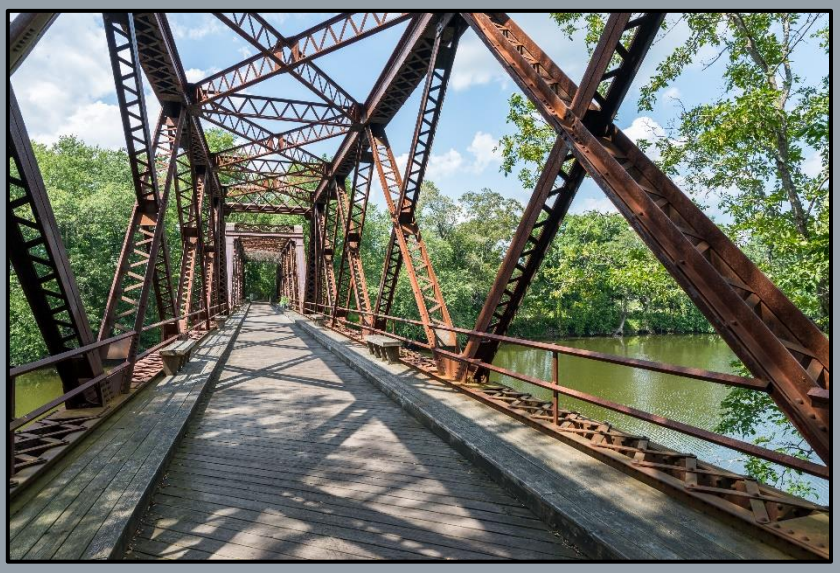

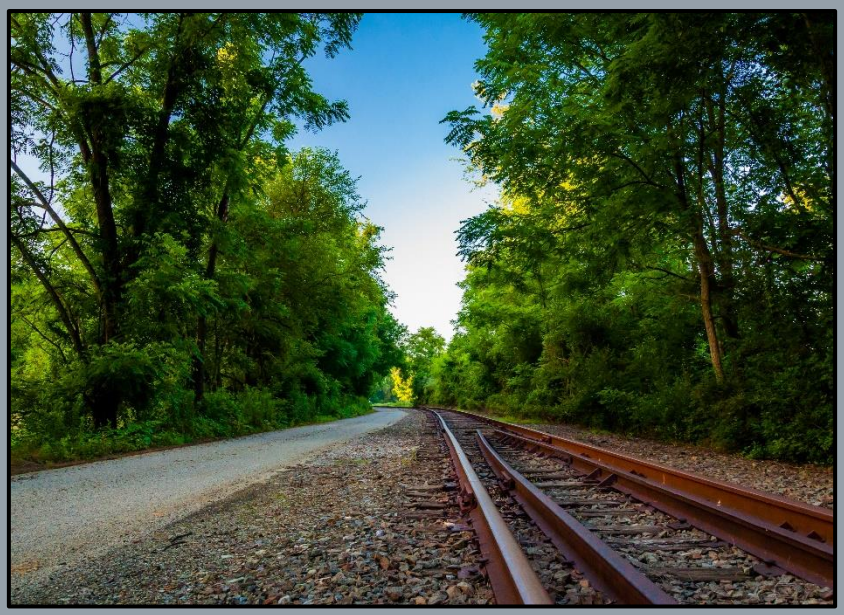

MOUNTAIN DIVISION

FEASIBILITY STUDY: POTENTIAL USES AND ECONOMIC BENEFITS

SUMMARY REPORT

MAINEDOT PIN # 018599.21
HNTB PROJ. NO: 82518 DS 001

May 2022

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Contents

Part 1:
Introduction & Summary

1.1 Purpose and Contents

The purpose of this report is to provide a high-level planning document to examine potential uses of the Mountain Division railroad corridor. The report will assist the MaineDOT Rail Use Advisory Council, established by LD 672 and LD 1133, in their effort to consider and evaluate the feasibility of each potential use. The three potential uses under consideration are: Rail, Trail, and Rail with Trail. Each use is further defined below.

- **Rail** – Rehabilitate the existing corridor tracks to support a Freight Rail operation meeting the requirements of FRA Class 1 or Class 2 track.
- **Trail Only**– Remove the existing corridor tracks and develop a shared-use trail on the former trackbed. The trail surface may be paved or stone dust.
- **Rail with Trail** – Rehabilitate the existing tracks as noted above and establish an adjacent shared-use trail with either a paved or stone dust surface

Per the requirements of LD 1133, any non-rail use of the Mountain Division will be considered to be interim in nature and the corridor must be preserved for future rail use.

This report contains a high-level description of each potential use, identification of constraints, and an analysis of economic benefits. A conceptual construction cost estimate has been provided for a variety of options related to each potential use.

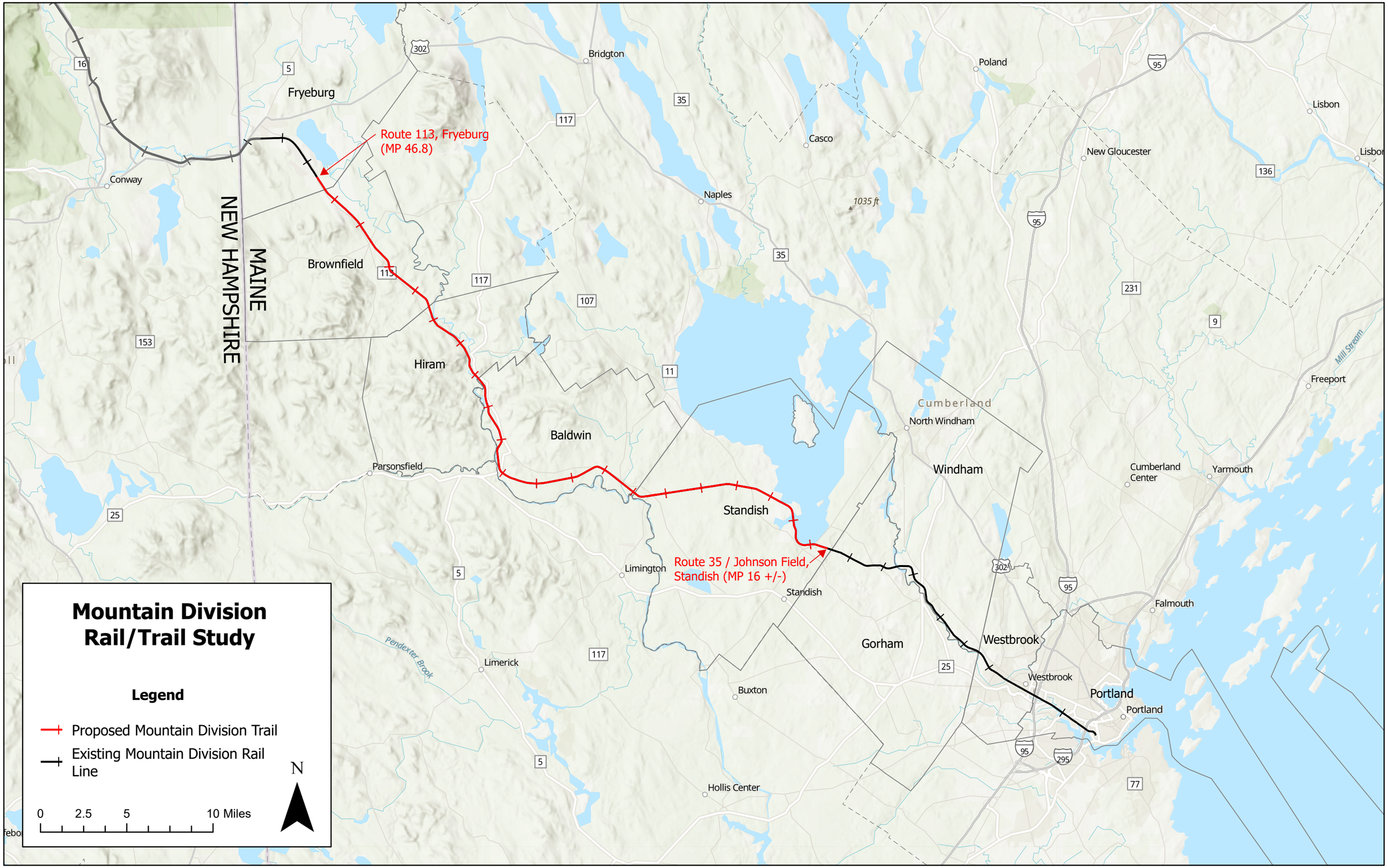
HNTB combined a review of Geographic Information Systems (GIS) Mapping and inherent historical knowledge of the corridor in the development of this report. No site visits or topographical survey were conducted at this stage. Approximately 15 years prior to this study, HNTB conducted an on-site assessment of the right-of-way on behalf of MaineDOT. Infrastructure analyzed previously included tracks, bridges, culverts, grade crossings, and topography.

1.2 Background and Study Area

The Mountain Division railroad corridor extends from Portland, Maine to Fryeburg, Maine and then continues through the White Mountains of New Hampshire to St. Johnsbury Vermont. The total distance of the line is approximately 131 miles. Amtrak's Downeaster trains operate along the first mile of the corridor and Pan Am Railway's freight service utilizes the first several miles to reach customers. The remaining segment in the State of Maine (approximately 45 miles) is currently inactive with respect to rail service. The line was removed from active service in the early 1980's following the sale of the Maine Central Railroad. MaineDOT is the current owner of the corridor within the limits of this study.

The subject area of this study is an approximately 31-mile section of the line between Route 35 in Standish Maine (approximate MP 16) and Route 113 in Fryeburg, Maine (MP 46.8). See graphic on the next page for details. The right-of-way width in this section varies and is commonly between 66 and 99 feet wide.

The beginning of the study area in Standish is located at the southeastern corner of Sebago Lake. This location roughly coincides with the first section of the Sebago to Sea Trail, a paved trail along the Mountain Division tracks towards Portland. The line continues through the towns of Baldwin, Hiram, and Brownfield before entering Fryeburg. The end point of the study area in Fryeburg is located adjacent to the Eastern Slopes Regional Airport, at the beginning of the 4-mile paved Mountain Division Rail Trail.


Route 113, Fryeburg
(MP 46.8)
Route 35 / Johnson Field,
Standish (MP 16 +/-)
NEW HAMPSHIRE
MAINE
Fryeburg
Conway
Brownfield
Hiram
Baldwin
Parsonsfield
Bridgton
Naples
Casco
Poland
Lisbon
New Gloucester
Standish
Limington
Limerick
Buxton
Hollis Center
Gorham
Windham
North Windham
Cumberland
Cumberland Center
Yarmouth
Freeport
Falmouth
Westbrook
Portland
1035 ft
Pendexter Brook
Mill Stream
Mountain Division Rail/Trail Study
Legend
Proposed Mountain Division Trail
Existing Mountain Division Rail Line
N
0 2.5 5 10 Miles

1.3 Previous Corridor Study

The most recent study of the Mountain Division as a railroad corridor is the report entitled *"Mountain Division Rail Study: Report on Potential Uses and Implementation Costs"*, authored by HNTB Corporation in 2007 for the MaineDOT Office of Freight Transportation.

The Maine State Legislature funded the study at the request of local constituents in Western Maine and the Portland area to review the potential viability of the state-owned and idle asset for either local freight service, commuter service to Portland, tourist and excursion service, or some combination thereof.

The report was developed by investigating the present-day condition of the corridor in Maine and a five mile segment in New Hampshire. The investigation included an inspection of the track structure, corridor bridges, grade crossings, and other elements of the right-of-way. The results were used to develop conceptual estimates of the cost required to rehabilitate the corridor to FRA Class 1, 2, or 3 condition. Extensive research was completed to determine the viability and demand for both freight and passenger service.

The freight rail options considered were a variety of shortline[1] operations starting from Intervale, New Hampshire and interchanging with Pan Am Railway in Portland Maine. The line could reach a variety of potential customers, primarily aggregate operations that are interested in shipping their rock or gravel products south to Portland or Boston.

Passenger rail options under consideration were commuter rail service from Fryeburg to Portland or an excursion/tourist train operating between Portland and North Conway in New Hampshire. Commuter rail service was generally not considered to be feasible due to a lack of population density along the corridor and the lack of a terminus station located within the center of the City of Portland. An excursion service was found to have more potential, provided the States of Maine, New Hampshire, and potentially Vermont collaborated to rehabilitate and link their respective sections of the corridor. The proposed service was considered to have the potential to increase tourism in the area, increasing jobs and tax revenue.

The results of the study indicated the costs to rehabilitate the existing tracks varied from $20 million to $40 million, depending on the desired line speed. Additional costs were also noted for the construction of the remaining infrastructure (stations, sidings, maintenance facilities, yards, etc.) required to operate either passenger rail, freight rail, or a combination of the two.

1.4 Summary of Findings

The three uses for the corridor and their associated cost estimates can further subdivided based on options for FRA class of track (Class 1 or Class 2) and trail surface (paved or stone dust). A conceptual cost estimate summary of each option for use of the Mountain Division Corridor is shown on the next page. The least expensive option is the Trail Only option with a stone dust surface ($16.9 million) and the most expensive option is the Rail with Trail option with Class 2 track and a paved trail surface ($145.8 million).

[1] A Shortline railroad operation is a small to midsize railroad company that operates over a relatively short distance in comparison to a large railroad company with a wide geographic operating network. Shortlines primarily interchange with large railroad companies or operate as a tourist/excursion service.

Table 1-1 Conceptual Cost Estimate Summary			
No.	**Potential Use**	**Total Cost**	
Option 1: Rail Use			
1A	Rail (Class 1)	$	52,400,000
1B	Rail (Class 2)	$	60,100,000
Option 2: Trail Only Use			
2A	Trail (Paved)	$	20,100,000
2B	Trail (Stone Dust)	$	16,900,000
Option 3: Rail with Trail Use			
3A	Rail (Class 1) with Trail (Paved)	$	138,100,000
3B	Rail (Class 1) with Trail (Stone Dust)	$	134,800,000
3C	Rail (Class 2) with Trail (Paved)	$	145,800,000
3D	Rail (Class 2) with Trail (Stone Dust)	$	142,500,000

The Rail Use option includes costs necessary to rebuild the existing tracks to the requirements of either FRA Class 1 or FRA Class 2. This includes the approximately 50-mile segment between Portland and Fryeburg. Additional study will be required to determine if there is specific interest from industries in an active freight line on the corridor and to develop options for a potential freight rail operation. In addition to serving potential existing customers along the corridor and creating railroad jobs, an active rail line could promote new businesses to open. One catalyst for attracting new rail-centric businesses along the corridor could be the establishment of a Foreign Trade Zone (FTZ), either on or adjacent to the corridor.

There are two options for constructing a shared-use trail over the approximately 31-mile segment between Standish and Fryeburg. The Trail Only use option includes costs to remove the existing tracks and construct a shared-use trail on the existing trackbed. The Rail with Trail option includes rehabilitation of the existing tracks and construction of a shared-use trail adjacent to the tracks. In general, the construction of a trail could introduce several benefits into the region. These benefits include increased property values, economic contributions from tourists, and increased health benefits for area residents.

Once the Council selects an appropriate option to advance, further study and analysis beyond the feasibility stage will be required to refine the cost estimates, impacts, and expected benefits.

Part 2:
Potential Rail Use

2.1 Description of Use

The Mountain Division tracks were used for active passenger service until 1960 and freight rail service until the early 1980's. The Rail Use Option under evaluation by the council proposes to restore the abandoned tracks to support a freight rail operation.

The original rail infrastructure present in the early 1980's generally remains in place but has not been maintained. Ties need replacement, ballast stone has been fouled, ditches are filled, and bridge repairs are needed. Track restoration options for the purposes of this study will be defined by the class of track level mandated by the Federal Railroad Administration (FRA) within the Code of Federal Regulations specific to track safety standards (Title 49, Part 213, Subpart A to F). Each FRA track class corresponds to an allowable operating speed, as shown in the table below.

Table 2-1
MAXIMUM ALLOWABLE SPEEDS
EXCEPTED TRACK TO FRA CLASS 5

FRA CLASS	FREIGHT	PASSENGER
Excepted	10 MPH	Not Allowed
Class 1	10 MPH	15 MPH
Class 2	25 MPH	30 MPH
Class 3	40 MPH	60 MPH
Class 4	60 MPH	80 MPH
Class 5	80 MPH	90 MPH

Each class of track is further defined by a variety of factors that each represent the overall condition of the track bed. These factors include how straight and level the rails are (alignment), how consistent the distance between the rails is (gauge), and how many crossties in acceptable condition are installed along a typical rail length.

The photographs shown in Figures 2-1 and 2-2 illustrate the difference in track structure condition between Class 1 and Class 5 track.

Figure 2-1:
Excepted Track (10 MPH Freight)

Figure 2-2:
Class 5 Track (90 MPH Passenger)

The existing trackage in Maine includes approximately 50 miles from Portland to Fryeburg. MaineDOT owns 45 miles and Pan Am Railways owns the remaining 5 miles. This study focuses on upgrading to either FRA Class 1 (10 MPH) or Class 2 (25 MPH). These two classes will provide a cost-effective path to allow the operating speeds necessary for efficient freight rail service. This level of service is consistent with most other active freight railroad corridors in the State of Maine and can be achieved without a complete reconstruction of the tracks.

This approach will require several major work components to restore service, including:

- General right-of-way cleaning and ditching
- Removal and replacement of fouled ballast
- Replacement of defective ties and other track components
- Bridge replacement or rehabilitation
- Grade crossing replacement and installation of warning systems to protect automobiles

The approach includes upgrading the mainline tracks within the corridor. A complete freight rail operation will likely require additional track infrastructure, such as sidings, runaround tracks, storage tracks, yard tracks, industry spurs, and turnouts. Additional facilities may be required as well, including a maintenance and storage building to service rolling stock and store materials needed for upkeep. These items can be highly variable and are largely dependent on the railroad operation. For example, if the Mountain Division were operated by an independent freight operator instead of an existing freight railroad such as Pan Am Railways, the independent railroad would require their own facilities at a much higher capital cost. The potential costs for these additional infrastructure items, and the costs to acquire the property they are sited on, are not included at this stage.

