crossing Gale River:** This small section of path (approximately 0.34 miles) connects the two Forest roads and crosses the Gale River in the immediate area of US Route 3. This path section would be constructed along Route 3, but at a lower level than the roadway except in the immediate area of the bridge crossing.

A bridge would be constructed across the Gale River, either attached to the existing highway bridge or immediately adjacent and upstream of the state highway bridge. Engineering surveys and additional discussion with NH Department of Transportation personnel will determine the exact location prior to implementation. All State of NH standards will be followed in conjunction with bridge construction.

**North Branch of the Gale River Road (FR 25), existing surface:** The path follows FR 25 east for approximately 0.5 miles before heading northeast. This section of path will require no alterations to the existing road except for appropriate trail signage.

**FR 25 to Beaver Brook Wayside Area:** This approximately 0.66 mile section of new path construction connects FR 25 with the Beaver Brook cross-country trail system and parking area. It follows old skid trails for almost its entire length, but passes through one 0.1 mile area of softwood saplings before emerging on the cross-country trail system.

**Beaver Brook Wayside Area to Haystack Road (FR 304):** This section of path is approximately two miles long and almost entirely follows the old Route 3 travelway. The eastern portion of this old roadbed is in good condition, with a few areas of poor drainage and blocked culverts. The western portion of this section is in fair condition, with some poorly drained areas. Some sections have grown in with saplings and small trees. One section appears to have been planted with conifers to deter entrance to the old roadbed from the existing highway.

**Haystack Road to US Route 3 Right-of-Way:** The path follows Haystack Road out to Route 3, crosses the highway, heads east along US Route 3, and leaves the Forest. The path follows the highway right-of-way for approximately one mile and ends at a parking area owned by the State of NH.

From Skookumchuck Parking Area to Trudeau Road, the bicycle path would be open in the winter as a snowmobile trail, replacing the existing Corridor 11 trail located south of this new segment of trail on the north-facing slope of Scarface Mountain. No other portions of the bicycle path on National Forest land would be open to snowmobile use. The eastern section of the path, from Trudeau Road to the community of Twin Mountain, would be open to non-motorized winter use, and would provide a cross-country ski link from the community of Twin Mountain to the Beaver Brook Cross-Country Ski Trail system currently maintained on the WMNF. Some small sections may be considered for future snowmobile use if necessary to link key snowmobile trail segments. Resource interpretation in the form of signs or panels would occur at several points of historical or ecological interest along the path. The bicycle path would have a rock dust or small diameter gravel-type surface.

Under this alternative, there is only one location where the bicycle path crosses US Route 3. An at-grade crossing is proposed at this location. This alternative addresses Issue 1a by minimizing the number of at-grade crossings along the length of the bicycle path. Additionally, significant signage would be posted at the crossing area to alert both motor vehicles and bicycle path users of the crossing hazard. The crossing will meet all NHDOT and American Association of State Highway and Transportation Officials (AASHTO) standards for at-grade bicycle crossings, including safety signage.

**Alternative 3  
Modified  
Proposed  
Action**

Alternative 3 considers a bicycle path from the Skookumchuck Parking Area to the community of Twin Mountain generally following the footprint of the historic Route 3 travelway. This alternative involves minimal new construction and primarily follows either the historic Route 3 or existing skid roads (see Map 1-2).

As an alternative to new construction from the Skookumchuck Trailhead to Priest Hill Road (described in Alternative 2), Alternative 3 proposes following the old Route 3 travelway on the northwest side of US Route 3 until just before crossing the Franconia/Bethlehem town line. At this point, this alternative proposes crossing US Route 3 and rejoining the route proposed in Alternative 2, merging into Priest Hill Road. The western portion of this section of the old Route 3 is FR 182 (Profile Road), and the eastern portion of this section is an unclassified road (not a currently designated Forest System Road), a portion of which is currently used to access a private inholding. The section used to access this inholding would not be a part of the bicycle path.

This alternative proposes the design and construction of two tunnel crossings of US Route 3, one at its intersection with NH Route 141, and one near Priest Hill Road, to reconnect with the proposed route in Alternative 2. Tunnel design and construction would be under the direction and supervi-

sion of qualified state and Forest Service personnel. This alternative would address Issue 1a by including these tunnels under US Route 3 to avoid at-grade crossings in two 55 mph speed limit areas, one at a busy intersection and one with limited sight distance. As in the proposed action, one at-grade crossing would be constructed near Haystack Road, and the bicycle path would have a rock-dust or small-diameter gravel-type surface. Small, trailside pull-offs will be periodically located along the path. Picnic tables or benches may be available at some of these areas. Resource interpretation in the form of signs or panels would occur at several points of historical or ecological interest along the path.

This alternative addresses Issue 2a by remaining relatively close to Route 3 from a search and rescue standpoint, and by having numerous access points from Route 3 to the trail. This alternative addresses Issue 2b by largely avoiding travel immediately adjacent to Route 3 for the section open to snowmobiles. Much of the southern portion of this alternative is at a lower grade than Route 3, which would keep snowmobile headlights out of sight from motorized traffic on the highway.

### **Comparison of Alternatives 2 and 3**

Alternatives 2 and 3 both address the desire to have a bicycle path “not too close nor too far” from Route 3. Both alternatives provide for a path that remains close to Route 3 while providing a recreational experience very different from that of one involving continuous travel within the highway travel corridor. Both alternatives would provide for several access points along the length of the bicycle path, to be used for emergency purposes or as a general means of accessing or exiting the bicycle path. Under current conditions, snowmobiles cross US Route 3 at Trudeau Road, and they will continue to do so under both alternatives.

Both Alternatives 2 and 3 would permit snowmobile travel between the Skookumchuck Trailhead and Trudeau Road, but not to the east of Trudeau Road. Snowmobile headlights will be more visible to highway vehicle traffic under Alternative 2 than Alternative 3 because the western portion of Alternative 2 is at or above the elevation of US Route 3, whereas the western portion of Alternative 3 is generally at a lower elevation than the highway road surface. Where the proposed path crosses the Gale River, the bridge would be immediately adjacent to, or attached to, the existing highway bridge and would bring the path close to US Route 3. Mitigation measures, explained in the Recreation Resource section of Chapter 3, would be implemented to address safety concerns at this crossing. Other than at this location, no portions of any of the winter motorized segments run directly parallel to the Route 3 corridor, and all have some degree of forested vegetation separating the path from the highway.

Alternatives 2 and 3 would both require some clearing of vegetation along the bicycle path corridor. Most segments of the existing old route 3 travelway or existing skid roads contain only grass, shrubs, or saplings. Where new construction is proposed, some larger diameter trees would be removed. This is addressed further in the resource sections of Chapter 3.

**Table 2-1. Comparison of Alternatives by Activity.**

<b>Activity</b>	<b>Alternative 1 No Action</b>	<b>Alternative 2 Proposed Action</b>	<b>Alternative 3</b>
<b>Miles of Trail Enhancement or Construction (approximate)</b>			
Enhancement of old Route 3	0	3	5.15
Enhancement of existing skid roads	0	0.56	0.56
Use of existing roads (North Gale Road)	0	0.68	0.68
<b>Miles of New Construction (approximate)</b>			
New trail location/construction	0	3.44	1.59
Total Trail Miles (including enhancement and new construction): Does not include approximately 1 off-Forest mile along the US-3 right-of-way	0	7.68	7.98
Tunnels under US Route 3	0	0	2
At-grade crossings of US Route 3	0	1	1
Resource interpretation	No	Yes	Yes

### **Design Features and Mitigation Measures Common to Action Alternatives**

All action alternatives would be implemented with all applicable regulations, policies, Forest-wide and MA 2.1 standards and guidelines (USDA-Forest Service, 2005a, LRMP) and New Hampshire State Best Management Practices (BMPs). Design Features are highlighted applications of the Forest Plan standards and guidelines. They clarify, where necessary, how these standards and guidelines may apply to specific actions in the project proposal. Mitigation measures are employed to provide additional resource protection above that required by Forest Plan standards and guidelines. A mitigation helps to meet project objectives and reduces unwanted effects. The following design features and mitigation measures apply to all action alternatives:

- If Threatened, Endangered, or Proposed Species (TEPS) or Regional Forester Sensitive Species (RFSS) listed plants are found during project implementation, alert the Forest botanist and take further protective measures.
- Conduct construction activities in dry conditions where and when feasible.
- Use native vegetation and straw (where and when available) during re-vegetation per Executive Order 13112, 23/99.
- In areas of new construction, choose trail location to minimize cutting of trees.
- Use equipment cleaning provisions per the Forest Service Guide to Noxious Weed Prevention Practices (USDA 2001c).
- Leave large woody material on the ground in riparian areas and elsewhere outside the bicycle path for amphibian, reptile, and other wild-life habitat.

- Designate major trails crossings and minimize the number of stream crossings.
- Retain mast-producing beech trees heavily used by black bear unless they pose a safety hazard.
- Retain snags per WMNF Forest Plan for the protection of Indiana bat unless they pose a safety hazard. If snags are felled, retain them as large woody material on the ground.
- Close the trail to all summer motorized use. Gates, posts, or other barriers will be installed to preclude unauthorized road and trail use.
- Complete on-Forest trail construction under supervision of qualified state and Forest Service personnel.
- Complete specific location and design of all stream crossings, drainage structures, bridges, etc. prior to award of any construction contract and any work being performed will be under the supervision of a qualified Forest Service contract administrator or construction supervisor.
- The section of path from the North Branch of the Gale River to Haystack Road will not be open to winter motorized use. Signage and gates will be used to mitigate unauthorized use.
- In order to provide adequate drainage and streamside protection, stream conditions may require construction of bridges and culverts in all sections of proposed trail. Outsloping, insloping, and ditching will be used to control surface drainage and to minimize soil displacement and erosion. Construction levels will, in most cases, be lower on sections of new construction compared with areas on the old Route 3 travelway.
- The proposed bicycle path is in Management Area 2.1. This area may be subject to management actions, including vegetation management, at any time of year. Such actions may impact use of the trail at any time of year, but more often would impact winter snowmobile use. Specific mitigation measures addressing impacts would be determined through the project specific analysis at the time of the subsequent project's proposal and analysis. The current Corridor 11 route will not be open concurrently with the proposed new snowmobile route, but in the case of impending closure of the proposed trail due to management activities, the former Corridor 11 trail should be considered as a "bypass" while the new trail is closed.
- Gates, other structures, or signing may be installed to prevent unauthorized motorized use of sections of the bicycle path (not including authorized snowmobile use along certain sections of path).
- Speed limit signs would be posted along the trail to control speed.
- Caution, stop, and crossing signs would be posted at road crossings.
- Signage pertaining to accessibility will be posted at major trail access points. Signs will alert potential users to the maximum grade and length of each section of trail and will follow US Forest Service accessibility guidelines.

# Chapter Three – Affected Environment and Environmental Consequences

## Introduction

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Resource issues raised during the initial scoping process or by Forest Service personnel are addressed in this chapter. Each resource section analyzed in detail is organized as follows:

- Description of the Affected Environment (Existing Condition)
- Description of the Environmental Effect – analysis of direct, indirect, and cumulative effects on the resource (by Alternative)
  - o Direct effects are caused by the action and occur at the same place and time
  - o Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable
  - o Cumulative effects result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of which government agency or individual undertakes such other actions.

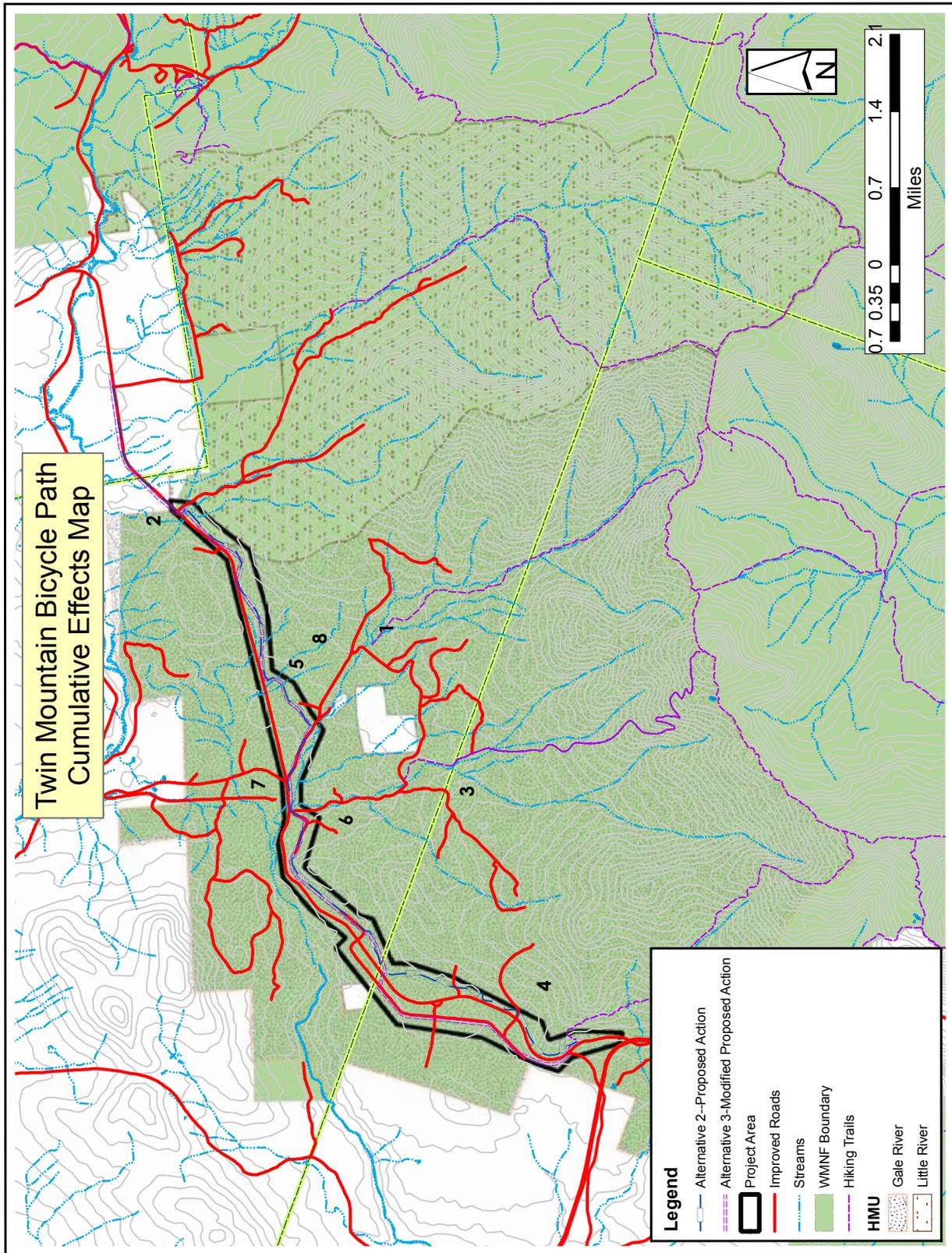
In accordance with the June 24, 2005 Council on Environmental Quality (CEQ) Memorandum entitled “Guidance on the Consideration of Past Actions in Cumulative Effects Analysis” (CEQ 2005), with 40 CFR 1500-1508, and with the January, 1997 CEQ publication “Considering Cumulative Effects Under the National Environmental Policy Act” (CEQ 1997), the cumulative effects analysis for each resource area considers a geographic area and a time frame of past, present, and foreseeable future actions “relevant to reasonably foreseeable adverse impacts” on that resource, and “essential to a reasoned choice among alternatives.” This consideration does not extend to actions “outside the geographic boundaries of time frame established for the cumulative effects analysis” (CEQ January 1997).

Table 3-1 lists the past, present, and foreseeable future activities within the cumulative effects analysis areas for this project. Map 3-1 shows where these activities take place within the cumulative effects areas for all resources.

**Table 3-1. Past, Present, and Foreseeable Future Projects within the Cumulative Effects Analysis Areas.**

<b>Project</b>	<b>Map Number</b>	<b>Description</b>	<b>Estimated/Actual Implementation</b>
Gale River Trail bridge or relocation	1	The district anticipates rerouting approximately ½ mile of trail in an area where a bridge was destroyed in a 2005 high water event.	Foreseeable future
Pipeline Snowmobile Connector	2	Proposed snowmobile connector from Haystack Road, crossing US-3, following the pipeline north and off of USFS land. This project has not yet been posted on the SOPA and is still being evaluated.	Foreseeable future
Vegetation Management Project	3	District Timber personnel indicate that vegetation management will likely be proposed southeast of FR 92 in the foreseeable future. This may fall within the Wild and Scenic River analysis area.	Foreseeable future
Sugarhouse Vegetation Management	4	This project is on either side of US-3 in Franconia and Bethlehem and includes the Priest Hill and Notchway sales.	2005-2009
Nubble Vegetation Management	5	This project was on the northeast side of the North Branch of the Gale River, primarily in the area of the Beaver Brook Ski Trail system.	2003-2005
Bickford Vegetation Management	6	This project was west of FR 92 and south of FR 180, with a small portion in the project area.	2002-2004
Five Corners Vegetation Management	7	This project was located near the junction of Trudeau Road, US-3 and the Gale River Loop Road.	1999-2002
CCC Vegetation Management	8	This project was located south and east of the Beaver Brook Wayside Area.	1993-1998

Map 3-1. Cumulative Effects.



