

**Final Report of the Committee to Study Rail Trail Best
Management Practices (HB 311)
HB 311, Chapter 94:2 of 2021**



October 24, 2022

Final Report of the Committee to Study Rail Trail Best Management Practices (HB 311)

HB 311, Chapter 94:2 of 2021

Executive Summary

On July 1, 2021 House Bill 311 (HB 311) authorized a committee to study Best Management Practices (BMPs) for New Hampshire's rail trails (Appendix A contains authorizing legislation). Committee members include Representatives Linda Gould (Chair), Suzanne Smith (Clerk), and Gregory Hill, and Senator David Watters. The Committee met eight times from November 2021 to October 2022 to hear testimony from various individuals, agencies, and organizations, and to prepare this report. Copies of meeting minutes are included in Appendix B. Copies of agency and organizational reports and presentations are provided in Appendix C. Existing BMPs and related resources are provided via links contained within this report. The Committee's final report is due November 1, 2022.

The Committee's primary duties were as follows:

- I. Develop best management practices for repurposing former rail beds into rail trails and develop best management practices for maintaining rail trails to reduce or limit exposure of possible contamination to users.
- II. Seek input from state agencies including the Department of Environmental Services (NHDES), the Department of Transportation (NHDOT), and the Department of Natural and Cultural Resources, Bureau of Trails (NHBOT).
- III. Solicit advice and testimony from experts in areas of study including, but not limited to:
 - a. Residual contamination from railroad operations.
 - b. Contamination from other sources.
 - c. Identifying areas of contamination concern.
 - d. Establishing goals of best management practices.
 - e. Pre-and post-construction concerns.
 - f. Fugitive dust.
 - g. Impact on vegetation.
 - h. Impact on abutters.
 - i. Motorized *vehicle* impact.
 - j. Pedestrian impact.
 - k. Animal impact.

The Committee has identified the following principal findings:

- Extensive, interconnected, and well-maintained rail trails provide substantial and sustainable economic, health and community benefits.

- State agencies responsible for rail trail management (NHDOT, NHBOT, NHDES) routinely collaborate to ensure applicable regulations and BMPs are followed for safe and effective trail construction and maintenance.
- Potential residual contamination from railroad operations is considered by NHDES to be a “background” condition along rail corridors. Soil, ties, and related corridor materials are not regulated when managed within the corridor right of way. Resurfacing and maintaining the former corridor for its repurposed use provides a barrier (i.e. cap) that prevents direct contact with potential residual contamination.
- Fugitive dust from disturbance of the trail surface can impact rider and abutter health and visibility. Unless the trail is paved, most types of trail modal uses can cause fugitive dust under certain conditions (dry weather, loose surface material). In general, more dust is generated by motorized (mainly OHRVs, not snowmobiles) than non-motorized modes. While agencies are attentive to this issue, fugitive dust is ubiquitous and challenging to control. Current funding does not adequately address fugitive dust presence and mitigation in trail corridors.

See NH Rail Trails Coalition (NHRTC) testimony of February 14, 2022 in Appendix C for discussion of other potential impacts listed under Section III of the Committee’s primary duties.

- According to limited survey data collected for the economic impact chapter of NHDOT’s NH State Rail Trails Plan, use of state-owned rail trails is overwhelming for recreational purposes with high use activities being walking/running/hiking and bicycling (75%), followed by Off-Highway Recreational Vehicles (OHRVs) and snowmobiles (25%). However, trail use for all modes of transportation must be considered and addressed, from surfacing materials to trail etiquette. In 2021, HB1188 was approved to form a commission charged with further evaluating impacts related to OHRV use in NH.
- Modes of transportation are evolving and are expected to continue to do so, for example, development of electric powered vehicles (e-bikes).
- State funding for sustainable corridor purchase, improvement, and maintenance is inadequate, being overly dependent on competitive federal funds, motorized use (snowmobile and OHRV) registration fees, and private contributions.

The Committee offers the following principal recommendations:

- The State should make rail-trail development, marketing, and funding for all modal users a cornerstone of its recreation and tourism programs and policy.
- Continue to encourage and support existing interagency cooperation and private / public partnerships related to rail trail acquisition, construction, and maintenance.

- Continue to treat materials within rail corridors (i.e. soil, ballast, ties) as background, not regulated by NHDES when managed within the railroad right-of-way.
- Trail-related infrastructure (parking, welcome centers) constructed in former or current industrial areas may require additional assessment if file research (e.g. [NHDES OneStop](#)) indicates potential contaminated materials may be encountered during facility construction and operation.
- Consider the variety of modal uses when developing rail trails. The development of rail trails should be considered based on the funding source used to acquire the corridor, which may restrict uses, as well as consideration of the modal users that the trail manager/sponsor (usually NHBOT or municipalities) want to accommodate.
- While differences in relative speed of various users creates a potential safety hazard, trail construction and public education through etiquette signage are important ways to balance multi-modal, shared use.
- Identify and consider additional, sustainable State funding source(s) that could be allocated to New Hampshire rail trail networks and augment existing funding sources. To support rail trails in NH, better leverage federal funds, and other grant funds, and encourage better use of state funds. Consider options to lease corridor for permitted uses to provide additional funding. Refer to Chapter 3 of [NH Rail Trails Plan \(August 2022\)](#) for additional discussion of funding sources (i.e. Vermont’s \$2.8 million investment to complete the [Lamoille Valley Rail Trail](#), soon to be the longest in New England and a substantial economic boost for their North Country. The Lamoille Valley Rail Trail was spearheaded by the Vermont Association of Snow Travelers (VAST), which is VT’s snowmobile association).
- Coordinate with the findings and recommendations of the NH State Rail Trails Plan, and the findings of the HB 1188 commission, when complete (November 2026 timeline).

Make this report readily available to the public by hosting on HB311 Committee web site.

The remainder of this report provides additional context and supporting information for this summary and a “road map” to guide trail developers to existing and proposed BMPs, with expanded findings and recommendations at the end. The Committee wishes to thank those that contributed to this report and looks forward to addressing any questions of the General Court.

NH Rail Trail System and Best Management Practices (BMPs)

Railroad service began in New Hampshire in 1838 and, at one time, was the primary means of transporting people and goods between within the state and region. For over a century, hundreds of miles of active rail lines carried the lifeblood of our state’s economy. With the post-WWII advent of interstate highways and exponential growth in automobile and truck transportation, the use of railroad corridors for the movement of

goods and people has decreased but has not become obsolete; rail is still an important part of the multi-modal transportation system. Currently in NH there are approximately 417 miles of active railroad (state-owned & privately-owned) that are used primarily for rail freight transportation, passenger rail, and tourist excursion railroad services.

Since the 1990s, a national movement has been growing to convert abandoned rail corridors to rail trails, for interim use, by utilizing the existing grades and infrastructure to create a larger network of rail trails. Nationally, the Rails to Trails Conservancy ([RTC](#)) lists 24,000 miles of rail- trails developed and in use across the United States. During this time the State, through NHDOT, has acquired abandoned railroad corridors from private railroads, in accordance with NH RSA 228, for the purpose of continued and future operation of a railroad or transportation corridors and has availed much of that mileage for interim recreational use as rail trails. Chapter 1 of the [NH Rail Trails Plan \(August 2022\)](#) identifies approximately 338 miles of state-owned rail trails of which 334 miles of are on abandoned state-owned railroad corridors and four (4) miles are within active state-owned railroad corridors.

In accordance with NH RSA 228:60-b, the NH Department of Transportation (NHDOT) has the right to match any offer for the sale of railroad property within the state and, if acquired by the NHDOT, can be made available for rail or, on an interim basis, for recreational trails. Currently, many of these more recently acquired corridors are used as part of an extensive, interconnected system of snowmobile trails and in many cases are also year-round recreational rail trails.

There are 27 state-owned rail trails in NH totaling 338 miles; 19 are within rail corridors owned by NHDOT and the remaining 8 are owned by the NH Department of Natural & Cultural Resources (NHDNCR). The NHBOT is a bureau with the NHDNCR and tasked with the surface maintenance of the rail corridors owned by the Department. Of these 338 miles, all state-owned rail trails that NHBOT maintain allow snowmobile use and approximately 68 miles allow summer OHRV use. As NHDOT owns a significant portion of the rail corridors, NHBOT partners with the NHDOT Bureau of Rail and Transit for management of several corridors/rail trails; most of the routine maintenance on these corridors is handled by the NHBOT and most of the property management (easement, encroachments, leases, etc.) is managed by the NHDOT Bureau of Rail and Transit.

NHBOT operations are currently funded solely by OHRV/snowmobile registrations and gas taxes on these motorized vehicles. NHBOT does not receive general funds or State Parks tollbooth fees. NHBOT manages the Grant-in-Aid (GIA) Program, which comes from OHRV registrations, snowmobile registrations and road toll taxes (unrefunded state gas tax). NHBOT also manages the Federal Highway Administration (FHWA) Recreational Trails Program (RTP), which comes from federal gas taxes from fuel purchased for recreational vehicles. Additional funds for corridor purchases and improvements come through NHDOT from federal sources (most notably Congestion, Mitigation & Air Quality (CMAQ)

Program and Transportation Alternatives Program (TAP)) and from municipalities and private donations.

Dedicating rail trails to active non-motorized and motorized use fulfills the vision outlined in the [Statewide Comprehensive Outdoor Recreation Plan](#). Hundreds of thousands of NH residents and visitors, from toddlers to seniors using mobility devices, use New Hampshire's rail trails to recreate, by walking, running, bicycling, snowmobiling, riding OHRVs, riding horses, cross-country skiing, and more. Some even use rail trails for everyday transportation uses, such as commuting and running errands. NH's rail trails are a valuable State asset.

Nationally, the total local spending impact of rail trails was \$10.6 billion in 2019 and projected to grow to \$21 billion annually ([RTC, October 2019](#)). As detailed in Chapter 2 of the [NH Rail Trails Plan \(August 2022\)](#), New Hampshire can reap substantial economic benefit by maintaining and expanding its rail trail network.

Existing BMPs

Several BMPs created and maintained by different State and national agencies are in place to guide trail construction and maintenance. Interagency communication and cooperation are a critical component of NH's rail trail management system. Existing BMPs include:

- NHBOT. NHBOT published a manual for trail maintenance and construction activities as required by RSA 216-F:6. The [NH Trail Construction and Maintenance Manual](#) is focused on erosion control and water quality protection. NHBOT coordinates closely with NHDOT, NHDES, and local organizations that assist with trail acquisition, construction, and maintenance.
- NHDES. The NHDES Wetlands Bureau has BMPs related to trails and wetlands crossings, currently in Chapter 5 of [Wetlands BMP Techniques](#), and [Fugitive Dust Prevention, Abatement and Control](#) methods. NHDES' Waste Management Division does not have BMPs of its own related to rail trails but has utilized the "[Best Management Practices for Controlling Exposure to Soil during the Development of Rail Trails](#)", prepared by the MA Department of Environmental Protection as a reference.
- NHDOT. NHDOT has model agreements for towns and other non-agency trail sponsors and managers in Appendixes G and H of the [NH State Rail Trails Plan \(August 2022\)](#). The State Rail Trails Plan also contains information about trail design and construction in Chapter 5.
- NHRTC. Several resources from trail acquisition to trail services are provided under the [Resource](#) section of the [NHRTC web site](#).

- Rails to Trails Conservancy ([RTC](#)). A national rail trail umbrella organization that supports State and local trail development with information, advocacy, and a [Trail Building Toolbox](#).

Figure 1 is a flow chart to aid trail managers in identifying and following applicable BMPs to develop and maintain rail trails. Table 1 lists key trail and BMP resources and references shown on Figure 1. Key trail development and maintenance steps include:

1. Identify. Using maps of existing trails and corridors, and selection criteria of the coordinating agencies, identify the section(s) of trail targeted for development. Considerations of connectivity, condition of corridor, clarity of ownership, environmental conditions, and transportation and recreational values should be included.
2. Acquire. If the corridor is already owned by NHDOT, a rail trail manager/sponsor (NHBOT or municipality) would need to enter into a rail trail agreement with NHDOT to assume operational and management responsibility. If the corridor is not owned by NHDOT, engage key partners (owner, NHDOT, NHBOT, possible legal counsel, and funding sources) to acquire or obtain easements. If the railroad corridor has not been formally abandoned through the Surface Transportation Board (STB), funds will be needed to prepare and file appropriate paperwork in concert with the railroad owner and/or railroad operator.

Ownership and value of remaining rails and ties is typically addressed as part of transfer. Consider transferring permanent ownership to NHDOT or NHBOT, with possible rail banking (holding for possible future return to active rail), and, as necessary, enter into appropriate agreements with corridor owner.

Railroads are required to submit an environmental report to the Surface Transportation Board (STB) when they begin the process of abandoning a corridor. If the STB finds that salvaging the line will result in significant environmental impacts, they can impose conditions on the abandoning railroad requiring them to address the issues before abandonment can proceed.

For new acquisitions, assessing and mitigating residual contamination is negotiated between the railroad corridor seller (current owner) and buyer (prospective owner) and should be determined prior to property transfer. Existing corridors owned by NHDOT may be exempt from this process.

3. Design. Work with project partners to establish design criteria (types of use, access points, trail dimensions, signage, amenities) and use existing guidelines (RTC Trail Design, Chapter 5 of [State Rail Trails Plan](#), NHBOT and NHDOT) and corridor information

(State Valuation Maps, public records of potential contaminant releases ([OneStop Navigation | NH Department of Environmental Services](#)) to create a conceptual design.

Identify required permits (NHDES Land Use Bureau; Wetlands, Alteration of Terrain, local parking, and signage). NHDES land use permitting for rail trails generally falls under recreational trail construction requirements.

Refine conceptual design with project team to create final design suitable for construction bids, budget, schedule, and construction. Obtain required permits and approvals.

4. Build. Rail trails are essentially long dirt roads, requiring subgrade, drainage, culverts, and suitable wear surface. Excellent subgrade and drainage infrastructure typically remains from original rail construction. [Chapter 5 of State Rail Trails Plan](#) contains typical trail construction cross sections and specifications. Appendix D (developed for use on the Northern Rail Trail) contains suggested technical specifications for compacted stone dust surfaces. NHDOT & NHBOT conferred relative to these specifications and offered the following comments:

- This specification is surfacing treatment only and has no structural value if placed thick. Other materials (e.g. existing ballast rock or compacted bank-run gravel) would be needed to supply the base course.
- The type of surface treatment installed should be based on the modal use that is permitted on the trail and the modal users that the land/trail manager is trying to accommodate.
- Continued availability of matching material should be a consideration (for when repairs are needed due to washouts, culvert replacements, etc.).

(Note: This is not the only acceptable surface type for recreational rail trails).

Create construction management team, select qualified contractor, and ensure construction performed in accordance with approved design and permitting requirements.