This study does not consider the broad range of options for passenger rail service. Previous studies of the corridor have recommended FRA Class 3 track at a minimum to provide passenger service. Upgrading to Class 3 track (60 miles-per-hour maximum) will likely require a complete replacement of the existing tracks including all the rail. If speeds higher than 59 miles-per-hour were allowed, the FRA would require a complete signal system to be installed at a substantial capital expense. Similar to freight service, passenger service would require many additional items, such as stations with parking facilities, layover facilities, maintenance shops, and rolling stock.

2.2 Existing Inventory and Methodology

2.1.1 - Methodology

The methodology for evaluating the existing track structure inventory and preparing cost estimates is generally consistent with the methods described in the 2007 study. Each element of the track structure has been analyzed to determine what materials may remain and which will require replacement to meet the requirements of either Class 1 or Class 2 track. The estimates are conservative to provide a track that can operate within its FRA classification without ongoing heavy maintenance or repairs for at least five years. No site visits were conducted as part of this study. The analysis is based on review of available databases, known material condition, and discussions with MaineDOT.

2.1.2 – Corridor Improvements (2007 to 2022)

The corridor has not received significant improvements since the 2007 study, except for an approximately five mile section in Westbrook and Windham, Maine. This section, between approximate MP 6 and MP 11, was rehabilitated in 2012 to accommodate FRA Class 2 conditions. Prior to the improvements, the track had been removed. The improvements consisted of clearing, debris removal, track construction, ditch cleaning, and farm crossing installation. This section includes several roadway grade crossings and bridges but limited to no rehabilitation work was performed on these items at the time.

2.1.3 - Crossties

The item that requires the most significant replacement is the timber ties. The average life of a railroad tie is 25 to 50 years under regular traffic. It is assumed that the last time any ties were replaced on the corridor was around 1980. Although the ties in the corridor have not been subjected to traffic over the last 40 years, the ties have deteriorated naturally due to prolonged weather exposure and lack of any maintenance. An analysis of the ties, based on the methodology in the 2007 study is shown in Table 2-1 and Table 2-2. As can be expected, there are likely very few ties remaining in acceptable condition (less than 50 years old). These tie counts are most representative of segments of track constructed with well-draining rock ballast. Tie counts are assumed to be worse in track segments with gravel ballast, which is mostly fouled with soil.

TABLE 2-1
PRESUMED TIE POPULATION IN 1980

AGE OF TIES IN 1980	PERCENT IN TRACK	TIES PER MILE	TIES PER 33' RAIL
0	12%	348	2
5	12%	348	2
10	12%	348	2
15	11%	319	2
20	10%	290	2
25	9%	261	2
30	8%	232	1
35	7%	203	1
40	7%	203	1
45	5%	145	1
50	4%	116	1
55	2%	58	0
60 or older	1%	29	0
TOTALS	100%	2900	18

TABLE 2-2
PRESUMED TIE POPULATION IN 2022

AGE OF TIES IN 2022	PERCENT IN TRACK	TIES PER MILE	TIES PER 33' RAIL
42	12%	348	2
47	12%	348	2
52	12%	348	2
57	11%	319	2
62	10%	290	2
67	9%	261	2
72	8%	232	1
77	7%	203	1
82	7%	203	1
87	5%	145	1
92	4%	116	1
97	2%	58	0
97 and older	1%	29	0
TOTALS	100%	2900	18

2.1.4 – Rail and OTM (Other Track Materials)

The existing corridor rail is mostly 85 lb per yard. The rail and joint bar assemblies are assumed to be in a condition to allow for re-use, with minor spot replacements as necessary. New ties installed in the track will receive new or relay tie plates and railroad spikes. The tie plates will need to accommodate the existing rail base width of 5 3/16". The existing tracks do not include rail anchors. Rail anchors will prevent rail and tie movement and their installation is recommended to support Class 1 and 2 conditions.

2.1.5 – Bridges and culverts

The existing bridge inventory is from the 2007 Study and contains 23 bridges and large culverts from milepost (MP) 1.16 in Portland to MP 51.53 in Fryeburg. Refer to the 2007 Mountain Division Rail Study for a brief description of each bridge and major culvert. Field visits were not completed for this report. Existing conditions and photographs of the existing bridges were obtained from the 2007 Study and from draft inspection reports in MaineDOT's Assetwise database. The existing bridge conditions range from poor to satisfactory.

2.1.6 – Roadway Grade Crossings

The corridor includes many grade crossings on both public and private roads with either paved or gravel roadway surfaces. The existing track within the crossings is assumed to have deteriorated through many years of vehicular traffic and winter roadway treatments. New crossings will require new 115RE welded rail, crossing panels or rubber rail seal, new ballast stone, underdrains, and either hot mix asphalt pavement or gravel surfaces.

2.1.7 – Automatic Highway Crossing Warning Systems

Most of the major highway crossings on the Maine DOT owned segments have train activated flashers and bells. At several of the crossings, the signal cases and flasher mast assemblies appear to be intact. At several other crossings, at least one of the flasher masts was missing. Salvage of some of the signal equipment at the crossings that were rebuilt in the 1970's may be possible. However, for purposes of this report, we have assumed that all major road crossings would have a complete, new warning system installed.

Past considerations assumed that only the major crossings would need Automatic Highway Warning Systems. Future considerations may change with the passage of time and increase in local traffic. We recommend that a detailed assessment of each crossing be performed by a competent "Diagnostic Team", including MaineDOT representatives. The "Diagnostic Team" would evaluate each location and determine the type of warning equipment required if the railroad is to be reactivated. Some provisions for future upgrades could be incorporated such as installing conduit runs for cable at unprotected crossings during reconstruction and planning new rail trail construction to avoid future signal equipment conflicts.

2.1.8 – Material Salvage

In addition to the mainline track, the corridor includes several ancillary siding tracks. These tracks are assumed to be removed in consistency with the 2007 Study. A future rail operation, unknown at this time, will likely require a different siding track layout.

As noted earlier, the timber ties to be removed from the existing track are assumed to be in poor condition and are not likely to be salvageable. The ties are treated with creosote and will require disposal in accordance with environmental regulations. The removal contractor will be paid to remove the ties, arrange them for shipment, and transport them to a licensed disposal facility in Maine.

Steel components such as rail and OTM (joint bars, tie plates, bolts, and spikes) removed from the existing track have salvage value. A contractor will need to organize the loose scrap steel and prepare the rail by cutting the existing 33-foot rail sections into four-foot lengths for acceptance at a scrap yard.

2.3 Environmental Requirements

As part of this initial feasibility study, HNTB evaluated the environmental requirements likely needed to reestablish rail service to the Mountain Division line. Because the corridor is currently maintained by MaineDOT it can be inferred that there would be no newly associated wetland impacts with this option. However, a field delineation would be required prior to preliminary design to ensure the existing corridor meets this condition. The existing rail corridor crosses 26 streams or rivers within the defined study area. The current condition and quality of the existing infrastructure relating to these water crossings was not evaluated for this feasibility study. Repair or replacement of these crossings may lead to minor wetland impacts; however, the quantification of these impacts cannot be calculated via a desktop effort. Additionally, any work associated with the existing culverts or crossings would likely require permit approvals.

2.4 Conceptual Cost Estimate

Conceptual cost estimates have been prepared in accordance with the methodology described earlier in this chapter and a summary is shown on the following pages. The costs cover the 50-mile segment between Portland and Fryeburg. The underlying costs are based on estimate tables consistent with the 2007 Study.

The estimates include track rehabilitation, ditching, fouled ballast replacement, roadway crossings, bridges, culverts, crossing warning systems, track removal and salvage costs (See Appendix B for further details). Costs are based on escalated values from the 2007 study, recent track and railroad bridge construction projects in Maine, and recent quotes from material suppliers. As mentioned previously, no costs for additional infrastructure such as sidings, yard tracks, or other facilities are included.

Additional costs have been calculated for design engineering and construction management fees necessary to execute the project. Due to the conceptual level of the estimate, a 30% contingency has been included to address additional costs that can be further defined in subsequent design stages.

HNTB

MOUNTAIN DIVISION FEASIBILITY STUDY

Conceptual Cost Estimate

1A. Rail Use (FRA Class 1)

Item No.	DESCRIPTION	TOTAL
1	Track Rehabilitation	$22,208,386
2	Bridge and Culvert Rehabilitation	$6,680,000
3	Roadway Crossings	$6,090,000
4	Track Removal and Salvage	$1,600,000
	Construction Subtotal:	**$36,578,386**
	Contingency (30%):	$10,973,516
	Construction Total:	**$47,551,902**
	Design Engineering (6%):	$2,853,114.11
	Construction Mgmt. and Engineering (4%):	$1,902,076.07
	Subtotal:	**$52,307,092**
	Round Up	
	TOTAL:	**$52,400,000**

HNTB

MOUNTAIN DIVISION FEASIBILITY STUDY

Conceptual Cost Estimate

1B. Rail Use (FRA Class 2)

Item No.	DESCRIPTION	TOTAL
1	Track Rehabilitation	$27,147,584
2	Bridge and Culvert Rehabilitation	$6,680,000
3	Roadway Crossings	$6,090,000
4	Track Removal and Salvage	$2,100,000
	Construction Subtotal:	**$42,017,584**
	Contingency (30%):	$12,605,275
	Construction Total:	**$54,622,859**
	Design Engineering (6%):	$3,277,371.56
	Construction Mgmt. and Engineering (4%):	$2,184,914.37
	Subtotal:	**$60,085,145**
	Round Up	
	TOTAL:	**$60,100,000**

Part 3:
Potential Trail Use

3.1 Description of Use

The Trail Only use option under evaluation as part of this study involves the removal of the existing track materials and replacement with a trail on the existing rail bed.

The proposed 31-mile trail is expected to be 10 feet wide and surfaced with either pavement or stone dust. The trail starts near Route 35 in Standish, Maine and ends at Route 113 in Fryeburg, Maine. The existing one-mile section of trail from Otter Ponds to Route 35 in Standish (the "Jeep Trail") would be paved and included in this project. Just west of Route 35 (Chadbourne Road) to just east of Smith Mill Road, Portland Water District (PWD) owns the corridor rights. At this time, an alternative trail route has not been determined. For the purposes of this report and in lieu of further study, the trail is assumed to follow PWD's corridor to provide consistency in cost over the length of the study. See further discussion in Potential Constraints section.

The study area contains 15 bridges and major culverts. For the purposes of this report, the assumption is that each existing bridge will accommodate the proposed trail on the existing track alignment. The bridge decks will require minor modifications to support trail user loads and provide a uniform surface appropriate for the trail as well as a railing system to safely accommodate bicyclists and pedestrians.

One consideration of this option is if rail service was ever to be restored in the future, the trail would need to be removed or relocated.

3.2 Potential Constraints

3.2.1 – PWD Easement

Construction of the trail through PWD's property along the existing rail track alignment is not currently possible pursuant to an agreement established in the early 2000's between PWD and MaineDOT. Continued coordination to investigate possible alternatives will be required in the future. PWD has expressed interest in placing the trail on other property under their ownership.

One option to circumvent the PWD property and maintain trail connectivity is to route the trail along local roadways, using the shoulders of Routes 35 and 114. This option will likely require significant improvements to safely accommodate a shared-use trail within this area. In addition, the intersection of Routes 35 and 114 is a high crash location (HCL) and experiences high congestion in the summer months. Several businesses and parking lots are located close to the road within the vicinity of this intersection, therefore widening the intersection to add a shared use trail will have significant right-of-way impacts and added safety concerns.

3.2.2 – At-Grade Crossings

The proposed trail would have 26 at grade crossings, three of them on roads with posted speed limits of 55 mph (at Route 114 in Standish, Route 113 in Hiram, and Route 113 in Fryeburg). Per the latest MaineDOT Crosswalk Design Guidance, a cross street with a posted speed greater than 45 mph will require fully actuated traffic signals. Traffic signals at these locations may not meet signal warrants, would adversely impact corridor traffic operations and may create safety concerns; as such, addition of signals may not be feasible. Review/discussions regarding these grade cross locations with the State Traffic Engineer and/or

other applicable stakeholders is warranted during future project evaluations. Sight distances at all crosswalk locations will need to be confirmed to ensure minimum standards are achieved.

3.3 Potential Parking & Trailhead Locations

Four possible parking areas and trailhead areas along the 31-mile corridor have been identified. Two are located adjacent to existing businesses (Refer to Figure 3-1) and two are former railroad facility sites (Refer to Figure 3-2).

The first area adjacent to a business is at the Whistle Stop General Store in East Baldwin and the second is GN's Convenience Store in Brownfield. Both have open grass or gravel parking areas that may be able to be reconfigured to accommodate sufficient parking for the businesses while also providing some access for trail users. In East Baldwin, the railroad corridor directly abuts the Whistle Stop, where there is an existing informal trailhead parking location for the numerous ATV and snowmobile users in the area.

Similar to the East Baldwin location, the Brownfield location also provides a large potential area for parking. However, the location is on the opposite side of Route 113 from the rail corridor, requiring crossing a 45-mph posted speed roadway; and the location is at the convergence of five streets and therefore adding pedestrians and bicycles at this location may be a safety concern. For the purposes of this study the East Baldwin trailhead location is favorable to the Brownfield trailhead location due to proximity to trail, added safety concerns, and the requirement for a fully actuated traffic signal, however further investigations into these sites is needed.

Figure 3-1:
East Baldwin and Brownfield
Parking/Trailhead Potential Locations

The first railroad facility site is at the site of the former Cornish Station in West Baldwin. The site is adjacent to the Saco River on Route 5, just east of the border of Cornish and West Baldwin. The site could be cleared of vegetation to provide a gravel parking area for trail users. The second area is the site of an existing track siding used for the former station in Hiram. The site can be accessed from Route 113 and is located at the foot of Mount Cutler. The tracks could be removed and filled in with gravel to easily create the parking area. Access to the Mount Cutler trail system could be provided from this location.

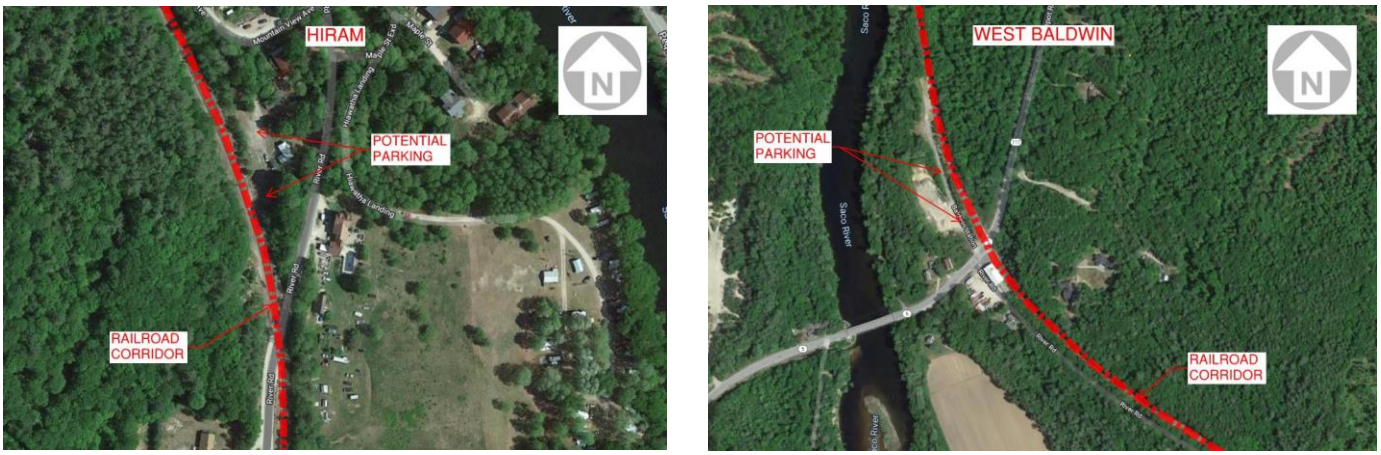


Figure 3-2:
Hiram and West Baldwin
Parking/Trailhead Potential Locations

Refer to Appendix C for a plan showing the location of both the existing and potential parking/trailhead locations along the 31-mile corridor. Further investigation of potential parking and trailhead locations is recommended during future design evaluations.

3.4 Conceptual Cost Estimate

Cost estimates include potential construction costs for constructing a shared use trail on the existing rail bed over the 31-mile segment. Two trail options have been estimated: trail with a paved surface and trail with a stone dust surface. Cost estimates do not include potential parking facilities, property acquisitions, permitting costs or any other incidentals. Other assumptions with the cost estimates are described further below.

Minor amounts of excavation and gravel were assumed to be required once the tracks are removed. The steel components of the track (rail, tie plates, and OTM) were also assumed to have a salvage value. The timber crossties are unlikely to have salvage value due to their age and level of deterioration.

Major at-grade crossings (>55 mph) include the cost of a fully actuated traffic signal system but do not include any other intersection improvements. All remaining at-grade crossings (Minor Roadway Crossings) occur on roads with posted speeds of 35 mph or less and therefore the estimate only includes cost of advance roadside signs.

The "Jeep Trail" through Otter Ponds is a high-level cost and is based on adding a six-inch gravel base and two-inch paved trail for the length of the trail. Costs do not include any grading that may be necessary to bring the corridor entrances into ADA compliance for a trail and would require further evaluation.

The existing bridges will require rehabilitation and/or replacement to accommodate the proposed trail. The cost includes timber planking for the trail surface as well as a railing system to safely accommodate bicyclists and pedestrians.

The bridge at MP18.05 over the Sticky River is included in the conceptual cost estimate. This location is within the Portland Water District right of way and is a potential constraint as stated previously.