## Soils

### Affected Environment

The analysis area for direct and indirect effects on soil productivity for Alternatives 2 and 3 is the 19.5 acre area impacted by construction of this project (approximately eight miles of new construction with an impacted area 20 feet wide). This area was chosen because there will not be any direct or indirect effects outside the location where ground is disturbed during construction or maintenance of the project.

The analysis area has soils common to the White Mountain National Forest, where soils are generally moderate to well-drained fine sandy loam or sandy loam. The analysis area is a mix of northern hardwood and soft-wood Ecological Land Types (ELTs). Table 3-2 lists the ELTs represented in the analysis area

**Table 3-2. Ecological Land Types (ELTs) within the analysis area.**

ELT	Description
115G	The climax species for this ELT are sugar maple and beech, with red maple and yellow paper birch as subclimax species. It is usually found on broad basin-like areas on lower mountain slopes. The soil type is moderately drained, fine sandy loam. Surface soil erosion is high. These soils are moderately suitable for summer operations.
115a	The climax species for this ELT are fir, spruce, and hemlock, with subclimax species of yellow birch, red maple, & paper birch. It is usually found on lower slopes and intervals at lower elevations with slopes less than 45%. The soil type is moderately well drained, and is a fine sandy loam. Surface soil erosion is high. These soils have moderate to low suitability for summer operations.
11	The climax species are spruce and fir, with subclimax species of red maple and white pine. It is an outwash soil. The soil type is well drained loamy sand with high suitability for summer operations.
115c	The climax species for this ELT are sugar maple and beech, with a subclimax species of yellow birch, red maple, and paper birch. It is usually found lower slopes and intervals at lower elevations with slopes less than 45%. The soil type is moderately well drained, and is a fine sandy loam. Surface soil erosion is high. These soils have high suitability for summer operations.
105D	The climax species for this ELT are beech, spruce, and hemlock, with subclimax species of aspen, paper birch, and red maple. It is found on lower mountain slopes. Surface soil erosion is moderate. The soil type is deep washed till, moderately drained, loamy sands, with high suitability for summer operations.

Surface soil erosion is typically a concern related to roads and trails. Some of the soils in the analysis area are rated as having a high surface soil erosion hazard relative to other soils on the White Mountain National Forest (USDA-Forest Service 1986a). This rating is for conditions without forest cover or application of any mitigation measures. However, the 2005 FEIS notes that “research findings and on-the-ground experience for all [soil] hazard classes confirm that accelerated soil erosion due to roads and trails can be reduced – and its effects on streams largely eliminated – by timely application of well-known best management practices.” (USDA-Forest Service 2005b, FEIS, p 3-29). The State of Maine recently published monitoring

data that supports the conclusion that properly applied Best Management Practices (BMPs) will mitigate effects from soil erosion (Maine Department of Conservation, Maine Forest Service 2005. Maine Forestry BMPs Use and Effectiveness 2001-2003, 2005), and while the results of a similar study in New Hampshire have not yet been published, Maine and New Hampshire soils and BMPs are similar. It is therefore assumed that the effectiveness of these BMPs is also similar. Roads and trails are a concern for soil erosion because they may expose mineral soil (Patric 1976).

Desired soil conditions are considered here with respect to processes that affect long-term soil productivity (soil erosion, soil displacement, soil compaction, soil cover, and nutrient cycling). The desired conditions are tiered to the Forest Service Soil Quality Standards (SQS)(USDA-Forest Service Handbook, Supplement R9RO 2509.18-2005-1). Implementation of SQS and relevant BMPs to all phases of the project will ensure long-term soil productivity is maintained in this area. With a recreation trail the main emphasis is on protecting the soil productivity adjacent to the trail site.

## **Environmental Effects**

### *Direct and Indirect Effects*

#### **Alternative 1**

Under this alternative, there will be no additional impacts to soil productivity besides those that occur in nature or due to the current status of the existing parts of old Route 3. old Route 3 covers approximately 6.55 acres (approximately 5.4 miles of 10 feet wide roadbed) in the project area. This area is already compacted because it is an old road bed with much of the asphalt paving still intact. It therefore has little soil productivity occurring on it.

This alternative has the least impact of the three alternatives.

#### **Alternative 2**

Alternative 2 involves construction or reconstruction of the proposed path on approximately 19.5 acres of National Forest land. Construction of a new bicycle path would impact an area approximately 8 miles long and 20 feet wide. Though the trail width is ten feet, an additional five feet on either side of the trail could be impacted during trail construction and maintenance. Trail tread would cover up approximately 8 miles of soil 10 feet wide with a surface of either crushed rock or asphalt, eliminating any soil productivity under the path as long as it exists. Best management practices will be used in order to minimize soil compaction and soil loss. If necessary, re-planting vegetation in the compacted areas could promote soil productivity and discourage off-trail travel. Damage to wet areas which do not freeze in the winter should be mitigated by the use of material on top of the soil so as not to harm the soil. Field review of this proposal showed there would be at least 3.4 miles of new soil disturbance which would have detrimental results on soil productivity. Most of these 3.4 miles are located on very wet non-disturbed soils. By following BMPs, erosion will be limited to small areas on the path.

Some vegetation will have to be removed around the proposed path and staging area during construction to allow room for workers and equipment to move around the site. This removal of vegetation would expose the previously protected soil to rainfall, and the top layer of soil could be more easily eroded away from the site. This removal of the top, organic rich layer of soil could decrease soil productivity. Following Forest Plan direction, best management practices such as surface erosion control at trail sites, an erosion control plan, timing of construction activities, road slope stabilization construction practices, control of trail drainage, and servicing and refueling of equipment would be used for proper rehabilitation of the temporarily disturbed area to prevent soil erosion and protect the adjacent soil to the construction site.

This alternative has the most impact to soil productivity of the three alternatives.

### **Alternative 3**

The trail proposed in Alternative 3 involves construction or reconstruction on approximately 19.5 acres of National Forest land. Construction of a new bicycle path would impact an area approximately 8 miles long and 20 feet wide. Though the trail width is ten feet, an additional five feet on either side of the trail could be impacted during trail construction and maintenance. Trail tread would cover up approximately 8 miles of soil 10 feet wide with a surface of either crushed rock or asphalt, eliminating any soil productivity under the trail as long as the trail exists. Best management practices will be used in order to minimize soil compaction and soil loss. If necessary, re-planting vegetation in the compacted areas could promote soil productivity and discourage off-trail travel. Damage to wet areas which do not freeze in the winter needs to be mitigated by the use of material on top of the soil so as not to harm the soil. Field review of this proposal showed there would be less new soil disturbance than Alternative 2 because this alternative uses more of the old Route 3 corridor. While alternative 2 uses three miles of old Route 3 and proposes 3.4 miles of new ground-disturbing construction, Alternative 3 uses 5.15 miles of old Route 3 and only proposes 1.6 miles of newly ground-disturbing construction (see Table 2-1). Using more of the old highway corridor has fewer detrimental effects on soil productivity because much of the corridor is still covered in asphalt, and the soil is already compacted and covered up. By following best management practices, erosion will be limited to small areas on the path.

Some vegetation will have to be removed around the proposed path and staging area during construction to allow room for workers and equipment to move around the construction site. This removal of vegetation would expose the previously protected soil to rainfall, and the top layer of soil could be more easily eroded away from the site. This removal of the top, organic rich layer of soil could decrease soil productivity. Following Forest Plan direction, best management practices such as surface erosion control at trail sites, an erosion control plan, timing of construction activities, road slope stabilization construction practices, control of trail drainage, and servicing and refueling of equipment would be used for proper rehabilitation

of the temporarily disturbed area to prevent soil erosion and protect the adjacent soil to the construction site.

This alternative has more impact to soil productivity than the no action alternative, but less impact than Alternative 2.

### *Cumulative Effects*

The analysis area for cumulative effects on soil productivity is the approximately 20 acres likely to be disturbed with project implementation. This scale is not so large that it spatially dilutes the cumulative sum of effects on soil resources, nor is it so small that it fails to identify and consider use and potential use on both National Forest and private lands relative to the proposed project.

The temporal scope for cumulative effects on soil productivity is ten years in the past and ten years beyond the completion of this Environmental Analysis. These periods were chosen to consider present effects on soil resources resulting from any past soil disturbing actions, to allow time for the proposed activities to occur and be completed, and to consider any other foreseeable soil disturbing activities. This time frame allows consideration of multiple uses, and provides enough time for the expected recovery of soils from erosion and compaction resulting from trail building, as well as the projected recovery time from future activities. Evidence of erosion and compaction beyond the expected time frame would imply that the soil is not recovering as expected, and effects from this and future activities could be additive and cumulative (see Table 3-1).

Although possible, no additional trail building is planned on National Forest lands within the cumulative effects analysis area over the next ten years. The Forest classified roads, recreation trails, and permanent wildlife openings in the cumulative effects analysis area will continue to be maintained and used for public and administrative access. The Sugarhouse Vegetation Management Project is currently going on in and around the analysis area. Any other past, present and future projects listed in Table 3-1 are considered to be minute from a soil productivity standpoint as related to this project.

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### **Alternative 1**

This Alternative proposes “No Action.” Current trends would continue to produce some impacts to soil productivity because of the ongoing soil compaction from the paved sections of old Route 3. There are short term effects resulting from the ongoing timber sale, but from a cumulative effects standpoint the effects from Sugarhouse Vegetation Management Project will produce no loss to soil productivity.

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### **Alternative 2**

This alternative will produce the highest amount of cumulative impact to soil productivity in the analysis area because the 3.4 miles of new construction will produce a new loss of soil productivity as long as the path exists. This project, in conjunction with other projects in the cumulative effects analysis area, will produce no loss to soil productivity.

**Alternative 3**

This alternative will have fewer cumulative impacts to soil productivity than Alternative 2. Alternative 3 uses 2.15 miles more of the old Route 3 corridor, which has already experienced soil compaction and loss of productivity, than Alternative 2. This project, in conjunction with other projects in the cumulative effects analysis area, will produce no loss to soil productivity.

## Water Resources

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### Affected Environment

The effects of the Twin Mountain Bicycle Path construction alternatives on water resources are discussed in this document. This includes effects to water resource features such as streams and wetlands and the water quality of these features.

#### *Desired Condition*

Desired condition of water resources is that processes are properly functioning and water quality is maintained or improved to protect existing and designated instream water uses such as aquatic life.

In addition, Forest-wide wetlands standards and guidelines include direction to ensure that natural drainage patterns are not altered by management activities to negatively impact wetlands, that fragmentation of wetlands be avoided when planning trails, and that wetlands be managed to prevent the loss of this resource.

#### *Current Condition*

The analysis area has several water resource features common on the White Mountain National Forest. These include perennial, intermittent, and ephemeral watercourses and wetlands.

Alternative 2 proposes to construct new trail on the slope above the east side of the new US Route 3 for 1.1 miles. This area is largely disturbed by developed features such as roads or trails. There are also some skid roads, landings, and past harvests in this area. Portions of this steep slope are concave and concentrate water in several ephemeral channels that cross Route 3 by culverts. As the route traverses to the east, the slope decreases and flow is dispersed. Soils in this area exhibit a “hardpan,” which causes water to saturate the soils, resulting in wetland characteristics. The botany report describes the vegetation in these areas as indicative of wetlands and forested swamps.

The area occupied by the western end of Alternative 3 follows an old section of Route 3 for 2.4 miles. Although this road has been out of use for over 60 years, drainage structures such as ditches and culverts are still visible, fill and cut slopes are present, and pavement can be seen in some locations. Since maintenance doesn’t occur on this road, many drainage features have failed and water has collected in places, resulting in small wetland features and localized areas of erosion.

Alternatives 2 and 3 propose the same route east of the Gale River Road. This section would include some new construction (1.34 mi.), the use of existing skid and haul roads (.56 mi.), the North Gale Road (.68 mi.), and large portions of old Route 3 (3 mi.). The old Route 3 portion exhibits old drainage features which have plugged or otherwise failed, resulting in concentrated flows, localized erosion, and small wetted areas. This section crosses four perennial streams and five mapped intermittent streams. The Gale River is crossed by a bridge which passes the bankful flow, although

its location near a confluence in an aggrading zone is not ideal. The bicycle path would cross the Gale using a bridge immediately adjacent or attached to the existing highway bridge. The other streams are currently crossed with culverts.

**Table 3-3. Comparison of Alternatives by Activity.**

Activity	Alternative 1	Alternative 2	Alternative 3
<b>Stream Crossings</b>			
Perennial	0	4	4
Intermittent	0	5	5
<b>Miles of New Construction (approximate)</b>			
New trail location/construction	0	3.44	1.59

## Environmental Effects

### *Direct and Indirect Effects*

#### **Alternative 1**

There would be no new direct or indirect effects on water resources from implementation of Alternative 1. Current and ongoing management activities would continue, consistent with the 2005 Forest Plan, but no new management activities would be initiated as a result of this proposal.

#### **Alternative 2**

Numerous water resource features and hillslopes would experience direct and indirect effects should this alternative be selected. Field review and GIS analysis of this proposal showed there would be at least 2.7 miles of new disturbance which would have impacts to hillslope hydrology. Along the western 1.8 miles of this alternative, soils, hydrology, and vegetation have combined to create wetland areas of varying character. Fragmentation of these wetlands would further the impacts created by the presence of old and new Route 3 in this area. Forest Plan guidelines call for avoiding fragmentation of wetlands during trail construction and protecting natural drainage patterns. Due to the location of this segment, it is likely that hillslope hydrology would be captured and managed by the path, thereby altering drainage patterns, an indirect effect. This, in turn, could result in biological impacts related to the presence of the path as described in the wildlife report. To offset the potential loss of wetland function in this area, improvement activities would be planned.

Four perennial streams and five intermittent streams would be crossed as part of the proposed alternative. As described previously, Gale River would be crossed using a bridge in the location of the existing highway bridge. Other crossings would occur along old Route 3 and would improve the failing and unmaintained drainage structures that currently exist there.

As described in the soil report, an area eight miles in length and 20 feet wide would be disturbed as a result of the proposed construction of the new bike path. The trail bed would be a surface of either crushed rock or asphalt, allowing water to easily run off and concentrate at locations

along its length. This runoff will be managed with the design of the pathway through appropriate drainage methods, including properly sized culverts.

Best management practices (filter fence near streams and wetland areas during construction, erosion control plan, timing limitations of construction activities, revegetation, and stream crossings) would be followed during construction, after project completion, and during maintenance to prevent water resource impacts.

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### **Alternative 3**

Numerous water resource features and hillslopes would experience direct and indirect effects should this alternative be selected. As described in the soil report, an area eight miles in length and 20 feet wide would be disturbed as a result of the proposed construction of the new bike path. The trail bed would be a surface of either crushed rock or asphalt, allowing water to easily runoff and concentrate at locations along its length. This runoff will be managed with the design of the pathway through appropriate drainage methods including properly sized culverts.

Four perennial streams and five intermittent streams would be crossed as part of the proposed alternative. As described previously, Gale River would be crossed using a bridge in the location of the existing highway bridge. Other crossings would occur along old Route 3. Failing and unmaintained drainage structures along this old road surface would be repaired and improved. Best management practices (filter fence near streams and wetland areas during construction, erosion control plan, timing limitations of construction activities, revegetation, and stream crossings) would be followed during construction, after project completion, and during maintenance to prevent water resource impacts (NH, 2004).

### *Cumulative Effects*

The cumulative effects area is the watersheds in which the project area resides. This includes portions of the Gale River and tributaries of the Ammonoosuc River. Effects have been considered in the context of past, present and reasonably foreseeable future actions (1997-2017 — see Table 3-1).

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### **Alternative 1**

This Alternative proposes “No Action.” Current trends would continue with no additional change to water resource features.

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### **Alternatives 2-3**

Much of the upstream area of the project is located on the White Mountain National Forest. Alternatives 2 and 3 are not likely to result in cumulative impacts to water quality or overall stream stability since this project comprises a small area of these watersheds. Current trends would continue with no additional change to water resource features.

## Fisheries and Aquatic Species

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### Affected Environment

The proposed Twin Mountain Bicycle Path project area is located within the headwater portions of the Gale and Little River sub-watersheds. The waters of the WMNF are designated as Outstanding Resource Waters (ORW) by the State of New Hampshire. The streams within the project area support a cold water fishery, whose maintenance is required as part of the ORW status. The project area contains seeps, small vernal pools, beaver flow areas, and portions of several perennial and intermittent headwater streams and their riparian areas that provide habitat for aquatic and semi-aquatic species (coldwater fishes, macroinvertebrates, and common amphibians and reptiles). The riparian habitat contains northern hardwood, mixed-wood, and spruce-fir forest that maintains stream bank stability and provides shade to maintain instream water temperatures for fish habitat in the perennial streams.