5. Maintain. All trails require continual maintenance, including surface filling, compacting, and grading; mowing; brushing; tree limbing and removal; erosion control and repair; ditch clearing; bridge decking and guardrail repair; signage, and more. Maintenance is typically performed by NHBOT staff with assistance from qualified volunteers supplied through local organizations. Contractors may be engaged for larger projects (e.g. bridges, culverts, bank stabilization). NHBOT can receive private donations for targeted maintenance projects outside their budget and the abilities of volunteers. In 2015 the RTC prepared a report on [Trail Maintenance Elements and Costs](#) that includes several NH trails. Maintenance items and costs are also detailed in [Chapter 5 of State Rail Trails Plan](#).

Throughout the life of a rail trail, continued collaboration between project partners and positive relations with abutters and trail users are beneficial for long-term success.

Findings

The Committee has identified the following significant findings:

- Extensive, interconnected, and well-maintained rail trails provide substantial and sustainable economic, health and community benefits.

Note that the State of Vermont authorized \$2.8 million to match \$11.3 million in federal funds and complete the Lamoille Valley rail trail in 2022. The Lamoille will be the longest rail trail in northern New England and is expected to provide a substantial and long-lasting economic boost to Vermont's North Country.

- State agencies responsible for rail trail management (NH DOT, NH BOT, NH DES) routinely collaborate to ensure applicable regulations are followed for safe and effective trail construction and maintenance.
- Potential residual contamination from railroad operations is considered by NH DES to be a "background" condition along rail corridors. Soil, ties, and related corridor materials are not regulated when managed within the corridor right of way. Resurfacing and maintaining the former corridor for its repurposed use provides a direct contact barrier (i.e. cap) that prevents direct contact with potential residual contamination.
- Fugitive dust from disturbance of the trail surface can impact rider and abutter health and visibility. Unless the trail is paved, most types of modal uses can cause fugitive dust under certain conditions (dry weather, loose surface material). In general, more dust is generated by motorized (not including snowmobiles) than non-motorized modes. While agencies are attentive to this issue, fugitive dust is ubiquitous and challenging to control. Current funding does not adequately address fugitive dust presence and mitigation in trail corridors.
- According to limited survey data collected for the economic impact chapter of NH DOT's development of a NH State Rail Trails Plan, use of state-owned rail trails is overwhelmingly for recreational purposes with high use activities being walking/running/hiking and bicycling, followed by Off-Highway Recreational Vehicles (OHRVs), including snowmobiles. In 2021, HB1188 was approved to form a commission charged with further evaluating impacts related to ATV use in NH.
- Modes of transportation are evolving and are expected to continue to do so, for example, use of e-bikes and other electric vehicles.
- Funding for sustainable corridor purchases, improvements, and maintenance is inadequate to maintain and expand NH's rail trail network.

Recommendations

The Committee offers the following recommendations:

- The State should make rail trail development, marketing, and funding for all modal users a cornerstone of its recreation and tourism programs and policy.
- Continue to encourage and support interagency cooperation related to rail trail acquisition, construction, and maintenance.
- Continue to treat materials within rail corridors (i.e. soil, ballast, ties) as background, not regulated by NHDES when managed within the railroad right-of-way.
- Trail-related infrastructure (parking, welcome centers) constructed in former or current industrial areas may require additional assessment if file research (e.g. [NHDES OneStop](#)) indicates potential contaminated materials may be encountered during facility construction and operation.
- Maintain an adequate riding surface (e.g. compacted soil, asphalt) for improved trail access and additional protection from potential residual contamination, especially in former or current industrial areas.
- While differences in relative speed of various users creates a potential safety hazard, trail construction and public education through etiquette signage are important ways to balance multi- modal, shared use.
- Design, build and maintain trail surfaces aligned with allowed modal use (e.g. motorized, non-motorized). Typical options include asphalt paving and compacted stone surfaces with varying degrees of durability.
- Coordinate with the findings and recommendations of the NH State Rail Trails Plan, and the findings of the HB 1188 commission, when complete (November 2026 timeline).
- The development of rail trails should be considered based on the funding source used to acquire the corridor, which may restrict uses, as well as consideration of the modal users that the trail manager/sponsor (usually NHBOT or municipalities) want to accommodate.
- Identify and consider additional, sustainable funding source(s) that could be allocated to expand and maintain New Hampshire's rail trail network and would serve to augment existing funding sources. Recommended State funding option from Chapter 3 (p. 90) of the [State Rail Trails Plan \(August 2022\)](#) include:
 - Dedicating money from the state's operating or capital budget for rail trails;
 - Establishing a user fee; or
 - Issuing a general obligation bond which would require authorization by law and ratification by state voters.

- To support rail trails in NH, better leverage federal funds, and other grant funds, and encourage better use of state funds. Consider options to lease corridor for permitted uses to provide additional funding. Refer to Chapter 3 of [NH Rail Trails Plan \(August 2022\)](#) for additional discussion of funding sources (i.e. Vermont’s \$2.8 million investment to complete the [Lamoille Valley Rail Trail](#), soon to be the longest in New England and a substantial economic boost for their North Country. The Lamoille Valley Rail Trail was spearheaded by the Vermont Association of Snow Travelers (VAST), which is VT’s snowmobile association).

A copy of this report should be made readily available to the public by hosting on HB311 Committee web site.

The Committee wishes to thank those that contributed to this report and looks forward to addressing any questions of the General Court.

Figures

Figure 1 – Flow Chart and BMPs for State Rail Trail Development and Maintenance

Tables

Table 1 - BMP Resources and References

Appendixes

Appendix A – Committee Authorization and Charge (House Bill 311, 2021)

Appendix B - Committee Meeting Minutes

Appendix C – Supplemental Testimony and Reports (NHDES (2), NHRTC)

Appendix D – Suggested Material Specification (Compacted Surfaces)

Figure 1 - Logic Steps and BMPs for State Rail Trail Development and Maintenance
 Final Report of the Committee to Study Rail Trail Best Management Practices (HB 311)
 (See Table 1 for References a – k)

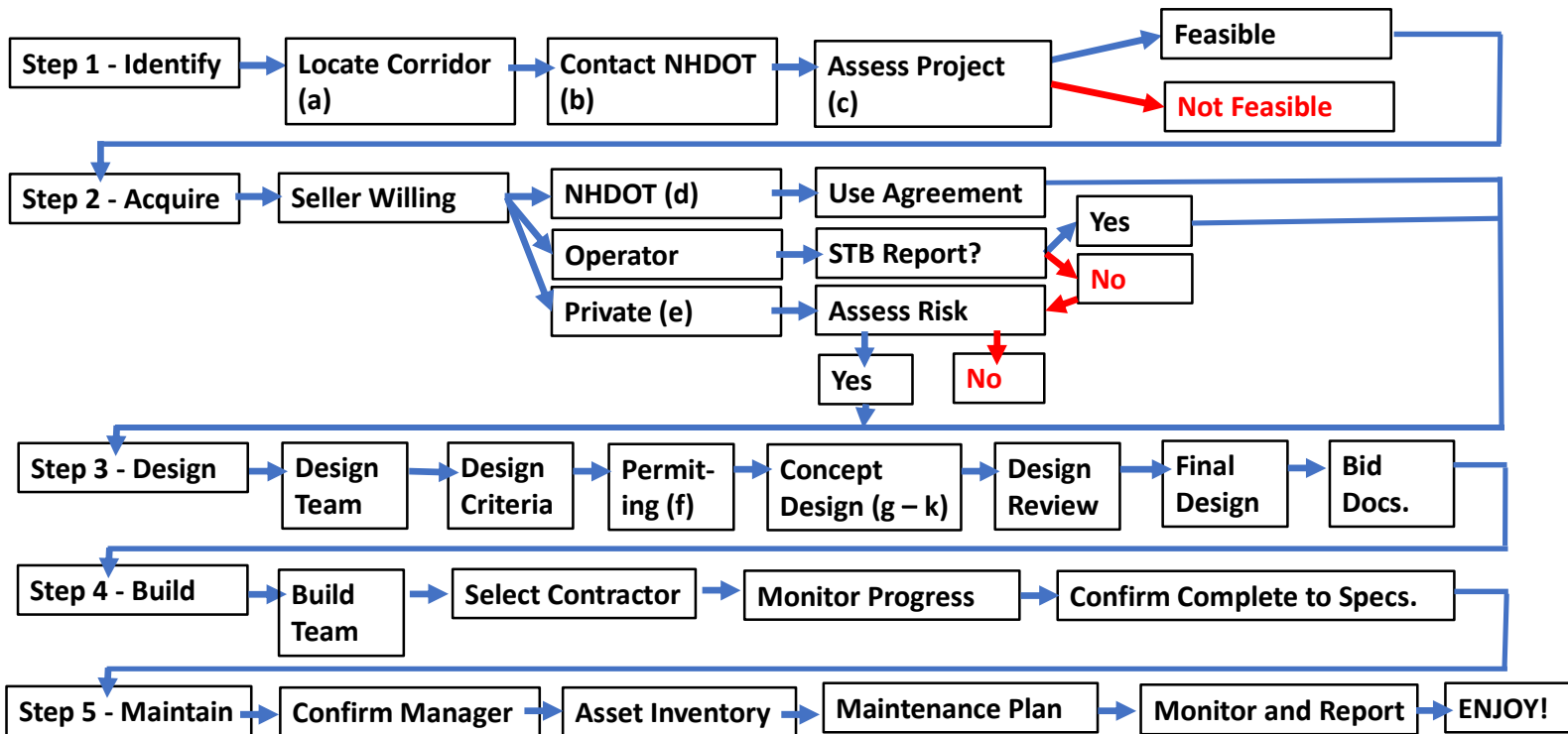


Table 1 – BMP Resources and References

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October 18, 2022

Fig. 1 ref. (1)	Agency (2)	Resource / Reference (3)
a.	NHDOT	Existing active and abandoned rail corridors in NH (NHDOT Bureau of Rail and Transit)
b.	NHBOT	NHBOT contact information
c.	NHDOT	State Rail Trail Plan (NHDOT Bureau of Rail and Transit)
d.	NHDOT	R-T Agreement for Abandoned corridors (NHDOT Bureau of Rail and Transit)
e.	NHDES – Waste Management	Contaminated Sites, OneStop, MADEP
f.	NHDES – Wetlands Bureau	Permitting by Notification (applies to most trail projects)
g.	NHBOT Rail Trail BMPs	NH Trail Construction and Maintenance Manual
h.	NHDES Wetlands Bureau BMPs	Wetlands BMP Techniques
i.	NHDES – Dust Control BMPs	Fugitive Dust Prevention, Abatement and Control
j.	Rail to Trail Conservancy BMPs	Trail Building Toolbox
k.	NHRTC	See Resources tab at NHRTC

NOTES:

- (1) Reference location on Figure 1
- (2) NHDOT = NH Department of Transportation; NHBOT = NH Bureau of Trails (Dept. of Natural and Cultural Resources); NHDES = NH Department of Environmental Services; MADEP, MA Department of Environmental Protection; NHRTC = NH Rail Trails Coalition
- (3) Active link to referenced resource

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October 31, 2022**

**APPENDIX A – COMMITTEE AUTHORIZATION AND
CHARGE (House Bill 311, 2021)**

CHAPTER 94
HB 311 - FINAL VERSION

03/25/2021 0864s

2021 SESSION

21-0414
04/05

HOUSE BILL **311**

AN ACT establishing a committee to study rail trail best management practices.

SPONSORS: Rep. Suzanne Smith, Graf. 8; Rep. Weston, Graf. 8; Rep. Gould, Hills. 7

COMMITTEE: Resources, Recreation and Development

ANALYSIS

This bill establishes a committee to study and develop rail trail best management practices.

Explanation: Matter added to current law appears in ***bold italics***.
Matter removed from current law appears ~~in brackets and struckthrough.~~
Matter which is either (a) all new or (b) repealed and reenacted appears in regular type.

CHAPTER 94
HB 311 - FINAL VERSION

03/25/2021 0864s

21-0414
04/05

STATE OF NEW HAMPSHIRE

In the Year of Our Lord Two Thousand Twenty One

AN ACT establishing a committee to study rail trail best management practices.

Be it Enacted by the Senate and House of Representatives in General Court convened:

1 94:1 Findings. The general court finds that:

2 I. Many former rail lines were abandoned years ago and appear to be nearly reclaimed by
3 nature. Others have been repurposed as recreational trails which are used by residents and visitors
4 for walking, bicycling, skiing, snowshoeing, as well as for snowmobiles and 4-wheel OHRVs.

5 II. In some instances adjacent industrial activities, historic loading practices, leaks during
6 material transfers or storage, and repair activities have contaminated soil with oil or hazardous
7 materials. In addition, residual contamination can often be found along the length of the line,
8 incidental to the maintenance and use of the railway itself.

9 III. Redevelopment of former rail lines to recreational trails can be accomplished in a way
10 that protects public health and the environment. It requires recognizing potential problems and
11 implementing actions to safeguard nearby residents, workers, and trail users throughout the life of
12 the project.

13 94:2 Committee Established. There is established a committee to study rail trail management
14 practices.

15 94:3 Membership and Compensation.

16 I. The members of the committee shall be as follows:

17 (a) Three members of the house of representatives, at least 2 of whom shall be from the
18 resources, recreation, and development committee, appointed by the speaker of the house of
19 representatives.

20 (b) One member of the senate, appointed by the president of the senate.

21 II. Members of the committee shall receive mileage at the legislative rate when attending to
22 the duties of the committee.

23 94:4 Duties. The committee shall:

24 I. Develop best management practices for repurposing former rail beds into rail trails and
25 develop best management practices for maintaining rail trails to reduce or limit exposure of possible
26 contamination to users.

27 II. Seek input from state agencies including the department of environmental services, the
28 department of transportation, and the department of natural and cultural resources, bureau of
29 trails.

30 III. Solicit advice and testimony from experts in areas of study including, but not limited to:

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- 1 (a) Residual contamination from railroad operations.
- 2 (b) Contamination from other sources.
- 3 (c) Identifying areas of contamination concern.
- 4 (d) Establishing goals of best management practices.
- 5 (e) Pre-and post-construction concerns.
- 6 (f) Fugitive dust.
- 7 (g) Impact on vegetation.
- 8 (h) Impact on abutters.
- 9 (i) Motorized vehicle impact.
- 10 (j) Pedestrian impact.
- 11 (k) Animal impact.

12 94:5 Chairperson; Quorum. The members of the study committee shall elect a chairperson from
13 among the members. The first meeting of the committee shall be called by the first-named house
14 member. The first meeting of the committee shall be held within 45 days of the effective date of this
15 section. Three members of the committee shall constitute a quorum.

16 94:6 Report. The committee shall submit an interim report of its findings and any
17 recommendations for proposed legislation to the speaker of the house of representatives, the
18 president of the senate, the house clerk, the senate clerk, the governor, and the state library on or
19 before November 1, 2021 and shall submit a final report on or before November 1, 2022.

 94:7 Effective Date. This act shall take effect upon its passage.

Approved: July 01, 2021
Effective Date: July 01, 2021

**Final Report of the Committee to Study Rail Trail Best
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APPENDIX B – COMMITTEE MEETING MINUTES

HB311 Rail Trail Study
Committee Minutes 11/9/21

Members Present: Representatives Linda Gould (Chair), Suzanne Smith (Clerk), and Greg Hill.
Senator David Watters

Guests: Joseph Gordon, (Chief of Police, Sandown), Trixie LeFevre (assistant to Sen. Avard), Dan Torrey (committee researcher) Alexis Rudko (Trails Bureau-DNCR), Craig Rennie (Director Trails Bureau DNCR), Shelley Winters DOT, Andy Bauriault (Lakes Region E-bikes), Ellen Kolb (NH Rail Trail Coalition), Matt Leahy (NH Forest Society)

Presentation by DNCR Bureau of Trails (BOT) Director, Craig Rennie.