A conceptual cost estimate summary is shown on the following page. Costs are based on escalated costs from the 2007 study as well as from recent bridge and roadway construction projects in Maine. Additional costs have been calculated for design engineering and construction management fees necessary to execute

the project. Due to the conceptual level of the estimate, a 30% contingency has been included to address additional costs that can be further defined in subsequent design stages.

MOUNTAIN DIVISION FEASIBILITY STUDY

Conceptual Cost Estimate

2A. Trail Use - Paved

Item No.	DESCRIPTION	TOTAL
1	Pave Jeep Trail	$180,000
2	Common Excavation	$2,145,207
3	Trail Base (Gravel)	$2,798,097
4	Trail Surface (Paved)	$4,041,695
5	Minor Roadway Crossings	$230,000
6	Major Roadway Crossings	$1,200,000
7	Bridge Modifications	$1,610,000
8	Cost to Remove and Salvage Track	$1,800,000
	Construction Subtotal:	**$14,004,999**
	Contingency (30%):	**$4,201,500**
	Construction Total:	**$18,206,499**
	Design Engineering (6%):	**$1,092,390**
	Construction Mgmt. and Engineering (4%):	**$728,260**
	Subtotal:	**$20,027,149**
	Round Up	
	TOTAL:	**$20,100,000**

2B. Trail Use - Stone Dust

Item No.	DESCRIPTION	TOTAL
1	Pave Jeep Trail	$180,000
2	Common Excavation	$2,145,207
3	Trail Base (Gravel)	$2,798,097
4	Trail Surface (Stone Dust)	$1,787,673
5	Minor Roadway Crossings	$230,000
6	Major Roadway Crossings	$1,200,000
7	Bridge Modifications	$1,610,000
8	Cost to Remove and Salvage Track	$1,800,000
	Construction Subtotal:	**$11,750,977**
	Contingency (30%):	**$3,525,293**
	Construction Total:	**$15,276,270**
	Design Engineering (6%):	**$916,576**
	Construction Mgmt. and Engineering (4%):	**$611,051**
	Subtotal:	**$16,803,897**
	Round Up	
	TOTAL:	**$16,900,000**

Part 4:
Potential Rail with Trail Use

4.1 Description of Use

The second alternative trail design included as part of this feasibility study of looks at the potential for constructing a shared use trail adjacent to the existing railroad tracks One advantage of this option is it removes risk associated with the rail service being restored, since the trail would be adjacent to the track rather than on the rail bed itself, as long as all trail crossings can occur at existing road crossings. This approach has already been utilized in the two existing sections of the Mountain Division Rail Trail.

The proposed 31-mile trail would be 10' wide and surfaced with either pavement or stone dust. Similar to the Trail Use option, the existing one-mile section of trail from Otter Ponds to Route 35 ("Jeep Trail") would be paved and included in this project rather than the trail remaining in the railroad corridor. The same concerns with the two-mile portion of trail within Portland Water Districts (PWD) land exists for this option as well, however for the purposes of this report, the trail is assumed to follow PWD's corridor. See further discussion in Potential Constraints sections 3.2 and 4.2.

Since this option assumes the rail will be in service, or someday return to service, the near edge of the trail (not including shoulder) shall be a minimum of 15 feet from the near rail, in accordance with MaineDOT standards for Development of "Trail with Rail". However, this setback may be reduced to 10.5 feet, if a fence meeting MaineDOT standards is installed at the edge of trail shoulder between the trail and rail.

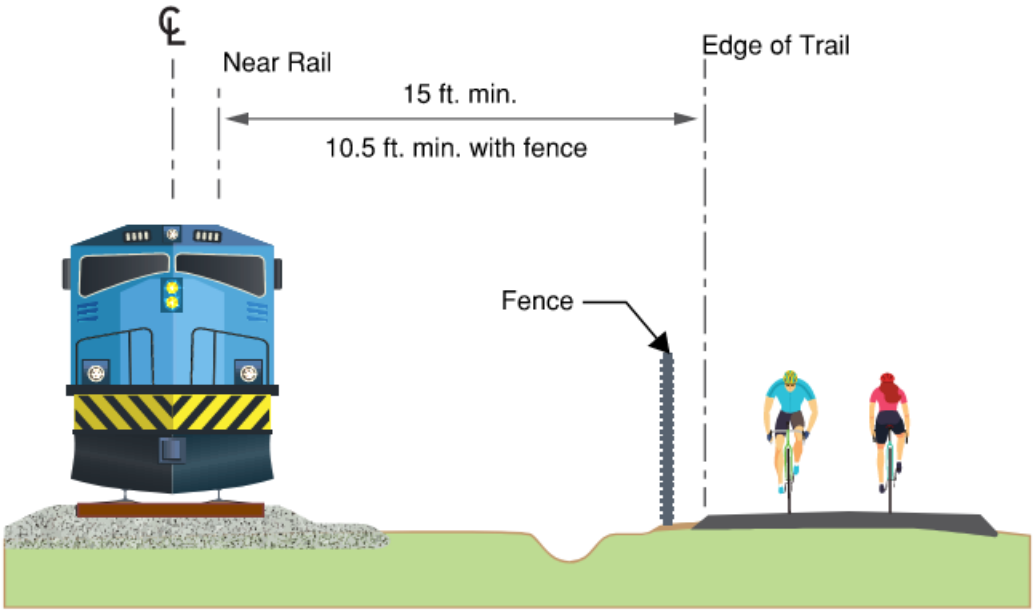


Figure 4-1:
Typical Rail with Trail Cross-section

The existing corridor was analyzed using Geographic Information Systems (GIS) data, including aerial imagery, property lines, and contour elevations. The location of the existing track varies across the railroad

right-of-way; therefore the setback of the trail will vary throughout the corridor. Further study is required to determine a preferred location of the shared use trail within the railroad corridor with regards to:

- Setback from track,
- East or West side of the track
- Positive separation between the track and trail, i.e. longitudinal guardrail or fencing limits
- Historical patterns of trespassing

High-level review of potential constraints along the corridor that may dictate which side of the track the shared use path should be placed, for example how close the tracks are to the right of way or a water body/sensitive environmental feature. Per MaineDOT standards for Trail with Rail, the trail should not be required to cross the track unless at an at grade intersection. In some cases, this may not be feasible and retaining walls may be required to avoid property impacts or acquisition of property rights may be required. The ultimate location of the trail within the corridor will need to be further investigated.

The study area contains 15 bridges and major culverts. For the purposes of this report, the assumption is that, with the exception of MP36.32 over the Saco River, the abutments at each existing bridge will be extended and additional girders will be installed to accommodate the proposed trail adjacent to the existing rail alignment. The proposed trail is assumed to be cantilevered from the existing through truss at MP36.32 over the Saco River.

4.2 Potential Constraints

As discussed in detail in Section 3.2 Potential Constraints for Trail Use, construction of the trail through PWD's property may not be an option based on previous discussions. The same concerns exist for the Rail with Trail Use option and should be investigated further.

Constraints with at-grade crossings on high-speed roadways were discussed in Section 3.2 and the same concerns exist with the Rail with Trail Use option and further investigation is required.

An additional constraint with the Rail with Trail Use option is the likely need to construct embankment widening through water bodies, other environmental features, or close to adjacent roadways. Ingalls Pond in West Baldwin and Pequawket Pond in Brownfield are two examples where the railroad corridor passes directly through or very close to the water body. Embankment construction in these areas to support a shared use trail, will likely require installation of cofferdams, dewatering and possible bypass pumping, adding significant construction costs. Another option is to construct a trestle supporting a timber trail surface adjacent to the existing rail. Further investigation is recommended to determine the feasibility associated with any additional environmental impacts, initial construction costs, and lifecyle replacement costs.

At a high level, options to relocate the trail to a local road network to avoid these impacts in the corridor do not appear feasible, since they would require rerouting the trail outside of the railroad corridor for several miles, however further investigation is recommended.

As previously mentioned, the offset to a shared use trail along the rail corridor may be constrained due to environmental, property or topographic features and crossing the tracks to avoid impacts is generally not permitted outside of at-grade crossings. In these areas, retaining walls may be required to avoid impacts. For the purposes of this high-level study, retaining walls are assumed for 15% of the trail length. This assumption is based on high level review of elevations along the corridor in GIS and experience with similar trail sections within the State.

In an effort to identify potential opportunities to reduce impacts and costs, two possible locations have been identified where relocating the trail outside of the railroad corridor may be feasible. One location is in West Baldwin near Pigeon Brook Road where the track meanders from the left side to the right side of the corridor, thereby making it difficult to maintain the trail on one side. A potential option may be to exit the rail corridor at School Street and pick up a trail constructed adjacent to Pequawket Trail (high speed roadway) for a short distance before utilizing Pigeon Brook Road to re-enter the rail corridor. The total length of this off-alignment route would be approximately 2/3 of a mile. It is also possible the track and trail may be reconfigured, at a higher cost, to accommodate the dual use. The second location is in Hiram where the shared use trail could exit the railroad corridor onto Hiram Hill Road, pick up a trail constructed adjacent to Pequawket Trail (high speed roadway) and re-enter the railroad corridor near Lewis Kelley Drive. The total length of this off-alignment route would be approximately 2/3 of a mile.

Railroad sidings exist in Steep Falls and Brownfield. For the purposes of this study, no additional work or impacts were assumed at these locations or other industry sidings along the corridor. Further investigation is required once a railroad operation and customers are determined.

Outside of the 31-mile limits of this study, the addition of the active rail service along the existing Rail Trail may impact the placement and type of automatic warning devices used at some crossings. At some of the existing Rail Trail crossings seen on Google Earth, it appears that placement of the crossing equipment would impact the trail and adjustments to the trail may be required. Ground equipment (flashers and gates) are placed 12 feet minimum from centerline of tracks and it appears that not all of the existing crossings in the Windham-Gorham section would be able to meet this standard with the current location of the Rail Trail if warning devices are required in the future. Additionally, warning devices placed at locations where the Rail Trail crosses the tracks at the roadway crossing would need to warn trail users as well as roadway users, of approaching trains.

4.3 Potential Parking & Trailhead Locations

For discussion on potential trailhead parking area, see discussion in Part 3 Section 3.3.

4.4 Conceptual Cost Estimate

The items noted in Part 3 Section 3.4 of the Conceptual Cost Estimate for Trail Use that apply to the Rail with Trail Use option are:

- Two trail surface options, paved surface and stone dust surface.
- Major at-grade crossings (>55 mph), which include the cost of a fully actuated traffic signal system but do not include any other intersection improvements.
- The "Jeep Trail" through the Otter Ponds.

Cost estimates include potential construction costs for constructing a shared use trail on the existing right-of-way. Cost estimates do not include potential parking facilities, property acquisitions, permitting costs or any other incidentals. Other assumptions with the cost estimates are described further below.

As mentioned previously, 15% of the proposed 31 miles were assumed to be constrained by a narrow right-of-way, water bodies, environmental features, or challenging topography resulting in significant cuts or fills. Broad level assumptions were required utilizing GIS mapping of the study area. Further investigation is recommended to refine assumptions.

Costs for property takings to avoid retaining walls or permitting costs associated with wetland or water body impacts are not included.

Costs for relocating the trail outside of the railroad corridor to avoid the constrained areas described previously have not been included.

The existing bridges and culverts will require rehabilitation and/or replacement to accommodate the proposed rail with trail. The existing culverts will need to be lengthened and fill will be placed on top to support the trail. The through truss bridge at MP36.32, over the Saco River, may accommodate the trail with a new cantilevered structure attached to the existing bridge. It is assumed the other corridor bridges will have their abutments lengthened and new beams added to support the trail. The bridge at MP18.05 over the Sticky River is included in the conceptual cost estimate. This location is within the Portland Water District right of way and is a potential constraint as indicated in the previous section.

A conceptual cost estimate summary is shown on the following page. The costs shown include the Trail component of this option, which includes 31 miles of construction. This can be added to the Rail Use costs from Part 2 to obtain the complete cost for this option as noted in Part 1. Costs are based on escalated costs from the 2007 study as well as from recent bridge and roadway construction projects in Maine. Additional costs have been calculated for design engineering and construction management fees necessary to execute the project. Due to the conceptual level of the estimate, a 30% contingency has been included to address additional costs that can be further defined in subsequent design stages.

HNTB

MOUNTAIN DIVISION FEASIBILITY STUDY

Conceptual Cost Estimate

3A/3C. Rail with Trail Use - Paved

Item No.	DESCRIPTION	TOTAL
1	Trail Constrained (15%)	$23,410,741
2	Trail Unconstrained (85%)	$28,012,056
3	Pave Jeep Trail	$180,000
4	Trail Surface (Paved 2")	$4,041,695
5	Minor Roadway Crossings	$230,000
6	Major Roadway Crossings	$1,200,000
7	Bridge Modifications	$2,800,000
	Construction Subtotal:	**$59,874,492**
	Contingency (30%):	**$17,962,348**
	Construction Total:	**$77,836,840**
	Design Engineering (6%):	**$4,670,210**
	Construction Mgmt. and Engineering (4%):	**$3,113,474**
	Subtotal:	**$85,620,524**
	Round Up	
	TOTAL:	**$85,700,000**

3B/3D. Rail with Trail Use - Stone Dust

Item No.	DESCRIPTION	TOTAL
1	Trail Constrained (15%)	$23,410,741
2	Trail Unconstrained (85%)	$28,012,056
3	Pave Jeep Trail	$180,000
4	Trail Surface (Stone Dust 4")	$1,787,673
5	Minor Roadway Crossings	$230,000
6	Major Roadway Crossings	$1,200,000
7	Bridge Modifications	$2,800,000
	Construction Subtotal:	**$57,620,470**
	Contingency (30%):	**$17,286,141**
	Construction Total:	**$74,906,611**
	Design Engineering (6%):	**$4,494,397**
	Construction Mgmt. and Engineering (4%):	**$2,996,264**
	Subtotal:	**$82,397,272**
	Round Up	
	TOTAL:	**$82,400,000**

Part 5:
Environmental Requirements – Trail Use

5.1 Natural Resources

As part of this initial feasibility study for Trail Only or Rail With Trail on the Mountain Division between Standish and Fryeburg, Maine, HNTB conducted a desktop-level GIS analysis to identify potentially impacted existing natural resources. Desktop data sources included: Mapped Significant Vernal Pools, Inland Waterfowl and Wading Bird Habitat, Endangered, Threatened and Concerned Wildlife, the US FWS National Wetland Inventory (NWI), and the USGS National Hydrography Dataset. Desktop-level GIS analyses are limited by the availability and quality of publicly available natural resource data and should not be used for permitting purposes. However, these data can be used to approximate resource abundance, estimate potential impacts, and guide the decision-making process towards feasibility and scope of the project.

Because the Trail Only option is designed to be built over the existing rail infrastructure, construction of the trail is assumed to occur only on the existing railbed and road crossings. The existing railbed is to be considered upland for the purpose of this desktop review; therefore, it can be inferred that there would be no associated wetland impacts with this option. However, a field delineation would be required prior to preliminary design to ensure the existing corridor meets this condition. The existing rail corridor crosses 26 streams or rivers within the defined study area. Sizing, condition, and quality of the existing infrastructure relating to these water crossings was not considered for this feasibility study. Repair or replacement of these crossings may lead to minor wetland impacts; however, the quantification of these impacts cannot be calculated via a desktop effort. Additionally, any work associated with the existing culverts or crossings would likely require permit approvals.

For the Rail With Trail option, the parallel expansion of the corridor would impact several wetlands, streams, and associated stream crossing structures. Assuming a parallel offset of 22' to the railroad would provide sufficient separation such that fencing along the trail on the track side would not be required, approximately 15,000 linear feet of wetland adjacent to the existing rail bed would be impacted by this option. Incorporating this offset into the current corridor condition yields an approximate 12-foot expansion of the existing corridor. Using the linear feet of additional width, wetland impacts were estimated at approximately four (4) acres. Variances in estimated wetland impacts can be attributed to the dissimilarity of wetland shape, size, or presence on either side of the rail line. Impacted wetland types would consist of freshwater forested, scrub shrub, emergent, lacustrine, riverine, and floodplain wetland. As NWI data historically underrepresents wetland presence, a field delineation for wetlands and vernal pools would be needed to properly quantify the true level of impact associated with this buildout.

5.2 Wetlands of Special Significance

Both buildout options are associated with Wetlands of Special Significance and therefore could result in impacts to these resources. Confirmation using field data collection and resource agency review would be required as part of future study.

While there are currently no known significant vernal pools within the project's extent, a field survey by a qualified biologist would be necessary to confirm presence/absence of this resource within the corridor.

The existing corridor passes through several sensitive habitats, including two state listed endangered species polygons (Eastern Black Racer and "Rare Animal"), inland wading and waterfowl habitats, a great pond, and eight polygons pertaining to state Species of Special Concern. HNTB sought further

communication with Maine Department of Inland Fisheries and Wildlife, revealing the "Rare Animal" polygon was a federally listed species, the Blanding's Turtle. Section 9 of the Endangered Species Act (ESA) prohibits the take (e.g., harm or harassment) of an ESA-listed species. Further, Part 1.1.5 and Appendix D of the 2022 CGP require determination of eligibility with regard to protection of threatened and endangered species as well as designated critical habitat. Impacts to state- and federally-listed endangered species should be assessed during field reconnaissance due to potential permitting implications, such as timing or disturbance limitations. Although similar special protections are not required for Species of Special Concern and associated habitat, their presence should be of note during future evaluations for both the Trail Only or Trail with Rail Options.