Site-specific field reviews and ocular (USDA-FS 2004) and baseline Hankin and Reeves (1988) stream surveys (USDA-FS 1992-93-94-95-96) documented Eastern brook trout, dace, sculpin, and common macroinvertebrates present in the perennial portions of Skookumchuck, Scarface, Thompson, Haystack, and Beaver Brooks, and in the Little and Gale Rivers (including the North and South Branches Gale River). Salmon fry are stocked into the Little and Gale Rivers (including the North and South Branches Gale River). Adult salmon do not return to the Little and Gale Rivers and tributaries to spawn due to impassable dams on the lower Connecticut River system (NHFG 1993-2005, CRASC 1997).

### Federal Threatened, Endangered, Proposed, and Regional Forester Sensitive Species (TEPS, RFSS)

The Forest Service completed a site-specific Biological Evaluation (BE) of the potential effects of the No Action and alternatives on TEPS aquatic species and their habitat within the project area. The BE determined there is a very low potential that two Regional Forester-listed Sensitive Species of mayflies (*Ameletus browni* and *A. tertius*) could occur in portions of the fast-flowing perennial streams with rocky substrate located in the project area (North and South Branches Gale River and Haystack Brook). The project area does not contain suitable habitat (slow moving rivers with sandy substrate and cutbanks) for the RFSS wood turtle (*Clemmys insculpta*). There are no known documented occurrences of this species within the proposed project area (NHNHB 2007, Taylor 1993) and none were detected during the stream survey or field reviews previously cited.

### Environmental Effects

#### *Direct and Indirect Effects*

The analysis area for direct and indirect effects on aquatic species for all alternatives is the aquatic habitat in the project area due to their restricted habitat needs. The temporal scope for all alternatives is the past and future

10 years (1997-2017) because this timeframe spans past and current WMNF Forest Plans that contain effective standards and guidelines to protect aquatic resources.

### **Alternative 1**

Bicycle path construction would not occur in the project area at this time. There would be no vegetation removal and no potential for gas, oil, grease, or sediment to enter streams from bicycle path construction, maintenance, and multi-use activities in the project area. Therefore, Alternative 1 would not cause any direct or indirect effects to aquatic species or their habitat in the project area. However, there would be a lost opportunity to create linear open canopy conditions allowing light and solar warmth to reach the ground with potential for regeneration age habitat to grow along the margins of the bicycle path. These microclimate features and vegetation seral stage are important to some invertebrate species, which are the prey base for many wildlife, including aquatic and semi aquatic amphibian and reptile species (Litvaitis et al. 1999).

### **Alternatives 2-3**

Alternatives 2 and 3 would cause a very low potential for a very minor, localized and short-term direct effect of soil entering streams during bicycle path construction, maintenance, and multi-seasonal use activities within the project area. Suspended sediment in the water column could cause localized turbidity and temporary displacement of resident fishes and other aquatic species until the water cleared. However, the Forest Plan Fisheries and Riparian Standards and Guidelines (USDA-FS 2005a, LRMP) would maintain buffers, retain large over-mature trees for woody material recruitment into the streams for habitat diversity, protect stream banks, maintain water temperatures, and prevent sediment (and gas, oil, or grease from snowmachine activity on portions of the bicycle path) from entering the streams. These standards and guidelines and soil and water BMPs (bridged stream crossings, erosion control water bars and ditching techniques, etc.) would limit sediment delivery and protect the integrity of the riparian area and stream bank stability within the project area for aquatic species, including fishes and macroinvertebrates. Stream crossings on fish-bearing streams, and addition of a bike lane on the existing bridge over Gale River, would not occur during October and April to avoid egg loss due to possible stream sedimentation (USDA-FS 2005a, LRMP). Fish passage through bridges located across streams would not pose a migration barrier to fishes including Atlantic salmon and Eastern brook trout documented in the perennial systems during field reviews and surveys previously cited. The action alternatives would have no impacts to Regional Forester-listed Sensitive mayflies (*Ameletus browni* and *A. tertius*).

One of the most important factors affecting amphibian abundance is forest litter depth, particularly in eastern hardwood forests (DeGraaf and Rudis 1990 cited in Harlow et al. 1997). Riparian and Fish Habitat Standards and Guidelines (USDA-FS 2005a, LRMP) would help maintain the accumulation of leaf matter and woody material on the forest floor adjacent to streams and along the margins of the bicycle path that would provide a layer of

ground cover for shade and cooler micro-sites for amphibians and reptiles. These Forest Plan standards and guidelines, and use of existing prior disturbed sections of old Route 3, would minimize leaf litter disruption and soil compaction and help reduce the direct effects of tree and vegetation removal from bicycle path construction, and might shorten the length of recovery time for amphibian species associated with a particular micro-habitat (deMaynardier and Hunter 1995 cited in Harlow et al. 1997). Even though there would be a relatively minor reduction in the amount of habitat available to salamanders and reptiles within the project area, salamanders still may exist in high numbers in adjacent, mature, second-growth stands, especially at the landscape level on the WMNF, thus maintaining overall biodiversity (NHFG 1996). Salamanders are small and easily overlooked, but their biomass (total weight) per unit area can exceed that of breeding birds in New Hampshire forests (Burton and Likens 1975).

Linear landscape features such as roads and ditches might represent physical barriers for amphibian migration routes (Gibbs 1998) that may impede travel to breeding and foraging areas. However, the addition of a bike lane on the existing Route 3 Bridge over the Gale River, or installation of two tunnel crossings (under Alternative 3) would not pose travel barriers to spring or fall migration of obligate species utterly dependent upon wetland or vernal pool habitat for their survival such as the wood frog (suspected present) and the Jefferson salamander (not found in the project area). There would be no barriers for other facultative species, such as the American toad, dragon and caddis flies, and snapping turtle. These often use wetland and vernal pools but are not dependent on these habitats for their survival and can successfully reproduce and live elsewhere. Because they are not utterly dependent on traveling to or from wetland areas, potential travel impediments from bicycle path construction (including bridges and tunnels) are less likely to affect these facultative species. Furthermore, the small vernal pools found during Forest Service Interdisciplinary Team and site-specific field reviews and surveys, and wet areas are routinely avoided and excluded from management activities per Forest Plan standards and guidelines no cut buffers (USDA-FS 2005a, LRMP II-25-26).

### **Alternative Summary**

The potential direct and indirect effects to aquatic species and their habitat described under all alternatives are within the range of effects analyzed in the WMNF Final Environmental Impact Statement (USDA-FS 2005, FEIS). Implementation of Alternative 2 or 3 would cause a very low potential for a very minor, localized, short-term-to-no adverse direct effects to the aquatic habitat within the proposed Twin Mountain Bicycle Path project area. Stream crossings on perennial water would ensure fish passage, and bridges or tunnels would not pose barriers to fishes or spring or fall migration of amphibians.

### ***Cumulative Effects***

The analysis area for cumulative effects on aquatic resources for all alternatives is the Gale and Little River HMUs because they include aquatic habitat inside and outside the project area. The temporal scope is the past and

future 10 years (1997 and 2017) because this time span includes past and current WMNF Forest Plans that contain effective standards and guidelines to protect aquatic resources.

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**Alternative 1**

Because Alternative 1 would not cause any adverse direct or indirect effects, there would be no adverse cumulative effects to aquatic species or their habitat. However, No Action would add an adverse cumulative effect due to the lost opportunities to increase the amount of linear open forest canopy (allowing light and solar warmth to reach the ground) and to potentially increase the amount of regeneration age habitat along the margins of the bicycle path for habitat diversity.

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**Alternatives 2-3**

Because Alternatives 2 and 3 would not cause any adverse effects to aquatic species or their habitat in the project area, there would be no cumulative effects to fishes, amphibians, reptiles, and RFSS mayfiles or their habitat in the HMUs. This reasonable conclusion is based on the fact that a relatively minor percentage of the overall watersheds in the HMUs would be affected, and soil erosion preventative measures would be implemented. Also, there was no evidence of active erosion from past and recent Forest Service management activities noted during site-specific surveys of the proposed project area. The EAs completed for the Five Corners, Bickford, Nubble, and Sugar House vegetation management projects (located in the same Gale and Little River HMUs) determined no cumulative effects to aquatic species or their habitat within the HMUs. The potential effects to aquatic species and their habitat described in this analysis are within the range of effects described in the WMNF Final Environmental Impact Statement (USDA-FS 2005, FEIS). Timber harvesting, residential development, and road construction may result in impacts to aquatic habitat and vernal pools on private lands adjacent to the HMUs.

## Vegetation – Timber

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### Affected Environment

The Northern Hardwood forest type is the dominate overstory vegetation in the project area, with American beech, yellow birch, and sugar maple the most common species. White ash, American basswood, and red maple are frequent but less common than the species mentioned above. Red spruce, balsam fir, and white birch also occur within the project area, but are comparatively less frequent.

### Environmental Effects

#### *Direct and Indirect Effects*

The analysis area for the direct and indirect effects on vegetation management is the area designated by the 2005 Forest Plan as General Forest Management land (MA 2.1 land) adjacent to both sides of US Route 3 from the Skookumchuck Trailhead Parking Area to the community of Twin Mountain. The rationale for this analysis area is that this is the area where activities described in the alternatives in Chapter 2 will impact vegetation management on National Forest land. The activities described in the alternatives are not expected to impact vegetation management beyond the analysis area.

#### **Alternative 1**

Alternative 1 proposes no action, and thus would have no direct or indirect effects on vegetation management. Current vegetation management within the analysis area would continue to provide timber products on a sustained yield basis, and provide a balanced mix of habitats for wildlife species. Trees would continue to grow within the old Route 3 roadbed and south of the existing Route 3 (from the Skookumchuck Trailhead Parking Area northeast for approximately 2.7 miles).

This alternative does not preclude timber harvest as may be proposed, analyzed, and implemented as part of any separate and subsequent project proposal in the project area.

#### **Alternative 2**

Alternative 2 would have direct and indirect effects on vegetation management because it proposes construction of a nine mile (approximate) multi-use bicycle trail with a rock dust or small diameter gravel-type surface, located 1) south of existing US Route 3 (from the Skookumchuck Trailhead Parking Area northeast for approximately 2.7 miles); 2) on portions of old Route 3 (northeast of the previously described area to the Haystack Road); and 3) off-Forest on the existing Route 3 right-of-way (from Haystack Road to the commercial area of Twin Mountain). See Map 1-2.

In sections 1 and 2 identified above, tree cutting along the proposed route for a width of up to 20 feet would be required. Numerous seedling and sapling sized trees would be cut. The cutting of some pole and sawtimber

sized trees would also be required. Cut trees would be retained on site to serve wildlife habitat and nutrient cycling needs.

The bicycle path and its associated uses (biking, hiking, cross-country skiing, and snowmobiling) would have direct and indirect effects on the accessibility, logistics, and safety of current and ongoing vegetation management activities.

Alternative 2 would have direct and indirect effects on access to vegetation management projects. The proposed location of the bicycle path would pass through two ongoing vegetation management projects (Notchway and Priest Hill timber sales) with summer, fall, and winter operating seasons. The portions of the proposed trail described as 1) south of existing US Route 3 (from the Skookumchuck Trailhead Parking Area northeast for approximately 2.7 miles) and 2) on portions of old Route 3 (northeast of the previously described area to the Haystack Road) would pass through two existing landings, cross existing skid trails, and pass along an existing section of road bed currently used as a skid trail and haul road.

To avoid damage to the proposed bicycle path from logging equipment, reevaluation of the operating seasons and of the location of new and existing skid trails, landings, and haul roads would be required. Restricting the operating season to frozen ground conditions would reduce the effects of harvest activities on the surface of the bicycle path. Limiting the number of crossings and using additional slash or a mat (or other mitigation measures) would also reduce the effects of harvest activities where skid trails, haul roads, and landings cross or co-exist with the proposed path.

Alternative 2 would have direct and indirect effects on the logistics and safety of vegetation management operations. Increased recreational activity associated with the bicycle path (biking, hiking, cross-country skiing, and snowmobiling) would require increased coordination between logging personnel and recreational users to ensure safety. Additional signage and messages for the public would be necessary to ensure recreational users are aware of harvest activities in the area. Additionally, it would be necessary to inform purchasers/loggers about recreational uses in the area. Alternative 2 proposes that the bicycle path from Skookumchuck Parking Area to Trudeau Road be open in the winter as a snowmobile trail. Dual use conflicts between snowmobiles and logging equipment would be avoided through the use of the current snowmobile Corridor 11 trail, located to the south on the north-facing slope of Scarface Mountain, as a by-pass).

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### **Alternative 3**

Alternative 3 would have less direct and indirect effects on vegetation management than Alternative 2. Because Alternative 3 proposes to follow old Route 3 from the Skookumchuck Trailhead Parking Area to the Haystack Road, the vegetation management activities associated with the Notchway Timber Sale (directly northeast of the Skookumchuck Trailhead Parking Area) would be unaffected. Fewer skid trails and one less landing would be affected in Alternative 3 than in Alternative 2. Otherwise, the bicycle trail and its associated uses would have the same direct and indirect effects

on the accessibility, logistics, and safety of current and on-going vegetation management activities as under Alternative 2.

Tree cutting along the proposed route for a width of up to 20 feet would be required. Numerous seedling and sapling sized trees that have become established in the old Route 3 road bed would be cut. The cutting of some pole and sawtimber sized trees would also be required. Cut trees would be retained on site to serve wildlife habitat and nutrient cycling needs.

### *Cumulative Effects*

The analysis area for the cumulative effects on vegetation management is the area designated by the revised Forest Plan as General Forest Management land (MA 2.1 land) adjacent to both sides of US Route 3 from the Skookumchuck Trailhead Parking Area to the community of Twin Mountain. This is the same analysis area used for direct and indirect effects. The rationale for this analysis area is the same as stated for the direct and indirect effects. The temporal scope for the cumulative effects on vegetation management is the past and future ten years (1997 to 2017). This time period considers vegetation management projects that were started in the past but are yet to be completed, current and on-going projects, and projects in the reasonably foreseeable future.

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#### **Alternative 1**

The cumulative effects would be the same as those discussed under the direct and indirect effects and would extend over the past and future ten years.

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#### **Alternatives 2-3**

The cumulative effects for the action alternatives would be the same as those discussed under the direct and indirect effects for vegetation management projects started in the past but yet to be completed (Notchway and Priest Hill timber sales). These projects are expected to be completed by 2009 or 2010. Within the past ten years, the following timber sales have taken place in the project area; Bickford, CCC, Five Corners, Haystack, and Moose Watch. Although possible, no vegetation management projects are planned within the foreseeable future within the analysis area that would cross or use portions of the proposed bicycle trail or otherwise be effected by the proposed actions.

The cutting of seedlings, saplings, and in some instances pole and sawtimber trees within the bike path's clearing limit (approximately 10 feet), would not cause significant cumulative effects during the effects analysis period. The cumulative effect on canopy cover, species diversity, and composition would be insignificant.

The existence of the proposed bicycle path in the analysis area would have long-term cumulative effects on accessibility, logistics, and safety of vegetation management activities beyond the reasonably foreseeable future. Future access to MA 2.1 lands adjacent to both sides of Route 3 in the form of skid trails, haul roads, and landings would be limited in an effort to reduce impacts to the bicycle trail surface from harvest activities and equip-

ment. Access would also potentially be limited to preserve the recreational experience of trail users. For instance, summer and fall access for logging equipment would potentially be reduced in an effort to limit the impact on bicyclists. Additional logistical coordination between purchasers/loggers and recreational users and attention to safety would be required for any future vegetation management projects in the analysis area.

## Wildlife Resources

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### Affected Environment

The Forest Service conducted multi-year, multi-seasonal and site-specific surveys within and near the project area. The existing condition, the probability of occurrence of wildlife (including MIS and Threatened, Endangered, Proposed and Regional Forester Sensitive Species), and analysis of effects to wildlife resources in the project area was based on the best available science including (but not limited to) database and literature reviews, surveys, annual wildlife monitoring, and prior analyses of management activities in the same watersheds as the project area. The Twin Mountain Bicycle Path project area does not contain any outstanding natural communities, old growth forested stands, alpine bogs, ravines, meadows, high cliffs, rock talus slopes, or caves. None of the existing ecosystems or habitats within the project area are scarce, unique, or regionally at risk. Several small vernal pools do occur within the project area adjacent to the western segment of Alternative 3 (USDA-FS 2006a, Johnston).