Mr. Rennie presented a handout outlining the Bureau's history, and responsibilities and other information. He also shared maps of recreational rail trails in NH. (see attached)

Mr. Rennie stated that biggest challenge for the department is funding. BOT's funding comes from NH OHRV and snowmobile registrations as well as funding from the federal government. Funding is based on registration numbers based on an algorithm developed in 2009. He suggests that NH adjust the algorithm and not wait for Feds. There is also the Recreational Trails Program (RTP). RTP funds may be allocated to either or both motorized and non-motorized trail projects. Additionally, a portion of taxes on fuel purchased specifically for OHRVs and snowmobiles is allocated to the BOT.

He stated that the expenses related to converting abandoned rail tracks into a rail trail is very costly. The department has Best Management Practices for NH Trail Construction and Maintenance (<https://www.nhstateparks.org/about-us/trails-bureau/trail-maintenance>) which addresses erosion control, maintaining the natural flow of water in streams and wetlands, minimizing the risk of sediment and other pollutants getting into water bodies and provide a safe stable trail system. Department of Transportation (DOT) works with BOT and/or municipalities.

BOT currently does not have abandoned rail tracks tested for chemicals left over from rail activity over the years, herbicides sprayed along tracks or other possible toxins. If there is a known problem, then it is tested. If surface of trail is not fixed with stone then it probably needs to be tested.

Comments from Guests: Joe Gordon, chief of police Sandown testified about increased use of OHRVs and dirt bikes on the Rockingham Recreation Trail in his area. Use has increased over the years and noise is the #1 problem. Dirt bikes and OHRVs use the trail year round. In other parts of the state, trails are closed to OHRVs during the winter months. He stated that decibel limits (RSA 215A-12) cannot be enforced in the field because of competing noise.

Chief Gordon is also concerned about industrial waste along or under the rail trail. Town has a history of industrial use and the railroad was active for centuries. He also expressed concern about the waste running into the Exeter River

He would like to see lower speed limits on rail trail in residential areas, as well as better enforcement of the requirement that those between the ages of 12-16 take a safety course when using OHRVs/snowmobiles.

At the December meeting Shelley Winters and others from the Department of Transportation will present to the committee. The chair asked for input from members on other groups which should be called upon.

Rep. Gould made a motion to adjourn and Rep. Smith seconded.
The meeting was adjourned at 10:20 am.

Respectfully submitted
Suzanne Smith, Clerk



STATE OF NEW HAMPSHIRE
DEPARTMENT of NATURAL and CULTURAL RESOURCES
DIVISION of PARKS and RECREATION
BUREAU of TRAILS

172 Pembroke Road Concord, New Hampshire 03301
Phone: (603) 271-3254 Fax: (603) 271-3553 E-Mail: nhtrails@dncr.nh.gov



Handout for November 9, 2021 LOB meeting regarding HB 311

Summary of the Bureau of Trails activities on State owned Rail Trails

1. Who are the Bureau of Trails (BoT)?

- The Bureau was created in 1973, by HB 10, as the “Bureau of Off-Highway Vehicles” and charged with overseeing the snowmobile and trailbike activities of the time.
- In 1993, the name changed to “Bureau of Trails” to reflect the expanding role of the Bureau, including non-motorized trails.
- Statutory authority: RSA 215-A, RSA 215-C
- The Bureau consists of 14 full-time highly skilled staff:
 - ✓ 1 Bureau Chief
 - ✓ 3 office staff for administrative and grant management
 - ✓ 3 district field supervisors
 - ✓ 7 equipment operators

2. What does the Bureau of Trails do? (RSA 215-A:3)

- Coordinate with the DNCR Division of Forest and Lands, the NH Fish and Game Dept., and the NH Dept. of Transportation to manage and maintain off-highway recreational vehicle (OHRV) and snowmobile trails in NH including:
 - ✓ Administer state and federal funds for trails
 - ✓ Act as liaison between landowners and trail users
 - ✓ Work with organized clubs in the support of the OHRV and snowmobile sport
 - ✓ Coordinate efforts to obtain easements and ROW for trails, and/or acquire property
 - ✓ We also are authorized to participate in studies on the effects of OHRV and snowmobile operations to the environment, like erosion and other potential damage
 - ✓ Provide planning, development, and maintenance for the **Statewide Trail System**
 - ✓ Promote the proper use of trails throughout the state, and protect their integrity for future generations
 - ✓ Encourage the use of trails for educational purposes through the use of signs, published material and trail adoption programs
 - ✓ Coordinate the development of the New Hampshire Heritage Trail designated in RSA 216-A:11
 - ✓ Assist communities with their trail programs
 - ✓ Support research and information gathering activities on the economic benefits of trails and improved environmental design of trails
 - ✓ Coordinate the efforts of motorized and non-motorized trail interests in the state
 - ✓ Maintain a list of recognized OHRV/snowmobile clubs
 - ✓ Recommend statutory/rule changes relating to OHRV, snowmobiles and rail trails when necessary
 - ✓ Receive all requests for OHRV/snowmobile highway road crossings and connectors

3. What is the “**Statewide Trail System?**” (RSA 216-F)
 - BoT is responsible for developing and administering a statewide trail system on state and federal lands, and assisting organizations, municipalities and trail clubs (both motorized and non-motorized) with trail-related activities on both public and private lands
 - BoT responsibilities do not include the NH Hiking Trails Network, but we do assist in helping non-motorized trails in maintenance and management on occasion
 - Included in the Bureau's management of the statewide trail system are:
 - ✓ 1000+ miles of wheeled OHRV trails
 - ✓ 7400+ miles of snowmobile trails
 - ✓ 300+ miles of state owned rail-trails

4. State Rail Trails
 - There are 19 state-owned rail trails in NH with 300+ miles of trails
 - Of these 300 miles, approximately 61 miles allow summer OHRV use
 - BoT partners with the NHDOT Bureau of Rail and Transit for management of these rail trails
 - ✓ The majority of maintenance is done by the BoT
 - ✓ The majority of land management (easement, encroachments, leases, etc.) is done by the Bureau of Rail and Transit
 - Trails with OHRV use allowed year round: Ammonoosuc, Sugar River and Rockingham Recreation Trail (Freemont branch)
 - Trails with OHRV use allowed year round, except mud season: Warren, Hillsborough, Greenville and the east portion of Presidential Rail Trail
 - Trails with OHRV use allowed with snow cover: Presidential, Profile, Cotton Valley and the Rockingham Recreation Trail (Freemont)
 - All state-owned rail trails that BoT maintains allow snowmobile use

5. How is the Bureau of Trails funded?
 - The BoT is funded *SOLELY* by OHRV/snowmobile registrations, and gas taxes on these motorized vehicles
 - ✓ All trail programs (insurance, maintenance, brochures, equipment, staff, etc.) are paid from these fees
 - The bureau does NOT receive general funds or State Parks tollbooth fees
 - The Bureau manages the Grant-in-Aid (GIA) Program, which comes from OHRV registrations, snowmobile registrations and road toll taxes (state gas tax).
 - The Bureau also manages the Recreational Trails Program (RTP), which come from federal gas taxes from fuel purchased for recreational vehicles

6. The Bureau of Trails published a Best Management Practices (BMP) manual for trail maintenance and construction activities, as required by RSA 216-F:6
 - Available free online, this manual is focused on erosion control and water quality protection. Hard copies provided.

7. Bureau of Trails information regarding fugitive dust:
 - BoT dust control efforts typically consists of applying calcium chloride or wood chips as needed for problem locations. Pavement can be used to control dust, but creates conflicts for other user groups like equestrian, mushers and snowmobilers.
 - Several OHRV clubs add calcium chloride to the rail trails to assist in controlling dust, examples include:
 - ✓ Presidential OHRV Club on the Presidential Rail Trail
 - 2021: No calcium chloride - very wet season
 - 2020: 50 bags spread
 - 2019: 100 bags spread over the season

- ✓ Ammonoosuc ATV club on the Ammonoosuc Rail Trail
 - Approximately 100 bags/year on average
- ✓ Mount Moosilauke ATV Club on the Warren Rail Trail
 - Approximately 50 bags/year on average
- Most rail trails are “capped” with compacted/crushed stone, or in some cases, pavement.
 - ✓ The Presidential Rail Trail from the Route 2 parking lot East to the Pike Industries gravel pit was paved this year to reduce dust near residential areas
 - ✓ Some dust can emanate from compacted/crushed stone when applied and capped, but that dust is not generated from the underlying soil

8. Bureau of Trails problems we encounter:

- Staff limitations
- User conflicts

9. Bureau of Trails opportunities:

- Continue to work on trail etiquette publications and signage. See our website regarding trail etiquette at: <https://www.nhstateparks.org/about-us/trails-bureau/trail-etiquette>
- Continue working closely with DOT Bureau of Rail and Transit on the State NH Rail Trail Plan
- Continue working with the White Mountain National Forest through a cooperative agreement to address snowmobile bridge maintenance in the National Forest

10. Bureau of Trails recent accomplishments

- We have successfully acquired, administered and closed a Federal Northern Borders grant to work on the Ammonoosuc Rail Trail east extension
- We have successfully acquired, administered and closed a Federal Lands Access Program grant for maintenance to the Pondicherry National Refuge section of the Presidential Rail Trail

11. Bureau of Trail future goals

- Create a non-motorized coordinator position within the BoT to work with the Bureau of Rail and Transit on rail trails, and to work with other non-motorized user groups on recreational trails

Rail Trail Study Committee (HB311)
Minutes December 10, 2021
DRAFT

Present: Reps Linda Gould (chair), Suzanne Smith (Clerk), Greg Hill and Senator David Watters

Guests: Shelley Winters (DOT), Craig Rennie (DNCR-BOT), Boyd Smith, Dan Torrey (Committee researcher), Adam Schmidt (NH Snowmobile Association), Ellen Kolb (NH Rail Trail Coalition), Bobby Collins (NH-Off-highway Recreational Vehicles Association)

Shelly Winters of NH Department of Transportation outlined agreements between DOT and the Department of Trails (DNCR) as well as with municipalities. She explained that in some areas such as the seacoast and southern NH where DOT has rail trail agreements with municipalities. In these instances, DNCR does not have a vested interest. Both agencies have ownership and management responsibilities in specific cases.

(Presentation by Shelly Winters NH DOT

Ms. Winters shared maps of railtrails throughout the state. Some are held by DOT (fee simple) Others are in a cooperative agreement with DNCR's Bureau of Trails and others held with a municipality. This process excludes local groups.

DOT has municipal rail trail agreements where DNCR –seacoast and southern NH-does not have vested interest. Both agencies have ownership and management.

The NH Rail Master Plan for Rail Trails does not address issues of contamination. It does include maintaining culverts. It also assures that crossings are safe, both for wildlife and people as well as keeping rail trails safe and available for public use. The new proposed Rail Trail Master Plan doesn't address environmental contaminants/issues.

DOT follows environmental rules promulgated by DES. They require new materials be clean but understands there could be environmental challenges which are not typically addressed. Any construction entity is required to follow DES rules. Materials excavated may be utilized within the right of way. DES works with the construction entity and DOT to determine if/which soils need to be transported off site. In more cases, DOT is given information on how things can be mitigated.

They work to mitigate issues with abutters such as water runoff to adjacent properties. Fencing is required with the abutter if the railroad is active.

DOT addresses safety issues and infrastructure such as compliance with ADA standards.

The Funding source determines whether motorized vehicles are allowed. Once standards in a particular area are set, it is possible to further restrict use but restrictions cannot be loosened. If a municipality objects to the use of motorized vehicles on a rail trail, DOT, on behalf of the state, would consider a change.

Members questioned whether there are new rail trails under consideration. Craig Rennie stated that the Bureau of Trails is working on extending the trail in Littleton to the Presidential Rail Trail. Another railroad being converted into a rail trail under consideration is in Columbia.

Ms. Winters discussed the possibility of the state acquiring part of the abandoned rail owned by PanAm to extend Northern Rail Trail.

There is also an active DOT project on seacoast (9 miles) and another 8 miles to MA that could be developed. Development of these trails is costly.

DOT works with municipalities on Americans With Disabilities (ADA) compliance. This includes placement of gates which allow wheelchair access and the best surface for the rail trail. (packed stone, pavement or other)

Public hearings are not required for each rail trail proposal, however municipalities may go through a public process. Senator Watters suggested there may be a need for public hearings legislatively

Ms. Winters addressed questions and comments from committee members.

Problems with abutters? Municipalities responsible for enforcement.

Noise from motorized users? Bureau of trails as well as Fish and Game and local law enforcement address this issue.

There is a Memorandum of Understanding (MOU) with DNCR for active railroads which are only used seasonally. This allows for use by cross country skiing and snowmobiles during the winter.

Since there is federal funding for rail development, could some of these funds be directed to rail trails? This is something to be researched.

Is there coordination between state Departments of Transportation? NH confers with VT and Maine regularly b/c of our rural nature. There are also agreements between these states.

Discussion about residual liability (for toxic materials) even though state has taken over a railroad bed. Purchase and sale agreements. Is there liability to the rail company outlined in purchase and sale agreements? Ms. Winters said it would depend on what testing was done at the time.

Wells on the East West route between Manchester and Portsmouth are being monitored, because of what the railroad was used for. Ms. Winters did not know if that use was disclosed to DOT at the time. She will check P&S agreement.

Minutes: Sen. Watters made a motion to approve November minutes. Rep Gould seconded. Senator Watters, Reps. Gould and Smith concurred, and the minutes were approved. Rep. Hill abstained because he was not in attendance for the entire meeting.

Future meetings:

January 24, Monday -- Department of Environmental Services Rooms 210-211

February _____

March _____

Future topics:

Review MA Best Management Practices Manual

Review and compare BMPs or related information from other states.

Review BMPs MA and other states when we get that information

Attorney General's office to review liability issues.

NH Rail Trail Coalition

Meeting was adjourned at 9:59 am.

Suzanne Smith, Clerk

HB 311 Committee to Study Rail Trail Management Practices

January 24, 2022

Minutes

In Chair Gould's absence, Rep. Smith called the meeting to order at 9:00 AM.

Present: State Reps. Suzanne Smith and Greg Hill, Senator David Watters.

Guests: Ellen Kolb and Boyd Smith (NH Rail Trails Coalition), Craig Rennie and Alexis Rudko (NH Bureau of Trails), Tim White, Michael McCluskey and Philip Trowbridge (NH Department of Environmental Services), Louis Barker (NH Department of Transportation - Rail and Transit), Trixie Lefebure (NH Horse Council), Adam Schmidt (NH Snowmobile Association)

Minutes of the December 10 meeting were approved unanimously.