5.3 Permitting Requirements

The Trail Only option would require less permitting effort than the Rail With Trail option. However, due to the prevalence of wetlands along the existing corridor, some level of disturbance directly or adjacent to protected natural resources is anticipated. Provided that the presence of state-listed endangered species does not require a higher level of scrutiny from regulatory and resource agencies, it is likely that the Rail With Trail option could be considered exempt or permitted under the Natural Resources Protection Act (NRPA), Permit by Rule, Section 11, State Transportation Facilities, and the US Army Corps of Engineers' (USACE) Maine State General Permit. Should the project disturb over an acre of soil, it would also require a Maine Construction General Permit (MCGP) submittal. Should the rail be removed, disposal of any rails, ties, and potentially contaminated soils must comply with Maine State solid waste regulations.

Rail With Trail would require NRPA and USACE approval. The amount and type of resources impacted would affect the level of permitting effort as well as some elements of design, therefore field verification of desktop-level information would be required for a more detailed determination. Rail With Trail would disturb over an acre of area and also require a MCGP. In addition, should this option create over an acre of new impervious area, the project would be subject to requirements of Chapter 500, the Maine Stormwater Law.

Part 6:
Economic Analysis - Trail Use

6.1 Introduction

This chapter of the report evaluates the economic impact associated with a proposed trail use.

6.2 Economic Impact of Construction

Large-scale construction projects generate substantial economic stimulus as they create job opportunities and require significant expenditures on materials. This, in turn, creates personal income and business revenues that are, at least in part, spent or invested in the local economy (Econsult Corporation et al., 2012).

6.2.1 Methodology and Data

Construction costs come from the Mountain Division Feasibility Study Conceptual Cost Estimate. Construction costs were presented as a total of materials and labor. It was assumed that 67% of the construction costs resulted from supplies (e.g., gravel, borrow, asphalt), while labor costs account for the remaining 33%. It was further assumed that all aggregate material is sourced in Maine, while all labor is Maine-based.

The economic analysis relied upon IMPLAN, an economic development software. IMPLAN uses a model of a region's economy to measure the interdependencies between various industry sectors. IMPLAN calculates the contributions in terms of the dollar value of gross receipts (output), the dollar value of wages and salaries (earnings), and the number of jobs (employment). Employment numbers are considered as an annual average of employment and include full-time, part-time, and seasonal employment. In other words, employment data should not be considered full-time equivalent (IMPLAN Group LLC, 2020). Direct employment includes employment in design engineering and construction management as well as construction jobs specifically.

Results are presented for direct, indirect, and induced effects. Indirect effects consist of the purchases that firms within that industry make from other businesses in the area (through the supply chain). Both the direct and indirect output produce household income for area employees; a proportion of this income would be re-spent on consumption goods, creating the induced effect. It is important to note that this economic activity should be interpreted as jobs, income, and output supported by the construction of the trail, not necessarily newly created. Economic activity should only be considered newly created when it extends beyond the "business as usual" scenario. For example, while investment in the proposed trail will support a certain number of jobs in the construction industry, it would be misleading to imply that those jobs would not exist in the absence of the project. Moreover, the jobs and economic activity supported by the project are temporary – during the construction phase of the project only – not permanent.

6.2.2 Results

Table 6-1 shows the expected economic activities that the construction of the four alternatives is expected to create. Results indicate that, for the lowest cost alternative (Trail Use – Stone Dust), over 200 jobs, over $10.2 million in labor income, over $12.2 million in value added (gross regional product, or GRP), and over $31.5 million in output (revenue) may be created and/or supported by the construction of the proposed

trail. For the highest cost alternative (Rail with Trail-Paved), over 1,000 jobs, almost $55.5 million in labor income, $65 million in value added, and over $168 million in output may be created and/or supported.

Table 6-1
Expected Economic Impacts of Four Construction Alternatives

IMPACT	EMPLOYMENT*	LABOR INCOME	VALUE ADDED	OUTPUT
Trail Use (Paved)				
Direct	110	$5,930,000	$3,857,000	$17,694,000
Indirect	70	$3,578,000	$5,905,000	$11,516,000
Induced	60	$2,717,000	$4,861,000	$8,504,000
Total	240	$12,226,000	$14,623,000	$37,714,000
Trail Use (Stone Dust)				
Direct	100	$4,963,000	$3,228,000	$14,809,000
Indirect	60	$2,995,000	$4,942,000	$9,638,000
Induced	50	$2,274,000	$4,068,000	$7,118,000
Total	200	$10,232,000	$12,238,000	$31,565,000
Rail With Trail Use (Paved)				
Direct	510	$26,435,000	$17,193,000	$78,875,000
Indirect	310	$15,951,000	$26,321,000	$51,336,000
Induced	250	$12,113,000	$21,669,000	$37,910,000
Total	1,080	$54,499,000	$65,184,000	$168,121,000
Rail With Trail Use (Stone Dust)				
Direct	490	$25,468,000	$16,565,000	$75,989,000
Indirect	300	$15,368,000	$25,358,000	$49,458,000
Induced	240	$11,670,000	$20,876,000	$36,524,000
Total	1,040	$52,506,000	$62,799,000	$161,971,000

*Employment values represent 1) annual average, not full time equivalent, and 2) temporary, not permanent, jobs. Refer to 6.2.1 for further details.

6.3 Property Value Impacts

6.3.1 Introduction

The value of a property is a function of numerous characteristics and locational factors, including property and structural characteristics, such as the number of bedrooms, age of the house, lot size and square footage, and locational characteristics, like crime, school quality, and weather (Center for Urban Policy and the Environment, 2003). Proximity to parks, trails, and green space (hereafter "green space") is another locational amenity that is often found to increase property values. Green space has been proven to increase the quality of life of residents and increase the livability of communities.

While green space is considered an amenity but abandoned railways and corridors can be considered to be a dis-amenity. Abandoned railways disconnect transportation systems and bisect neighborhoods. They can even have the potential to become a health and safety risk (Noh, 2019). One study in Muskego, Wisconsin found that for each foot away from an abandoned rail corridor in the study area, home values increased by a small margin (Kashian et al., 2018). Table 6-2 summarizes some of the relevant literature on the

relationship between green space and property values. Studies on this relationship show that the premium on green space can range from above 15% to, in some rare cases, a small negative premium. However, the most frequently occurring outcome is a small premium between 3% to 5% for a single-family home (Crompton & Nicholls, 2019).

Table 6-2
Summary of Relevant Studies on the Property Value Impact of Trails, Parks, and Green Space

SOURCE	LOCATION	PROXIMITY DEFINITION	PROXIMITY EFFECT
"Transforming Abandoned Rail Corridors into Multi-purpose Trails: Applying a Spatial Hedonic Approach to Estimating the Economic Benefits of the Little Miami Scenic Trail in Cincinnati, Ohio, USA," Zhang et al. (2018)	Little Miami Scenic Trail	10,000 Feet	3.6%
"The Implicit Price of Urban Public Parks and Greenways: A Spatial Contextual Approach," Payton & Ottensmann (2015)	The Monon Trails Other Greenway Trails	0.5 miles	Monon trails: 4.1% but declines as neighborhood income increase Other trails: Constant 1.8%
"The Effects of a Recreational Bike Path on Housing Values in Muskego, Wisconsin," Kashian et al. (2018)	Muskego, WI	Within city boundaries	8.6% increase in sales price after trail opening

6.3.2 Methodology and Data

Addresses within a half-mile of the approximate location of the potential trail were identified using ArcGIS software and the Maine Emergency Service and Communications Bureau's Enhanced 9-1-1 (E-911). Using the ArcGIS buffer analysis tool, a half-mile buffer was drawn around the proposed Fryeburg to Windham trail, as well as around the two existing sections of the trail. The buffer around the proposed trail was then trimmed to ensure that addresses that are already within a half-mile of an existing trail segment were not included. Using the intersect analysis tool, addresses within the buffer were pulled and then sorted so commercial, government, and church buildings were not included. Each address was linked to its respective census block group and its median housing value. Except for Standish, there is only one block group in each town. Additionally, both of the block groups in Standish have a substantially higher median housing value than the other block groups in the project area.

To estimate the one-time increase in property values resulting from the implementation of the proposed trail, the median housing value associated with each of the addresses within the buffer was multiplied by 4.1%. This percentage increase was chosen as it aligns with the results of the 2015 Payton and Ottensmann study, as well as other related research. The total increase for each of the towns and the project area was calculated.

The impacts of the trail on property tax revenues were calculated for each town. The total estimated increase in property values for each town was multiplied by the municipal property tax rate.

6.3.3 Limitations and Assumptions

There are several limitations and assumptions of this study. The first limitation is that the block group median housing value was used as a proxy for the property value of each address. Ideally, the project team would have used parcel data containing the assessed value of each property. These data, however, were not readily available for all the towns within the project area in a format that could be used in ArcGIS.

A second limitation is that certain aspects of the trail and its exact location are still unknown and/or subject to change at the time of this study. Changes in the trail location would have the potential to shift the number of addresses within a half-mile of the trail and their respective block groups.

A third limitation of this study is the assumption that an increase in value would be constant across all residential properties. Houses within a half-mile of the trail differ in their proximity to the trail. Values have been shown to increase the closer the property is to a trail (Zhang et al., 2018). Neighborhood characteristics and household income also affect the extent to which green space influences property values (Payton & Ottensmann, 2015).

The fourth and final limitation of this study is that the method in which a trail would be built, maintained, and operated influences the value of nearby properties. As previously mentioned, in some rare cases trails may actually adversely impact property values. Greenways have the potential to generate noise, heavy traffic, littering, trespassing, or other crimes, and losses of privacy can reduce the premium associated with greenways (Crompton & Nicholls, 2019; Noh, 2019). While this may give some cause for local concern, it is more so an assertion that trails should be designed to alleviate losses in privacy and be well-maintained.

6.3.4 Results

Estimated property value impacts of a proposed trail are shown in Table 6-3. There are a total of 1,344 residential properties within a half-mile of a proposed trail that were not already within a half-mile of an existing trail. Considering the parameters used to determine affected properties, there are no properties in Fryeburg that will see an increase in value.

Based on the median value of the respective block group of the affected address and using a 4.1% increase in value, the total estimated increase in value is over $11 million. Almost 50% of the estimated increase is in Standish.

Table 6-3
Estimated Property Value Impact of the Proposed Trail

TOWN	ADDRESSES WITHIN 1/2 MILE	ESTIMATED AGGREGATE HOUSE VALUE WITHIN ½ MILE	ESTIMATE INCREASE IN PROPERTY VALUE
Brownfield	347	$69,885,800	$2,865,318
Hiram	112	$16,761,000	$687,201
Baldwin	311	$53,336,500	$2,186,797
Standish	574	$134,878,700	$5,530,027
Total	**1,344**	**$74,862,000**	**$11,269,342**

Source: (Maine Emergency Services Communications Bureau, 2022; US Census Bureau, 2020)

Table 6-4 shows the additional tax revenue resulting from increased property values. A proposed trail is estimated to increase property tax revenues by over $160 thousand.

Table 6-4 Estimated Property Tax Revenue from the Proposed Trail					
	Brownfield[1]	Hiram[2]	Baldwin[3]	Standish[4]	TOTAL
2021-2022 Tax Rate	0.01520	0.01461	0.01300	0.01500	
Additional Revenue	$38,252	$9,992	$29,784	$83,780	$161,808

6.4 Predicted Trail Usage

6.4.1 Methodology

Current and future use estimates are essential to determining the social and economic impacts of the new trail. We reviewed use and impact studies for trails similar to the Mountain Division Trail to compile information about trail use and typical trail users. We also reviewed two trail count reports completed by the Bicycle Coalition of Maine for the existing portions of the Mountain Division Trail in Gorham and Fryeburg (Bicycle Coalition of Maine, 2020, 2021).

Existing trails differ from a proposed trail in length and access points. Current trails are four and six miles long while a proposed new trail would be 31 miles long. Other studies have shown that as trail length increases over time, so does usage (Camoin Associates & Camoin Associates, 2021; Hancock County Planning Commission, 2017). Conducting an in-depth meta-analysis of existing rails studies to calculate a multiplier for how much each additional mile increases trail usage is beyond the scope of this report. However, finding the average number of users per mile of the shorter trails and using that per mile metric to calculate visitation on the longer trails can provide a rough estimate. Existing portions of the Mountain Division trail had a low estimate (35 users per mile for the Gorham trail) and a high estimate (85 users per mile on the Fryeburg trail). These per mile estimates were then multiplied by the length of the proposed trail, 31 miles, to estimate the number of trail users per day. This figure is presented as a range with a low of 1,085 and a high of 2,604 users per day.

Trail use will also vary based on the time of year; many trails see a decrease in visitation on days with inclement weather and in the winter. This is evident in the Bicycle Coalition of Maine trail counts with visitation dropping to nearly zero on rainy days. Because of this weather effect, we used the number of sunny days in the project area as calculated by National Oceanic and Atmospheric Administration (NOAA) to determine the average number of trips by month between May and October. From November to April we used this same calculation but also reduced the trail counts by 43.9% based on studies that indicate individual participation rates in outdoor recreation and exercise decrease substantially in the winter and due to poor weather conditions, including cold (Wagner et al., 2019).

6.4.2 Results

Table 6-5 presents estimated trail use based on the expected range of low (1,085 trips per day) and high (2,604 trips per day) usage. Note that the characteristics of a proposed trail would have an impact on usage. For example, increased neighborhood access to and parking adjacent to the trail would increase

[1] (Town of Brownfield, 2021)
[2] (Town of Hiram, n.d.)
[3] (Cumberland County, 2021)
[4](Town of Standish, 2021)

usage, while motorized vehicle access (such as ATVs or snowmobiles) has been shown to decrease non-motorized recreation.

Table 6-5 Estimated Number of Annual Trips		
MONTHS	LOW (1,085 trips per day)	HIGH (2,604 trips per day)
May through October	92,225	221,340
November through April	45,043	108,102
Total	137,268	329,442

Estimates of local and non-local trips can be difficult to arrive at without direct data from trail users. This metric also depends greatly on the definition of local, which may or may not include out-of-state visitors. The Maine Office of Tourism conducted a survey that showed 23% of visitors that come to Maine for overnight leisure trips are here to engage in outdoor recreation. For this report, we are defining non-local as people visiting from outside of the state of Maine and as such are using the 23% figure to determine non-local visitation (Maine Department of Agriculture, Conservation & Forestry & Bureau of Parks and Land, 2019). Using these assumptions, Table 6-6 presents estimated trail use based on local and non-local trips.

Table 6-6 Estimated Number of Local and Non-Local Trips		
USER	LOW (137,268 annual trips)	HIGH (329,422 annual trips)
Local (77% of tris)	105,696	253,670
Non-local (23% of trips)	31,572	75,772

6.4.3 Future usage

In the United States, participation in outdoor activities has hovered around 50% since 2007. While participation increased greatly in 2020 and 2021 during the COVID-19 pandemic, it is not yet known if the increase in participation will remain high or decrease to pre-pandemic levels (Outdoor Foundation, 2021). Multiple other factors could impact trail use in the future, including trial improvements, future connections, and usage of the trail for events and attractions in the area.

Trail Improvements:

Maine's Eastern Trail has shown increased user trips as the trail has been improved and developed. From 2014 to 2018, the number of users on the trail almost tripled. Improvements have included adding water stations, parking, and new trail segments (Camoin Associates & Camoin Associates, 2021; Eastern Trail Alliance, 2014, 2018). While we can't predict that trail use on the proposed Mountain Division trail would more than double as the Eastern Trail did, it does show that trail connections and improving access would likely increase trail visitation.

Connection to Westbrook and Portland:

It was recently announced that funding was available for the completion of a trail in the Westbrook to Windham section of the corridor (Chance, 2022). If there is an eventual connection to Portland, users may be provided with an alternative way to commute to work, run errands, or go sightseeing. Many rural cyclists note that rural roads often don't have sufficient shoulder width for bicycles and that they would make use of their bicycles more often for commuting if there was a safer alternative route (Rails to Trails Conservancy, 2011).

Attractions and events:

- **Fryeburg Fairgrounds:** The Common Ground Fair held each year in Unity, Maine at the Maine Organic Farmers and Gardeners Association (MOFGA) has promoted alternative transportation to attend their annual fair, providing incentives for cyclists who choose to bike to the fair; approximately 500 cyclists attend the fair by bike. The fair provides a valet bike parking service and has provided free admission to cyclists. This not only reduces emissions but also helps relieve parking issues at the fairgrounds (M. Nadeau, personal communication, January 5, 2022). A similar approach could be used for events at the Cornish and Fryeburg fairgrounds, both of which a potential Mountain Division trail extension would closely pass.
- **Recreation areas:** The trail would pass by or through several conservation and recreation areas, including the Sebago Lake Land Reserve, Steep Falls Wildlife Management Area, Ingalls Pond Preserve, Mt. Cutler recreation area, Papanek Preserve, and Andrews Preserve. The trail is also not far from Sebago Lake State Park.
- **Events:** Organized events, such as races, trail rides, or group hikes, could increase trail exposure and visitation. For the 2014 Lighthouse Ride, a maximum registration of 1,200 riders participated, spending an estimated $354,000 locally to attend the ride (Eastern Trail Alliance, 2014).

6.5 Economic Impacts of Trail Usage

Trails can be valuable assets to a community, drawing in visitors from outside of the area that contribute to the local economy. Communities have often reported new openings of tourism-related business, such as restaurants and lodging facilities, and increases in business sale volumes following the opening of a trail (John McDonald & Laura Brown, 2015). Estimated economic impact that tourists from out-of-state, brought in by a proposed trail, could have on the State of Maine is discussed below.

6.5.1 Methodology and Data

To calculate the economic impacts of the proposed trail, the analysis utilized the estimates of out-of-state user trips presented in Section 4. These estimates range from a low of 31,572 trips per year to a high of 75,767 trips (Table 6-6). Estimates of user spending per trip were then applied to both the low and high scenarios, broken out into spending categories. Estimates of average user spending per trip were taken from a report by Camoin Associates on the hypothetical expansion of the Eastern Trail in Maine (Camoin Associates & Camoin Associates, 2021). User spending estimates per person per trip are presented in Table 6-7.