### General Wildlife Species

Based on the site-specific surveys, moose and deer occur throughout the project area. The softwood habitat in the project area is not core deer or moose overwintering habitat, and there are no historic pocket deer yards (USDA-FS 2006a, Johnston; Personnel comm. Forest Service Biologist Weloth with NHFG Biologist Staats, 2006). Portions of the project area contain beech trees, which provide beechnuts and buds used by white-tailed deer, black bear, small mammals, and birds (Martin et al. 1951). Bear clawed or broken topped beech trees from foraging bears or bear dens were not seen, but bear scat was noted during field surveys. Coyote scat and tracks were seen, and snowshoe hare and red squirrel occur in the project area (USDA-FS 2006a, Johnston). The Forest Service also conducted winter tracking and small mammal trapping during 1993-96 on several wildlife monitoring transects (Beaver Brook, Gale River, Little River) located adjacent to and near the project area. Winter tracking and trapping along these transects and recent tracking along the nearby Franconia Brook Snowmachine Trail detected fisher, fox, and common rodents (WMNF unpublished data), and these species are expected to also occur in the project area. Although none were detected during past and recent wildlife tracking surveys, the American marten (2005 WMNF FEIS indicator for forest fragmentation) could occur in portions of the project area. American marten population trends are believed to be increasing on the Forest (USDA-FS 2005, FEIS). The project area provides nesting and hunting/foraging habitat for songbirds and raptors in the mature habitat or open areas, log landings, and old skid roads, or along the remnant old Route 3 corridor. Surveys documented several songbirds and common raptors in the project area, and Northeastern Forest Experiment Station research biologists (who conduct ongoing searches across the WMNF for Northern goshawk) are not aware of any active goshawk nests within the project area (USDA-FS 2006a, Johnston; Forest Service Biologist Weloth personal communication with Forest Service

Biologist Costello 2007). Surveys documented that MIS ruffed grouse (seen and heard drumming) and wild turkeys (seen) are present and American woodcock are assumed present in the project area. Hunting occurs in the project area in NHFG Wildlife Management Areas D&F. NHFG manages white-tailed deer, moose, black bear, snowshoe hare, grouse, and woodcock as game species that are harvested annually and their populations are considered viable in New Hampshire and on the WMNF (NHFG 2006a, b; USDA-FS 2005, FEIS).

**WMNF MIS**

Table 3-4 discloses the WMNF MIS (USDA-FS 2005, FEIS) that have potential to occur or have documented occurrence within suitable habitat in portions of the project area at various times of the year. The occurrence of MIS and suitable habitat was based on, but not limited to, the sources of information previously described.

**Table 3-4. Probability of Occurrence of WMNF MIS within the Twin Mountain Bicycle Path project area.**

<b>MIS</b>	<b>Representative Habitat Condition</b>	<b>Habitat and/or MIS in the project area</b>	<b>MIS Population Trends in the Forest-wide Planning Area (36 CFR 219.19(a)(1-7))</b>
Chestnut-sided warbler	Regeneration age class hardwoods (predominantly seedling / sapling northern hardwoods). Could include some scattered regeneration softwoods.	Some regeneration hardwood habitat is present in the project area and on adjacent MA 2.1 land in the surrounding HMUs. This warbler was heard during bird monitoring surveys in habitat adjacent to the project area. Suspect this warbler occurs in the project area.	WMNF breeding bird monitoring & BBS data show a statistically significant declining trend. The amount of regeneration age habitat on the WMNF has declined in recent decades.
Scarlet tanager	Mature hardwoods (predominantly northern hardwood, could include scattered pole-size softwoods).	Mature hardwood habitat is present in the project area and on adjacent MA 2.1 land in the surrounding HMUs. Tanager was heard during bird monitoring surveys in habitat adjacent to the project area. Suspect this bird occurs in the project area.	WMNF bird monitoring shows a declining trend since 1992. BBS data shows a stable trend last 4 decades (NH data show declining trends, while VT and ME show increasing trends).
Magnolia warbler	Regeneration age softwoods (predominantly spruce-fir, but could include some scattered regeneration age hardwoods).	Some regeneration age softwood habitat present in the project area and on adjacent MA 2.1 land in the surrounding HMUs. This warbler was heard during bird monitoring surveys in habitat adjacent to the project area. Suspect this bird occurs in the project area.	WMNF bird monitoring data shows no statistically significant trend. BBS data shows stable trend (declining in northern NH & ME & increasing in southern NH & northern VT).

Black-burnian warbler	Mature softwoods (predominantly spruce-fir, but could include some scattered regeneration age hardwoods).	Mature softwood is present in the project area and on adjacent MA 2.1 land in the surrounding HMUs. Suspect this warbler occurs, but none seen or heard during several field reviews and surveys.	WMNF bird monitoring data shows no statistically significant trends. BBS data shows a stable trend.
Ruffed grouse	All ages of aspen / paper birch.	Aspen / birch is present in the project area and on adjacent MA 2.1 land in the surrounding HMUs. Grouse were seen and heard in the project area during several field reviews and surveys.	WMNF bird data shows no statistically significant trends. BBS data shows gradual decline from a large peak in mid 1970s, but overall trend stable.

WMNF breeding bird monitoring survey data (MacFaden and Capen, 2000).

BBS = Breeding Bird Survey data (Sauer et al., 2003).

There are no WMNF FP FEIS ecological indicators (bobolink, common nighthawk, chimney swift, Bicknell's thrush) or their suitable habitat in the project area (except possible foraging habitat for peregrine falcon was addressed in the BE). Suitable habitat for pine marten is present in the project area and HMUs, suspect portions of the project area could be within a marten's home range. No marten or their sign were noted during all field reviews.

Suitable Habitat = Meets species' life history needs (food, cover / shelter, water, breeding, and young rearing). Range and suitable habitat definitions taken from the USDA-FS 2005, FEIS; DeGraaf et al. 1992; DeGraaf and Yamasaki 2001. The determination of occurrence of MIS considers the potential for occasional incidental or occasional and infrequent travel through or flyover of a species within the Analysis Area.

In summary, multiple surveys documented general wildlife species and MIS grouse occurring, and MIS chestnut-sided, magnolia, blackburnian warblers, and scarlet tanager suspected to occur, within the project area.

***Federal Threatened, Endangered, Proposed & Regional Forester Sensitive Species (TEPS)***

Table 3-5 discloses the TEPS wildlife species (see TEPS/RFSS Plants Section for RFSS plants) having extremely low to low probability of occurrence within the project area based on suitable habitat present and/or historic or current documented occurrence and/or species extirpation (see Twin Mountain Bicycle Path BE in the project file). These same species were also addressed in the Forest-wide programmatic Biological Assessment of the revised WMNF Forest Plan FEIS (USDA-FS 2005, FEIS Appendix G).

In summary, the mature northern hardwood trees with cavities, riparian/seep areas, and open corridor of old Route 3 could provide potential suitable habitat for several TEPS species shown in Table 3-5. However, site-specific, multi-seasonal/multi-year Forest Service field reviews and surveys of suitable habitat revealed no TEPS wildlife or their sign within the project area (NHNHB 2007; USDA-FS 2006a, Johnston; USDA-FS 2003-07, unpub. track data; USDA-FS 2007, Mattrick). The peregrine falcon may fly over the general area but does not nest within the project area and is not expected to establish future nesting territories in the project area (Audubon 2007). The Twin Mountain Bicycle Path BE determined that there is relatively medium to high amounts of human activity associated with the project area (Interstate 93, US Route 3, parking lots and trailheads, snowmobile and hiking trails, dispersed campsites on Haystack and Gale River Roads, Beaver Brook Wayside, Littleton Water Department maintenance building, and the nearby towns of Bethlehem, Franconia, and Carroll). The Twin Mountain

Table 3-5. TEPS Wildlife Species Having Probability of Occurrence in the Twin Mountain Bicycle Path project area.

Federal Status	TEPS Wildlife Species	Probability of Occurrence
Endangered	Indiana bat ( <i>Myotis sodalis</i> )	Not likely present (USDI 2005; USDA 2005)
Threatened	Canada lynx ( <i>Lynx canadensis</i> )	Habitat, but lynx not likely present (USDI 2006).**
RF-Sensitive	Peregrine falcon ( <i>Falco peregrinus anatum</i> )	Low = summer flyover / forager in opening areas.
RF-Sensitive	Eastern small-footed myotis ( <i>Myotis leibii</i> )	Very low = summer roost and/or forage habitat.
RF-Sensitive	Northern bog lemming ( <i>Synaptomys borealis sp.</i> )	Extremely low to none = wet, riparian, and soft-woods.

\*No voucher specimen or photo documentation in NH (Chenger 2002 & 2004 Forest-wide surveys).

\*\*Addressed per FP S&Gs for LAU 10.

Bicycle Path project area is considered non-suitable denning habitat for the extirpated species Eastern timber wolf and cougar. The WMNF (including the Twin Mountain Bicycle Path project area) is not designated “critical habitat” by the US Fish & Wildlife Service in recovery plans for Eastern timber wolf, cougar, or Indiana bat. There is no proposed recovery plan for Canada lynx, and although the Canada lynx was considered absent from New Hampshire (USDI-FWS 2005), the potential effects to Canada lynx habitat are disclosed in the BE per the WMNF Forest Plan standards and guidelines (USDA-FS 2005a, LRMP II 14-16). The NH Fish and Game Biologist did not express specific concerns for TEPS in the project area during public scoping.

## Environmental Effects

### Wildlife Resources

The analysis area for direct and indirect effects on wildlife (including MIS) and their habitats for all alternatives is the project area, which is approximately 9 miles long (or approximately 18 acres) starting from Skookumchuck Parking Area to the community of Twin Mountain. This analysis area was used because it includes home ranges of varying sizes for an array of wildlife species (including portions of large home ranges). Most of the wildlife expected to occur within the project area can also be found in the HMUs, on other parts of the District, across the Forest, and some species could occur on suitable portions of private land in and near the project area. The temporal scope for direct and indirect effects on wildlife resources for all alternatives is the past and future 10 years (1997-2017) because this timeline spans past and current WMNF Forest Plans that include effective standards and guidelines to protect wildlife resources.

### Alternative 1

Bicycle path construction, maintenance, and multi-seasonal use (bicycling, hiking, cross-country skiing, snowshoeing, snowmobiling) would

not occur at this time. Therefore, Alternative 1 would not cause any direct or indirect effects to wildlife resources (including MIS and TEPS) or their habitat from vegetation removal, tunnel construction, soil or snow compaction, noise, mortality, displacement, or interruption of wildlife travel to, from, or within the project area.

Forest habitat in the project area that is suitable to MIS ruffed grouse and MIS scarlet tanager (both present) and MIS blackburnian warbler (suspected to occur) would continue to grow and mature. Openings in the forest canopy would result from mortality of individual trees and changes in the habitat types or age classes would occur from larger scale natural disturbances (wind throw, ice storm, hurricane, fire, or infestation), which tend to be infrequent and sporadic occurrences in the New England Region. Alternative 1 has greater potential to develop large diameter cavity trees and accumulate downed woody material for wildlife habitat in the project area compared to the action alternatives. However, there is abundant mature, closed canopy habitat within and surrounding the project area and at the landscape level. There would be a lost opportunity to create linear open canopy conditions suitable to some wildlife (for gaining solar warmth, hunting, foraging) that would move the forest toward wildlife habitat diversity in managed lands identified in the Forest Plan (USDA-LRMP 2005a).

### **Alternatives 2-3**

A relatively minor amount of vegetation (few large diameter trees) would be removed for bicycle path construction from approximately a 9 mile linear corridor (or approximately 18 acres). The direct effects of vegetation removal and soil compaction from machinery on wildlife and their habitat from bike path construction (and tunnel installation under Alternative 3) would be localized within the proposed linear project area. Forest Plan Riparian and Wildlife Standards and Guidelines would maintain existing and future wildlife cavity trees and vernal pools within the project area (USDA-LRMP 2005a), which would mitigate the direct effect of tree removal on wildlife and their habitat. Existing dead and downed large woody material (which provides habitat structure and diversity for various wildlife species) would remain in the adjacent forest outside the bicycle path tread. The proposed Twin Mountain Bicycle Path Project would not substantially affect vegetation age class or species composition in the Gale and Little River HMUs.

The timing of bike path construction, maintenance, and use would displace some wildlife species. Generally, species with home ranges larger than the proposed project area could avoid the area during construction, maintenance, and use activity. Black bear are generally dormant during the winter when snowmobile activity would occur, which would avoid conflict with black bear forage habitat. The trail layout for new construction would avoid removal of mast-producing beech trees. Moose and white-tailed deer have large home ranges, and appear to adjust quickly to displacement from human activity and may adjust their foraging behavior to avoid human activity. Past monitoring conducted on the WMNF of snowmobile operations and deer movement (“Snow Machine Use and Deer in Rob Brook”

cited in Alberta Snowmobile Association, 2004) indicated that deer travel patterns were not affected by periodic heavy snowmobile use. A three-year study, "Response of White-Tailed Deer to Snowmobiles and Snowmobile Trails in Maine," revealed that deer consistently bedded near snowmobile trails and fed along them even when those trails were used for snowmobiling several times daily. In addition, fresh deer tracks were repeatedly observed on snowmobile trails shortly after machines had passed by, indicating that deer were not driven from the vicinity of these trails. Deer commonly used snowmobile trails as travel routes connecting deer trails. Deer sank an average of 1/10th to 1/2 as much on snowmobile trails compared to off trails, and never approached depths which seriously impeded their mobility. Because of their continuous packed surface and excellent deer supportability, snowmobile trails greatly reduce energy expenditure of traveling deer. Since deer showed a decided tendency to move away when approached by a snowmobile in the open, and an increased tendency to stay when approached in softwood stands, the deer's response seemed to depend on its apparent security (Richens and Lavigne, 1978). The relatively moderate amount of ground disturbance (in terms of magnitude) from approximately 9 miles (or 18 acres) of bicycle path construction would temporarily interrupt the established territories and travel patterns of some small mammals with small home ranges. Temporarily displaced from their immediate territories by the direct effects of vegetation removal, soil or snow compaction, these species would most likely occupy adjacent habitat. Noise from bike path construction and multi-seasonal use would most likely be heard beyond the immediate project area (the existing Route 3 can be heard from the entire proposed bicycle path location).

Alternatives 2 & 3 could displace individual American marten seasonally from portions of its home range because of increased human presence during bicycle path construction, use, and maintenance (assuming the project area is part of a marten's home range). Forest-wide wildlife monitoring data indicate marten are distributed across the northern portion of the WMNF and suggest that their populations are increasing (USDA-FS 2005, FEIS). No marten were detected during several years of winter track surveys on the Beaver Brook, Gale River, and Little River wildlife monitoring transects or the Franconia Snowmobile Trail.

Local studies suggest that in large forest tracts like the White Mountain National Forest, construction of a relatively short bicycle path would cause no adverse effects to Neotropical migrant songbirds. The open linear path would provide vertical and horizontal structural diversity. Bicycle path construction would cause the potential direct effect of displacement of various Neotropical song bird or hawk species from upper canopy habitat, but suitable upper canopy habitat would be available to these species in the large blocks of mature closed canopy forest within the Gale and Little River HMUs that are not subject to vegetation management. Trees containing raptor nests (none found) would not be removed under the action alternatives, and a 1/4-acre reserve group of trees would remain around any raptor nest site (NHDFL 1997). No tree removal or snowmobile activity would occur from March 15 through May 20 to avoid conflict with active raptor

nests (USDA-FS 2005a, LRMP). Design features proposed under the action alternatives would minimize the direct effects of disturbance to songbird nests or eggs. Alternatives 2 and 3 would not have a measurable negative effect on migratory bird populations, hence the project complies with the Migratory Bird Treaty Act Executive Order 13186 and MOU. The 1918 MBTA was designed to forestall hunting of migratory birds and the sale of their parts, and was not intended to regulate tree removal activities.

In general, trails and roads can affect wildlife if they are barriers to travel routes for daily activities, dispersal, and migration. Alternative 3 would require two tunnels under State Route 3. Tunnels would be designed to allow passage of wildlife and should not interrupt wildlife travel patterns in the project area. Trails and roads increase human access, which can cause the indirect effect of wildlife mortality from vehicle collisions, hunting and trapping, and cause adverse indirect effects on species intolerant of human activity (Deming 1994). Human presence, especially during the winter (cross country skiing, snowshoeing, and snow machining on various portions of the pike path), may cause stress and displacement of some wildlife (including MIS grouse) from or adjacent to the proposed bike path location. Winter is a critical period for wildlife, and changes to energy balance or stress levels can affect their survival and productivity. Forest Management Practices (NHDFL 1997) and trail design and signage upon trail completion would limit the type of vehicle access within portions of the project area. Forest roads, landings, and trails can cause beneficial indirect effects on various wildlife species by providing a long-term canopy condition that does not exist in an interior forested environment. It is reasonable to conclude that the linear bicycle path would provide some regeneration habitat and fruit and seed sources for wildlife along the margins of the path.

An indirect effect of the action alternatives on wildlife habitat is mechanical breaking of stems at and above the snow surface. In a study in Canada (Neumann and Merriam, 1972), the effects of snowmobiles on browsing herbivores such as snowshoe hare was measured by counting numbers of plants browsed by species. The average number of browsed plants directly beside the trails in the study area was low, but there was no significant relationship between browsing counts and distance from the snowmobile trails. Herbivores browsed the tips of half of the shrubs broken down by snowmobile use, but activity data for snowshoe hares indicate these browsers do avoid snowmobile trails.