Michael McCluskey, of DES Hazardous Waste Division gave a presentation on DES role in environmental impact of converting railroad beds to rail trails used by the public. (attached) Phil Trowbridge of the Water Division and Tim White from the Air Resources Division at DES were also present and available to answer questions.

Mr. McCluskey explained that residual contamination from railroad operations includes oil drippings, coal ash and clinkers as well as railroad ties treated with creosote. These are very common occurrences. More serious contaminants such as oil spills are found in areas along abandoned rail lines which used to serve industry such as mills, tanneries or other factories. DES' first task is to identify areas of contamination concern. The type of Environmental Site Assessment (ESA) performed on the site and the surrounding area depends on the site. Did the rail line run through an uninhabited, inhabited area or an industrial area? A Phase 1 Environmental Site Assessment (ESA) is often done as part of the property transaction. They are looking for Recognized Environmental Conditions (RECs). A Phase 2 ESA is usually performed only at former industrial areas, and Mr. McCluskey gave examples including the Woods Woolen Mill in Hillsborough. That rail corridor is owned by DNCR, and for that site/rail trail proposal, a committee including the local Regional Planning Commission, the municipality and others are all working together.

Sometimes 'background' contaminants are left in place or moved within the right-of-way. Most often, a barrier made of a manufactured geotextile material is placed to prevent oil drippings or other contaminants from seeping up to the actual trail surface. In some instances, contaminated soil is buried away from the actual trail but within the right-of-way. Snow fences may be installed to keep people away from a contaminated area. Because there are so many miles of abandoned track and rail trails in less populated areas, there is no practical way to test a lot of the trails. Moving contaminants off site makes it a solid waste issue and is more problematic.

DES works with DOT and gives guidance about rail trail conversions when they are asked. Committees which are working to expand rail trails or repurpose rail lines may reach out to DES which will then do a review either Phase 1 ESA (review of data) or when location is a former manufacturing or industrial site, a Phase 2 ESA (site visit and testing of area). Contamination concerns often focus on groundwater.

Department refers to Massachusetts BMPs as they are the only state which has developed a detailed document which focuses on contaminants and rail trail conversion.

Mr. McCluskey discussed possible federal funding for reparation of brownfields. Federal funding is available for infrastructure as well as for brownfields. This funding may be a good fit for cleaning up along abandoned rail lines. In Winchester, there are abandoned mills adjacent to that rail trail, and in Franklin near the Northern Rail Trail, there is an abandoned foundry. When we begin to formulate best management practices, DES may be of assistance and could work with the committee.

In response to members' questions, DES staff stated that if a railroad is active, that entity is responsible when rail ties leach creosote. Involved parties usually set up agreements prior to sale or takeover of line. They also said that they do not regulate fugitive dust, because if it is clean material and surface is hardpack, it should stay where it is. They agreed that during a dry season, a lot of dust can get kicked up. Barriers are often used to prevent underlying contaminants from rising to the surface on busy trails.

All members were concerned about the breathing in of the dust, activity stirring up contaminants and how we can test the dust. Where should that testing be focused ie what sites? It could mean massive testing to really find out. Presenters stated presently there is no testing done after trails have been in use. Massachusetts does point studies, but they do not go back and test after the rail trails have been built.

DES staff explained that wherever there is a former railroad, contaminants will be found--more so in areas like the abandoned woolen mill in Hillsborough. In that location there is even lead paint contamination. Could a study looking at the range of contaminations be done, doing a limited risk assessment including number and type of users (walkers, bike riding, OHRVs, equestrian), and how often they use the trail?

Chair Smith thanked the Mr. McCluskey, Mr. Smith and Mr. Trowbridge for the presentation and for helping the committee understand more about the issue of repurposing abandoned rail lines.

The next meeting is scheduled for Monday February 14 at 9 am at the department of environmental services.

The meeting was adjourned at 10:25 am.

Respectfully submitted,

Suzanne Smith, Clerk

Committee to Study Rail Trail Best Management Practices
February 14, 2022
Minutes--DRAFT

Rep. Gould called the meeting to order at 9:03 am.

Present: Reps. Linda Gould (Chair), Suzanne Smith (Clerk) and Greg Hill.
Absent: Sen. David Watters

Guests: Ellen Kolb and Boyd Smith (NH Rail Trail Coalition), Craig Rennie and Alexis Rudko (Bureau of Trails), Shelley Winters (NH Department of Transportation), Maryann Tilton (NH Department of Environmental Services)

Minutes: Rep. Gould made a motion to approve the minutes of the January 24 meeting. Rep. Hill seconded and all concurred.

Mr. Boyd Smith and Ms. Ellen Kolb of the NH Rail Trails Coalition provided information on their organization whose mission is to promote the development, maintenance, and active recreational use of trails constructed in New Hampshire's railroad corridors. They provided a link to Stone dust application BMPs which they have developed and BMPs that are already in place and being used by agencies including DNCR's Bureau of Trails and DES Wetlands Bureau as well as others.

There was some discussion about rail trails which allow OHRVs and those which do not. Mr. Rennie shared that no rail trails in MA allow OHRVs.

Their presentation included information about a DES workshop from 2018 which focused on fugitive dust. They also cited a Wisconsin study which goes into great detail about rail trail development and use. They will share this with the committee. Link follows.

https://embed.widencdn.net/pdf/plus/widnr/v14yww7wgx/FL_SCORP_2005-2010_FullDocument_PR-026.pdf?u=l52owe

With a lot of traffic on a rail trail, especially those which are open to motorized OHRVs as well as non-motorized methods (bikes, horses, strollers etc), dust can block sunlight and reduce a plant's ability to photosynthesize

Mr. Smith stated that in his research he found NH BMPs pertaining to rail trails. This information is found on the websites of various agencies.

Rails to Trails Conservancy, a national organization has done an economic analysis of the benefits of Rail trails (recreational). People are attracted to recreational rail trails and travel to explore them. Commercial activity adds economic benefit. Rental companies rent bikes, OHRVs and snowmobiles.

Ms. Kolb stated that some of the non motorized use are in support of the coexistence of motorized and non-motorized. Their Coalition tries to integrate all user groups.

Mr. Rennie commented that it isn't just OHRVs which create dust, but mountain bikers also. Leaf blowers are used to clear off rail trails which also kicks up dust.

Discussion among members and guests on how to fund implementation of any BMPs which we recommend. The committee learned that the federal recreational trails program provides grants/funding. Those grants have conditions.

Motorized user groups pay to register their vehicles and pay dues to clubs. They pay for some maintenance of trails that they use including signage. The Bureau of Trails also helps pay for maintenance. AND DNCR has a grant in aid program.

280 miles of recreational trails in NH do not allow OHRVs. It was noted that non-motorized user groups do not pay any fees to use the trails.

It was also said that we should work on what BMPs the committee will recommend before we talk about funding.

Maryann Tilton Assistant Wetlands Bureau Chief at DES reviewed Wetlands rules and BMPs for remediation of contaminated areas, remediation when removing gravel, protecting wetlands during stream crossings, and BMPs during the pre-development process to avoid and minimize impact to wetlands. She also talked about solid waste permitting when contaminated product needs to be removed from the site.

BMPs on preventing erosion and protecting water quality from sedimentation etcetera can all be found in the Bureau of Trails BMPs booklet.

DES makes sure any work done must adhere to water quality standards and ambient groundwater quality standards.

Air Resources division addresses fugitive dust, but Alteration of Terrain also looks at it.

All of the agencies work together

DES design and layout of trails

BOT construction and maintenance

DES stormwater maintenance

DOT also has a manual which may be helpful. to the committee.

Use of trails is regulated by DES only if it impacts water quality and impact on wetlands.

The next meeting is scheduled for March 14.

Rep. Hill made a motion to adjourn. Rep. Smith seconded and all concurred.

Respectfully submitted,
Suzanne Smith, Clerk

NH Rail Trail Study Committee
Minutes – March 14, 2022 DRAFT

Chair Gould called the meeting to order at 9:00 am.

Members Present: Representatives Linda Gould, Suzanne Smith and Greg Hill
Guests: Director Craig Rennie and Alexis Rudko, Bureau of Trails (DNCR), Shelley Winters, Department of Transportation, Boyd Smith, NH Rail Trail Coalition

Minutes: Rep. Smith made the motion to approve the minutes of the February 14 meeting. Chair Gould seconded. All concurred.

Chair Gould stated that the purpose of this meeting was for members of the Committee to review the charge of the Committee (HB 311), what we've learned thus far and what our next steps will be.

Members agreed that much of the work around Best Management Practices is being done by agencies. Bureau of Trails has a BMP manual which covers steep slopes, wetlands, culverts, etc. DES has BMPs for Wetlands and Department of Transportation is working on a Master Plan for Rail Trails which is moving towards the final draft.

Committee discussed whether our final report should include recommendations for BMPs for rail trail conversions or whether the proposed BMPs should be a second document. What is missing from the procedures and Best Management Practices that have been put together by the agencies? We do not want to duplicate their efforts but want to work with them. They can assist us with this work.

Dust and contaminants are two areas which have been mentioned frequently. Fugitive dust caused by traffic on rail trails—worse in heavily trafficked areas whether a group of bike riders or an OHRV or many OHRVs.

Dust can be stirred up from the crushed stone and base layer. Whether it contains toxic substances or not, breathing in dust can be harmful to your health, more often for children and babies whose respiratory systems are not fully developed or children and pets who are much lower to the ground and breathe in more of the dust.

In areas being developed for rail trails, contaminants can mingle with dust from the surface and increase the risk of breathing in the dust. Agencies informed the committee (DES/DOT) of their process for reducing risk of breathing in contaminants. (see minutes of Jan meeting).

Rep. Smith stated that the presentation by Mike McCloskey from DES focused on environmental concerns around rail trails. The MA Best Management Practices is a complex document and DES stated that they refer to it especially in (former) industrial areas where

railbeds are being converted to rail trails. If these issues are covered by rules, we need to access that information.

Members agreed that different surface options should be considered when determining what the new rail trail is going to be used for. How specific this statement should be is still being discussed ie should recommendations for various choices of trail surfaces depending on usage be specified or left up to the agencies involved.

Since the February meeting, the NH Rail Trail Coalition shared a short video on their trail maintenance process/procedures to lessen the effect of fugitive dust. The video clarified the types of surface stones used as well as how often maintenance is required and the cost—which is high. [Link to video](#)

Rep. Hill stated that the dust seems to be the heart of the report DES testified about contaminants previously and stated that they refer to the MA BMPs. By adding structure for a NH document of BMPs, it will be easier for the department and the public to access what the process is here in NH.

DES experts who testified in February will be invited to participate in the April meeting. From the committee's work thus far, it appears that the current BMPs (BOT and DOT and wetlands) do not involve environmental health issues. Input from DES should be able to clarify what is missing and what is needed and whether an entirely new document is needed for rail trails. Alternatively, this could be included in rules.

Director Rennie gave input about the processes used in trail development, non-industrial sites with background/residual contaminants, the residuals are not removed, but capped. If an industrial site is going to be redeveloped, more permitting is required and more testing. If, for example, an old train depot was converted to a visitor center, more permitting would be required and the work wouldn't (only?) be done under the trail, but also in the surrounding areas being developed.

Shelley Winters stated that DOT uses DES recommendations. Residual contaminated soil can be kept in the ROW. It may be 20 miles further down the track but still in the ROW.

Best Management Practices for development of new trails may be a short document as so much is being done by agencies now. However, environmental issues related to breathing in dust which even if crushed stone, contains silica, should be addressed. DES has recommendations for fugitive dust but only on a commercial/industrial level.

Concern on part of BOT that if the BMPs are for maintaining trails already in use as well as new trails, enforcement will be impossible. We've been told that user groups (OHRV clubs, NH Rail Trail Coalition, Snowmobile clubs) do monitor trails which they use. Some clubs are funded through the Grant in Aid Program and _____. The clubs are very effective and work with BOT to address issues depending on what the complaint is. For example use of Calcium chloride for dust and paving Gorham parking lot also for dust.

The committee report could include the partnerships between clubs/friends groups/coalitions and the agencies which lessen the need for agency inspections.

One abutter who spoke to the committee last year, was the Police chief from Sandown. He had complaints about OHRV use year round, dust and noise. BOT manages that section of the Rockingham Rail Trail and Director Rennie is working with him on compliance issues. That trail gets a lot of use and is torn up. They are resurfacing trail through there with crushed stone.

It is challenging to appease all users of multi-use rail trails. Surface conflicts. Gravel vs paved vs crushed stone.

Shelley Winters stated that the concerns (fugitive dust etc) we are focusing on are not included in the Master Plan. However various surface options are included in that plan.

Director Rennie explained the difference between statute, rules and BMPs.

If BMPs are NOT in rules or statute they are advice/suggestions, not requirements.

As an agency, they can recommend that construction of a new trail utilize the BMPs but it does not have the force of law.

Rules have the force of law.

How BMPs are effectively used. For example, if your wetlands permit requires you use BMPs, you must use them.

We should clarify whether residual and background (below danger level) mean the same thing in NH as in other states. MA and NH have same definition as was told to us by DES.

Again, agencies all agreed that funding is the biggest issue.

Developing is a small portion.

Maintaining is very expensive and problematic.

Need for funding should be in our report.

Director Rennie stated that motorized user groups pay for most of the maintenance on rail trails.

Other possible sources of funding aside from federal or state grants.

Fees to use trails/like hike smart/ iron rangers

Looking at a trail pass with F&G doing the set up.

Boyd Smith of the NH Rail Trail Coalition said that dust needs to be addressed, because it is such a central part of the discussion. He agreed that links to other agencies' BMPs should be included in this committee's final report. He volunteered to help put this together.

Director Rennie worked in the Alteration of Terrain division at DES where many of the worst complaints were about town dirt roads.

Next meeting scheduled for Monday April 11 at 9 am at DES, 29 Hazen Drive.
Mike McCloskey and colleagues from DES will be invited

Rep. Hill made a motion to adjourn. Rep. Gould seconded. All concurred.
Meeting was adjourned at 10:15 am.

Respectfully submitted,

Rep. Suzanne Smith, Clerk

HB311 Committee to Study Rail Trail Best Management Practices
April 11, 2022
Draft Minutes

Representative Gould called the meeting to order at 9:00 am.

Members present: Reps. Linda Gould (Chair), Suzanne Smith (Clerk), Greg Hill.
Guests: Craig Rennie and Alexis Rudko(Bureau of Trails), Mike McCloskey (DES), Phil Trowbridge (DES-Land Resources Management), Shelley Winters (DOT), Boyd Smith (NH Rail Trail Coalition)

Minutes: Rep. Hill made a motion to accept the minutes of the March 28 meeting. Chair Gould seconded. All concurred.

Chair Gould said that we have spent many months gathering data and at today's meeting we need to get something done. Collate information that we have so that we can begin to put together the final report, whether this will include Best Management Practices or whether BMPs will be a separate document. Mr. Boyd Smith volunteered to begin working on the report with Rep. Smith. Members discussed the report including the timeline, what approach to take, scheduling and review times. Comprehensive or brief? (If I am going out in the field, what do I need? Appendices?)