Table 6-7
New User Spending Per Trip

CATEGORY	SPENDING PER TRIP	LOW (31,572 trips)	HIGH (75,767 trips)
Lodging	$48	$1,515,456	$3,636,816
Food	$25	$789,300	$1,894,175
Retail	$14	$442,008	$1,060,738
Transportation	$14	$442,008	$1,060,738
Other Rec	$6	$189,432	$454,602
Equipment	$11	$347,292	$833,437
Total	$118	$3,725,496	$8,940,506

Source: (Camoin Associates & Camoin Associates, 2021)

Using IMPLAN, direct, indirect, and induced effects of new user spending brought in by a proposed trail were estimated as described in Section 6.2.

6.5.2 Results

Economic activities that are expected to be created and/or supported by new user spending brought in by the proposed trail are listed in Table 6-8. For the low scenario, 48 jobs, over $1.8 million in labor income, over $3 million in value added (gross regional product, or GRP), and over $5 million in revenue (output) may be created and/or supported by the proposed trail. For the high scenario, 115 jobs, almost $4.4 million in labor income, over $7.2 million in value added, and almost $12.5 million in output may be created and/or supported.

Table 6-8
Economic Impact of New Users for Low and High Scenarios

IMPACT	EMPLOYMENT	LABOR INCOME	VALUE ADDED	OUTPUT
Low Scenario				
Direct	30	$1,090,000	$1,777,000	$2,893,000
Indirect	10	$333,000	$533,000	$1,063,000
Induced	10	$399,000	$715,000	$1,251,000
Total	50	$1,822,000	$3,024,000	$5,207,000
High Scenario				
Direct	80	$2,616,000	$4,263,000	$6,943,000
Indirect	20	$798,000	$1,278,000	$2,551,000
Induced	20	$959,000	$1,717,000	$3,003,000
Total	110	$4,373,000	$7,258,000	$12,496,000

6.6 Recreational Use Value

Recreational use value of an activity provides a monetary estimate of the net benefits received by a user by participating in a recreational activity (sometimes called consumer surplus). It is calculated by taking the maximum amount a user is willing to pay to participate in an activity (the "benefits" to the participant) minus the costs associated with the activity, which may include transportation or equipment costs and the opportunity cost of time. While the economic impact associated with the trail measures how spending by recreationists affects economies within a given geography, the recreational use value is not actual money that changes hands. It is the benefit to the individual of participating in an activity, aggregated over all the participants (Washington State Recreation and Conservation Office & ECONorthwest, 2019).

6.6.1 Methodology and Data

The population within a half-mile[5] of the trail was estimated using the methodology outlined in Section 3 based on the number of addresses within the area and data from the American Community Survey. Using municipal-level data on vacancy rates, owner-occupied versus renter occupied units, and the average household sizes for the aforementioned units was multiplied by the number of addresses for each town.

Survey data from the latest Maine SCORP report on the percentage of Mainers listing selected activities as one of their five favorites was used to estimate the current number of trips taken by this population (Maine Department of Agriculture, Conservation & Forestry & Bureau of Parks and Land, 2019). The percentage for

[5] A half-mile was chosen as this distance is often characterized as a "reasonable distance to walk to a park" (Harnik et al., 2013).

each of the selected activities was multiplied by the estimated population within a half-mile of the trail to determine the number of existing "users." Only activities common on similar trails were included.

The recreational use value of an activity is for a singular trip. Survey data on the frequency of participation in outdoor recreation was used to estimate the average number of trips taken per year per user (Maine Department of Agriculture, Conservation & Forestry & Bureau of Parks and Land, 2019). There were eight possible responses. "Every few days" meant every four days, and "every few weeks" meant every three weeks. An average of 87 trips per year was calculated, and this figure was multiplied by the number of users for each activity.

It was assumed that the number of users within a half-mile of the proposed trail will increase by 25%[6] after the trail is completed. The number of additional users was multiplied by the average number of trips per year to determine the annual number of new trips.

The recreational use-value associated with the selected activities was estimated using a benefit transfer methodology by utilizing the USGS Benefit Transfer Toolkit. The Toolkit provides a regional average, minimum, and maximum of existing studies on the recreational use values of selected activities. For walking, running, and snowshoeing, the minimum value[7] of studies on the recreational use value of hiking in the northeast was used as the Toolkit does not include these activities. For all of the other selected activities, the average value of studies in the northeast was chosen. Finally, the recreational use value associated with each activity was multiplied by the number of new trips for each activity to determine the total increase in value resulting from the implementation of a proposed trail.

6.6.2 Results

Table 6-9 shows the current base of recreational users and trips within a half-mile of the trail. About 71% of trips and aggregate recreational use value are within Cumberland County.

Table 6-9
Estimated Current Base of Recreational Users in Within a Half-Mile of the Trail

ACTIVITY	% OF POPULATION PARTICIPATING	OXFORD WITHIN 1/2-MILE	CUMBERLAND WITHIN 1/2-MILE	TOTAL USERS
Population		724	1,838	2,562
Hiking	69%	500	1,268	1,768
Bicycling	37%	268	680	948
Walking	29%	210	533	743
Skiing/Ski	25%	181	459	641
Running	12%	87	221	307
Snowshoeing	11%	80	202	282
Wildlife Watching	8%	58	147	205
ATV/Snowmobiling	8%	58	147	205
Total Users		2,165	5,495	7,661
Total Trips		188,378	478,103	666,481

[6] This figure was chosen based on a literature review conducted by the CDC, which found that the median effect size of "creating or enhancing access to places for physical activity and providing informational outreach" on the proportion of the population to physically active at least three times a week to be a 25% increase (Centers for Disease Control and Prevention, 2011).
[7] Activities occurring closer to home tend to have lower associated recreational-use values (Washington State Recreation and Conservation Office & ECONorthwest, 2019). The minimum value was chosen as the population included in this study will very likely be participating in these activities closer to home than the studied populations included in the USGS Benefit Transfer Toolkit.

Source: (Maine Department of Agriculture, Conservation & Forestry & Bureau of Parks and Land, 2019; U.S. Census Bureau, 2019a, 2019b)

Using the assumption that activity would increase 25 percent within a half-mile of the proposed trail, we estimate that there will be an increase of 31,343 trips annually in Oxford County and 79,551 trips in Cumberland County, for a total of 110,894. Applying the same percentages of the population participating in recreational activities from Table 6-9 results in estimates of increased activities in each category. Table 6-10 shows the estimated value of those increased uses.

Based on these estimates, recreational use value would be expected to increase by over $2.2 million annually.

Table 6-10
Estimated Amount and Value of Increased Use Resulting from Implementation of Rail Trail

ACTIVITY	RECREATIONAL USE VALUE	INCREASE IN USE VALUE (OXFORD WITHIN 1/2-MILE)	INCREASE IN USE VALUE (CUMBERLAND WITHIN 1/2-MILE)	USE VALUE OF INCREASED TRIPS
Hiking	$7.80	$ 84,795	$ 215,210	$300,006
Bicycling	$25.04	$ 145,900	$ 370,294	$516,194
Walking	$7.80	$ 35,639	$ 90,451	$126,089
Skiing/Ski	$53.67	$ 211,324	$ 536,340	$747,664
Running	$7.80	$ 14,747	$ 37,428	$52,175
Snowshoeing	$7.80	$ 13,518	$ 34,309	$47,827
Wildlife Watching	$8.48	$ 10,688	$ 27,125	$37,812
ATV/Snowmobiling	$88.65	$ 111,702	$ 283,500	$395,203
Total Value of Increase in Trips		**$628,314**	**$1,594,657**	**$2,222,971**

Source: (Maine Geological Survey, n.d.)

6.7 Health Benefits

Expected health benefits resulting from the implementation of the proposed trail as cost savings due to increased activity were also estimated. Accessibility is an important factor in participation in outdoor recreation (Maine Department of Agriculture, Conservation & Forestry & Bureau of Parks and Land, 2019; Rails to Trails Conservancy, 2017). Access to a safe place to walk has been linked with increased participation in outdoor recreation (Rails to Trails Conservancy, 2017). Participation rates in outdoor recreation in the United States have ranged from a low of 41.9% to a high of 50% (Maine Climate Action Council, 2020). However, participation in outdoor recreation activities does not always translate to adequate levels of physical activity. Rural populations are less likely to be sufficiently active than their urban counterparts, with estimates of the national population considered physically inactive at 24.1%. The CDC puts Maine's inactivity rate at 24.8% (Carlson et al., 2015; Centers for Disease Control and Prevention, 2022; Gilbert et al., 2019). As adults who do not meet the recommended amount of physical activity incur increased health care costs compared to those who do, increase physical activity is expected to improve health outcomes and lower health care costs.

Lower health care costs may translate to additional economics benefits for the State as households will likely spend at least a portion of their savings in other areas of the local economy.

6.7.1 Methodology and Data

To estimate the health benefits of the trail, the number of people who live in the area that might change their activity levels from being inactive to moderately active, and from inactive to adequately active were considered. Activity rates can be difficult to calculate, particularly for rural areas as most trail use studies are conducted in urban communities; therefore, Maine's inactivity figure of 24.8% was used to calculate the number of inactive individuals for the relevant population (Centers for Disease Control and Prevention, 2022). The inactive population within a half-mile of the trail was determined to be 635 people.

The CDC estimates that inactive adults incur $1,704[8] in additional health care costs annually and inadequately active adults, who participate in activities but do not meet the CDC's definition of sufficiently active, incur an additional $846[9] in annual health care costs (Camoin Associates & Camoin Associates, 2021; Centers for Disease Control and Prevention, 2011).

The CDC puts activity increase due to additional access to places for physical activity at 25% of the local population (Centers for Disease Control and Prevention, 2011; Gilbert et al., 2019). Some studies have indicated increases in activity resulting from the implementation of a new trail often include people who are using a new trail, but who were already active but simply changed the location of their activity (Centers for Disease Control and Prevention, 2011, 2022; Gilbert et al., 2019). For this reason, health cost savings are calculated for a low percentage increase scenario and a high percentage increase scenario.

Medical cost savings that come with increased physical activity were estimated for the following scenarios:

- Cost savings if 1% - 25% of the inactive population moves from inactive to inadequately active; and
- Cost savings if 1% - 25% of the inactive population move from inactive to sufficiently active.

6.7.2 Results

Table 6-11 shows the expect health cost savings resulting from the implementation of the proposed trail. Results indicate that, if 1% of inactive adults went from inactive to insufficiently active, their total health care savings over the average lifespan would be over $5,000. If the same proportion of adults became sufficiently active, savings would total almost $11,000. If 25% of inactive adults became insufficiently active, their total health cost savings would be over $136,000. If the same proportion of inactive adults became sufficiently active, their savings would total over $270,000.

Table 6-11
Estimated Lifetime Health Cost Savings with Increased Activity for Inactive Adults

	INACTIVE TO INSUFFICIENTLY ACTIVE	INACTIVE TO INSUFFICIENTLY ACTIVE
1%	$5,452	$10,827
25%	$136,288	$270,670

[8] Adjusted to 2022 dollars
[9] Adjusted to 2022 dollars

6.8 Additional Impacts and Benefits of Trail Use

6.8.1 Climate Change

A 20% reduction of vehicle miles traveled by 2030 is one of the transportation goals listed in Maine Won't Wait: A four-year plan for climate action (Maine Climate Action Council, 2020). This expansion coupled with the eventual connection to Westbrook and Portland would provide an alternate transportation route for rural residents. However, there are currently no Park & Ride lots on or near the trail route, which may inhibit trail use for commuting (MDOT, 2022).

6.8.2 Increased Accessibility

In the latest Maine SCORP report, increasing and improving the number of outdoor recreation opportunities meeting accessibility standards was listed as a priority. As there is a substantial number of Mainers with disabilities and the State has an aging population, this is unsurprising (Maine Department of Agriculture, Conservation & Forestry & Bureau of Parks and Land, 2019). It is important to note that lack of accessibility isn't just an impact for people with a disability, but also their companions with whom they participate in outdoor recreation. A family with individuals with mobility issues will want to participate in recreation that is accessible to the entire group (USDA Forest Service, 2012).

The two existing sections of the Mountain Division Trail are both wheelchair accessible (Rails to Trails Conservancy, 2022).

6.8.3 Employment Retention

As with physical exercise studies, most studies investigating the relationship between access to green space and employee satisfaction have been done in urban areas. However, having ways to increase physical activity while at work and living in areas with access to parks and open space have both been shown to be important to employees. Businesses that instituted policies supporting increased access to both green spaces and opportunities for increased physical activity showed increased rates of employee satisfaction (Center for Disease Control and Prevention, 2022).

6.9 Conclusion

One-time construction impacts as well as the potential property value impacts, economic impacts associated with increased visitation, and direct use and health benefits that accrue to the users of the trail. Overall, construction of an expansion of the Mountain Division Trail system as proposed for either Trail Use or Rail With Trail options is likely to result in positive economic benefits for those living near the trail, communities, and those traveling to the area to recreate using the trail.

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Part 7:
Economic Benefits – Rail Use

7.1 Historic Rail Use

The former Maine Central "Mountain Division" was chartered in 1867 by the Portland & Ogdensburg Railroad (P&O RR) with the objective of connecting the port in Portland, ME to the Great Lakes and St. Lawrence River for the transportation of passengers and freight to the American Midwest and Canadian cities located along the lakes. The route allowed shippers to avoid the more costly route to the Midwest through the Boston, MA and southern New England.

The original concept of the P&O RR was never fully realized due to the chartering of connecting railways in northwestern Vermont and across Lake Champlain in the state of New York and the inability to agree upon connecting railroad's interchange rates. Refer to Figure 7-1 for the P&O RR "Systemwide Map" in 1879.

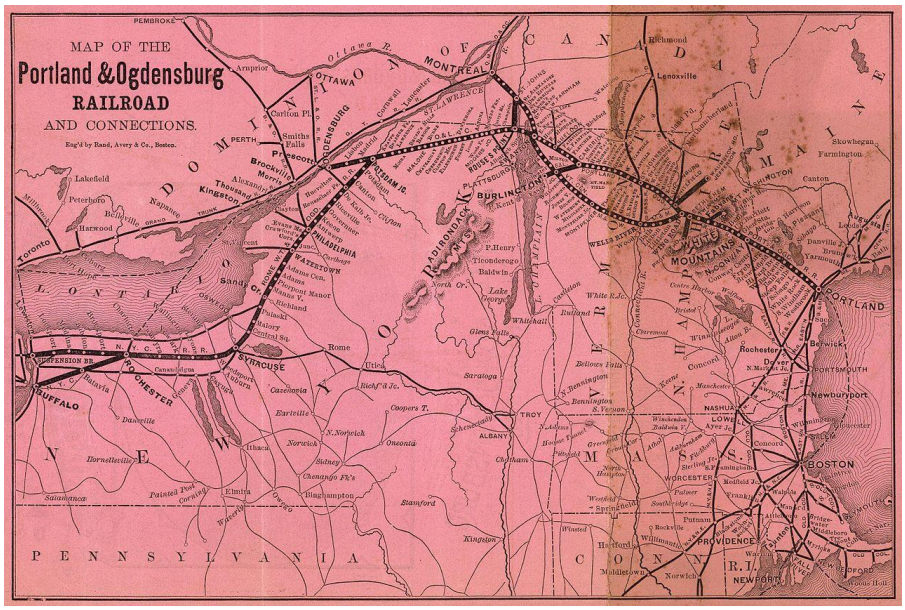


Figure 7-1:
P&O RR "System Map" showing potential connection to the upper Midwest - circa 1879

In 1888, the Maine Central Railroad leased the P&O RR to form the "Mountain Division" from Portland, ME to St. Johnsbury, VT for total distance of 131-miles. In 1981 the Guilford Transportation Industries (now Pan Am Railways) purchased the Maine Central Railroad and then in 1983 acquired the B&M RR and subsequently abandoned the Mountain Division. MaineDOT currently owns the segment from Westbrook, ME to the New Hampshire state line.

Historically the line was considered a "bridge-route" between Maine and the Midwest and never developed significant online freight traffic. Local freight traffic generated was most active in the Portland/Westbrook area, a small paper mill in Gilman, VT, and interchange to the B&M Railroad in Whitefield, ME for traffic moving to and from the paper mills at Berlin, ME and Groveton, ME.

In the 1940's through the end of passenger service in 1960, passenger trains were limited to a single pair of round trips between Portland, ME and St. Johnsbury, VT daily (except Sunday). There was a total of 14-stations located on the Mountain Division with Fryeburg, ME at Milepost 49.8 being the last stop in Maine.

7.2 Potential Freight Rail Traffic

The domestic manufacturing climate and railroad business has continued to evolve over the past 40 years since the Mountain Division has been removed from service. Large Class 1 railroads maintain profitability by shipping large quantities of a single type of cargo over very long distances. Shortline railroads operate with very thin margins to reach smaller customers on shorter routes. The most likely use of the Mountain Division is a shortline operation to ship products via the Port of Portland or through Boston and further South or West.

North American railroads generally carry bulk and hazardous materials that cannot be efficiently transported by roadway (due to shear number of trucks required or hazardous material bans for roadway transport). Typical commodities shipped by rail include:

- Coal
- Agricultural products
- Intermodal
- Chemicals, both liquid and dry bulk
- Paper and board (board is generally used to make corrugated boxes and other containers)
- New Automobiles, Trucks, Farm equipment and Construction equipment moving from assembly plants to regional distribution centers
- Food products:
  - Beer
  - Bottled Water
  - Canned goods
  - Edible oils (vegetable oils)
  - Corn syrup and sweeteners
  - Root vegetables and frozen food products
- Plastic resins (plastic pellets of various types of plastic)
- Lumber and building materials such as bricks, roofing materials
- Cement
- Clay
- Sand & Gravel aggregates for concrete, asphalt pavement, general construction, and fracking
- Steel products such as structural steel, cast iron ingots, reinforcing bars, steel coil for cans
- Animal feeds
- Highway de-icing salt
- Solid waste

The primary commodity shipped on the Mountain Division during its active service was paper products and associated raw materials. Currently the only active paper mill in the corridor is the Sappi Mill in Westbrook, which is already served by Pan Am Railways. It does not appear likely that a large volume paper mill will open along the corridor at this time.