### ***Summary of Potential Effects on the Amount and Quality of Habitat for MIS***

The linear distance of the proposed bicycle path (approximately 9 miles or approximately 18 acres) is relatively small compared to the total area of sub-watersheds and HMUs the project area lies within. Therefore, the amount of tree and vegetation removal proposed for bicycle path construction, and the amount of soil and snow compaction during construction, winter use, and maintenance, would cause relatively minor effects to MIS and their habitat under the action alternatives. The Twin Mountain Bicy-

cle Path would not prevent MIS grouse, MIS songbirds, marten, or other wildlife (moose, white-tailed deer, snowshoe hare, etc.) from traveling to, from, or within the project area or adjacent wintering and forage habitat. There would also be indirect effects of soil and snow compaction and an increased amount of noise and human activity in the general project area during winter use and trail maintenance activities (grooming). MIS would likely use the proposed Twin Mountain Bicycle Path for travel and foraging, and move to adjacent habitat to avoid human contact. Indirect effects to wildlife habitat include a relatively minor increase in the amount of upper open canopy conditions with an inverse decrease in closed canopy conditions.

During the Forest Plan revision process, the approximate total acres of forest type (amount) by age class (quality) within the Forest-wide planning area was generated (USDA-FS 2005, FEIS). Table 3-6 shows that Alternatives 2 and 3 would affect a relatively minor amount of the entire WMNF, and cause a relatively minor conversion in the overall amount and quality of existing mature habitat dominate within the proposed Twin Mountain Bicycle Path project area. Under Alternative 1, the MIS scarlet tanager and blackburnian warbler would benefit in the long term through the perpetuation of mature northern hardwood and softwood habitats respectively (mature age class already dominant in the project area). Alternative 1 would not create any regeneration age habitat for MIS ruffed grouse and chestnut-sided and magnolia warblers. Under the action alternatives, the MIS chestnut-sided and magnolia warblers would benefit from the immediate establishment of the linear open areas, with potential regeneration age habitat along the margins of the bicycle path. Based on the local and relevant wildlife studies and site-specific field reviews and surveys cited, all the MIS are either negligibly affected by or derive some benefit from the proposed bicycle path. Alternatives 2 and 3 would not create isolated habitat patches nor restrict wildlife dispersal necessary for maintaining population viability. The effects of Alternatives 2 and 3 on wildlife and their habitat are within the range of those described in the FEIS (USDA-FS 2005).

### *Cumulative Effects*

The home range and habitat needs of wildlife vary by species (DeGraaf and Yamasaki 2001; DeGraaf et al. 1992). The analysis area for cumulative effects on wildlife (including MIS) and their habitat for all alternatives is Lynx Analysis Unit (LAU) 10. This broader scale incorporates home ranges (large and small) for most wildlife species that inhabit the WMNF and it addresses habitat connectivity. Also, activities occurring on adjacent private lands located outside of the LAU are considered. The Partners In Flight Physiographic Area 28 (Neotropical migratory birds and hawks), and the New England and White Mountain subsection regional scales were also used to assess cumulative effects to TEPS and MIS population trends and viability within the forest-wide planning area (36 CFR 219.19). The temporal scope for cumulative effects on wildlife resources included the past and future ten years (1997-2017) because this timeline spans past and current WMNF Forest Plans that include standards and guidelines to protect

**Table 3-6. Potential Effects on the Amount and Quality of Habitat by Alternative for MIS within the project area**

<b>MIS</b>	<b>Alternative 1</b>	<b>Alternative 2</b>	<b>Alternative 3</b>
Chestnut-sided Warbler Regeneration (regen) N. hardwood.	Lost opportunity for a minor increase in hardwood regeneration age class habitat along the margins of portions of the 9 mile bicycle path.	Potential for minor increase in hardwood regeneration age class habitat along margins of portions of the 9 mile bicycle path (includes approx. 2 miles of new trail construction).	Similar potential for minor increase in hardwood regeneration age class habitat along margins of portions of 9 mile bicycle path as Alternative 2 (includes approx. 0.5 mile of new trail construction).
Scarlet tanager Mature N. hardwood	Continued increase in the closed canopy, mature hardwood age class habitat that is already dominating the project area.	Minor decrease in mature hardwood age class habitat via construction of approx. 2 miles of new bicycle path (would maintain mature hardwoods at the stand scale with linear canopy gaps).	Similar minor decrease in mature hardwood age class habitat via construction of approx. 0.5 mile of new bicycle path (would maintain mature forest habitat at the stand scale with linear canopy gaps).
Magnolia warbler Regeneration Softwoods	Lost opportunity for minor increase in regeneration age class softwood habitat along the margins of portions of the 9 mile bicycle path.	Potential for minor increase in softwood regeneration age class habitat along margins of portions of the 9 mile bicycle path (includes approx. 2 miles of new trail construction).	Similar potential for minor increase in softwood regeneration age class habitat along margins of portions of 9 mile bicycle path as Alternative 2 (includes approx. 0.5 mile of new trail construction).
Blackburnian warbler Mature Softwoods	Continued increase in the closed canopy, mature softwood age class habitat that is already present in the project area.	Minor decrease in mature softwood age class habitat via construction of approximately 2 miles of new bicycle path (would maintain mature softwood at the stand scale with canopy gaps).	Similar minor decrease in mature softwood age class habitat via construction of approx. 0.5 miles of bicycle path (would maintain mature softwood habitat at the stand scale with linear canopy gaps).
Ruffed Grouse No distinction for age class Aspen-Birch	Lost opportunity for a minor increase in hardwood regeneration age class habitat along the margins of portions of the 9 mile bicycle path.	Potential minor increase in aspen / birch habitat along the margins of portions of the 9 mile bicycle path (includes 2 miles of new trail construction) Also, there would be 7.18 mi. of trail new to winter use (including snowmobiling).	Similar potential minor increase in aspen / birch habitat along the margins of portions of the 9 mile bicycle path as Alternative 2. (includes 0.5 miles of new trail construction). Also, there would be 7.48 miles of trail new to winter use (including snowmobiling).

Alternative 3 proposes two tunnels under US Route 3, which would not adversely affect the amount and quality of MIS habitat.

wildlife resources. Past Forest Service management activities include the Bickford, Four Corners, CCC, and the recent Sugar House and Nubble vegetation management projects (see Table 3-1).

### **Alternative 1**

No Action would add a relatively minor cumulative effect to the steadily declining trend in open habitat within the project area and at the larger HMU, Forest-wide, and New England scales. Neotropical migrant MIS chestnut-sided and magnolia warblers that use the open habitat type would find less of this habitat within the Twin Mountain Bicycle Path project area. However, Alternative 1 would cause no cumulative effects to MIS, TEPS, or general wildlife species.

### **Alternatives 2-3**

The action alternatives would cause relatively minor and localized direct and indirect effects to the amount and quality of MIS habitat within the project area, but would not cause any adverse cumulative effects to population trends or viability for WMNF MIS within the Forest-wide planning area (36 CFR 219.19).

The past and recent vegetation management projects previously mentioned showed no evidence of major erosion, insect infestation, or disease during timber sale administration reviews. The recent EAs completed for projects determined little to no cumulative effects to wildlife resource from implementation of any of the action alternatives. Future non-Forest Service actions on private land adjacent to the forest and the HMUs are not expected to create substantial amounts of large opening or early successional habitat suitable to wildlife species that use this habitat. Any Forest Service non-vegetation management projects within the cumulative effects area would contain a similar mix of wildlife standards and guidelines as described for the Twin Mountain Bicycle Path Project.

#### ***Summary of Effects to MIS Population Trends and Viability***

The Forest Plan (USDA-FS 2005, FEIS) incorporates all of the requirements of 36 CFR 219.9 a (6) that state population trends of the MIS will be monitored and relationships to habitat changes determined in the context of the Forest-wide planning area. Based on the potential direct, indirect, and cumulative effects addressed in this analysis, Table 3-7 discloses the effects of the alternatives on MIS and their habitat within the Twin Mountain Bicycle Path project area and population viability in the Forest-wide planning area.

#### ***BE Effects Determinations for TEPS***

In summary, the Twin Mountain Bicycle Path BE (in the Project File) determined that there is no documented occurrence of TEPS wildlife species within the Twin Mountain Bicycle Path project area. The potential effects to TEPS wildlife species include the same direct and indirect effects previously described under general and MIS sections. The Twin Mountain Bicycle Path BE considered the effects determinations from past and recent BEs completed for the vegetation management projects previously mentioned.

**Table 3-7: Effects of the Alternatives on MIS within the Twin Mountain Bicycle Path project area**

WMNF MIS	Alternative 1	Alternatives 2 and 3
Chestnut-sided Warbler ( <i>D. pensylvanica</i> )	There would be a lost opportunity to create linear open canopy conditions (within a mostly mature closed canopy forest) with potential for hardwood and softwood regeneration age class habitat diversity within the project area.  <b>The No Action alternative would not adversely affect population trends and viability of WMNF MIS within the Forest-wide planning area.</b>	Would cause a minor decrease of mature closed canopy conditions and inversely increase linear open canopy habitat with potential hardwood and softwood regeneration age class habitat diversity in the project area.  <b>The action alternatives would not adversely affect population trends and viability of WMNF MIS within the Forest-wide planning area.</b>
Scarlet Tanager ( <i>Piranga olivacea</i> )		
Magnolia Warbler ( <i>Dendroica magnolia</i> )		
Blackburnian Warbler ( <i>Dendroica fusca</i> )		
Ruffed Grouse ( <i>Bonasa umbellus</i> )		

The US Fish & Wildlife Service concurred with the findings of no adverse cumulative effects on TEPS from these past projects. Table 3-8, taken from the Twin Mountain Bicycle Path Project BE, discloses the effects determinations for Federally-listed TEPS wildlife species and their habitat. The Twin Mountain Bicycle Path BE compared the potential site-specific effects of the proposed project to those disclosed in the programmatic Biological Assessment (BA) for the revised Forest Plan (USDA-FS 2005, FEIS Appendix G). The Twin Mountain Bicycle Path BE determined there would be no additional effects outside those evaluated in the programmatic BA.

**Table 3-8. Effects Determinations taken from the Twin Mountain Bicycle Path BE.**

Federal Status	TEPS With Potential To Occur Within the project area	Twin Mountain Bicycle Path BE Effects Determinations
<b>Threatened</b>	Canada lynx ( <i>Lynx canadensis</i> )	<b>no effect</b> to the Federally-listed threatened Canada lynx. All alternatives meet the S&Gs outlined in the WMNF FP for protecting suitable lynx habitat.  *Although extirpated, the C. lynx is addressed due to suitable habitat present.
<b>Endangered</b>	Indiana bat ( <i>Myotis sodalis</i> )	<b>no effect</b> to the Federally-listed Endangered Indiana bat. All alternatives would meet the S&Gs outlined in the WMNF FP.
<b>RFSS</b>	Peregrine falcon ( <i>Falco peregrinus anatum</i> )  Eastern small-footed bat ( <i>Myotis leibii</i> )  N. bog lemming ( <i>Synaptomys borealis sp.</i> )	<b>no impact</b> to peregrine falcon or Eastern small-footed myotis; and may impact individuals, but would not likely contribute to a trend towards Federal listing or cause a loss of viability to the population or species of Federally-listed RFSS Northern bog lemming.

## Threatened, Endangered, Proposed & Regional Forester Sensitive Species—Plants

### Affected Environment

This section summarizes the probability of occurrence of Federally-listed Threatened, Endangered, Proposed (TEP), and Regional Forester-listed Sensitive (RFSS) plants for the Twin Mountain Bicycle Path project area. These plants (collectively referred to as TEPS) were addressed in detail in the Twin Mountain Bicycle Path BE (located in the Project File), which disclosed that there is a very low probability of occurrence of several RFSS plants within the project area, as shown in Table 3-9. Probability was based on known documented occurrences, suitable habitat present (assumed occupied), and site-specific field surveys within the project area. The Forest Service checked the database of rare plant occurrences for the towns where the project area occurs (NHNHB 2007), and conducted multi-year, multi-seasonal, and site-specific field reviews of the project area which found no TEPS plants (USDA-FS 2007, Mattrick).

There is a population of *Dicentra canadensis* (squirrel corn) in the project area. *Dicentra canadensis* was on the RFSS list when this project was initially scoped, but has since been removed due to increased numbers of known populations on the White Mountain National Forest. This plant is still listed, however, as state-Threatened in New Hampshire. Though *D. canadensis* is no longer on the RFSS list on the Forest, it is desirable to protect certain populations of the species and its associated enriched northern hardwood community. Effects on this population are therefore analyzed in this document.

**Table 3-9. TEPS Plants with Probability of Occurrence within the Twin Mountain Bicycle Path project area.**

Status	TEPS Plant Species	Probability of Occurrence
RF-Sensitive	Bailey's sedge ( <i>Carex baileyi</i> )	Very low = ditches & disturbed openings
RF-Sensitive	Goldie's woodfern ( <i>Dryopteris goldiana</i> )	Very low = rich, damp, mesic forest.
RF-Sensitive	Boreal Bedstraw ( <i>Galium kamtschaticum</i> )	Very low = wet shady woods.
RF-Sensitive	Northern Adder's Tongue ( <i>Ophioglossum pusillum</i> )	Very low = open to wet areas.
RF-Sensitive	American ginseng ( <i>Panax quinquefolius</i> )	Very low = rich, rocky deciduous forest.

### Environmental Effects

#### Direct and Indirect Effects

The analysis area for direct and indirect effects on TEPS plants and the *Dicentra canadensis* population is the project area because of their sessile

nature. The temporal scope is the past and future ten years (1997-2017) because this timeline spans past and current WMNF Forest Plans that contain effective standards and guidelines to protect vegetation.

### **Alternative 1**

Understory shrubs and herbaceous vegetation would continue to grow, mature, and die under natural processes. Course woody material would be recruited onto the forest floor as trees die. Natural open canopy patterns would occur. Trees and shrubs would continue to naturally reforest the remnant sections of the old Route 3 corridor. Over time, the original tread and road profile would be increasingly difficult to discern without maintenance (i.e., tree removal). Due to no bicycle path construction, maintenance, or use, Alternative 1 would have no direct or indirect effects of tree and vegetation removal resulting in increased sunlight, trampling, soil or snow compaction in the project area.

### **Alternatives 2-3**

The potential direct effects to TEPS plants include trampling and soil compaction by machinery during bicycle path construction activities. Because few large trees and minor amounts of vegetation would be removed from approximately 9 miles (or 18 acres) on prior disturbed Forest Service skid trails, woods roads, and the old Route 3, the direct effects are anticipated to be relatively minor and localized within the proposed linear corridor of the bicycle path. Wet areas which some plants favor are routinely excluded during trail layout per Forest Plan standards and guidelines (USDA-FS 2005a, LRMP).

Potential indirect effects of Alternatives 2 and 3 include changes in local environmental gradients (moisture, heat, and light levels) in the soil and mid-story and upper tree canopy via vegetation and tree removal for bicycle path construction and enhancement. Plants located approximately one tree length from the edge of the proposed trail construction, enhancement, and maintenance activities would be affected. Soil compaction could prevent plants from becoming established, or soil scarification could trigger growth of some plants that lie dormant for long periods. Increased or varied sunlight reaching the forest floor could benefit RFSS-listed sensitive species that are shade intolerant and grow in open woods and clearings, but would not benefit shade tolerant species that grow in deep shade. A study suggests that trail systems are an important component for the survivability of native wildflowers in Maine, especially those considered to be critical or imperiled. The grooming and the sledding of the trail system affect the survival of the wildflowers by encouraging and maintaining suitable habitats for the wildflowers (University of Maine Research cited in Alberta Snowmobile Association, 2004). Construction of the proposed Twin Mountain Bicycle Path would cause the indirect effect of snow compaction during winter use and grooming maintenance activities. A snowmobile and rider exert approximately a half-pound of pressure, which is dramatically less pressure on the earth's surface than other recreational activities (i.e., just 1/10th the pressure of a hiker and 1/16th the pressure of a horseback rider). Moreover, the snowmobile's half-pound of pressure

is further reduced by an intervening blanket of snow cover, hence causing minimal indirect impacts on soil dependent biotic communities (Alberta Snowmobile Association, 2004).

A large population of *Dicentra canadensis* and its associated habitat was observed along the western section of the route proposed in Alternative 2. While construction of the bicycle path along this route would not likely put the entire population at risk or contribute to a trend toward Federal listing, it would have negative direct and indirect effects to individual plants. Numerous individuals would be trampled during construction and their associated habitat would be removed for as long as the surface of the bicycle path exists. There would be no direct or indirect effects to this species under Alternative 3 (USFS—Mattrick 2007).

**Summary of Effects**

Table 3-10 summarizes the effects determinations rendered in the Twin Mountain Bicycle Path BE for RFSS plant species (see BE in Project File). Although there is a very low probability of occurrence of several RFSS plants, there is no historic documented occurrence, or findings during recent surveys, within the project area (USDA-FS 2007, Mattrick). Standards and guidelines previously noted would minimize disturbance, and the action alternatives would not adversely affect TEPS plants.