Rep. Hill believes that the report should make recommendations but that the committee doesn't need to write a BMP manual. The committee needs to identify what is missing. He also recommended one coordinated booklet with different sections which can be referred to other sections. This booklet would include links to all of the other relevant BMPs.

Mr. McCloskey referred to the presentation he gave to the committee which includes information contaminants. The residuals left behind after a railroad closes down are ubiquitous. Department of Transportation's recommendations mesh with Department of Environmental Services regulations.

Rep. Smith suggested that various agencies write a paragraph or two clarifying processes now in place and protocols whether they work on intra-agency or with other agencies or groups. This information could be used in the report and in making recommendations.

Rep. Hill suggested a decision tree similar to what is in place for Real ID could be very helpful for persons or groups interested in converting a former rail bed to a rail trail. Who does what etc. The Decision tree would be designed for user/applicant/interested person not for agencies.

The issue of funding and potentials for funding are not part of the charge of the committee but all agreed that it was important to address this issue. Funding potentials are part of the Rail

Trail Master Plan which is due out this summer. Possible funding sources include trail fees, iron rangers, donations and other sources such as grants.

Commissioners of DOT and DNCR meet regularly to talk through issues that come up. There is coordination between agencies and municipalities. This could help form the report/BMPs and a decision tree.

Mr. McCloskey reminded committee that privately owned railroads that went back to abutters are on private property, therefore BOT and the DOT are not involved.

The agency members present all agreed that their coordination is going smoothly. They work together as issues arise. However, there is no guarantee that this will continue as people and positions change. Rep. Hill wondered if this is something the legislature could offer, such as a stipulation that a small committee gather every 5 years to assure coordination is still going smoothly. Mr. Rennie suggested that perhaps the Statewide Trail Advisory Committee could be a vehicle for this. This committee deals with all varieties of trails and DES is not a member. However, perhaps amend their charge so that once a year, DES is invited and this topic is addressed.

The Committee recommends Interagency communication which is already established, should be continued. Since the Rail Trail Master Plan identifies roles for the different agencies, refer to Master Plan for agency coordination.

Mr. Rennie stated that BOT bases their decision on the best surface for a trail depends on users of trail (walkers, bikes, OHRVs, snowmobiles, equestrians). Specifically, with rail trails, DNCR (BOT) and/or municipal authority make decision. Best all around surface thus far is stone dust or crushed stone. DOT is not involved in decision on surface. BOT deals with non-contaminated dust.

Bureau of Trails does not use herbicides to beat back weeds, even poison ivy. They use mowing and other manual means.

Abutters have complaints about noise of OHRVs as well as dust and bad behavior of some riders. But, abutters can be problematic, because abutters encroach on the right-of-ways. They begin using abandoned rail bed ROWs as their private property.

No OHRV use is permitted on rail trails purchased with federal funds no OHRVs allowed. Only 15 miles of rail trails allow OHRVs.

DES gets involved when there is a plan to develop the area adjacent to the actual rail bed/rail trail (bathrooms, information center, parking lot) especially when it is at a former industrial site. Capping is done to prevent upflow of any contaminant below the surface. 4-6 inches of new clean material is placed above a geotextile barrier. -- DNCR and DOT recommend this process, but it is NOT required.

The next meeting to review any rough drafts and information from agencies is scheduled for June 6 at 9: 00 AM.

Rep. Hill made a motion to adjourn. Rep. Smith seconded. All concurred and the meeting was adjourned at 10:50 AM.

Respectfully submitted,
Rep. Suzanne Smith, Clerk

Committee to Study Rail Trail Best Management Practices (HB311)
Minutes September 20, 2022 (approved)

Chair Gould called the meeting to order at 9:10 am

Members present: Reps. Linda Gould (chair), Suzanne Smith (clerk--by phone), Greg Hill, Sen. David Watters

Guests: Boyd Smith (NHRTC), Craig Rennie and Alexis Rudko (BOT Director and Asst. Director), Mike McCluskey (DES), Shelley Winters (DOT)

Minutes of April meeting were reviewed. A motion was made to accept and seconded. All members concurred.

Members reviewed the draft which Mr. Smith put together for the final report. He commented that items there are key areas of discussion which should be resolved in the report are:

Contamination

How trails can be shared among all users both compatible and incompatible uses.

Expansion of trails ? BMPs?

Senator Watters suggested an addition to report to read, "Rail trail development and use should employ BMPS which include non-motorized and motorized use. " And include parking and accommodations. (?)

He also stated we need to include expansion of trails.

And, he affirmed that we need parking for the disabled at each trail parking area.

Director Rennie commented that there are motorized devices which are becoming more popular. For example, electric bikes which go 25+ mph, electric scooters and electric snowmobile type units. Ms. Winters recommended that the committee cite the federal statute which reads, "Generally motorized use of rail trails purchased with Federal Highway Administration (FHWA) funds is limited in accordance with Title 23 USC Chapter 2 Section 217 "Bicycle Transportation & Pedestrian Walkways", Subsection (h) "Use of Motorized Vehicles.." In NH RSA 259:6 which defines bicycles, e-bikes are included in that definition.

Discussion of Trail Surfaces. any rail trails are along rivers and when flooded – contaminants are going into the surface water.

Stabilize rail trails to prevent runoff going into surface water.

Discussion of mix of surface materials

Suggestion to make a bullet BMP: Use a surface which is firm and stable which will accommodate all planned users.

Mr. Rennie said that pressed gravel helps a lot with dust. But it is difficult to get because of high demand. Most users would like this.

As rail trails are expanded (more miles), more users will be on the trails.

Discussion about challenges of OHRVs and bicycles using same trail at same time.

Mr. Rennie has heard bicyclists can be a big problem b/c don't show respect, pull over for walkers or other users including OHRVs.

Trail etiquette is important but you can't really legislate it and it doesn't belong in BMPs as it is a user issue. If we did make a law, who would enforce it? Maybe education through signs along trail or at entrances.

Suggestions for funding: Iron ranger at entrance locations to collect voluntary fees. Process similar to Hike Safe card. A portion of e-bike fees to go towards rail trail maintenance is not possible because trails receiving federal funds cannot earmark part of registration/fees per federal law.

NHRTC suggests a voluntary fee for non-motorized users

State funding (general fund)

Mr. McCluskey – contaminants-DES

They can make recommendation but cannot enforce. He has some language...

Discussion of contamination and who decides if site is tested.

Discussion about future trails and knowing whether or not they are contaminated.

Rep. Hill asked a question about "social equity" being in the NH Rail Trail plan points. It is. The Federal government has that as part of its goals.

For report, we need to make corrections to flow chart.

Mr. Smith will amend report taking into consideration comments from members and stakeholders.

The meeting was adjourned at 11:00 am.

Respectfully submitted,

Rep. Suzanne Smith, Clerk

Assistance from Reps. Greg Hill and Linda Gould

HB311 Rail Trail Best Management Practices Committee
Minutes October 18 2022 FINAL MINUTES OF COMMITTEE

Chair Gould called the meeting to order at 9:01 am.

PRESENT: Reps. Linda Gould (Chair), Greg Hill, Suzanne Smith (Clerk) and Senator David Watters

Guests: Craig Rennie (Director-Bureau of Trails), Alexis Rudko (Assistant Director BOT), Shelley Winters, Boyd Smith (NHRTC) Mike McCluskey (DES), Dan Gould (NH Snowmobile Association), Rich Parsons (OHRV Association)

MINUTES: Members and stakeholders discussed minor changes to the September minutes. Ms. Winters suggested sentence referring to e-bikes reference federal statute. She will send this information to clerk. Mr. McCluskey noted his name was misspelled. Rep. Hill moved accept as amended and Chair Gould seconded. All concurred.

Members and stakeholders discussed the final draft which was submitted on October 11. Report was amended to clarify parts of the report. Mr. Smith will send amended report to committee members for final review of these amendments. Senator Watters made a motion to accept the report including revisions reviewed today. Rep. Gould seconded the motion. Vote 3-0 (Rep. Hill had left meeting)

Respectfully submitted,

Suzanne Smith, Clerk

**Final Report of the Committee to Study Rail Trail Best
Management Practices (HB 311)
October 31, 2022**

**APPENDIX C – SUPPLEMENTAL TESTIMONY AND
REPORTS**



HB311 - Committee to Study Rail Trail Best Management Practices

NH Department of Environmental Services
Waste Management Division
January 24, 2022



Focus of presentation

- a) Residual contamination from railroad operations.
- b) Contamination from other sources.
- c) Identifying areas of contamination concerns.

Touch on...

- d) Establishing goals of best management practices.

a) Residual contamination from railroad operations

➤ Railroad ties

- Wood preservatives

➤ Impacted ballast/soils

- Oil drippings
 - Fuels, lubricants
- Coal ash/clinkers
 - Polycyclic aromatic hydrocarbons (PAHs), metals, pesticides/herbicides





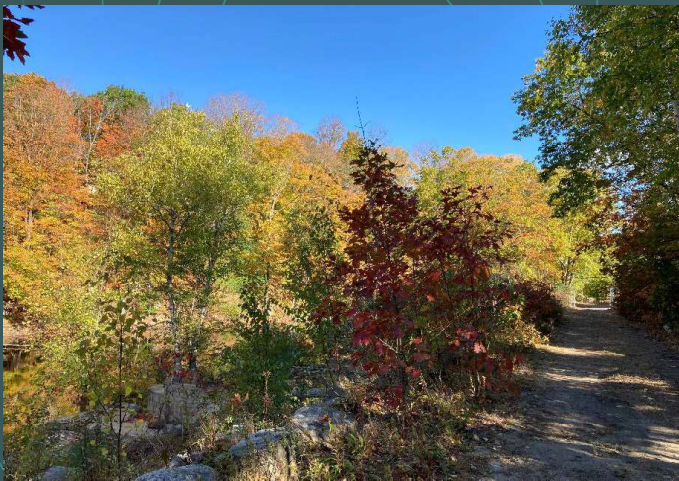
Oil drippings (spill?)



Coal ash/clinkers

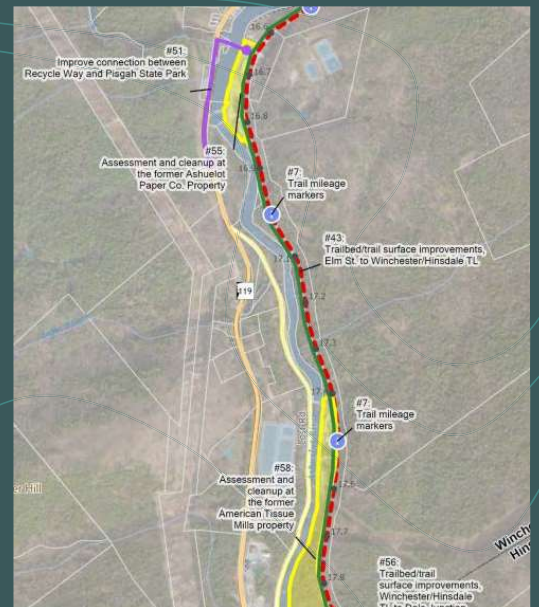
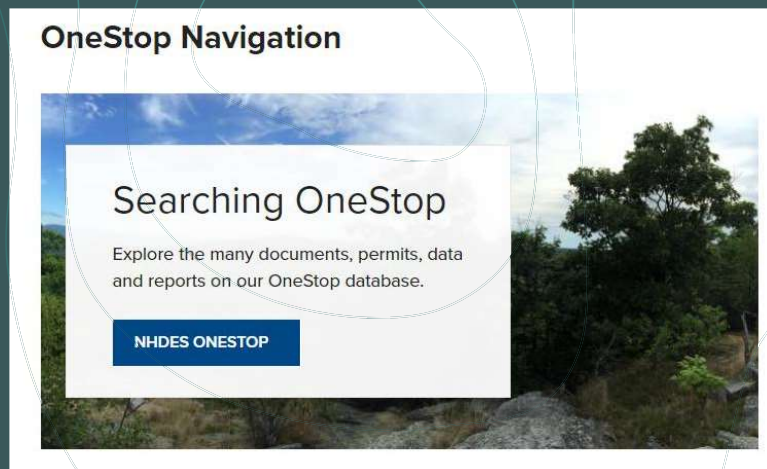
b) Contamination from other sources

- Spills
- Loading and off-loading areas
- Adjacent contaminated properties



c) Identifying areas of contamination concern

- Phase I Environmental Site Assessment (ESA)
 - Recognized Environmental Conditions (RECs)
- NHDES' OneStop Database





Woods Woolen Mill
Hillsborough, NH
(rail corridor DNCR owned)





NHDES Waste Management Division's current involvement

- Not much since the contamination in railroad corridors is often viewed as “background”
- We get involved...
 - If asked, provide guidance/recommendations
 - Contamination other than background

d) Establishing goals of best management practices

- Enlist assistance of other stakeholders and experts [including for Ch. 94:4, III. (e) through (k)]
- Look to other states
- Brownfields assistance?





NHDES Waste Management Division Contact Information

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Hazardous Waste Remediation Bureau
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Michael.G.McCluskey@des.nh.gov

Erik Paddleford
Oil Remediation & Compliance Bureau
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HB311 - Committee to Study Rail Trail Best Management Practices

- NH Department of Environmental Services
- Land Resources Management
- Wetlands Bureau
- February 14, 2022



Focus of
presentation-
NHDES
Wetlands
BMPs

Remediation by rule

Trails Notice & BMPs

Application
Standards & BMPs



Remediation Permit by rule

Wetlands Permit by Rules:
Work can take place in NHDES wetlands jurisdiction under RSA 482-A without a permit when Env-Wt 307 Conditions are met:

- 1) Protection of Water Quality
- 2) Protection of fisheries & breeding areas;
- 3) Protection against Invasive Species
- 4) Protection of Rare, T & E species & habitat
- 5) Standard Dredge & Fill conditions



Remediation Permit by rule

Wetlands Permit by Rule:
Env-Wt 309.02(k)
Undertaking Site Remediation
approved by NHDES pursuant to
Env-Or 600 where:

1. Information supplied to WMD - Clearly identifies all jurisdictional areas
2. Clearly describes activities to occur in jurisdiction; &
3. Provide written notice to DES Wetlands bureau and local governing body.



Remediation – Shoreland Permit by Notice

Env-Wq 1406.15 Shoreland Permit by Notification

- (1) Clearly identified impacts in the protected shoreland;
- (2) Activities in protected shoreland;
- (3) Provide written notice to DES Wetlands bureau and local governing body.

Trails Notice & BMPs

Trails
Statutory
Permit by
Notice
(SPN)
process &
BMPs

Notice Qualifying Criteria:

1. Maintain, repair, or replace an existing legal trail
2. No change in location, configuration, dimensions, or construction type
3. No work will be done in standing or flowing water;
4. For process & other size details- see FORM here: [NH Online Forms System - Trails Notification Statutory Permit-by-Notification \(SPN\). Version 2.3](#)

Trails Notice & BMPs

Trails
Statutory
Permit by
Notice
(SPN)
process &
BMPs

NHDES-W-06-040



TRAILS NOTIFICATION
STATUTORY PERMIT-BY-NOTIFICATION (SPN)
Water Division/Land Resources Management
Wetlands Bureau
[Check the Status of your Notification](#)



RSA/Rule: RSA 482-A:3, XII / Env-Wt 308.04(c); Env-Wt 517

NAME OF ORGANIZATION UNDERTAKING ACTIVITIES: _____

Administrative Use Only	Administrative Use Only	<input type="checkbox"/> SPN complete and project as described conforms with all applicable requirements.	
		<input type="checkbox"/> SPN incomplete and/or project as described does not conform with all applicable requirements.	
		File No.:	Initials:
		Check No.:	Amount:

Terms in **bold font** are defined on the attached instructions page.