The corridor also includes rock quarries specializing in aggregate extraction and distribution. There is strong seasonal demand during the summer construction season for aggregate material to be shipped by to Boston and elsewhere in New England. There may be potential interest from the quarries to ship via rail if the line were operable. The 2007 Study suggested a shortline freight operation with aggregate facilities as a primary customer base could be profitable. The quantity of aggregate facilities along the corridor has been reduced over the last 15 years and volumes necessary to support a dedicated freight railroad may no longer be available.

There is a Cement Distribution facility adjacent to the corridor in East Baldwin. Currently the facility receives raw material from Canada on trucks. The facility may be interested in rail shipping, however the volume generated by the facility are low. An operating railroad would need to be supplemented by additional customers to be profitable.

Fuel Oil, gasoline, lumber and building products are currently distributed and shipped via trucks along roadways adjacent to the corridor. The primary challenge to moving these shipments to rail is that transload facilities would be needed to move goods between transportation modes at strategic points. Industry would need to conclude the cost of building and maintaining these facilities would be offset by the cost savings rail shipping could provide.

Another potential customer could be a bottling operation. Facilities like these receive raw materials in the form of plastic pellets which are extruded via injection molding machines into bottles for consumer use. There are no current bottling operations on the corridor. However, conglomerates that operate bottling plans in the State of Maine have previously explored the construction of new facilities along railroad corridors in order to take advantage of lower rail shipping rates.

There are additional incentives for manufacturers to locate facilities along the corridor. Potential industrial facilities along the corridor may be able to benefit from the State's Industrial Rail Access Program (IRAP). The program provides state funded grant funds to be paired with private funds for the purpose of constructing freight sidings between active railroad corridors and industrial facilities. The facilities can then lower their costs by shipping via rail.

7.3 Modal Competition

MaineDOT's state roads generally parallel the right-of-way (ROW) for the Mountain Division via ME-112 and ME-113. A review of the MaineDOT's state road maps and driving indicates highway transportation averages 55-miles between Portland and Fryeburg with an average travel time of 1-hour & 24-minutes in light traffic. Depending upon the day of week and time of day, the travel time may increase within the 15-mile radius of the greater Portland area. In general, travel outside of Portland to Standish, Steep Falls and Fryeburg has little or no congestions except during for the annual Fryeburg Fair.

Trucking is the principal modal competition to the Mountain Division. The Maine Legislature has enacted Title 29-A: Motor Vehicles and Traffic Chapter 21: Weight, Dimension and Protection of Ways Subchapter 1: Weight Statue 2353 with weights provided in Table 7-1.

Table 7-1
Maine Weight Limits

Vehicle Type	Vehicle Weight
2-axle	34,000 pounds (17-tons)
3-axle	54,000 pounds (27-tons)
4-axle	69,000 pounds (34.5-tons)
5-axle	80,000 pounds (40-tons)
3-axle tractor & triaxle semitrailer	100,000 pounds (50-tons)

Restoring the Mountain Division rail operations has the potential to divert heavy truck traffic from Maine's state roads and will more than likely result in a reduction in its annual costs to repair and maintain these roads. MaineDOT evaluates potential damage to state and state-aid highways and determines whether weight restrictions should be imposed to prevent damage due to freeze/thaw action. Additionally, many municipalities, such as Standish, can undertake similar evaluations and place load restrictions on local road systems.

Title 29-A MRSA §2395 gives Maine DOT the authority to restrict heavy loads on State and State Aid roads. Most municipalities adopt the State rule by reference, thus making the requirements the same for State and local roads. Summary of DOT Rule 17-229 CMR Chapter 308, and how most town roads are posted:

- *The road must be posted at each end with an orange poster containing the date of the posting, description of the highway that is closed, summary of vehicles exempts from closing, name of DOT official, and applicable statutory reference.*

- *Roads may be posted any time between November 15th and June 1st.*

Therefore, for every calendar year, almost 29 weeks or over 50% of the year, Maine state roads may restrict trucking weights which may prove to be an advantage for shifting freight from ME-112 & ME-113 to the rail using the Mountain Division.

An additional competitive advantage of transportation by rail versus roadway is the cost to move a ton of freight by each mode and the amount of freight that can be transported by freight cars versus trucks. On average, in North America, the cost to move a ton of freight 1-mile by rail ranges between $0.02 - $0.05 by rail (cost per ton mile) as compared to trucking costs of $0.12 - $0.25 per ton mile. North American Class I railroads have increased the gross-tons per axle from 32.875 (for 263,000-pound freight car with 4-axles) to 35.75 (for 286,000-pound freight car with 4-axles). So, on average 1-rail car can carry 3 to 4 truckloads and a 100-car train can carry 300 to 400 trucks.

Setting aside the existing conditions of the Mountain Division and considerations to restore a condition that meets Federal Railway Administration (FRA) track classes, the ability for the railroad to compete against the Maine state roads needs to consider the factors outlined in Table 7-2.

Table 7-2
Factors Under Consideration by Mode

Factor	Roadways	Railway
Transit Distance	55-miles +/-	50-miles +/-
Lading	Up to 50-tons	Up to 125-tons
Cost per ton-mile	$0.12 - $0.25	$0.02 - $0.05
Posted Roads Restrictions	Up to 55% of the year	No restrictions
Average transit speed	39.3 MPH	See FRA Track Class Speeds

Table 7-3 provides FRA track classifications for freight and passenger trains. An FRA track Class of 1 or 2 is not likely to be competitive with "just-in-time" transit logistics via trucking. However, if the freight being moved by the railroad is not "just-in-time" sensitive and can be shipped or received in bulk, an FRA track Class 1 or 2 may be appropriate.

Table 7-3
MAXIMUM ALLOWABLE SPEEDS
EXCEPTED TRACK TO FRA CLASS 5

FRA CLASS	FREIGHT	PASSENGER
Excepted	10 MPH	Not Allowed
Class 1	10 MPH	15 MPH
Class 2	25 MPH	30 MPH
Class 3	40 MPH	60 MPH
Class 4	60 MPH	80 MPH
Class 5	80 MPH	90 MPH

7.4 Consideration for the Creation of a Foreign-Trade Zone

7.4.1 Foreign Trade Zones

Additional opportunity for economic development and generation of jobs along the Mountain Division corridor could be realized by using the railroad as a Foreign-Trade Zone (FTZ). FTZ are secure areas under U.S. Customs and Border Protection (CBP) supervision that are generally considered outside CBP territory upon activation. Located in or near CBP ports of entry, they are the United States' version of that are known internationally as free-trade zones. In 2015, U.S. Foreign-Trade Zones:

- Exported $84.6 billion in merchandise – a slight decline from 2014, attributable mostly to petroleum market conditions
- Employed approximately 420,000 Americans in well-paying jobs throughout the country; and
- Received almost $660 billion worth of foreign and domestic merchandise

The State of Maine has only 4 of the over 230 FTZ projects (and nearly 400 subzones) in the United States. Refer to Table 7-4 Maine Foreign Trade Zone[1] details:

Table 7-4
Maine Foreign Trade Zones

FTZ	Name	Service Area	Port of Entry
FTZ 58	City of Bangor	Hancock, Penobscot, Piscataquis, Waldo and Washington Counties	Bangor
FTZ 179	Madawaska Foreign Trade Zone Corp.	The towns of Fort Kent, Frenchville, Grand Isle, Madawaska, St. Agatha and Van Buren	Madawaska
FTZ 186	City of Waterville	Lincoln, Cumberland, Sagadahoc, Androscoggin, Kennebec, Waldo, Knox and Somerset (partial) Counties	Belfast
FTZ 263	Lewiston-Auburn Economic Growth Council	Lincoln, Cumberland, Sagadahoc, Androscoggin, Kennebec, Waldo, Knox and Somerset (partial) Counties	Portland

However, many companies are unaware of the sizeable cost savings and other benefits they can achieve by taking advantage of an FTZ program. Utilizing an FTZ can significantly reduce costs from customs duties, taxes, and tariffs; improve global market competitiveness; and minimize bureaucratic regulations.

Below are some benefits of using an FTZ.

1. **Deferral, reduction, or elimination of certain duties.** FTZs allow the most duty deferral of any kind of Customs program. Companies can bring goods into the FTZ without duties or most fees, including exemption from inventory tax.

2. **Relief from inverted tariffs.** In some cases, tariffs on U.S. component items or raw materials have a higher duty rate than the finished product, putting a U.S. manufacturer at a cost disadvantage to an importer. However, by participating in an FTZ, the U.S. manufacturer pays whichever duty is lower. In many cases the tariff of the manufactured good is zero, eliminating any costs associated with importing raw materials and goods. There is no way to take advantage of inverted tariffs without operating in an FTZ.

3. **Duty exemption on re-exports.** Since an FTZ is considered outside the commerce of the United States and U.S. Customs, a company importing components or raw material into the FTZ doesn't pay Customs duty until it enters U.S. commerce. If the good is exported from the FTZ, no Customs duty is due.

4. **Duty elimination on waste, scrap, and yield loss.** Since a manufacturer operating in an FTZ doesn't pay duties on imports until its goods leave the FTZ and enter the United States, it essentially is paying for the duties on the raw materials after they have been processed. Thus, duties owed do not include manufacturing by products, such as waste, reducing the amount of goods taxed.

5. **Weekly entry savings.** Instead of filing an entry every time a shipment enters the country, an importer operating in an FTZ only needs to file one Customs entry a week, reducing bureaucratic headaches and costs associated with entry filings. There is a merchandise processing fee for every entry, with a minimum of $25 and a maximum of $485 per entry, which is for goods with a value of over $230,952. A company

[1] See https://ofis.trade.gov/Zones

with 10 shipments a week, each of which are over $230,952, would save $226,980 annually with weekly entries. Weekly entries also save on customs brokerage fees.

6. **Improved compliance, inventory tracking, and quality control.** FTZs allow companies to track their inventory more closely. By bringing goods into an FTZ warehouse that you control, you can identify and classify goods at the warehouse instead of at the port at a Customs control location.
7. **Indefinite storage.** A company can hold its goods indefinitely in an FTZ until a port opens, or if there are quotas on a good, until they can be entered into U.S. Commerce without falling under quota restrictions.
8. **Waived customs duties on zone-to-zone transfers.** FTZs can be used to manage transshipping operations, saving money on manufacturing processing fees. While most companies are focused on using FTZs for exports, FTZs can also be used to take advantage of crossdocking and transferring goods from one FTZ to another without paying Customs duties. Many mid-level companies are using this capability to transfer goods to FTZs both within and outside the United States.[2]

7.4.2 Case Example – Costa Rica Steel Mill

An example of a similar successful FTA with rail access can be found in Costa Rica. As part of research for the Costa Rican National Railway through the US Embassy, an assessment was conducted for a steel rebar manufacturing plant located 50-miles from the port of Limon on the Caribbean Coast. The plant is in a FTZ (Costa Rican equivalent to US FTZ). The following is an excerpt from the report:

ArcelorMittal manufacturers steel rebar for use in construction and building projects in Costa Rica but also for export. Their Costa Rica plant is very modern and has the capability to roll out the largest steel rebar called a "Number # 14". Rebar is the steel rods placed into concrete to strength the concrete from breaking through bending moments (flexing or top loading such as a highway bridge.

ArcelorMittal has achieved a year-over-year increase of production by 29% and has recently won the APM Terminal contract to furnish the # 14 rebar for the port construction. They are currently manufacturing 124,000 tons of rebar for the port.

The steel plant was built as a Phase 1 Plant (currently in operations and a Phase 2 Plant that can be built which would double the current capacity of 400,000 tons/year to 800,000 tons/year. The plant is currently operating at 350,000 tons/year.

Calculations for the movement of the steel rebar to the APM Terminal construction site using INCOFER trains will generate an estimated $ 9.4 M USD in revenue for the national railway.

Movement by train will remove 4,428 trucks from Route 32 – a 2-lane highway constructed by the Chinese with very poor road conditions due to heavy truck traffic from the port and overloaded non-compliant trucks.

Fryeburg, ME has two 2 steel products manufacturers:

- Dearborn Precision Tubular Products, a major manufacturer of precision tubular products
- Har-Mac Steel, a manufacturer of structural reinforcing materials for the construction industry. From Wikipedia: *"Their products are being used in the construction of tunnels, bridges, and major buildings in locations such as Chicago, New York and Puerto Rico"*

Neither of the two are located on the Mountain Division but by setting-up a "*Mountain Division FTZ"*, the state of Maine could designate available properties adjacent to the railroad to be developed as distribution terminals. Like ArcelorMittal, Har-Mac-Steel is receiving inbound steel slabs via rail in New Hampshire and truck to Fryeburg. The origin of the steel slabs is unknown but there may be an economic opportunity to

[2] https://www.inboundlogistics.com/cms/article/the-benefits-of-using-a-foreign-trade-zone/

import the raw steel slabs through the port of Portland, ME to transport to the FTZ in Fryeburg. Har-Mac Steel may be able to identify new global opportunities to export finished re-bar to new country markets. The company expressed an interest in rail during the 2007 study and would likely welcome a rail connection and new economic advantages.

The creation of an FTZ does not to be limited to Fryeburg but should be considered as an opportunity for all communities and property owners along the 50-mile line.

The successful implementation of an FTZ and active rail service depend on a few factors. Firstly, Fryeburg (or another community along the corridor) would need to assess and confirm their community's interest in hosting an FTZ and paying the applicable fees. Secondly, several existing or potential businesses would need to demonstrate interest in both rail shipments and utilization of the FTZ. Multiple businesses will be necessary to provide the volumes necessary to justify the initial infrastructure expenses and ultimately support a self-sustaining railroad operation. If these factors are not present, a railroad oriented FTZ may be better suited for an alternative active rail corridor in Maine.

7.5 Economic Impact of Construction

Large-scale construction projects generate substantial economic stimulus as they create job opportunities and require significant expenditures on materials. This, in turn, creates personal income and business revenues that are, at least in part, spent or invested in the local economy (Econsult Corporation et al., 2012).

7.5.1 Methodology and Data

Construction costs come from the Mountain Division Feasibility Study Conceptual Cost Estimate. Construction costs are presented as a total of materials and labor. It was assumed that 67% of the construction costs resulted from supplies (e.g., rail materials, ballast aggregate), while labor costs account for the remaining 33%. It was further assumed that all aggregate material is sourced in Maine, while all labor is Maine-based.

The economic analysis relied upon IMPLAN, an economic development software. IMPLAN uses a model of a region's economy to measure the interdependencies between various industry sectors. IMPLAN calculates the contributions in terms of the dollar value of gross receipts (output), the dollar value of wages and salaries (earnings), and the number of jobs (employment). Employment numbers are considered as an annual average of employment and include full-time, part-time, and seasonal employment. In other words, employment data should not be considered full-time equivalent (IMPLAN Group LLC, 2020). Direct employment includes employment in design engineering and construction management as well as construction jobs specifically.

Results are presented for direct, indirect, and induced effects. Indirect effects consist of the purchases that firms within that industry make from other businesses in the area (through the supply chain). Both the direct and indirect output produce household income for area employees; a proportion of this income would be re-spent on consumption goods, creating the induced effect. It is important to note that this economic activity should be interpreted as jobs, income, and output supported by the construction of the tracks, not necessarily newly created. Economic activity should only be considered newly created when it extends beyond the "business as usual" scenario. For example, while investment in the proposed tracks will support a certain number of jobs in the construction industry, it would be misleading to imply that those jobs would not exist in the absence of the project. Moreover, the jobs and economic activity supported by the project are temporary – during the construction phase of the project only – not permanent.

7.5.2 Results

Table 7-5 shows the economic activity expected from the construction of the two rail alternatives.

Table 7-5 Expected Economic Impacts of Two Rail Construction Alternatives				
IMPACT	EMPLOYMENT*	LABOR INCOME	VALUE ADDED	OUTPUT
Rail Use Class 1				
Direct	300	$15,692,000	$10,206,000	$46,821,000
Indirect	190	$9,461,000	$15,618,000	$30,463,000
Induced	150	$7,189,000	$12,859,000	$22,498,000
Total	640	$32,342,000	$38,684,000	$99,782,000
Rail Use Class 2				
Direct	350	$18,026,000	$11,724,000	$53,784,000
Indirect	210	$10,877,000	$17,948,000	$35,006,000
Induced	170	$8,260,000	$14,776,000	$25,851,000
Total	740	$37,162,000	$44,448,000	$114,640,000

*Employment values represent 1) annual average, not full time equivalent, and 2) temporary, not permanent, jobs. Refer to 7.5.1 for further details.

7.6 Summary of Potential Economic Benefits for Rail Use

Potential economic benefits of rail use on the Mountain Division include:

- Jobs created within new rail development zones which could result in 4-5 times spending generated by jobs, families and business supporting daily life activities in growing communities
- Jobs created for the rehabilitation of the 50-mile Mountain Division, dependent upon the type of construction, FRA track class and a 15-year operating plan for traffic levels that generate the need for additional infrastructure expansion such as switching yards, maintenance facilities, etc.
- Rehabilitation of the Mountain Division will generate local economic activities to support construction and engineering forces involved in the ongoing maintenance of the railroad.
- Jobs created from direct employment at the railroad, support industries, and at shippers utilizing rail access.
- Development of FTZ industrial development parks for industries that are FTZ-centric.
- Economic benefits generated by new job creation within FTZ industries.
- Reutilization of the Mountain Division rail service would potentially provide shippers with lower transportation costs and expanded market opportunities.
- Rail service on the corridor would potentially provide enhanced safety on public roads through reduced heavy truck traffic, and reduction of the financial burden on public maintenance of the roadways. In addition, reduced truck traffic will likely reduce the air pollution levels in the community.