**Table 3-10. BE Effects Determinations for TEPS Plants for the Twin Mountain Bicycle Path project area.**

Status	TEPS Plant Species	Effects Determinations
<b>RF-Sensitive</b>	Bailey’s sedge ( <i>Carex baileyi</i> ) Goldie’s woodfern ( <i>Dryopteris goldiana</i> ) Boreal Bedstraw ( <i>Galium kamtschaticum</i> ) Northern Adder’s Tongue ( <i>Ophioglossum pusillum</i> ) American ginseng ( <i>Panax quinquefolius</i> )	Alternatives 2 & 3 <b>may impact individuals, but would not likely contribute to a trend towards</b> federal listing or cause a loss of viability to the population or species of Region Forester-listed Sensitive plant species with potential occurrence within the Twin Mountain Bicycle Path project area.

If listed plants exist that were not discovered prior to project implementation, any of the action alternatives could cause some unavoidable impacts from management activities. In general, the unavoidable impacts are most likely to correspond to the relative amounts of total acres affected (i.e., the greater the acres affected the greater the potential to affect an undiscovered plant compared to less acres affected). If listed plants are found during implementation, the Forest Service representative would alert the WMNF Botanist and additional protective measures would be taken.

### *Cumulative Effects*

The cumulative effects analysis area is the Gale and Little River HMUs because this scale includes the project area and past vegetation management project areas. The temporal scope is the past and future 10 years (1997-2017) because the time span covers WMNF Forest Plans that contain effective standards and guidelines to protect plant resources.

#### **Alternative 1**

Because no direct or indirect effects of trampling vegetation, soil or snow compaction, or increased sunlight would occur in the project area, there would be no cumulative effects to TEPS plants.

#### **Alternatives 2-3**

Because alternatives 2 and 3 would cause very low potential for localized and very minor direct or indirect effects to TEPS plants, there would be no cumulative effects to TEPS plants. Also, BEs completed for past and recent vegetation management projects (CCC, Bickford, Five Corners, Nubble, Sugar House) located in the Gale and Little River HMUs determined there would be no cumulative effects to TEPS plants.

No other projects in the analysis area are known to have negatively affected any populations of *Dicentra canadensis*, therefore no cumulative effects to this species are expected.

## Recreation

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### **Affected Environment**

Primary recreation activities in the project area include driving for pleasure, hiking and dispersed camping, bicycling, hunting, snowmobiling, and cross-country skiing. Recreation facilities within the affected environment include the Skookumchuck Hiking Trail Parking Lot, Beaver Brook Wayside and Cross-country Ski Trail System, and the beginning of the Gale River Loop Road.

#### **Driving for Pleasure**

The portion of US Route 3 near the proposed bicycle path is a winding, scenic, state-maintained, year-round road which connects Franconia Notch with the community of Twin Mountain. It is a part of the 100 mile “White Mountains Trail,” a paved driving loop around the White Mountains. Driving for pleasure is more common in the summer and fall than in the winter months.

The Gale River Loop Road (which includes the North and South Branch roads) is also used for driving for pleasure. This 4.4 mile loop is open seasonally and winds through the WMNF along the Gale River, passing numerous dispersed campsites and two popular trailheads. The proposed bicycle path will cross the Gale River Road twice near its junction with Route 3.

#### **Hiking, Cross-Country Skiing, and Dispersed Camping**

The Beaver Brook Wayside Area is a loop turnout along Route 3 approximately one mile north of Trudeau Road. This wayside area has toilet facilities and is commonly used as a rest stop and parking area for the Beaver Brook Ski Trail System, an ungroomed cross-country ski trail network used year-round for hiking or skiing. The Skookumchuck Trailhead is located at the western edge of the project area, but the trail itself heads away from the proposed bicycle path.

Dispersed camping is permitted along the Gale River Loop Road. Located outside the project area, the campsites receive moderate to high use during peak seasons when the Gale River Road is open to public motor vehicles.

#### **Bicycling**

Route 3 from Franconia Notch to Twin Mountain is a state designated bicycle route, most commonly used by more experienced road cyclists. Route 3 has a shoulder, but is not well suited for all users, and the highway receives heavy truck traffic throughout the year.

#### **Hunting**

The project area lies within New Hampshire Wildlife Management Units D and E, both of which provide good access for hunters and are very popular for moose hunting. Each Unit supplies approximately 30 moose permits per year. The area is also popular for rabbit hunting. No deeryards are

documented in the project area, and deer hunting use is considered to be light to moderate (Weloth, personal communication).

### **Snowmobiling**

Under current conditions, there is very little snowmobiling in the project area. Snowmobile trails cross the project area at the Skookumchuck Trailhead, Trudeau Road, and Gale River Road, but otherwise do not intersect the project area. State Snowmobile Corridor 11 roughly parallels the project area to the east, and a portion of this would be relocated to the proposed bicycle path under Alternatives 2 and 3.

### **Other Recreation Uses**

The Gale and Little River systems receive light fishing pressure for brook trout. This stretch of Route 3 is popular for birdwatching, as are the trails in the Beaver Brook area.

Recreation settings for this recreation analysis area are described by the Recreation Opportunity Spectrum (ROS). The ROS defines a range of unique recreation experiences as Primitive, Semi-Primitive Non-motorized, Semi-Primitive Motorized, Roaded Natural, and Rural (Forest Plan 2005, p 1-10 and Map 1-11). All of the lands within the project area fall into the “Roaded Natural” designation, described in the 2005 FEIS as areas “characterized by predominantly natural appearing environments with moderate evidences of the sights and sounds of human activity ... opportunities for both motorized and non-motorized forms of recreation are possible.” (USDA-WMNF FEIS 2005, p. H-3)

## **Environmental Effects**

### *Direct and Indirect Effects*

The analysis area for direct and indirect effects on recreation is the Twin Mountain Bicycle Path project area. The timeframe is the present through the next five years, from approximately the beginning of project planning through implementation. This timeframe was chosen because it is the time during which construction activities may impact the recreation experience.

#### **Alternative 1**

No activities would be implemented under Alternative 1. Sections of old Route 3 would continue to be used for vegetation management. No direct or indirect effects to the recreational experiences of visitors are anticipated as a result of this alternative.

#### **Alternatives 2-3**

Alternatives 2 and 3 would provide an approximately 9 mile bicycle path from the Skookumchuck Parking Area to the community of Twin Mountain, providing opportunities for Roaded Natural recreation. A portion of this trail would be open seasonally for snowmobile use, replacing a rocky, steep, difficult-to-maintain segment of the current Corridor 11 snowmobile trail.

### **Driving for Pleasure**

Alternatives 2 and 3 would have no negative effects on recreationists driving for pleasure on Route 3. The bicycle path would not take away from the visual experience of recreational driving on Route 3 or the Gale River Road.

### **Hiking and Cross-Country Skiing**

In Alternatives 2 and 3, the Twin Mountain Bicycle Path would pass through the Beaver Brook Wayside Area. This will enable more recreationists to access the Beaver Brook system and use its trails and facilities. This section of the path would be closed to snowmobiles but would allow cross-country skiers to access the Beaver Brook area from Twin Mountain along the new route.

### **Bicycling**

Alternatives 2 and 3 would have no negative effect on bicyclists along Route 3. It is likely that many road cyclists would continue to use the Route 3 corridor, which would remain a state designated bicycle route. The bicycle path would have positive direct and indirect effects on bicyclists. It would provide a more remote and relaxed bicycling experience for those not wanting to travel in the Route 3 bicycle lane. It would also allow cyclists to be less exposed to vehicular traffic. It would provide more varied recreational opportunities along the Route 3 corridor, and would allow cyclists to link the Franconia Notch Bicycle Path with a new, off-highway path.

### **Hunting**

Hunting opportunities would continue under Alternatives 2 and 3. If bicycle path construction occurs during hunting season, temporary displacement of wildlife may decrease hunting opportunities within portions of the project area, but these negative effects would be short in duration and small in area.

### **Snowmobiling**

Under Alternatives 2 and 3, snowmobiling opportunities would improve upon completion of the bicycle path as it would replace a section of Corridor 11, eliminating a rugged, unpopular and difficult-to-groom stretch of trail. The former trail may be used as a future snowmobile bypass should management activities require closure of the rerouted trail, but both routes would not be open simultaneously.

### **Other Recreation Uses**

Fishing and birdwatching could be temporarily affected by the noise and activity resulting from construction of the bicycle path. These effects would be short in duration and only present when areas immediately surrounding fishing and birdwatching locations were being constructed.

### *Cumulative Effects*

The analysis area for cumulative effects on recreation incorporates the existing bicycle/snowmobile route from Franconia Notch State Park, the US Route 3 corridor from Skookumchuck Parking Lot north to US Route 302, the entire Gale River Loop Road, and snowmobile trails linking Franconia Notch with the community of Twin Mountain. This analysis area was chosen because it incorporates all recreation opportunities in the general area of the proposed bicycle route and all snowmobile trails that may be affected by the altered Corridor 11 route. The timeframe chosen for this analysis begins ten years in the past and extends ten years into the future. This time frame was chosen because it allows for evaluation of recent past events on the recreation experience and represents a reasonable timeframe for which future management actions can be predicted.

Recreation resources within the cumulative effects analysis area include, in addition to those identified in the project area, dispersed campsites along the Gale River Loop Road and Haystack Road, additional snowmobile trails, and the Franconia Notch Bike Path.

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#### **Alternative 1**

No activities would be implemented and no cumulative effects anticipated under Alternative 1.

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#### **Alternatives 2-3**

##### **Hiking and Cross-Country Skiing**

The action alternatives would have a positive cumulative effect on hikers and cross-country skiers. These alternatives would enable these users to link the community of Twin Mountain with the Beaver Brook and Gale River Road areas without requiring travel on the existing shoulder of Route 3. This will enhance the recreational experience of these users, as well as the safety of recreationists and motorists.

##### **Bicycling**

Alternatives 2 and 3 would have a positive cumulative effect on bicyclists, as the diversity of bicycling opportunities would expand with this bicycle path. Bicyclists would be able to link this path with the existing Franconia Notch Bike Path and travel from Twin Mountain to Lincoln on a quiet, scenic route free from motorized traffic.

##### **Other Recreation Uses**

No cumulative effects are anticipated for recreationists driving for pleasure, snowmobiling, birdwatching, fishing, hunting, or engaging in other recreation uses.

## Eligible Wild and Scenic Rivers

### Affected Environment

In 1991, the White Mountain National Forest completed an assessment of rivers on the Forest to determine their eligibility for potential future inclusion in the National Wild and Scenic River System (NWSRS). Based on this assessment, 36 rivers were identified as potentially eligible for Wild and Scenic River designation. During the recent Forest Plan revision, this list of 36 rivers with their potential classification was incorporated into the final Forest Plan (USDA Forest Service, 2005, LRMP, Appendix C). The North and South Branches of the Gale River, portions of which are within the Twin Mountain Bicycle Path Project Area, are identified as eligible Wild and Scenic Rivers on this list (see Map 3-2).

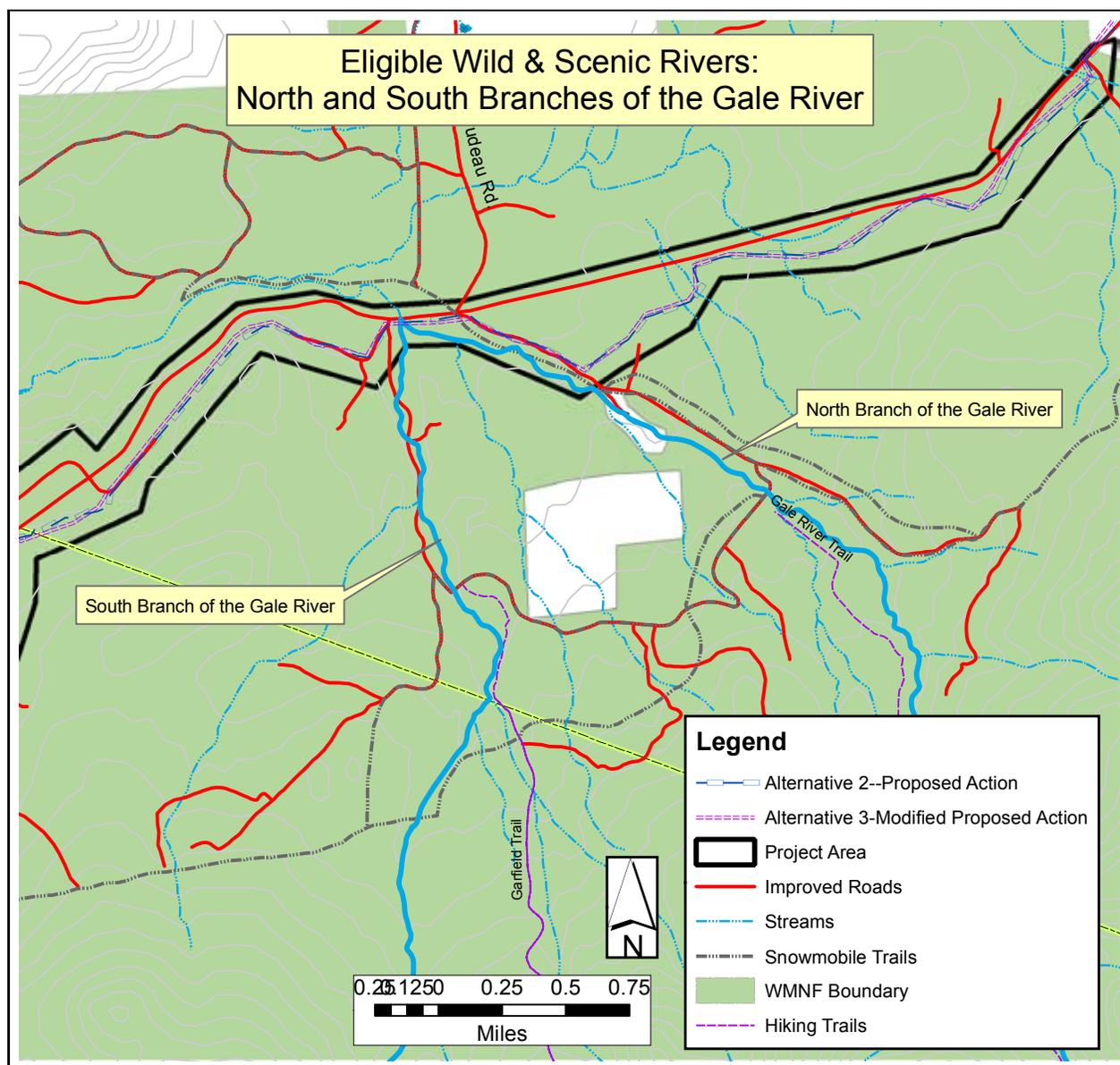
The 1991 Forest-wide river assessment did not identify specific outstandingly remarkable values (ORVs) for each of the listed rivers. Therefore, this analysis will consider effects to all potential ORVs for resource values detailed in Forest Service Handbook 1909.12 (Chapter 82.14a) and described in Table 3-11. This approach provides for the protection of all potential ORVs until we are able to evaluate these values for all 36 rivers listed as eligible on the White Mountain National Forest.

**Table 3-11: Potential ORVs and their Description**

Potential ORV	Description
<b>Scenery</b>	The landscape elements of landform, vegetation, water, color, and related factors result in notable or exemplary visual features and/or attraction.
<b>Recreation</b>	Recreational opportunities are, or have the potential to be, popular enough to attract visitors from throughout or beyond the region of comparison or are unique or rare within the region.
<b>Geology</b>	The river, or the area within the river corridor, contains one or more examples of a geologic feature, process or phenomenon that is unique or rare within the region of comparison.
<b>Fish</b>	The river is nationally or regionally an important producer of resident and/or anadromous fish species or the river provides exceptionally high quality habitat for fish species.
<b>Wildlife</b>	The river, or area within the river corridor, contains nationally or regionally important populations of indigenous wildlife species or the area provides exceptionally high quality habitat for wildlife of national or regional significance.
<b>Historic and Cultural</b>	The river, or area within the river corridor, contains important evidence of occupation or use by humans. Sites may have national or regional importance for interpreting history or prehistory.
<b>Other Values</b>	No specific national evaluation guidelines have been developed for the “other similar values” category, but may include hydrology, paleontology, and botany resources.

The eligible North and South Branches of the Gale River were divided into and classified as 6 segments (three segments for each branch). The segments in and adjacent to the Twin Mountain Bicycle Path Project Area begin at the convergence of the two branches, just before passing under Route 3, and

Map 3-2. Eligible Wild and Scenic Rivers.



travel upstream 1.2 miles for the North Branch and 0.7 miles for the South Branch. Based on the Forest-wide river assessment completed in 1991, the potential classification of these segments is recreational. Recreational rivers are defined as:

Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past. (Federal Register, Vol. 27, No. 173, September 7, 1982)

The classification criteria for recreational river areas are described in Table 3-12.

**Table 3-12: Classification Criteria for Recreational River Areas.\***

<b>Attribute</b>	<b>Recreational Criteria</b>
Water Resource Development	Some existing impoundment or diversion. The existence of low dams, diversions, or other modifications of the waterway is acceptable, provided the waterway remains generally natural and riverine in appearance.
Shoreline Development	Some development. Substantial evidence of human activity. The presence of extensive residential development and a few commercial structures is acceptable. Lands may have been developed for the full range of agricultural and forestry uses. May show evidence of past and ongoing timber harvest.
Accessibility	Readily accessible by road or railroad. The existence of parallel roads or railroads on one or both banks as well as bridge crossings and other river access points is acceptable.
Water Quality	No criteria are prescribed by the Wild and Scenic Rivers Act.