SECTION 1 - PROJECT CRITERIA (Env-Wt 517.08(a))	
Is the proposed activity limited to repair and/or replacement of out-of-water components of an existing legal boardwalk ?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If you answered "Yes", you do not need to obtain a wetlands approval or permit. If you answered "No", continue to the next question.	
Does the project consist only of maintenance, repair, or replacement of an existing legal trail or pathway where there will be no change in location, configuration, dimensions or construction type and no work will be done in standing or flowing water?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If you answered "Yes", continue to Section 2. If you answered "No", continue to Section 1A.	
SECTION 1A - CRITERIA FOR TRAIL, PATHWAY AND TRAIL BRIDGE PROJECTS (Env-Wt 517.04, Env-Wt 517.06(a))	
<input type="checkbox"/> N/A (Not Applicable): if the project involves only a boardwalk , check N/A and continue to Section 1B.	
a. Does the project include wetland crossings that:	
<ul style="list-style-type: none"> ▪ Impact more than 3,000 square feet per crossing? ▪ Have a trail width exceeding 20 feet? ▪ Have a fill width that has not been minimized and/or, exceeds 50 feet per crossing when measured at the toe of the trail side slope? Or ▪ Exceed 60 feet in length per crossing, measured along the centerline of the proposed access way? 	<input type="checkbox"/> Yes <input type="checkbox"/> No
If the project does not include a wetland crossing, check N/A for "not applicable" and continue to question b: N/A <input type="checkbox"/>	

Notification Statutory Permit-by-Notification (SPN). Version 2.3

Trails Statutory
Permit by
Notice(SPN)
process &
BMPs

Trail
Handbook
Outline
(nhstateparks.org)

BEST MANAGEMENT PRACTICES

**For Erosion Control During Trail
Maintenance and Construction**

NH Trail Construction and Maintenance Manual



***Keep trails out of the water;
and water out of the Trails***

STATE OF NEW HAMPSHIRE
Department of Resources and
Economic Development
Division of Parks & Recreation
Bureau of Trails

Trails Statutory
Permit by
Notice(SPN)
process &
BMPs

Trail
Handbook
Outline
(nhstateparks.
org)

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BEST MANAGEMENT PRACTICES

For Erosion Control During Trail
Maintenance and Construction

NH Trail Construction and Maintenance Manual



*Keep trails out of the water;
and water out of the Trails*

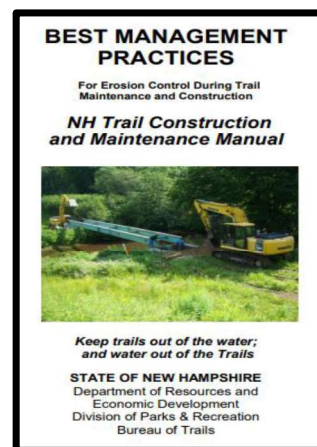
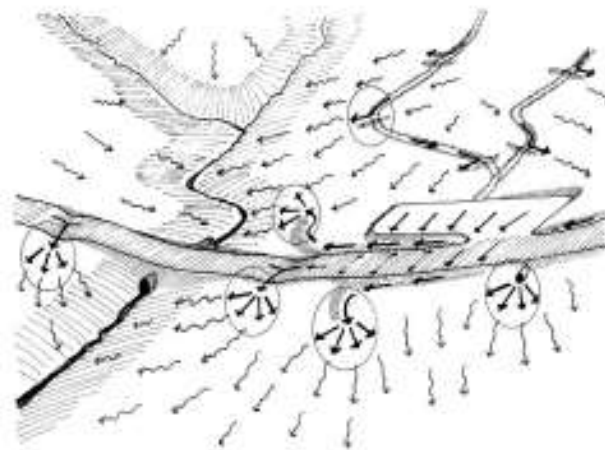
STATE OF NEW HAMPSHIRE
Department of Resources and
Economic Development
Division of Parks & Recreation
Bureau of Trails

Trails Statutory Permit by Notice(SPN) process & BMPs

[Trail Handbook Outline \(nhstateparks.org\)](http://nhstateparks.org)

Best Management Practices Goals

- Designed to imitate / protect natural functions of forests and reduce erosion of materials.
- Disperse concentrated water flow.
- Minimize the risk of sediment / pollutants getting into waterbodies and wetlands.
- Provide a safe, stable, trail system.
- Well-built trail will provide access while conserving natural resources.



Pre-Development BMPs

**Site Planning + Site Evaluation =
Avoiding and minimizing impacts
to Wetlands**

Trails Statutory
Permit by
Notice(SPN)
process &
BMPs

Trail
Handbook
Outline
(nhstateparks.org)



BEST MANAGEMENT PRACTICES

For Erosion Control During Trail
Maintenance and Construction

**NH Trail Construction
and Maintenance Manual**



Keep trails out of the water;
and water out of the Trails

STATE OF NEW HAMPSHIRE
Department of Resources and
Economic Development
Division of Parks & Recreation
Bureau of Trails

Why is Erosion a Problem?

- Results in sedimentation of wetlands, streams, rivers, lakes.
- Detrimental effect on water quality, fish, smaller organisms.
- Creates ruts, bumps, potholes, washouts that can make trails impassible.
- Causes increased cost to repair issues.



Common BMPs During Construction

- Coir Logs
- Water Bars
- Silt Fence
- Mulch Berms
- Vegetation



Example BMPs – Culverts

Trails Statutory
Permit by
Notice(SPN)
process &
BMPs
Trail
Handbook
Outline
(nhstateparks.
org)



Culverts

Culverts are used to allow water to pass beneath the trail from one side to the other.

Culverts should be installed when:

- the trail needs to cross a small brook, or seasonal runoff which isn't big enough to require a bridge.
- the water volume in a ditch requires it to be drained to the opposite side of the trail.

Culvert Strengths:

Provide for a smooth uninterrupted trail.

Culvert Weaknesses:

Require regular inspections and cleaning;

Failure caused by lack of maintenance or a heavy rain event can be expensive to repair;

Are more easily plugged by beavers than bridges.

Examples of good trail drainage management includes:

- Culverts & cross-drains
- Ditches to drain water from trail
- Well-constructed trail foundation material
- Reduced water concentration

BEST MANAGEMENT PRACTICES

For Erosion Control During Trail Maintenance and Construction

NH Trail Construction and Maintenance Manual



Keep trails out of the water; and water out of the Trails

STATE OF NEW HAMPSHIRE
Department of Resources and
Economic Development
Division of Parks & Recreation
Bureau of Trails

Application standards & BMPs

Planning & Data Screening Required

References: Env-Wt 306 & Env-Wt 307

(6) For dredge projects, also determine whether the subject property is contaminated;

Env-Wt 307.03 Protection of Water Quality Required.

(a) No activity shall be conducted in such a way as to cause or contribute to any violation of:

- (1) The surface water quality standards specified in RSA 485-A:8 or Env-Wq 1700;
- (2) The ambient groundwater quality standards established under RSA 485-C;
- (3) The limitations on activities in a sanitary protective area established under Env-Dw 302.10 or Env-Dw 305.10; or (4) Any provision of RSA 485-A, Env-Wq 1000, RSA 483-B, or Env-Wq 1400 that protects water quality.

- Review of online NHDES Data screening for *potentially contaminated sites.*
- For dredge projects
- & all projects to meet Water Quality standards & Ambient Groundwater quality standards.

Application standards & BMPs

Wetlands Best Management Practice Techniques For Avoidance and Minimization



Chapter 5 – Bike Paths, Footpaths, Trails and Boardwalks

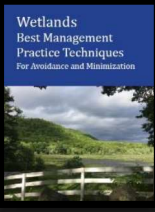
Bike paths, footpaths, trails and boardwalks are excellent means of showcasing wetlands and the natural environment, particularly for people who may not otherwise enjoy natural areas. It is NHDES' responsibility to protect wetland areas from unnecessary and undesirable impacts and intrusions into wildlife habitat. Good planning and design simultaneously protect wetlands and provide opportunities for recreational use of the environment.

Planning and Site Selection

Bike paths are unique in that they require long, undivided stretches of land. These are most commonly in the form of former railroad beds or utility easements. It is not a surprise that these stretches of land may include many wetlands and may even follow a larger river or stream. Other smaller trails and paths may specifically be proposed to enhance an area that is set aside for conservation or recreation, which is also likely to have wetland habitat. For all projects, in order to protect wetlands, and their functions and values, it's important for the planner to do the following:

- Research and evaluate the area to decide if the trail will be able to accommodate all projected users without degrading the natural resources. Not all wetland areas can support all types of paths while maintaining wildlife values. If this can't be accomplished, it may be necessary to downsize the project or look for an alternative route for the path or trail. Be sure to take safety standards into consideration when choosing a

[Chapter 5 - Wetlands-bmp-manual.pdf](#)
(neiwpcc.org)



Application standards & BMPs

- Use Natural contours
- Use retaining walls
- Use BMPs to handle stormwater

Design

Good trail design is critical to help prevent unnecessary and detrimental impacts to wetlands, whether the trail is constructed on a previously disturbed railroad bed or on an undisturbed natural area. The following are general tips to avoid wetlands and minimized impacts:

Grading

- Utilize natural land contours to avoid excessive fill.
- Design retaining walls in areas of steep or irregular topography to minimize the amount of cut and fill needed alongside a path.
- Utilize best management practices for handling stormwater runoff on steeper grades and trail sides to minimize erosion, sedimentation and potential damage to the trail.

Maintaining Habitat Values

- Preserve the natural character of the area, while making it available for recreational use.
- Skirt sensitive wetland areas and provide for views from the periphery instead of bisecting wetlands.
- Preserve natural vegetative transition zones within and around wetlands.
- Use lookouts and overlooks to enjoy wetlands instead of crossing sensitive areas.
- Be sensitive to the wildlife that uses the area.
- Propose limited access to sensitive areas for bird-watching, nature study and non-motorized boating.
- Build outside of areas used by sensitive species and critical wetland areas, such as special aquatic sites.
- Avoid disturbing all rare plants and wildlife.

Human recreational activity in an area may directly impact wildlife and reduce the quality of the habitat provided. Human activities can disturb sensitive habitats, like wetlands, and disturb or displace wildlife. Flushing wildlife raises and animals' stress level and increases energy consumption. If repeated frequently, such disturbance can impact reproduction and survivorship. Environmental fact sheet: [Habitat-Sensitive Site Design and Development Practices to Minimize the Impact of Development on Wildlife](#).

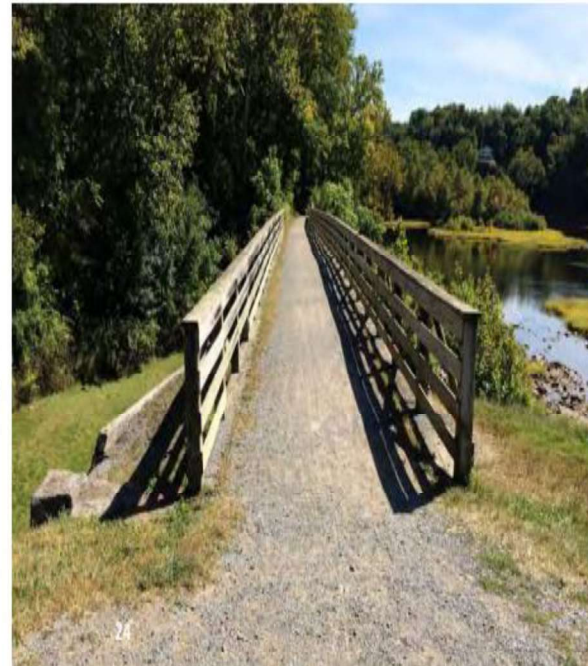


Application standards & BMPs

- Use existing structures
- Timber bridges & elevated boardwalks good options
- Use Wildlife passage structures

Wetland Crossings (see Chapter 7 for more detail)

- Utilize existing structures and pathways, wherever possible.
- If crossing a sensitive habitat or creating a new trail, keep the crossing as narrow as possible.
- Timber bridges and elevated boardwalks are good options.
- Utilize wildlife passage structures.
- Elevate boardwalks, observation decks and bridges to minimize disturbance to wetland vegetation, as well as to protect wetlands underneath.
- General rule of thumb: elevate the boardwalk to a minimum 1:1 height to width ratio.



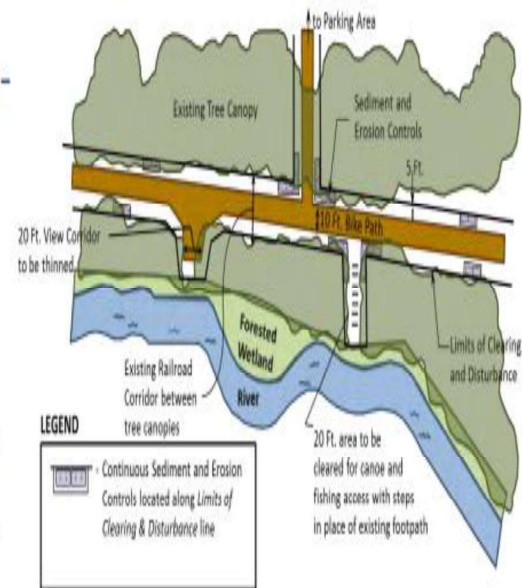
Application standards & BMPs – Example –p. 29

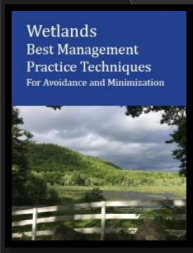
- Plan example Revised to consolidate impact areas.
- Fishing & boat access areas grouped.

Example 5.5b: View Corridors and Access Areas - Revised Plan

How wetland impacts were minimized:

- ✓ The view corridor was incorporated into the canoe and fishing access area, thereby limiting human disturbance to one 40-foot area instead of two separate 20-foot areas.
- ✓ The habitat remains unfragmented and intact.
- ✓ Plantings were added in areas where the existing vegetation was sparse.