Appendix A:
Benefits Glossary

Glossary	
TERM	DEFINITION
Direct Effects	Initial production changes or expenditures resulting from a policy or an activity.
Indirect Effects	Consist of the purchases that firms within an industry make from other businesses in the area (through the supply chain)
Induced Effects	Household income created from direct and indirect output that is re-spent on consumption goods
Recreationalists	Made up of combined ME IFW and Bureau of Parks and Lands email addresses
Recreational Use Value	monetary estimate of amount a user would be willing to pay above and beyond the costs associated w that activity, including parking and travel costs
Opportunity Cost of Time	The value of the individual's time spent in pursuing a particular activity, usually measured as the prevailing wage rate in an area
Output	Dollar value of gross receipts
Earnings	Dollar value of wages and earnings
Employment	Number of jobs, including full-time, part-time, and seasonal
Labor Income	All forms of employment income, including employee compensation (wages, salaries, and benefits) and proprietor income.
Value Added	The difference between a business's total output and the costs of its intermediate inputs, also known as gross regional product (GRP)
New Visitor	Visitor from out-of-state
Sufficiently Active	Individuals who report participating in enough physical activity to meet the aerobic guidelines outlined by DHHS.
Insufficiently Active	Individuals who report participating in any physical activity but do not meet the aerobic guidelines outlined by DHHS
Benefit Transfer	Involves transferring data from existing studies

Appendix B:
Cost Estimate Tables – Rail Use Class 1 and 2

MOUNTAIN DIVISION
COST ESTIMATE FOR FRA CLASS 1 TRACK CONDITION
MAINE SEGMENT, INCLUDING CURRENT PAN AM SECTION

MILE	DITCHING		TIES		SUB GRADE EXCAV.		TIE PLATES		RAIL ANCHORS		RAIL		BALLAST		SURFACING		BRIDGE REPAIRS		BRIDGE DECKS		SMALL CULVERTS		GRADE CROSSINGS PRIVATE		GRADE CROSSINGS PUBLIC		WARNING SYSTEM		TOTAL COST PER MILE	CUMULATIVE COST
	UNIT COST $10.00	LF	UNIT COST $120.00	EA	UNIT COST $25.00	CY	UNIT COST $20.00	EA	UNIT COST $5.00	EA	UNIT COST $100.00	TF	UNIT COST $28.00	TON	UNIT COST $9.00	TF	UNIT COST Varies	EA	UNIT COST $1,250.00	LF	UNIT COST $2,500	EA	UNIT COST $5,000	EA	UNIT COST $1,000	LF	ACTIVE $225,000	PASSIVE $8,000		
	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost				
1.16 to 2	500	$5,000	0	$0	0	$0.00	0	$0	600	$3,000	0	$0	147	$4,116	4435	$39,915					3	$7,500			56	$56,000			$115,531	$115,531
2 to 3	1200	$12,000	0	$0	0	$0	0	$0	1,200	$6,000	0	$0	175	$4,900	5280	$47,520					3	$7,500			193	$193,000			$270,920	$386,451
3 to 4	1200	$12,000	0	$0	0	$0	0	$0	1,200	$6,000	0	$0	175	$4,900	5280	$47,520					4	$10,000			42	$42,000			$122,420	$508,871
4 to 5	1200	$12,000	0	$0	0	$0	0	$0	1,200	$6,000	0	$0	175	$4,900	5280	$47,520					3	$7,500			108	$108,000			$185,920	$694,791
5 to 6	1200	$12,000	600	$72,000	348	$8,690	1,200	$24,000	1,200	$6,000	0	$0	627	$17,553	5280	$47,520	2	$725,000	326	$447,500	2	$5,000			309	$309,000			$1,674,263	$2,369,054
6 to 7	625	$6,250	625	$75,000	594	$14,850	1,250	$25,000	150	$750	792.5	$79,250	1,010	$28,287	1320	$11,880					2	$5,000	2	$10,000	82	$82,000	$450,000		$788,267	$3,157,321
7 to 8		$0		$0		$0	0	$0				$0	0	$0	5280	$47,520	1	$2,000,000			2	$5,000	1	$5,000	28	$28,000	$225,000	$8,000	$2,318,520	$5,475,841
8 to 9		$0		$0		$0	0	$0				$0	0	$0	5280	$47,520					3	$7,500	1	$5,000					$60,020	$5,535,861
9 to 10		$0		$0		$0	0	$0				$0	0	$0	5280	$47,520	1	$17,500			3	$7,500	1	$5,000					$77,520	$5,613,381
10 to 11		$0		$0		$0	0	$0				$0	0	$0	5280	$47,520	1	$0	28	$55,000	2	$5,000	1	$5,000	76	$76,000	$225,000		$413,520	$6,026,901
11 to 12	3000	$30,000	1,550	$186,000	1,561	$39,019	3,100	$62,000	3,769	$18,844	740	$74,000	3,349	$93,772	5280	$47,520	1	$17,500			3	$7,500	2	$10,000	60	$60,000	$225,000		$871,155	$6,898,056
12 to 13	3000	$30,000	2,560	$307,200	1,162	$29,040	5,120	$102,400	4,332	$21,660			2,830	$79,242	5280	$47,520	1	$250,000	105	$151,250	3	$7,500	1	$5,000	60	$60,000		$24,000	$1,114,812	$8,012,868
13 to 14	3000	$30,000	2,560	$307,200	1,162	$29,040	5,120	$102,400	4,332	$21,660			2,830	$79,242	5280	$47,520					2	$5,000	2	$10,000	120	$120,000	$225,000	$16,000	$993,062	$9,005,930
14 to 15	3000	$30,000	2,415	$289,745	1,030	$25,740	4,829	$96,582	4,332	$21,660			2,658	$74,437	5280	$47,520					3	$7,500	2	$10,000	24	$24,000		$8,000	$635,185	$9,641,115
15 to 16	3000	$30,000	2,560	$307,200	1,162	$29,040	5,120	$102,400	4,332	$21,660			2,830	$79,242	5280	$47,520	1	$17,500			4	$10,000	1	$5,000					$649,562	$10,290,677
16 to 17	3000	$30,000	2,297	$275,665	921	$23,034	4,594	$91,888	4,332	$21,660			2,518	$70,498	5280	$47,520					2	$5,000			50	$50,000		$16,000	$631,265	$10,921,943
17 to 18	3000	$30,000	1,280	$153,600	0	$0	2,560	$51,200	4,332	$21,660			1,320	$36,960	5280	$47,520					2	$5,000							$345,940	$11,267,883
18 to 19	3000	$30,000	2,196	$263,564	832	$20,790	4,393	$87,855	4,332	$21,660			2,401	$67,230	5280	$47,520	1	$75,000	29	$56,250	3	$7,500	1	$5,000	24	$24,000		$8,000	$714,368	$11,982,251
19 to 20	3000	$30,000	1,760	$211,200	436	$10,890	3,520	$70,400	4,332	$21,660			1,886	$52,816	5280	$47,520					3	$7,500	1	$5,000				$8,000	$464,986	$12,447,237
20 to 21	3000	$30,000	1,905	$228,655	568	$14,190	3,811	$76,218	4,332	$21,660			2,058	$57,621	5280	$47,520					3	$7,500			52	$52,000	$225,000	$8,000	$768,363	$13,215,601
21 to 22	3000	$30,000	2,560	$307,200	1,162	$29,040	5,120	$102,400	4,332	$21,660			2,830	$79,242	5280	$47,520					4	$10,000							$627,062	$13,842,663
22 to 23	3000	$30,000	2,560	$307,200	1,162	$29,040	5,120	$102,400	4,332	$21,660			2,830	$79,242	5280	$47,520					2	$5,000	1	$5,000					$627,062	$14,469,725
23 to 24	3000	$30,000	2,560	$307,200	1,162	$29,040	5,120	$102,400	4,332	$21,660			2,830	$79,242	5280	$47,520					1	$2,500							$619,562	$15,089,287
24 to 25	3000	$30,000	2,560	$307,200	1,162	$29,040	5,120	$102,400	4,332	$21,660			2,830	$79,242	5280	$47,520					3	$7,500	1	$5,000	164	$164,000	$450,000	$8,000	$1,251,562	$16,340,849
25 to 26	3000	$30,000	2,148	$257,745	788	$19,690	4,296	$85,915	4,332	$21,660			2,344	$65,629	5280	$47,520					4	$10,000	4	$20,000					$558,159	$16,899,009
26 to 27	3000	$30,000	2,560	$307,200	1,162	$29,040	5,120	$102,400	4,332	$21,660			2,830	$79,242	5280	$47,520	1	$75,000	33.5	$61,875	3	$7,500	1	$5,000	138	$138,000		$24,000	$928,437	$17,827,446
27 to 28	3000	$30,000	2,463	$295,564	1,074	$26,840	4,926	$98,521	4,332	$21,660			2,716	$76,039	5280	$47,520					3	$7,500	1	$5,000	48	$48,000		$16,000	$672,644	$18,500,090
28 to 29	3000	$30,000	2,463	$295,564	1,074	$26,840	4,926	$98,521	4,332	$21,660			2,716	$76,039	5280	$47,520					2	$5,000							$601,144	$19,101,234
29 to 30	3000	$30,000	2,560	$307,200	1,162	$29,040	5,120	$102,400	4,332	$21,660			2,830	$79,242	5280	$47,520	2	$110,000	10	$32,500	3	$7,500	1	$5,000	58	$58,000		$8,000	$838,062	$19,939,296
30 to 31	3000	$30,000	2,560	$307,200	1,162	$29,040	5,120	$102,400	4,332	$21,660			2,830	$79,242	5280	$47,520	1	$100,000	10	$32,500	2	$5,000							$754,562	$20,693,858
31 to 32	3000	$30,000	1,784	$214,109	458	$11,440	3,568	$71,370	4,332	$21,660			1,915	$53,617	5280	$47,520					2	$5,000			45	$45,000	$225,000		$724,715	$21,418,574
32 to 33	3000	$30,000	2,318	$278,109	942	$23,540	4,635	$92,703	4,332	$21,660			2,544	$71,234	5280	$47,520	1	$100,000			4	$10,000	1	$5,000					$679,766	$22,098,340
33 to 34	3000	$30,000	2,415	$289,745	1,030	$25,740	4,829	$96,582	4,332	$21,660			2,658	$74,437	5280	$47,520	1	$20,000			3	$7,500	1	$5,000	18	$18,000			$636,185	$22,734,525
34 to 35	3000	$30,000	2,415	$289,745	1,030	$25,740	4,829	$96,582	4,332	$21,660			2,658	$74,437	5280	$47,520					2	$5,000			42	$42,000		$8,000	$640,685	$23,375,209
35 to 36	3000	$30,000	2,560	$307,200	1,162	$29,040	5,120	$102,400	4,332	$21,660			2,830	$79,242	5280	$47,520					3	$7,500	1	$5,000	24	$24,000		$8,000	$661,562	$24,036,772
36 to 37	3000	$30,000	1,881	$225,745	546	$13,640	3,762	$75,248	4,332	$21,660			2,029	$56,820	5280	$47,520	1	$1,000,000	183	$248,750	3	$7,500							$1,726,884	$25,763,655
37 to 38	3000	$30,000	1,280	$153,600	0	$0	2,560	$51,200	4,332	$21,660			1,320	$36,960	5280	$47,520	2	$200,000	15.5	$39,375	3	$7,500	1	$5,000	74	$74,000		$16,000	$682,815	$26,446,470
38 to 39	3000	$30,000	1,663	$199,564	348	$8,690	3,326	$66,521	4,332	$21,660			1,772	$49,613	5280	$47,520	1	$55,000	15	$38,750	1	$2,500	1	$5,000	110	$110,000	$225,000	$8,000	$867,817	$27,314,288
39 to 40	3000	$30,000	1,280	$153,600	0	$0	2,560	$51,200	4,332	$21,660			1,320	$36,960	5280	$47,520	1	$50,000			1	$2,500							$393,440	$27,707,728
40 to 41	3000	$30,000	2,245	$269,382	876	$21,890	4,490	$89,794	4,332	$21,660			2,458	$68,832	5280	$47,520					2	$5,000			66	$66,000		$16,000	$636,078	$28,343,806
41 to 42	3000	$30,000	2,318	$278,109	942	$23,540	4,635	$92,703	4,332	$21,660			2,544	$71,234	5280	$47,520	1	$37,500	45	$76,250	3	$7,500			82	$82,000	$225,000		$993,016	$29,336,822
42 to 43	3000	$30,000	2,124	$254,836	766	$19,140	4,247	$84,945	4,332	$21,660			2,315	$64,828	5280	$47,520					2	$5,000				$0			$527,930	$29,864,752
43 to 44	3000	$30,000	2,390	$286,836	1,008	$25,190	4,781	$95,612	4,332	$21,660			2,630	$73,637	5280	$47,520	1	$85,000	56	$90,000	1	$2,500	2	$10,000	133	$133,000		$24,000	$924,955	$30,789,707
44 to 45	3000	$30,000	2,560	$307,200	1,162	$29,040	5,120	$102,400	4,332	$21,660			2,830	$79,242	5280	$47,520					3	$7,500	3	$15,000					$639,562	$31,429,269
45 to 46	3000	$30,000	2,560	$307,200	1,162	$29,040	5,120	$102,400	4,332	$21,660			2,830	$79,242	5280	$47,520					3	$7,500	1	$5,000					$629,562	$32,058,831
46 to 47	3000	$30,000	2,463	$295,564	1,074	$26,840	4,926	$98,521	4,332	$21,660			2,716	$76,039	5280	$47,520	1	$37,500	28	$55,000	2	$5,000			88	$88,000	$225,000		$1,006,644	$33,065,475
48 to 49	3000	$30,000	1,425	$171,055	132	$3,300	2,851	$57,018	4,332	$21,660			1,492	$41,765	5280	$47,520					1	$2,500	1	$5,000					$379,818	$33,445,293
49 to 50	3000	$30,000	2,124	$254,836	766	$19,140	4,247	$84,945	4,332	$21,660			2,315	$64,828	5280	$47,520					4	$10,000			87	$87,000		$16,000	$635,930	$34,081,222
50 to 51	3000	$30,000	2,342	$281,018	964	$24,090	4,684	$93,673	4,332	$21,660			2,573	$72,035	5280	$47,520					3	$7,500			38	$38,000	$225,000	$8,000	$848,496	$34,929,718
51 to 51.13	600	$6,000	165	$19,782	0	$0	330	$6,594	563	$2,816			172	$4,802	686	$6,174					1	$2,500							$48,668	$34,978,386
ITEM TOTAL	123,525	$1,235,250	87,613	$10,513,538	35,201	$880,013	175,226	$3,504,513	174,498	$872,490	1,533	$153,250	98,497	$2,757,923	254,601	$2,291,409	23	$4,972,500	884	$1,385,000	129	$322,500	37	$185,000	2499	$2,499,000		$3,406,000		
AVERAGE COST PER MILE	2,471	$24,705	1,752	$210,271	704	$17,600	2,920	$70,090	3,490	$17,450			1,970	$55,158	5,092	$45,828	0.46	$99,450	17.68	$27,700	2.58	$6,450			49.98	$49,980		$68,120		$699,568

Plus $20,000 per bridge for complete removal and replacement of track for 40 feet on both ends