\*Federal Register, Vol. 47, No. 173, September 7, 1982

The potential recreational classification of these segments of the North and South Branches of the Gale River takes into account the river’s proximity to US Route 3 and the Gale River Loop Road, several bridge crossings, high recreational use, and present and historic management activities on National Forest System lands.

Forest Plan standards require the Forest Service to “Manage eligible rivers to maintain their classification and eligibility until Congress designates the segments or decides not to designate them.” Additionally, Forest Service Handbook 1909.12 (Chapter 82.5) requires that the free-flowing condition, ORVs, and inventoried classification of eligible rivers be protected.

Forest Service Handbook 1909.12 (Chapter 82.51) also provides interim management guidelines for eligible river corridors according to classification. The guideline applicable to the portions of the Twin Mountain Bicycle Path Project that occur within this recreational segment of the North and South Branches of the Gale River corridor is:

- Transportation System and Recreational Rivers. Bridge crossings and river access are allowed, if such construction fully protects river values (including river’s free-flowing character).

## **Environmental Effects**

### *Direct and Indirect Effects*

The Analysis Area for direct and indirect effects on this eligible Wild and Scenic River is 1/4 mile upstream from where the Twin Mountain Bicycle Path is proposed to cross the Gale River. This location is immediately upstream from the existing Route 3 crossing of the Gale River and will involve either an attachment to the existing bridge or the construction of a second bridge in close proximity to the existing bridge. This analysis area was chosen because it incorporates all management activities associated with the Twin Mountain Bicycle Path Project that will occur within the defined river area as described in Forest Service Handbook 1909.12, section

82.14. The timeframe is the actual implementation of the Twin Mountain Bicycle Path Project, expected to be 2 to 5 years, depending on the alternative selected and on fundraising success. This duration was selected because when construction ceases, so will the majority, if not all, of the direct and indirect effects. The components of the Twin Mountain Bicycle Path Project that would occur within the analysis area are described in Table 3-13.

**Table 3-13. Project Components in the North and South Branches of the Gale River Eligible Wild and Scenic River Direct and Indirect Effects Analysis Area.**

Alternative	Project Components in the Analysis Area
1	• None
2	<ul style="list-style-type: none"> <li>• Construction of a bicycle path/snowmobile bridge across the Gale River downstream of the convergence of the North and South Branches and upstream of US Route 3</li> <li>• Construction of a bicycle path/snowmobile trail from either end of this bridge approximately parallel to US Route 3</li> </ul>
3	• Same as Alternative 2

The analysis of direct and indirect effects below addresses all three factors related to the protection of eligible Wild and Scenic Rivers: 1) Free-flowing condition, 2) Classification, and 3) ORVs. Because Alternative 1 does not propose any activities within the analysis area for eligible rivers, this alternative will not be discussed as no direct or indirect effects are anticipated.

**Effects on Free-Flowing Condition**

Under Alternatives 2 and 3, a bicycle path/snowmobile bridge is proposed across the Gale River. This crossing of the Gale River will not affect the free-flowing condition of the river because the stream crossing would span bankfull channel dimensions and would not constrict the channel. These features are also above or outside the ordinary high water mark of the river. This project component will not alter in-channel conditions or other hydrologic and biologic processes.

**Effects on Classification**

The Wild and Scenic Rivers Act does not prescribe criteria for water quality for the recreational classification. Therefore, that criterion will not be analyzed.

Analysis in this section focuses on the water resource development, shoreline development, and accessibility classification criteria for recreational rivers. Alternatives 2 and 3 propose management actions within the corridor. However, as indicated in Table 3-14, bridge crossings of this proposed scale are acceptable within recreational rivers. Therefore none of these alternatives would have an effect on the recreation classification of the North or South Branches of the Gale River.

**Table 3-14: Summary of Effects on the Classification of the North and South Branches of the Gale Eligible Wild and Scenic River by Alternative**

Alternative	Effects to Recreation Classification Criteria		
	Water Resource Development	Shoreline Development	Accessibility
1	None	None	None
2	The presence of a bridge is acceptable in a recreational river area. This feature will span bankfull channel dimensions.	The presence of a bridge is acceptable in a recreational river area. Substantial evidence of human activity is permissible.	The presence of a bridge is acceptable in a recreational river area. River crossings and access points are permissible.
3	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.

**Effects to Potential ORVs**

As stated in the Affected Environment section, the 1991 inventory of rivers did not identify ORVs for each river listed in Appendix C of the Forest Plan. Therefore this analysis considers the potential effects to all values identified in Handbook 1909.12, Chapter 82.12, Outstandingly Remarkable Values, which are listed in Table 3-11 of this effects analysis section.

*Scenery*

These segments of the North and South Branches of the Gale River have a high scenic integrity objective and a high scenic class, which measures the relative importance of a discrete landscape area. The scenic attractiveness for this section of these two rivers is Class C – Indistinctive. Scenic attractiveness is based upon human perceptions of the intrinsic beauty of landform, water characteristics, vegetation pattern and cultural land use. All actions proposed in the Twin Mountain Bicycle Path project are entirely in scenic attractiveness Class C, indistinctive. All management actions in this analysis area are located in the foreground view.

In the Project Area, the Gale River passes under US Route 3, a two lane highway. This portion of Route 3 is part of the White Mountain Trail, a network of scenic highways that creates a loop through the White Mountain region. Route 3 receives a large amount of truck and other traffic throughout the year, with an average of 3,900 vehicles per day (NH Department of Transportation 2007). While there are seasonal variations in vegetation with fall colors, the scenery is not exceptional, but rather indistinctive in comparison to other similar areas in the region.

For Alternatives 2 and 3 the effects are the same. The new bridge would be in very close proximity to the existing, larger bridge.

*Recreation*

This section of the North and South Branches of the Gale River area provides numerous dispersed recreation opportunities including fishing, dispersed camping, photography, and swimming similar to many other rivers on the White Mountain National Forest. The use of the North and South Branches of the Gale River is much higher upstream from the project area,

where dispersed campsites and river access points are located farther from the highway but still have easy access from the Gale River Road.

Under Alternatives 2 and 3, the proposed actions in the analysis area are described in Table 3-13. The new bridge is not expected to affect any recreation opportunities in this area. The bridge will be no lower than the existing Route 3 bridge.

#### *Geology*

The geology of this area is mostly composed of igneous and metamorphic rocks and is typical to the White Mountain National Forest. Landforms in the upper river valley include steep side slopes and glacial deposits. There are no known economic mineral deposits or recreational rock/mineral collecting activities associated with this reach.

Under all alternatives and project components within the North and South Branches of the Gale River direct and indirect effects analysis area, no effects upon the geology of the rivers are anticipated. The scale and type of actions, including the installation of a permanent bridge, will not affect the geologic resources associated with this reach of the Gale River as no changes are proposed that would alter the geology of this area. The proposed bridge and abutments would completely span the bedrock channel of the river and sit well above the normal high flows. In this way, landforms which are associated with this reach of the river will be maintained.

#### *Fish*

These sections of the North and South Branches of the Gale River provide habitat for and support populations of wild brook trout. As described in greater detail in the Fisheries section of this document, factors important to maintaining quality habitat for brook trout include cool continuous flowing water, unimpeded travel upstream and downstream, clean gravels for spawning and egg incubation, clear water during the growing season, instream cover, adequate food supply, sufficient quality pools during drought and winter, and suitable riparian habitat.

Installation of the bridge over the Gale River under Alternatives 2 and 3 may result in siltation at this site; however, watershed restoration work done on other streams within the WMNF has shown this to be localized and of a short duration if it does occur (USFS 2005b and 2006a monitoring data on Great Brook). Forest Plan standards and guidelines would be followed to minimize sedimentation entering the river, including limiting construction during the egg incubation period. The bridge would have no effect on brook trout, as they would be outside the stream channel and normal flows. See the Fisheries section for additional information.

#### *Wildlife*

Terrestrial wildlife populations and habitats are not unique or rare within the analysis area. Generalist species frequent the area, but no unique population is supported.

Under Alternatives 2 and 3, Forest Plan standards and guidelines and best management practices will protect streams during bicycle path and bridge construction, minimizing reduction in canopy cover, removal of ripar-

ian vegetation, and sedimentation. See the Wildlife section and Biological Evaluation for additional information.

*Historic and Cultural*

In this segment of the Gale River, no known cultural or historic sites are present. A cultural resource paraprofessional surveyed this area in 2007 and submitted a report to the State Historic Preservation Office in June of 2007. The area in which the bridge construction will occur has been previously disturbed by the construction of the existing Route 3 highway bridge. Effects to historical and cultural resources are not anticipated under any alternative.

*Other Values*

To date, no other values have been identified as outstandingly remarkable along these stretches of the North and South Branches of the Gale River. Hydrology and botany resources have been considered in this evaluation.

**Summary of Effects to Eligibility Criteria**

Table 3-15 describes the effects of each alternative on the eligibility criteria for which these sections of the North and South Branches of the Gale River could be included into the NWSRS.

**Table 3-15: Summary of Effects on Potential ORVs**

<b>Alternative</b>	<b>Description of Effects</b>
1	No effects are expected.
2	<p><i>Scenery</i> – The bridge will alter the scenery in one location very close to US Route 3, but will not change the scenic character of the river area.</p> <p><i>Recreation</i> – The effects to recreation will be very localized and temporary. The proposed actions would not prevent consideration of recreation as an ORV in the future.</p> <p><i>Geology</i> – There will be no effects to geology. The proposed actions would not prevent the consideration of Geology as an ORV in the future.</p> <p><i>Fish</i> – The projects proposed may result in minor, localized sedimentation but no long term effects are anticipated on fish resources. The proposed actions would not prevent consideration of fish as an ORV in the future.</p> <p><i>Wildlife</i> – Use of best management practices, including Forest Plan standard and guidelines will minimize or eliminate any effects to wildlife. The proposed actions would not prevent consideration of wildlife as an ORV in the future.</p> <p><i>Historic and Cultural</i> – No known resources despite recent surveys, and areas previously disturbed, so no expected effects.</p> <p><i>Other Values</i> – None identified for this river.</p>
3	Same as Alternative 2.

As described in the table, no actions proposed in the Twin Mountain Bicycle Path Project are anticipated to affect the future consideration of ORVs for these segments of the North and South Branches of the Gale River.

***Cumulative Effects***

The analysis areas for cumulative effects on eligible Wild and Scenic Rivers are the entire North and South Branches of the Gale River eligible Wild

and Scenic Rivers. This includes the entire rivers from the headwaters to their convergence to form the Gale River, including land within 1/4 mile of the bed/banks of the river and the highway bridge. This analysis area is entirely on National Forest land except for two inholdings, one owned by the Town of Littleton and one owned privately. This analysis area was chosen because it allows for consideration of the entire North and South Branches of the Gale River corridors that are identified as eligible in the Forest Plan (2005a). The temporal scope for cumulative effects on eligible Wild and Scenic Rivers is 1990 to 2020, because this considers activities that have occurred since the time of the eligibility determination in 1990 and those that may occur before 2020, approximately when the next Forest Plan revision may take place.

The North Branch of the Gale River is divided into three segments. The uppermost 1 mile is designated potentially wild, the middle 2.7 mile section as scenic, and the lower 1.2 mile section as recreational. The South Branch is also divided into three segments, with the uppermost 2.9 miles designated as potentially scenic, and the lower two sections, totaling 1.1 miles, designated as potentially recreational. These two branches converge and become the Gale River, which is not a designated or eligible Wild and Scenic River, at almost precisely the place where the Route 3 bridge crosses the river.

Since there would be no direct or indirect effects on the classification criteria or free-flowing condition, no cumulative effects to classification or free-flowing condition are expected. Therefore, the cumulative effects discussion will focus on effects to the eligibility criteria of scenery, recreation, and fish and wildlife. For the other eligibility criteria (geology, cultural and historic, and other values), no direct and indirect effects are anticipated, therefore no cumulative effects are expected. Also, no actions are proposed by Alternative 1 within the direct, indirect and cumulative effects analysis areas, so cumulative effects for this alternative will not be discussed.

Past, present, and reasonably foreseeable future projects within the cumulative effects analysis area are identified in Table 3-16. All past, present, and foreseeable future projects are located in segments with potential recreational classification.

#### *Scenery*

No vegetation management units near the North and South Branches were immediately adjacent to the rivers, and visual effects from the rivers are minimal. Stands regain foliar density within a few years, as will be the case for any future vegetation management within 1/4 mile of the rivers. All appropriate Forest standards and guidelines will be followed pertaining to cutting units in proximity to perennial streams.

A bridge on the Gale River Trail washed away during high water in the spring of 2005. Rather than replace it, the District plans to ultimately re-route the short distance of trail between the washed out bridge and an existing bridge, thereby eliminating the need for both bridges and their associated maintenance or reconstruction. This relocation is not expected to result in any appreciable changes to scenery resources, as the old bridge

**Table 3-16. Past, Present and Reasonably Foreseeable Future Actions in Cumulative Effects Analysis Area.**

<b>Project</b>	<b>Description</b>	<b>Estimated Implementation</b>
Gale River Trail bridge or relocation	An existing bridge was destroyed in 2005 and rock steps were moved to make a temporary crossing. The district anticipates rerouting approximately ½ mile of trail rather than construct another bridge.	Foreseeable Future
Vegetation Management Project	District Timber personnel indicate that vegetation management will likely be proposed southeast of FR 92 in the foreseeable future. This may fall within the analysis area.	Foreseeable Future
Moose Watch Vegetation Management Project	This project was on the northeast side of the North Branch of the Gale River. Two payment units were within ¼ mile of the Gale River.	2003-2005
Bickford Vegetation Management Project	This project was located west of the South Branch of the Gale River and west of FR 92 and FR 92A. One payment unit lies within the analysis area.	Sale closed in 2004

would be removed and the old trail brushed in. In summary, no cumulative effects to scenery are expected.

*Recreation*

The Gale River Trail bridge reconstruction or trail relocation project would increase hiker safety at a potentially difficult stream crossing and would eliminate one existing bridge along the trail. The proposed new bicycle path bridge along Route 3 would enable all recreationists to utilize a safer crossing of the highway. These projects will have a positive effect on recreation.

*Fish and Wildlife*

Any bridge construction or removal projects may result in some localized and short-term sedimentation in the North or South Branches of the Gale River. All projects on National Forest System lands will comply with Forest Plan standards and guidelines as well as best management practices aimed at reducing sedimentation from such activities into streams. Due to the incorporation of best management practices and Forest Plan standards and guidelines, significant long-term or cumulative effects are not expected, even when combined with the Twin Mountain Bicycle Path Project and the other potential future projects described above. In summary, cumulative sedimentation is not expected to affect fish or wildlife values of the North or South Branches of the Gale River.

*Summary*

In summary, the action alternatives for the Twin Mountain Bicycle Path Project present a low risk of adding to cumulative effects on potential ORVs for the North and South Branches of the Gale River and are not anticipated to prevent consideration of any of these resources as ORVs in the future.

## Community, Environmental Justice, and Economics

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### Affected Environment

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. The Twin Mountain Bicycle Path project area is located on federal lands in portions of the towns of Franconia, Bethlehem, and Carroll in Grafton and Coos Counties, New Hampshire.

#### **Franconia**

The town of Franconia, population 1,004, was chartered in 1764 and encompasses the southern portion of the project area. Franconia Notch State Park contains several popular natural features, including the Flume, Profile and Echo Lakes, the Basin, and was the location of the Old Man of the Mountain, which fell on May 3, 2003.

The median age in the town of Franconia is 47.1 years, with 20.1 percent of the population under the age of 20 and 9.4 percent age 65 and older. The total number of households is 392, with an average of 2.2 household members. There were 728 housing units available as of April 1, 2000. In 2005, Franconia's population density was 15.3 persons per square mile. Franconia contains 65.7 square miles of land area and 0.1 miles of inland water area.

There are no residences adjacent to the project area in the town of Franconia.

#### **Bethlehem**

The town of Bethlehem, population 2,381, was first established in 1774 as Lloyd's Hills and was incorporated as Bethlehem in 1799. It encompasses the middle section of the project area. The town center lies on Route 302 west of the community of Twin Mountain and northwest of the proposed bicycle path.

The median age in the town of Bethlehem is 39 years, with 24.3 percent of the population under the age of 20 and 9.9 percent over the age of 65. The total number of households is 924, with an average of 2.48 household members. There were 1,307 housing units available as of April 1, 2000. In 2005, Bethlehem's population density was 26.2 persons per square mile of land area. Bethlehem contains 90.9 square miles of land area and 0.1 square miles of inland water area.

There is one private residence adjacent to the project area in the town of Bethlehem. This landowner has been notified of the project.