Application standards & BMPs – Chapter 7 - Stream & Wetland Crossings

Key Design Features:

[Stream Crossing Design \(nh.gov\)](#)

Hydraulic Capacity - Ability of structure to accommodate flows

Geomorphic Compatibility - Long term compatibility of stream crossing with the river channel & sediment deposit processes

[02_28_18_Geomorph_Handout_Final.pdf \(state.nh.us\)](#)

Aquatic Organism Passage- Can fish & other aquatic animals move through the crossing without barriers

www.des.nh.gov/sites/g/files/ehbemt341/files/documents/aquatic-organism-passage.pdf



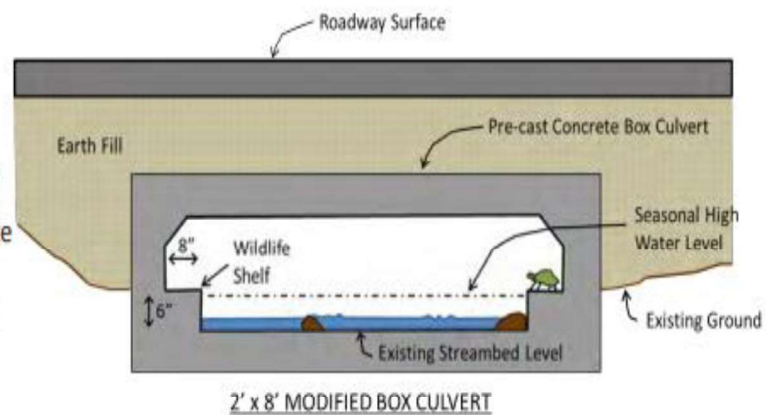
Application standards & BMPs – Chapter 7 - Stream & Wetland Crossings

Example 7.6: Modified Box Culvert Crossing

While a modified box culvert with a shelf may need to be special ordered, they are available or can be built. The designer may consider adding concrete or stone blocks inside a standard culvert to build wildlife passage shelves.

How wetland impacts were minimized:

- ✓ This structure allows movement of water.
- ✓ There is a shelf for small amphibians (frogs, salamanders, etc.) to use for travel inside the structure.
- ✓ The shelf is level with the final soil grade, which allows small mammals easy access and use.
- ✓ The shelf adds little cost to the overall project when incorporated from the beginning.



Project Example-
Designed to allow
for water flows,
Aquatic organism
passage
& wildlife passage.

Summary

Permit by Rule or PBN

Remediation w/o a permit

Or 600



Trails Notice & BMPs

DNCR NH Trail Construction & Maintenance BMPs (for Erosion Control)



Wetlands Standard process

Wetland BMPs for A/M

Hydraulic capacity, Geomorphic & AOP

NHDES Wetlands Permitting Contact Information



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Land Resources Management
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Testimony Related to House Bill HB311
Committee to Study Rail Trail Best Management Practices
February 14, 2022



New Hampshire Rail Trails Coalition

An affiliate of the Bike-Walk Alliance of NH

2 Whitney Road, Suite 11

Concord, NH 03301-1844

www.nhrtc.org

Our mission is to promote the development, maintenance, and active recreational use of trails constructed on New Hampshire's railroad corridors

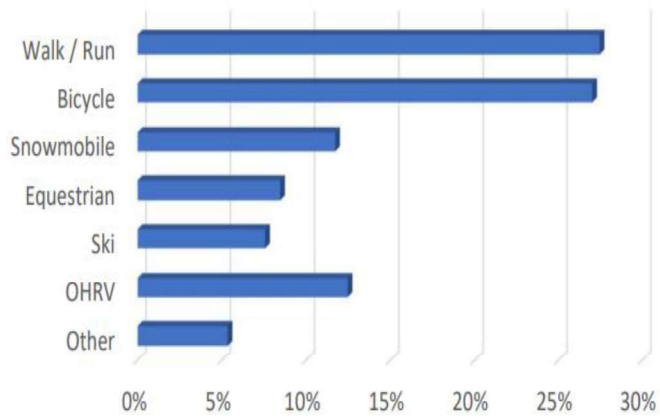
This presentation and our written testimony support the following conclusions:

- Design, construction, and maintenance practices exist across the country and can be adapted to New Hampshire's needs
- Most (75%) rail trail users prefer low-impact, non-motorized recreation
- Fugitive dust is harmful but can be prevented by limiting incompatible trail use
- Contamination along rail corridors is inconsequential for non-motorized recreation
- Economic benefits from diverse active recreation are substantial

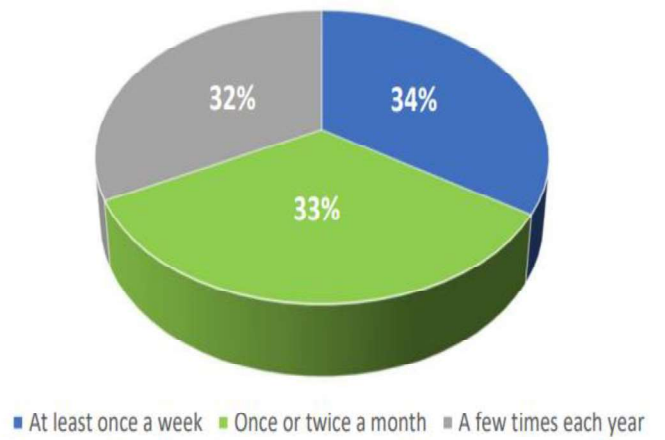


We advocate for thousands of NH residents and visitors that enjoy non-motorized use of New Hampshire's 300+ miles of rail trails to recreate and enjoy Nature

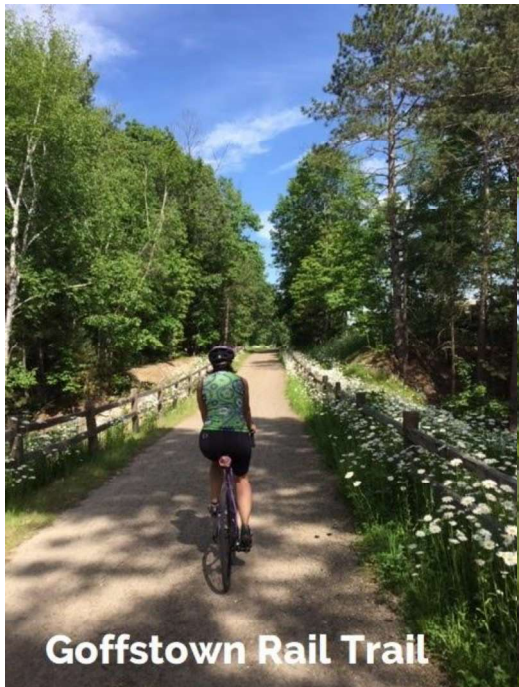
How do you typically use NH rail trails?



How frequently do you use New Hampshire's rail trails?



Rail Trails are Peaceful



Goffstown Rail Trail



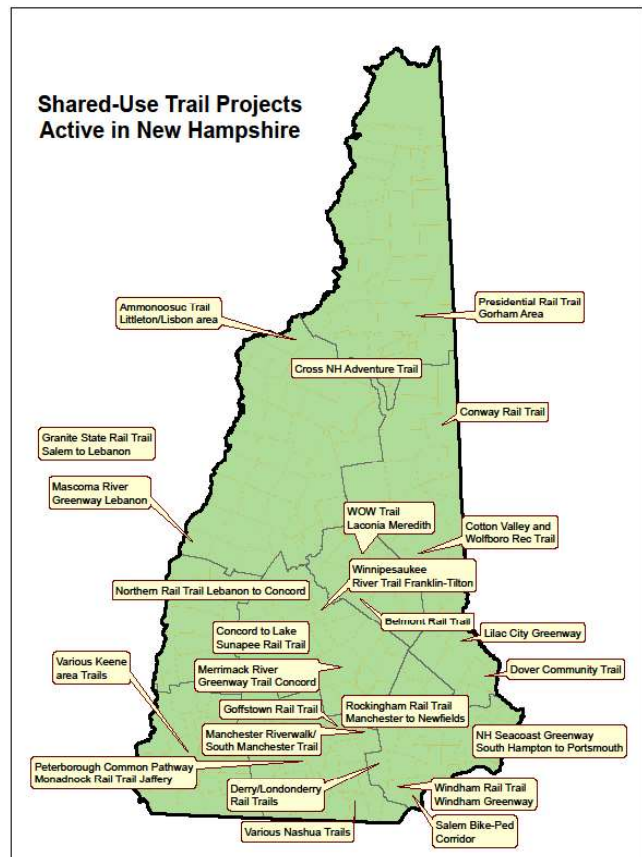
Ashuelot Rail Trail

Rail Trails are Safe



BMPs for Repurposing Former Rail Beds into Rail Trails

- Tens of thousands of miles of rail beds have been transformed into wildly popular and safe recreational corridors
- Millions of people annually enjoy active recreation (walking, biking, skiing)
- Practical and well-established BMPs can be easily adapted for the Granite State



BMPs for Repurposing Former Rail Beds into Rail Trails

- Existing trail BMPs:
 - NHRTC [Stone Dust application BMPs](#)
 - NHDOT (design information from NH rail-trail projects)
 - NHDES (trails and wetlands)
 - Rails-to-Trails Conservancy (acquisition, design construction, maintenance)



Stonedust (Hardpack) surface



**Established construction
BMPs:**

- Land clearing
- Excavation and filling
- Soil grading and compaction
- Drainage (ditching, culverts, and bridges)
- Fencing
- Stream and wetland crossing
- Parking
- Signage





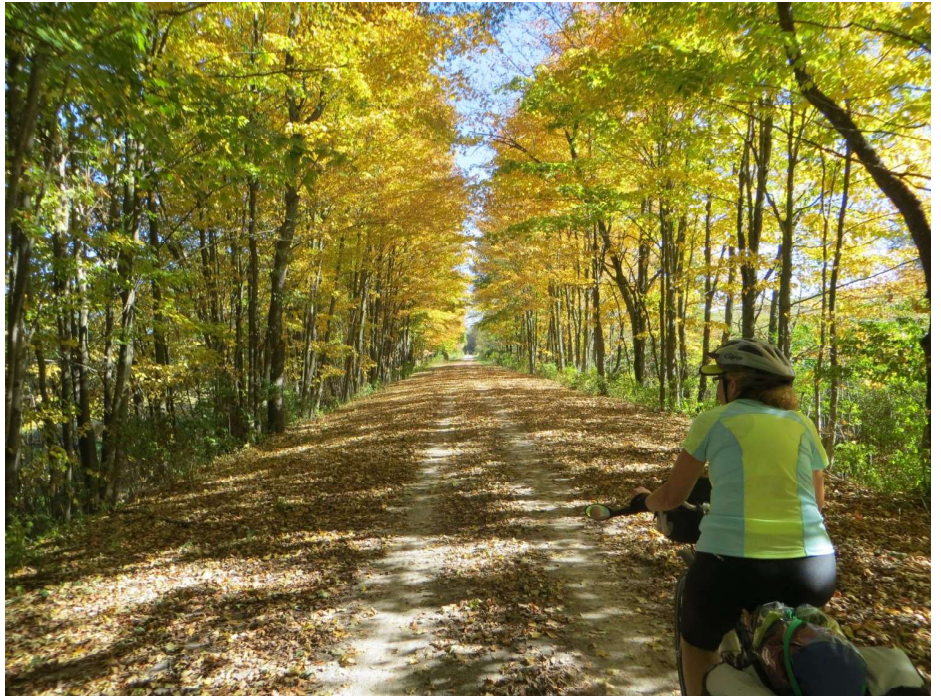
Repair and construction on Presidential Rail Trail



BMPs for Maintaining Rail Trails

- Prevent erosion, disturbance, or destruction of trail surface
- Limit incompatible use
- Prevent exposure to fugitive dust and underlying materials
- Invest in trail maintenance





Abandoned rail beds are not regulated by NHDES or NHDOT. Ties, ballast and soil may be relocated within the right-of-way without concern



Advice and Testimony (HB311 Section 4 (III))

(a) residual contamination from railroad operations

- Rail corridor materials considered “background” and not regulated by NHDES Waste Management Division
- Massachusetts Department of Environmental Protection similar to NHDES
- The Rails-to-Trails Conservancy lists 24,000 miles of rail-trails, decades of use, and millions of annual users with no impacts from residual contamination
- The NH Department of Transportation (NHDOT) owns over 300 miles of active recreational rail trails. No incidents of contamination have been reported



Residual Contamination is not a concern for non-motorized use

Advice and Testimony (Section 4 (III))

(f) Fugitive Dust and (g) Impact on Vegetation

- Fugitive dust causes transient and permanent health risks
- Visible dust can cause Chronic Obstructive Pulmonary Disease and irritate eyes, nose, and throat
- Short-term exposure to fine dust can trigger asthma, worsen existing breathing difficulties, and trigger heart attacks
- Dust most dangerous for children, elderly and others with underlying conditions – and most attracted to gently-graded rail trails
- Visible dust damages plants by inhibiting photosynthesis



Trail use should not generate visible dust



Health and Environmental Impact of Particulate Matter - Overview Fugitive Dust Workshop



Jeffrey Underhill, Ph.D.

NHDES

March 15, 2018



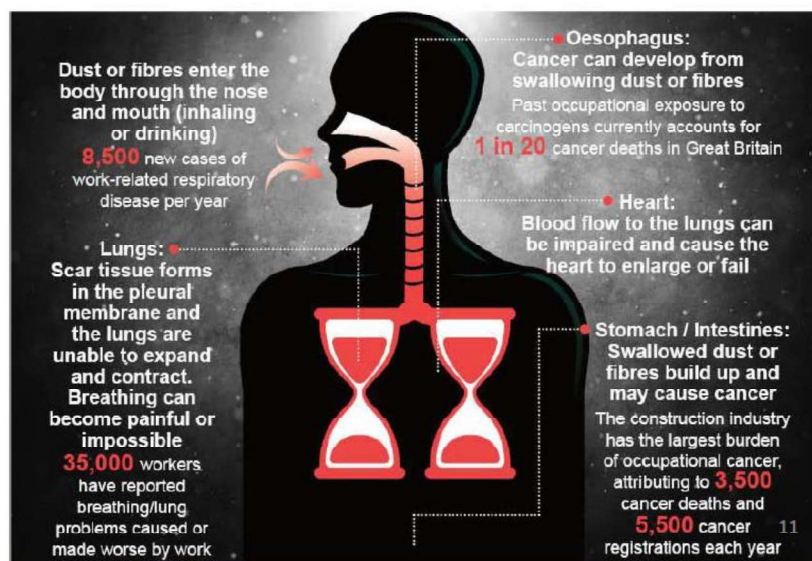
Health Impacts

- Respiratory disease
- Scar tissue development limits free breathing
- Blood flow to heart compromised
- Swallowing dust can lead to cancer of esophagus, stomach or intestines.

Construction Dust: THE SILENT KILLER

***23 NEW CASES OF WORK RELATED
RESPIRATORY DISEASE DIAGNOSED EVERY DAY**

Protect yourself before it's too late



NHDES,
March 2018



Wearing a Mask Protects Me

- True, it protects you, but often only to a degree.
 - Useful life of filter may get exceeded.
 - Sometimes doesn't filter out the smallest particles.
- But not everybody is wearing a mask.



Environmental Effects

- A layer of dust on the leaves of plants will block sunlight and reduce the plant's ability to photosynthesize.
- In order to protect the health of plants near dirt roads, construction sites and areas of loose dirt, plant leaves should be cleaned if coated.