#### **Carroll**

The town of Carroll, population 738, was originally chartered as Bretton Woods in 1772 and was incorporated as Carroll in 1832. Twin Mountain is one community within the town of Carroll. The portion of the proposed bicycle path in the town of Carroll begins at the town line north of Hay-

stack Road and follows the existing Route 3 corridor into the community of Twin Mountain. The town of Carroll is home to the Mount Washington Hotel and Bretton Woods Mountain Resort, two major tourist attractions in the northern region of New Hampshire.

The median age in the town of Carroll is 42.9 years, with 20.5 percent of the population under the age of 20 and 13.3 percent over the age of 65. The total number of households is 287, with an average of 2.34 members per household. There were 799 housing units available as of April 1, 2000. In 2005, Carroll's population density was 14.7 persons per square mile of land area. Carroll contains 50.3 square miles of land area and 0.02 square miles of inland water area.

There are several private residences and businesses adjacent to the project area in the town of Carroll. Each has been notified of the project at addresses made available by the Carroll town offices.

## **Environmental Effects**

### *Direct and Indirect Effects*

*Environmental Justice:* Public participation for the Twin Mountain Bicycle Path Project has included all known interested parties as contacted via public meeting, user groups, scoping notices, town office records, and the WMNF public participation database. The general public, including all potentially affected adjacent residents or landowners, have had an opportunity to participate in this environmental analysis through scoping and the release of this document.

*Economics:* Regardless of the outcome of an environmental analysis, there are a set of baseline costs associated with the consideration of this proposal on White Mountain National Forest lands. The environmental analysis required by the National Environmental Policy Act is one component of the planning effort that may result in project implementation. Planning activities include biological and other environmental surveys, trail layout, data collection and analysis, planning meetings, public involvement, and preparation of an environmental assessment and decision documents. Costs associated with preliminary planning and this analysis are fixed costs regardless of the decision reached.

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### **Alternative 1**

Although no construction would occur in the No Action alternative, analysis costs to the Forest Service would still be incurred. No local communities would bear the responsibility of construction or maintenance of the trail.

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### **Alternatives 2-3**

The trail would be constructed under the direct administration and supervision of Forest Service contract administrators. Funding for trail construction and maintenance will be provided by a variety of funding sources other than or including the Forest Service. These sources may include state, local, and individual grants, as well as donations of funds, material, labor, equipment, and supplies. An organized group from the local communi-

ties is committed to procuring funding sources for the implementation and long-term maintenance of the proposed project. Materials and equipment expenditures would contribute a direct economic benefit to local economies during the construction and maintenance phases of the project.

As indicated in the Vegetation Management section of this EA, there will be some trees harvested along the bicycle path that are of some limited commercial value. The cost of tree removal along the proposed long, narrow trail as well as requirements for minimized ground disturbance, when balanced with the small number of trees, renders their removal not economically viable. There will be no direct economic benefit realized from the harvest and removal of isolated merchantable trees along the proposed trail. This is particularly true for portions of proposed trail that follow the old Route 3 corridor, which contains primarily saplings and shrubs.

Positive direct and indirect economic effects on the local economy are anticipated, as demonstrated in other communities supporting local bicycle paths. These benefits may include use of local resources for project implementation and increased patronage to local shops, convenience stores, restaurants, and other amenities. It is not expected that this path will alone be a destination for most recreationists, but will increase recreation opportunities for the public at large and will provide the local towns with an additional means for promoting recreation and other opportunities in their areas (Trail Facts, 2002 and Urban Research and Development Corporation, 2006).

### *Cumulative Effects*

The analysis area for cumulative effects on community, environmental justice, and economics is the towns of Franconia, Bethlehem, and Carroll. This analysis area was chosen because it incorporates the towns through which the proposed bicycle path would be built and includes the citizenry who most likely would be involved with trail construction and maintenance and who would reap the most benefit from the path. The timeframe chosen for this analysis begins with initiation of project implementation (for the purposes of analysis, chosen as 2008) and extends ten years into the future. This timeframe was chosen because it represents a reasonable time for which future management actions can be predicted.

### **Alternative 1**

This alternative would result in no cumulative effects with regard to community, environmental justice, or economics. Local snowmobile users would not receive an improvement to their snowmobile network, and an additional year-round recreation opportunity for residents and visitors would not be created.

Local community members and groups have been advocating for this bicycle path for over three years. They would perceive the implementation of Alternative 1 as an adverse decision.

## **Alternatives 2-3**

*Environmental Justice:* Alternatives 2 and 3 provide for fair treatment of all people regardless of race, color, national origin, or income. There are no known cumulative effects to environmental justice as a result of the implementation of either action alternative.

*Community and Economics:* Research on economic effects from other bicycle paths nationwide indicates that these paths do have a positive effect on the local economy and quality-of-life for community members. They provide a nearby recreation opportunity for people with all levels of physical ability and are an expression of community pride and character (NBPC Technical Brief, 2005).

It has also been demonstrated that community-based bicycle paths are a source of direct and indirect revenue for local towns. This bicycle path, particularly in conjunction with other local recreational opportunities, is expected to increase the number of recreationists seeking a variety of outdoor opportunities during all seasons. The path would provide an additional alternative to accommodate a wider variety of users of the area.

The snowmobile trail relocation proposed with this project is not anticipated to have any cumulative effects on economics or the community. This relocation will not bring snowmobilers closer or farther to any local businesses. It is not anticipated that this relocation will change the amount or type of motorized winter use on the trail.

Subsequent projects and management activities in the area of the proposed path may generate user conflicts where it uses existing roads and skid trails. In this instance, as in other similar circumstances on the WMNF, accommodations would be considered and implemented appropriately. The trail may be temporarily relocated to its former location if conflicts with timber sales are anticipated. It is anticipated that this effect would be negligible in context of the economic value of the resources in the project area.

The Forest Service is not obligated to supply funding and labor for long-term maintenance of this bicycle path. Local organized groups are committed to establishing a means of funding to ensure the long-term quality of the path and its associated infrastructure. A Memorandum of Understanding will be drafted between the local communities and the Forest Service to establish a means of ensuring the quality of the bicycle path experience. It is not anticipated that there will be a considerable burden to local towns to care for this resource.

In summary, it is anticipated that this project will have no effects on environmental justice and positive cumulative effects on the community and the local economy.

## Transportation Facilities

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### Affected Environment

There are two classifications of existing roads within the project area. Classified Roads are wholly or partially within or adjacent to the National Forest System lands and are determined to be needed for long-term motor vehicle access and may include state roads, county roads, privately owned roads, National Forest System Roads, and other roads authorized for use by the Forest Service. Unclassified Roads are roads on National Forest System lands that are not managed as part of the forest transportation system, such as existing un-inventoried roads that may have existed prior to Forest Service acquisition, abandoned travelways, temporary roads, and off-road vehicle tracks (36 CFR 212.1).

Before implementation of this project, unclassified roads of “undetermined” status in the National Forest Road System falling within the project area may be evaluated and either added or removed from the WMNF Road System.

### Environmental Effects

#### *Direct and Indirect Effects*

The analysis area for direct and indirect effects is all roads included in the project area. This area is chosen because these are the roads that will be impacted with implementation of any action alternative. The temporal scope is the next five years, because that is the length of time for projected implementation.

#### **Alternative 1**

This alternative would have no direct or indirect effects on the transportation system within the project area. Ongoing road maintenance activities within the project area would continue. No improvements would be made to the drainages on the old Route 3 travelway.

#### **Alternative 2**

This alternative would integrate portions of the following existing roads and skid trails into the proposed bicycle path: FR 181 (Priest Hill Road), FR 92 (South Branch Gale River), FR 25 (North Branch Gale River), FR 304 (Haystack Road), and US Route 3.

Alternative 2 would have direct and indirect effects on all sections of those Forest Roads on which the trail would run. These roads would receive increased non-motorized use year-round, and those with newly permitted snowmobile use would seasonally receive increased motorized use. This would have a direct effect on access for vegetation management activities, as discussed in the Vegetation Management section. On roads seasonally open to the public, there will be increased multiple-use; private vehicles will encounter bicyclists and pedestrians in higher numbers than before. No resource impacts are expected with this increased use, but there will be a minor effect to the recreationists’ experience.

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**Alternative 3**

This alternative would have the same effects on transportation facilities as identified in Alternative 2 except for the section between the Skookumchuck Trailhead and Priest Hill Road. Under Alternative 3, this section of trail would follow classified and unclassified roads for almost its entire length. Neither of these roads are open to public vehicles and therefore there would be no direct or indirect effects due to recreation user/automobile conflicts. Please refer to the Vegetation Management section for effects on vegetation management activities.

*Cumulative Effects*

The analysis area for cumulative effects on transportation facilities is the project area and connections to existing snowmobile trails and other classified and unclassified roads. This area was chosen because it includes all transportation facilities that could be impacted by activities included in the proposed action. The time frame is the past ten years and the next ten years because that is when past activities may have impacted transportation facilities and when additional activities may be anticipated in the foreseeable future.

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**Alternative 1**

There are no expected cumulative effects under Alternative 1.

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**Alternatives 2-3**

Cumulative effects on vegetation management are expected under both action alternatives. These effects are described in the Vegetation Management section. No other cumulative effects on transportation facilities are expected. In order to mitigate effects to vegetation management projects, the section of bicycle path from the Skookumchuck Trailhead to the Gale River Road may be relocated to the snowmobile trail's former location when harvesting activities are proposed. Any section of bicycle path may be closed to non-motorized use at any time if the path will interfere with vegetation management activities.



## Chapter Four – Preparation & Consultation

### Introduction

The following individuals have participated in development and analysis of the proposed action and all other alternatives and will participate further during subsequent environmental analysis until a decision document is complete.

### Interdisciplinary Team

Kori Marchowsky, ID Team Leader and Recreation Planner

Clara Weloth, District Fish and Wildlife Biologist

Livia Crowley, Forest Hydrologist

Karl Roenke, Forest Archaeologist

Andy Colter, Forest Soil Scientist

Chris Mattrick, Forest Botanist

Bruce Jackson, Forest Partnership Coordinator

Jenny Preiss, Recreation Technician

J. Sylvester, Engineer

### Forest Service Personnel Consulted for Professional and Technical Assistance

Roger Boyer, Pemigewasset Assistant Ranger--Timber

Ken Allen, Forest Landscape Architect

Richard Dow, Forest Technical Writer/Editor and Webmaster

### Other Agencies and Organizations Consulted for Professional and Technical Assistance

Karen Bordeau, New Hampshire Fish and Game Wildlife Biologist

Jennifer Codispoti, NH DRED, Trails Bureau

Tom Jameson, NH DOT, Bicycle/Pedestrian Section Engineer

James McConaha, New Hampshire State Historic Preservation Office

Greg Placy, New Hampshire Department of Transportation

Clint Savage, NH DRED, Trails Bureau



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## Appendix A

# Response to 30-Day Comment Report

Below is an overview of the comments received in response to the Twin Mountain Bicycle Path Project 30-Day Comment Report. Fifteen responses were received from interested organizations and individuals. Comments were categorized and sent to the Twin Mountain Bicycle Path Interdisciplinary Team for review and response. Comments in their entirety are available for review in the Project File upon request.

We appreciate the time respondents spent reviewing the 30-Day Comment Report and value input from all interested parties.

The comments are arranged by the following broad category headings:

1. Support of Proposed Project
2. Safety
3. Wildlife/Plants
4. Environmental Analysis
5. Socio-Economic
6. Recreation
7. Design/Engineering

### Support of Proposed Project

Fourteen of the 15 commentors expressed support of the proposed project. Below are excerpts from several of these comments:

*Bicycle trails can have a significant impact on local economies as well as getting bicycles off the roads in sections where there are no wide shoulders. Route 3 has limited shoulders for bicycles and a bicycle path could be an important safety issue. (Sloat)*

*We have seen a marked increase in interest in bicycling within our membership and visitors in recent years, and the addition of this facility will be welcomed as both an extension to the existing Franconia Notch bike path, an in and of itself as a beautiful ride from Franconia Notch into Twin Mountain. We also are most supportive of the economic development opportunity this facility represents for Twin Mountain by expanding multi-season recreation opportunities that are immediately accessible from the village. Finally, we appreciate the thoughtful effort that has gone into developing the route alternatives in order to ensure minimal environmental impacts as well as multiple recreational use opportunities. (Thayer)*

*We believe the extension of the bike path trail system from Franconia Notch to Twin Mountain will provide a tremendous economic boost to Twin Mountain and the surrounding area. (Corso)*

*This will be a big impact on the recreation activity for the North Country and Twin Mountain as well. (Garneau)*

*We agree with the Forest Service's proposed routes utilizing sections of the old Route 3 and constructing tunnels under the existing Route 3 in two locations. (Covey)*

*The commission has no environmental concerns about the proposed Twin Mountain Bicycle Path Project. (Jensen)*

*A great idea for the North Country and all bike riders in New England. (Hallquist)*

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*A great idea for the North Country and all bike riders in New England. (Hallquist)*

**Response:** Thank you; comments noted.

### **Safety**

*Snowmobile lights can be a major problem and this [Alternative 3] seems to take that into consideration. (Parker)*

**Response:** Thank you; comment noted.

### **Wildlife/Plants**

*I believe the two tunnel crossings might eventually be used by animals as an alternative to the highway. (Parker)*

**Response:** Thank you; comment noted.

*... although we are aware that the dicentra seems to survive logging activity ... a paved or gravelled path across this area is a whole different matter, and your report properly notes that not only the path footprint but the area to each side would be impacted. I think it is a good suggestion to consider the alternative 3 and am pleased that your people considered it. (Baird)*

**Response:** Thank you; comment noted.

### **Environmental Analysis**

*Because no "need" for the proposed project has been shown, I oppose the proposed bike path. (Linell)*

**Response:** The purpose and need for this project are defined and explained in Chapter 1 of the Environmental Analysis (EA).

### **Socio-Economic**

*The assumption that a bike path located for the most part outside Twin Mountain will produce economic gain for that village is absurd. (Linell)*

**Response:** Research has shown that similar bicycle paths around the country do have economic and social benefits to the local area, as stated

in Chapter 3, Community, Environmental Justice, and Economics section of the EA.

## Recreation

*The EA does not state whether the proposed path will be paved or an other type of surface .... The EA does not state that asphalt is not a good surface for snowmobiling or for cross country skiing. (Linell)*

**Response:** Please refer to Chapter 2 of the EA which states the proposed surface for the bicycle path will be “a rock dust or small diameter gravel-type surface.” The EA does not propose asphalt as the surface for this path.

*Page 2-3 of the EA refers to the “... Existing designated bicycle path along Route 3.” There is no bicycle path along Route 3. There are bicycle lanes along both sides of Route 3 (Linell)*

**Response:** Thank you for your response. This section of Route 3 is a State “Designated Bicycle Route” with bicycle lanes, not a “path.” The EA has been amended to reflect this change.

*On page 2-5, we find mention of possible future conversion of sections of the path currently expected to be used as a xc ski route to snowmobile use. No details are given. (Linell)*

**Response:** The EA states that “some small sections may be considered for future snowmobile use if necessary to link key snowmobile trail segments.”

*On page 2-8 is a proposal for signs giving the public the “maximum grade” on the route of the proposed path. I object to using public money to construct, place and replace signs which constitute visual pollution, and which give information which can be given out via the internet. (Linell)*

**Response:** The Forest Service Trail Accessibility Guidelines (FSTAG) provide guidance for maximizing accessibility of trails in the National Forest System, while recognizing and protecting the unique characteristics of their natural setting. FSTAG recommends specific information be available at applicable trailheads to enable the user to make an informed choice regarding the appropriateness of a particular trail for an individual.

*On page 3-35 is a claim of “... Heavy truck traffic”, and an ADT of 3900 vehicles per average day. This is ambiguous wording. (Linell)*

**Response:** While an ADT of 3900 is not high for many roads in some other parts of New Hampshire, it does represent a busy road in this geographic area. The percent of these vehicles that were “heavy trucks” was not quantified for this analysis, but direct observation during field reconnaissance of the proposed route showed that the amount of truck traffic is considerable.

*If snowmobiles are to pass over the Gale River, they should have an opaque fence between the snowmachines and Route 3 vehicles to prevent distraction of Route 3 drivers. (Linell)*

**Response:** Thank you for your comment. Safety of recreationists and drivers is our highest priority. State of New Hampshire and other bicycle path engineers will be consulted to ensure safety is a primary consideration when this bridge, and the rest of the bicycle path, is constructed.

*It is imperative that snowmobile access be continued to Haystack Road for continuation of the snowmobile trail network. (Codispoti)*

**Response:** Thank you for your comment. This project will have no negative impact on current snowmobile access in the Haystack Road area. Any additional snowmobile access proposals are beyond the scope of this proposal.

*We are in concurrence with moving the Heritage Trail and it is something that can be done as long as all landowners are notified and willing to agree. Additionally, the landowners where the trail will be moved need to give permission for it to be on their property. (Codispoti)*

**Response:** Thank you for your comment.

### **Design/Engineering**

*As part of the same path design process, the path's design should be examined for possible locations where a North slope for the entire width of path may create drainage advantages in comparison with the typical two way superelevation design. (Linell)*

**Response:** Thank you for your comment. Design and construction of the bicycle path will be done by qualified personnel and will use best management practices and appropriate design techniques.