NHDES,
March 2018



Advice and Testimony (Section 4 (III))

(h) Impact on Abutters and (i) Motorized Vehicle Impact

- Incompatible trail use poses greatest threat
- Shared motorized and non-motorized use is incompatible:
 - Relative speeds increase chances of harm from collisions
 - Dust generated by motorized use is unhealthy, decreases visibility, reduces views
 - Noise from motorized uses detracts from the outdoor experience of non-motorized users



A lawsuit by Gorham, NH citizens details adverse impacts of motorized vehicles on abutters

Compatibility Ratings from the “[Wisconsin Statewide Comprehensive Outdoor Recreation Plan](#)” (2005-2010)

Table 4-2: Average Land-Based Recreation Activity Compatibility Ratings ^{a,b}

PRIMARY USE:	INTERACTS:										
	ATV Riding	Hunting	Snow-mobiling	Horseback Riding	Mountain Biking	Cross-Country Skiing	Linear Trail Biking	Hiking	Wildlife Watching	Camping	Average Compatibility
ATV Riding	X	5.3	6.5	5.1	5.5	4.9	5.5	6.1	6.9	7.5	6.0
Hunting	3.3	X	3.7	4.7	4.3	5.3	5.7	5.4	6.0	6.3	5.0
Snowmobiling	4.3	4.0	X	4.0	4.8	4.3	5.8	5.3	6.3	7.2	5.1
Horseback Riding	2.2	3.5	3.0	X	3.8	4.9	4.5	6.3	7.3	7.7	4.8
Mountain Biking	3.1	3.6	4.7	4.8	X	5.7	8.1	6.1	7.4	8.0	5.7
Cross-Country Skiing	1.8	3.6	2.6	3.3	4.2	X	5.6	4.9	8.1	8.5	4.7
Linear Trail Biking	2.6	3.9	5.5	5.3	8.2	7.1	X	7.4	8.0	8.7	6.3
Hiking	2.4	3.5	3.5	5.7	4.7	6.1	6.5	X	8.9	9.2	5.6
Wildlife Watching	2.2	3.2	2.9	6.4	5.2	7.6	6.8	8.6	X	8.3	5.7
Camping	3.9	4.1	5.0	7.5	7.8	8.2	8.2	8.9	8.5	X	6.9
Average Compatibility	2.9	3.4	4.2	5.2	5.4	6	6.3	6.6	7.5	7.9	

- a. Compatibility ratings are for how column activity interacts with the row activity. Ratings should therefore be read horizontally across rows.
- b. Ratings below 4.0 (highly competitive or antagonistic) are highlighted in red, ratings between 4.0 and below 7.0 are highlighted in yellow (moderately to mildly competitive), and ratings 7.0 (supplementary or complementary) and above are highlighted in green. Results are based on responses from 23 Wisconsin recreation professionals.

Ratings <4 = “highly competitive or antagonistic”



Key Points

- Rail trail design, construction, and maintenance practices are well established and can be adapted to NH (Utilize NHDOT's Rail Trail Strategic Plan and HB1188 commission)
- Non-motorized use of rail trails is three times greater than motorized use
- Exposure to dust is harmful, especially to children, elderly, and people with underlying health conditions
- Fugitive dust can be prevented by limiting motorized use
- Non-motorized, low-impact rail trail recreation is valued at \$10.6 billion to \$21.5 billion annually. Values increase from \$34 billion to \$139 billion when health, fuel savings, and CO2 reduction included ([RTC, 2019](#))
- NH can develop a world-class recreational trail network.



NHRTC would be pleased to help the Committee develop BMPs!

Thank You for this Opportunity

Questions?



New Hampshire Rail Trails Coalition

An affiliate of the Bike-Walk Alliance of NH

2 Whitney Road, Suite 11

Concord, NH 03301-1844

www.nhrtc.org



New Boston Rail Trail



Presidential Rail Trail



Northern Rail Trail



Mason Rail Trail





New Hampshire Rail Trails Coalition

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www.nhrtc.org

Testimony Related to House Bill HB311 Committee to Study Rail Trail Best Practices February 14, 2022

Here is our written testimony; we look forward to testifying in person.

NH Rail Trails Coalition Testimony

The NH Rail Trails Coalition's (NHRTC) mission is to promote the development, maintenance, and active use of trails constructed on New Hampshire's railroad corridors.

We appreciate this opportunity to testify on behalf of our members and the hundreds of thousands of NH residents and visitors, from toddlers in strollers to seniors on walkers, that enjoy active recreation in New Hampshire. Rail trail enthusiasts use New Hampshire's 370+ miles of beautiful rail trails to walk, run, bicycle, commute, birdwatch, snowshoe, and enjoy Nature every day.

Our testimony supports the following conclusions:

- Rail trail design, construction, and maintenance practices are well established across the country and can easily be adapted to New Hampshire's needs.
- The majority of rail trail users prefer active, low-impact, non-motorized recreation.
- For active recreation, contamination along rail corridors is inconsequential.
- Exposure to visible dust is harmful, especially to children, seniors, and anyone with underlying health conditions. Potential contamination by fugitive dust can be readily limited by preventing dust generation caused by incompatible use.
- Nationally, the annual value of low-impact active recreation infrastructure ranges from \$34.1 billion to \$138.5 billion. New Hampshire has over 300 miles of State-owned, abandoned railroad corridor ready to improve and convert for public benefit.

Our testimony focuses on best management practices (BMPs) for repurposing former rail beds and maintaining rail trails. We include input on other areas of interest such as lack of exposure to contamination from active recreation use, fugitive dust, and motorized vehicle impact.

BMPs for Repurposing Former Rail Beds into Rail Trails

Tens of thousands of miles of rail beds across the country have been transformed into wildly popular and safe active recreation corridors. These rail trails have been used for decades by millions of people annually. Practical and well-established BMPs are in use in multiple states. Relying on proven practices, New Hampshire is well positioned to compile existing BMPs into plans and policies best suited for the Granite State.

Our initial recommendations for BMPs to repurpose former rail trails for active recreation include the following:

- Adapt existing BMPs for use in New Hampshire. The NHDOT maintains design information regarding various trail projects on State property, NHDES has BMPs related to trails and wetlands, and the national Rails-to-Trails Conservancy (RTC) provides information from around the country. We would be pleased to assist the Committee with this effort.
- Treat materials within the rail grade such as bedding, ballast, and ties as background (unregulated) material. Per current NHDES and NHDOT practices, these materials may be relocated within the right-of-way without NHDES regulation. If materials are transported off site, proper disposal methods must be determined and followed.

BMPs for Maintaining Rail Trails

- Invest in trail maintenance. Maintain trails to prevent erosion, disturbance, or destruction of the riding surface, for comfort and safety of trail users and to maintain barriers to direct contact, where present.
- Prevent incompatible uses of the trail. Note that low-impact active recreation use does not disturb durable riding surfaces or underlying soil, thus creating no fugitive dust nor churning up underlying materials. OHRVs tend to have the opposite effect.

Advice and Testimony (HB311, Section 4 (III))

We offer the following advice and testimony for parts a, c, f, g, h, I, and j under Section 4:

Residual contamination from railroad operations (a)

After decades of rail trail construction and use in New Hampshire and around the country, there is no evidence that residual contamination from railroad operations is a concern from non-motorized users, based on the following:

- Mr. Michael McCloskey, P.E. of the NH Department of Environmental Services (NHDES) Waste Management Division (WMD) testified to this Committee that rail corridors commonly have low concentrations of chemicals resulting from incidental use when they were active (typically many decades ago). These concentrations are considered “background” and are not regulated by the NHDES. Mr. McCloskey indicated that Massachusetts also considers soil beneath former rail corridors representative of background conditions.

- The [RTC](#) lists 24,000 miles of rail-trails developed and in use across the United States. This network is used by millions of people annually over nearly four decades. No contamination threats have been reported.
- The NH Department of Transportation (NHDOT) owns ~330 miles of rail Right Of Way, most acquired in the 1970s. No incidents related to contamination along NHDOT rail corridors have been reported to NHDES.

Identifying Areas of Contamination Concern (c)

NHDES indicated that Recognized Environmental Conditions (RECs) are not likely present within railroad corridors. If purchasing railroad property, NHDES recommends performing a Phase I (“paper”) site investigation. Phase I investigations identify potential environmental contamination and reduce owner liability. If a Phase I identifies a REC, additional sampling and remediation may be required. Most abandoned rail corridors are already owned by the State.

Fugitive Dust (f) and Impact on Vegetation (g)

Fugitive dust is our primary environmental concern, as it is a well-recognized problem on unpaved trails used by OHRVs. In general, if dust is visible, it is unhealthy and can lead to Chronic Obstructive Pulmonary Disease (COPD) ([NHDES, March 2018](#)) and irritate eyes, nose, and throat, causing even more serious health effects in children, elderly and others with underlying conditions ([US Center for Disease Control](#)). Visible dust also damages plants by inhibiting photosynthesis ([NHDES, March 2018](#)). Therefore, trail use should not generate visible dust.

NHDES regulates commercial sources of air pollutants, and these standards should be applied to rail trails to protect users and abutters from fugitive dust. Even uncontaminated, fine-grained sediment can create respiratory hazards. For example, long-term sand and concrete dust inhalation can lead to Silicosis, an irreparable form of lung damage. Short-term exposure to dust can trigger asthma, worsen existing breathing difficulties, and trigger heart attacks ([NHDES, March 2018](#); [Centers for Disease Control \(CDC\)](#)).

Impact on Abutters and Motorized Vehicle Impact (h and i)

The greatest risks on rail trails come from incompatible use, where non-motorized recreationists share a trail with OHRVs. For over twenty years, researchers and citizens have been identifying substantial incompatibility between motorized and non-motorized trail use ([Stowkowski and LaPointe, Supporting Documents](#)). In addition, dust generated by motorized use affects trail safety by decreasing visibility, and impacts scenery by reducing views. Noise, dust and fumes from motorized uses are incompatible with the outdoor experience of non-motorized users. The lawsuit by Gorham, NH citizens further details the many adverse impacts of motorized vehicles on abutters.

Recommendations

- In partnership with rail trail stakeholders (e.g. NHRTC, Bike-Walk Alliance NH, residential abutters, NHDES, RTC, NHDOT, and Bureau of Trails), utilize existing information to compile, clarify, and document BMPs for NH rail trails.

- Note that NHDOT's Rail Trail Strategic Plan is approaching completion. These references will be helpful when developing BMPs.
- Prevent degradation of the riding surface and generation of fugitive dust by limiting OHRV and other incompatible uses.

Conclusions

For active recreation, residual contamination along rail corridors is inconsequential and considered a background condition by the NHDES, the RTC, and neighboring states. Rail trail design, construction, and maintenance practices are well established across the country and can be adapted to New Hampshire's needs. We would be pleased to help the Committee further develop these BMPs.

Dedicating Rail trails to active non-motorized recreation fulfills the vision outlined in the [Statewide Comprehensive Outdoor Recreation Plan](#). According to [University of NH survey data prepared for the NHDOT Rail Trail Strategic Plan](#), 75% of trail users are bicyclists, pedestrians and other non-motorized alternatives; 12% are snowmobiles; and 13% are OHRVs.

Exposure to visible fugitive dust is harmful, especially to children, elderly, and people with underlying health conditions. Potential contamination by fugitive dust can be eliminated by preventing dust generation caused by incompatible use.

Over 300 miles of State-owned, abandoned rail beds provide New Hampshire with a substantial and sustainable economic, health, and recreational opportunity. Nationally, the total local spending impact of rail trails was \$10.6 billion in 2019 and could grow to \$21 billion annually. ([RTC, October 2019](#)).

When evaluating BMPs for New Hampshire's rail trail system, we hope our leaders and policy makers will recognize the superior economic, health, and environmental benefits of a world-class active recreation network.

Thank you for considering our testimony. We would be pleased to continue to assist this Committee with this important assignment.

Yours for a better New Hampshire,

-The New Hampshire Rail Trails Coalition,

Dave Topham, President
Marianne Borowski, Vice President
Ellen Kolb, Treasurer
Abby Evankow, Secretary
Charles Martin, Founder

**Final Report of the Committee to Study Rail Trail Best
Management Practices (HB 311)
October 31, 2022**

**APPENDIX D – SUGGESTED MATERIAL SPECIFICATION
(Compacted Surfaces)**

SPECIAL PROVISION

AMENDMENT TO SECTION 304 – AGGREGATE BASE COURSE

Item 304.7 – Stone Dust Wearing Surface

Add to Materials:

- 2.12 Stonedust shall be a clean, granular, well-graded and free from clay, sand or organic material.

Crushed Aggregate Surface Course Material (3/8” minus):

- 2.13 Aggregate shall consists of hard, durable particles or fragments of crushed stone or gravel conforming to the following requirements and gradations:

Los Angles abrasion, ASTM C 131 and C 535.....	50% max.*
Fractured faces (one face).....	95% min.*
Fractured faces (two faces).....	75% min.*
Soundness loss, 5 cycles, ASTM C 88 (magnesium).....	18% max.*
Flat/Elongated (length to width >5 ASTM D4791.....	15% max.*

*Based on portion retained on the 3/8” sieve

- 2.14 Materials shall be free from organic material and lumps or balls of clay.

- 2.15 Material passing the No. 4 sieve shall consist of natural or crushed sand and fine mineral particles. The material including any blended filler, shall have a plasticity index of not more than 6 and a liquid limit of not more than 25 when tested in accordance with ASTM D4318.

- 2.16 Aggregate shall contain a minimum of 5% clay particles by no more than 50% of that portion of material passing the No. 200 sieve size shall be clay. Inorganic clay to be used as binder shall conform to the following:

Passing No. 200.....	75%
Liquid Limit.....	30 min.
Plastic Index.....	8 min.

- 2.17 The fraction of material passing the No. 200 sieve size shall be determined by washing as indicated in ASTM D1140, “Amount of Material in Soils Finer Than the No. 200 Sieve.” The fractured faces for the coarse

aggregate portion (retained on the No. 4 Sieve) shall have an area of each face equal to at least 75% of the smallest midsectional area of the piece. When two fractured faces are contiguous, the angle between the planes of fractures shall be at least 30 degrees to count as two fractured faces. Fractured faces shall be obtained by mechanical crushing.

- 2.18 Gradation shall be obtained by crushing, screening, and blending processes as may be necessary. Material shall meet following screen analysis requirements by weight.

Sieve Designation	Percent Passing
3/8"	90-100%
No. 4	60-81%
No. 8	44-60%
No. 40	20-33%
No. 200	10-16%

Add to Testing and Quality Control:

- 3.5.6 Within 10 days of award, Contractor shall submit test results from a certified testing laboratory and a Certificate of Compliance. Failure to submit test results meeting specifications and Certificate of Compliance within 30 days will result in termination of contract and award will be made to next lowest bidder.
- 3.5.7 Material tested will be from predetermined stock pile of material
- 3.5.8 In addition to initial testing, Contractor shall perform additional gradation tests and furnish results as materials are processed and/or delivered. Frequency of additional testing shall be 1 test per 500 cubic yards. If source of materials should change after completion of original test, a complete set of tests, as required above, shall be performed again.
- 3.5.9 The owner reserves the right to conduct quality control inspection and testing to determine the reliability of the test results and Certificate of Compliance. Materials delivered that do not comply with the specifications and/or certificates shall be removed from the site at no cost to the Owner.

Add to Pay items and units:

Item 304.7	Stone Dust Wearing Surface	Ton
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