MOUNTAIN DIVISION
COST ESTIMATE FOR FRA CLASS 2 TRACK CONDITION
MAINE SEGMENT, INCLUDING CURRENT PAN AM SECTION

MILE	DITCHING		TIES		SUB GRADE EXCAV.		TIE PLATES		RAIL ANCHORS		RAIL		BALLAST		SURFACING		BRIDGE REPAIRS		BRIDGE DECKS		SMALL CULVERTS		GRADE CROSSINGS PRIVATE		GRADE CROSSINGS PUBLIC		WARNING SYSTEM		TOTAL COST PER MILE	CUMULATIVE COST
	UNIT COST $10.00		UNIT COST $120.00		UNIT COST $25.00		UNIT COST $20.00		UNIT COST $5.00		UNIT COST $100.00		UNIT COST $28.00		UNIT COST $9.00		UNIT COST Varies		UNIT COST $1,250.00		UNIT COST $2,500		UNIT COST $5,000		UNIT COST $1,000		ACTIVE $225,000	PASSIVE $8,000		
	Quantity	LF Cost	Quantity	EA Cost	Quantity	CY Cost	Quantity	EA Cost	Quantity	EA Cost	Quantity	TF Cost	Quantity	TON Cost	Quantity	TF Cost	Quantity	EA Cost	Quantity	LF Cost	Quantity	EA Cost	Quantity	EA Cost	Quantity	LF Cost				
1.16 to 2	500	$5,000	455	$54,585	0	$0.00	910	$18,195	600	$3,000	0	$0	147	$4,116	4435	$39,915					3	$7,500				56	$56,000			$188,310	$188,310
2 to 3	1200	$12,000	542	$64,985	0	$0	1,083	$21,662	1,200	$6,000	0	$0	175	$4,900	5280	$47,520					3	$7,500				193	$193,000			$357,566	$545,877
3 to 4	1200	$12,000	542	$64,985	0	$0	1,083	$21,662	1,200	$6,000	0	$0	175	$4,900	5280	$47,520					4	$10,000				42	$42,000			$209,066	$754,943
4 to 5	1200	$12,000	542	$64,985	0	$0	1,083	$21,662	1,200	$6,000	0	$0	175	$4,900	5280	$47,520					3	$7,500				108	$108,000			$272,566	$1,027,509
5 to 6	1200	$12,000	1,379	$165,538	348	$8,690	2,759	$55,179	1,200	$6,000	0	$0	627	$17,553	5280	$47,520	2	$725,000	326	$447,500	2	$5,000				309	$309,000			$1,798,981	$2,826,490
6 to 7	625	$6,250	675	$81,000	594	$14,850	1,350	$27,000	150	$750	3170	$317,000	3,150	$88,200	5280	$47,520					2	$5,000	2	$10,000	82	$82,000	$450,000			$1,129,570	$3,956,060
7 to 8		$0		$0		$0	0	$0				$0	0	$0	5280	$47,520	1	$2,000,000			2	$5,000	1	$5,000	28	$28,000	$225,000	$8,000		$2,318,520	$6,274,580
8 to 9		$0		$0		$0	0	$0				$0	0	$0	5280	$47,520					3	$7,500	1	$5,000						$60,020	$6,334,600
9 to 10		$0		$0		$0	0	$0				$0	0	$0	5280	$47,520	1	$17,500			3	$7,500	1	$5,000						$77,520	$6,412,120
10 to 11		$0		$0		$0	0	$0				$0	0	$0	5280	$47,520	1	$0	28	$55,000	2	$5,000	1	$5,000	76	$76,000	$225,000			$413,520	$6,825,640
11 to 12	3000	$30,000	1,964	$235,680	1,561	$39,019	3,928	$78,560	3,769	$18,844	740	$74,000	2,695	$75,460	5280	$47,520	1	$17,500			3	$7,500	2	$10,000	60	$60,000	$225,000			$919,083	$7,744,723
12 to 13	3000	$30,000	3,200	$384,000	1,162	$29,040	6,400	$128,000	4,332	$21,660			3,252	$91,069	5280	$47,520	1	$250,000	105	$151,250	3	$7,500	1	$5,000	60	$60,000		$24,000		$1,229,039	$8,973,762
13 to 14	3000	$30,000	3,200	$384,000	1,162	$29,040	6,400	$128,000	4,332	$21,660			3,252	$91,069	5280	$47,520					2	$5,000	2	$10,000	120	$120,000	$225,000	$16,000		$1,107,289	$10,081,052
14 to 15	3000	$30,000	3,055	$366,545	1,030	$25,740	6,109	$122,182	4,332	$21,660			3,081	$86,265	5280	$47,520					3	$7,500	2	$10,000	24	$24,000		$8,000		$749,412	$10,830,464
15 to 16	3000	$30,000	3,200	$384,000	1,162	$29,040	6,400	$128,000	4,332	$21,660			3,252	$91,069	5280	$47,520	1	$17,500			4	$10,000	1	$5,000						$763,789	$11,594,253
16 to 17	3000	$30,000	2,938	$352,582	921	$23,034	5,876	$117,527	4,332	$21,660			2,940	$82,325	5280	$47,520					2	$5,000			50	$50,000		$16,000		$745,648	$12,339,901
17 to 18	3000	$30,000	1,920	$230,400	0	$0	3,840	$76,800	4,332	$21,660			1,742	$48,787	5280	$47,520					2	$5,000								$460,167	$12,800,068
18 to 19	3000	$30,000	2,836	$340,364	832	$20,790	5,673	$113,455	4,332	$21,660			2,823	$79,057	5280	$47,520	1	$75,000	29	$56,250	3	$7,500	1	$5,000	24	$24,000		$8,000		$828,596	$13,628,664
19 to 20	3000	$30,000	2,400	$288,000	436	$10,890	4,800	$96,000	4,332	$21,660			2,309	$64,643	5280	$47,520					3	$7,500	1	$5,000				$8,000		$579,213	$14,207,877
20 to 21	3000	$30,000	2,545	$305,455	568	$14,190	5,091	$101,818	4,332	$21,660			2,480	$69,448	5280	$47,520					3	$7,500			52	$52,000	$225,000	$8,000		$882,591	$15,090,467
21 to 22	3000	$30,000	3,200	$384,000	1,162	$29,040	6,400	$128,000	4,332	$21,660			3,252	$91,069	5280	$47,520					4	$10,000								$741,289	$15,831,757
22 to 23	3000	$30,000	3,200	$384,000	1,162	$29,040	6,400	$128,000	4,332	$21,660			3,252	$91,069	5280	$47,520					2	$5,000	1	$5,000						$741,289	$16,573,046
23 to 24	3000	$30,000	3,200	$384,000	1,162	$29,040	6,400	$128,000	4,332	$21,660			3,252	$91,069	5280	$47,520					1	$2,500								$733,789	$17,306,836
24 to 25	3000	$30,000	3,200	$384,000	1,162	$29,040	6,400	$128,000	4,332	$21,660			3,252	$91,069	5280	$47,520					3	$7,500	1	$5,000	164	$164,000	$450,000	$8,000		$1,365,789	$18,672,625
25 to 26	3000	$30,000	2,788	$334,545	788	$19,690	5,576	$111,515	4,332	$21,660			2,766	$77,456	5280	$47,520					4	$10,000	4	$20,000						$672,386	$19,345,012
26 to 27	3000	$30,000	3,200	$384,000	1,162	$29,040	6,400	$128,000	4,332	$21,660			3,252	$91,069	5280	$47,520	1	$75,000	33.5	$61,875	3	$7,500	1	$5,000	138	$138,000		$24,000		$1,042,664	$20,387,676
27 to 28	3000	$30,000	3,103	$372,364	1,074	$26,840	6,206	$124,121	4,332	$21,660			3,138	$87,866	5280	$47,520					3	$7,500	1	$5,000	48	$48,000		$16,000		$786,871	$21,174,547
28 to 29	3000	$30,000	3,103	$372,364	1,074	$26,840	6,206	$124,121	4,332	$21,660			3,138	$87,866	5280	$47,520					2	$5,000								$715,371	$21,889,918
29 to 30	3000	$30,000	3,200	$384,000	1,162	$29,040	6,400	$128,000	4,332	$21,660			3,252	$91,069	5280	$47,520	2	$110,000	10	$32,500	3	$7,500	1	$5,000	58	$58,000		$8,000		$952,289	$22,842,208
30 to 31	3000	$30,000	3,200	$384,000	1,162	$29,040	6,400	$128,000	4,332	$21,660			3,252	$91,069	5280	$47,520	1	$100,000	10	$32,500	2	$5,000								$868,789	$23,710,997
31 to 32	3000	$30,000	2,424	$290,909	458	$11,440	4,848	$96,970	4,332	$21,660			2,337	$65,444	5280	$47,520					2	$5,000			45	$45,000	$225,000			$838,943	$24,549,940
32 to 33	3000	$30,000	2,958	$354,909	942	$23,540	5,915	$118,303	4,332	$21,660			2,966	$83,061	5280	$47,520	1	$100,000			4	$10,000	1	$5,000						$793,994	$25,343,933
33 to 34	3000	$30,000	3,055	$366,545	1,030	$25,740	6,109	$122,182	4,332	$21,660			3,081	$86,265	5280	$47,520	1	$20,000			3	$7,500	1	$5,000	18	$18,000				$750,412	$26,094,345
34 to 35	3000	$30,000	2,913	$349,527	1,030	$25,740	5,825	$116,509	4,332	$21,660			3,081	$86,265	5280	$47,520					2	$5,000			42	$42,000		$8,000		$732,221	$26,826,566
35 to 36	3000	$30,000	3,040	$364,800	1,162	$29,040	6,080	$121,600	4,332	$21,660			3,252	$91,069	5280	$47,520					3	$7,500	1	$5,000	24	$24,000		$8,000		$750,189	$27,576,756
36 to 37	3000	$30,000	2,446	$293,527	546	$13,640	4,892	$97,842	4,332	$21,660			2,452	$68,647	5280	$47,520	1	$1,000,000	183	$248,750	3	$7,500								$1,829,087	$29,405,842
37 to 38	3000	$30,000	1,920	$230,400	0	$0	3,840	$76,800	4,332	$21,660			1,742	$48,787	5280	$47,520	2	$200,000	15.5	$39,375	3	$7,500	1	$5,000	74	$74,000		$16,000		$797,042	$30,202,885
38 to 39	3000	$30,000	2,255	$270,618	348	$8,690	4,510	$90,206	4,332	$21,660			2,194	$61,440	5280	$47,520	1	$55,000	15	$38,750	1	$2,500	1	$5,000	110	$110,000	$225,000	$8,000		$974,384	$31,177,269
39 to 40	3000	$30,000	1,920	$230,400	0	$0	3,840	$76,800	4,332	$21,660			1,742	$48,787	5280	$47,520	1	$50,000			1	$2,500								$507,667	$31,684,936
40 to 41	3000	$30,000	2,764	$331,709	876	$21,890	5,528	$110,570	4,332	$21,660			2,881	$80,659	5280	$47,520					2	$5,000			66	$66,000		$16,000		$731,008	$32,415,944
41 to 42	3000	$30,000	2,828	$339,345	942	$23,540	5,656	$113,115	4,332	$21,660			2,966	$83,061	5280	$47,520	1	$37,500	45	$76,250	3	$7,500			82	$82,000	$225,000			$1,086,492	$33,502,436
42 to 43	3000	$30,000	2,658	$318,982	766	$19,140	5,316	$106,327	4,332	$21,660			2,738	$76,655	5280	$47,520					2	$5,000				$0				$625,284	$34,127,720
43 to 44	3000	$30,000	2,892	$346,982	1,008	$25,190	5,783	$115,661	4,332	$21,660			3,052	$85,464	5280	$47,520	1	$85,000	56	$90,000	1	$2,500	2	$10,000	133	$133,000		$24,000		$1,016,976	$35,144,696
44 to 45	3000	$30,000	3,040	$364,800	1,162	$29,040	6,080	$121,600	4,332	$21,660			3,252	$91,069	5280	$47,520					3	$7,500	3	$15,000						$728,189	$35,872,886
45 to 46	3000	$30,000	3,040	$364,800	1,162	$29,040	6,080	$121,600	4,332	$21,660			3,252	$91,069	5280	$47,520					3	$7,500	1	$5,000						$718,189	$36,591,075
46 to 47	3000	$30,000	2,955	$354,618	1,074	$26,840	5,910	$118,206	4,332	$21,660			3,138	$87,866	5280	$47,520	1	$37,500	28	$55,000	2	$5,000			88	$88,000	$225,000			$1,097,210	$37,688,285
48 to 49	3000	$30,000	2,047	$245,673	132	$3,300	4,095	$81,891	4,332	$21,660			1,914	$53,592	5280	$47,520					1	$2,500	1	$5,000						$491,136	$38,179,421
49 to 50	3000	$30,000	2,658	$318,982	766	$19,140	5,316	$106,327	4,332	$21,660			2,738	$76,655	5280	$47,520					4	$10,000			87	$87,000		$16,000		$733,284	$38,912,705
50 to 51	3000	$30,000	2,849	$341,891	964	$24,090	5,698	$113,964	4,332	$21,660			2,995	$83,862	5280	$47,520					3	$7,500			38	$38,000	$225,000	$8,000		$941,487	$39,854,192
51 to 51.13	600	$6,000	247	$29,673	0	$0	495	$9,891	563	$2,816			226	$6,339	686	$6,174					1	$2,500								$63,392	$39,917,584
ITEM TOTAL	123,525	$1,235,250	113,696	$13,643,466	35,201	$880,013	227,391	$4,547,822	174,498	$872,490			116,089	$3,250,494	258,561	$2,327,049	23	$4,972,500	884	$1,385,000	129	$322,500	37	$185,000	2499	$2,499,000		$3,406,000			
AVERAGE COST PER MILE	2,471	$24,705	2,274	$272,869	704	$17,600	3,790	$90,956	3,490	$17,450			2,322	$65,010	5,171	$46,541	0.46	$99,450	17.68	$27,700	2.58	$6,450			49.98	$49,980		$68,120			$798,352

Plus $20,000 per bridge for complete removal and replacement of track for 40 feet on both ends

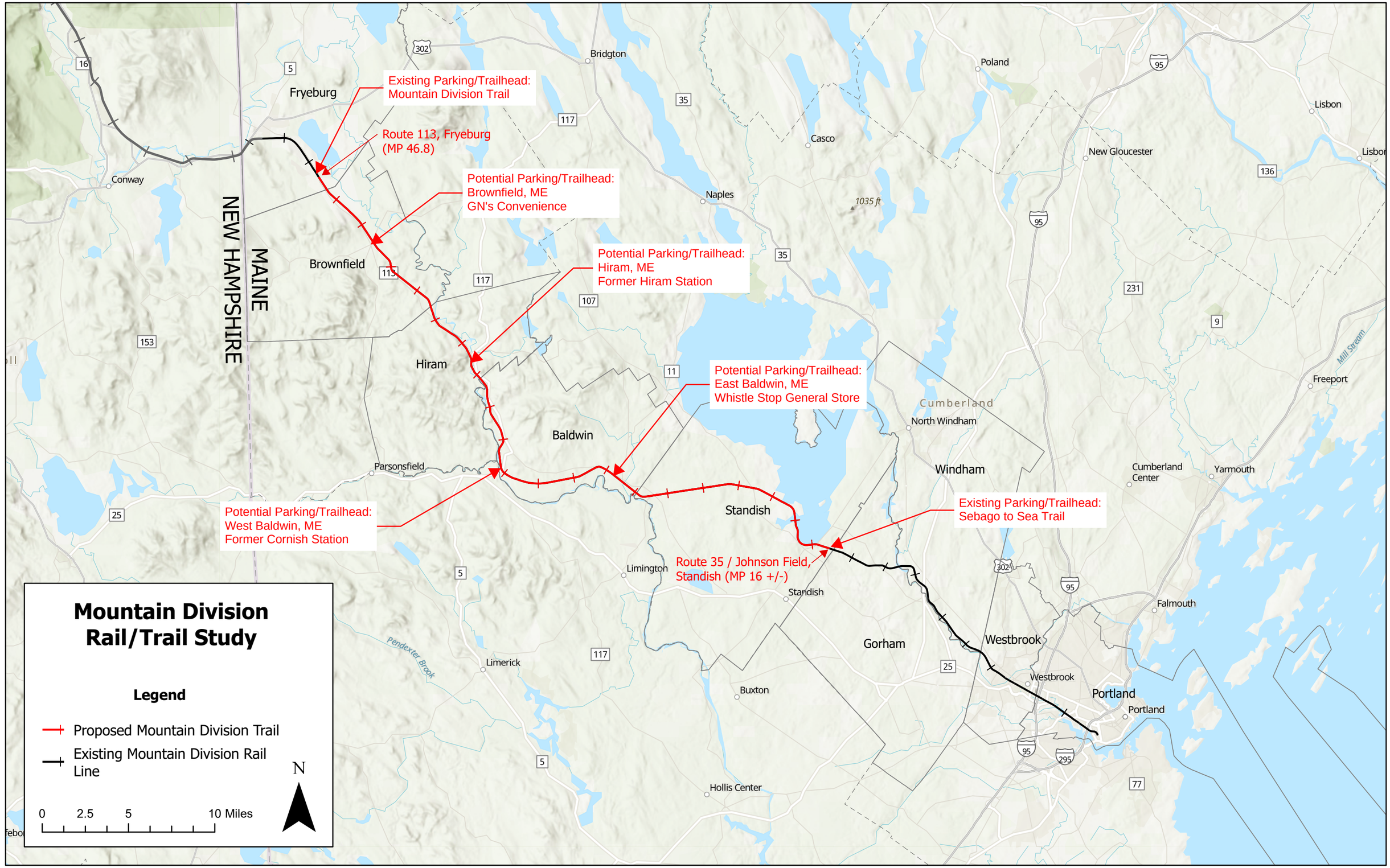
Table 1 - Inventory of Bridges & Culverts

Milepost	Type	Length	Deck	Crossing	Built	Actions	Est. Cost
5.63	Deck Girders (2) + Deck Truss (1)	35' - 130' - 35'	open	Presumpscot River	1875	clean, stl. repairs, part. stl. removal	$ 225,000
5.66	Through Girder	72' & 18'+54'	open	Brown Street	1875	clean, strengthen, stl. repairs	$ 500,000
7.34	Stone Arch Culvert	12'	---	Ink Horn Brook	1875	replace structure & scour countermeasures	$ 2,000,000
9.7	Stone Box Culvert	9' x 13.5'	---	Dole Brook	1875	clean & remove debris	$ 17,500
10.32	Deck Beams	28'	open	Mallison Falls Road	2008	replaced in 2008	$ -
11.12	Stone Arch Culvert	8'	---	Black Brook	1875	clean & remove debris	$ 17,500
12.63	Deck Truss	105'	open	Presumpscot River	1890	clean, strengthen	$ 250,000
15.25	Stone Arch Culvert	5.5'	---	Westcott Brook	1875	clean & remove debris	$ 17,500
18.05	Deck Girder	29'	open	Sticky River	1895	clean, strengthen, replace seats/brgs	$ 75,000
26.04	Deck Girder	33.5'	open	Quaker Brook	1902	clean, strengthen, replace seats/brgs	$ 75,000
29.30	Stone Arch Culvert	12'	---	Pidgeon Brook	1875	clean & remove debris	$ 10,000
29.70	bundled I - beams	10'	open	Red Brook	1890	remove & replace (incl seats)	$ 100,000
30.39	bundled I - beams	10'	open	no name	1890	remove & replace (incl seats)	$ 100,000
32.90	corrugated metal pipe	16'	---	Dug Hill Brook	1966	clean & remove debris, re-line culvert	$ 100,000
33.97	Stone Arch Culvert	12.5'	---	Break Neck Brook	1875	clean & remove debris	$ 20,000
36.32	Through Truss	183'	open	Saco River	1942	clean, strengthen	$ 1,000,000
37.01	Timber Stringers	9'	open	cattle pass	1951	remove & replace (incl seats)	$ 100,000
37.45	bundled I - beams	15.5'	open	Red Mill Brook	1911	remove & replace (incl seats)	$ 100,000
38.67	Deck Girder	15'	open	Pierce's Brook	1906	clean, strengthen, replace seats/brgs	$ 55,000
39.90	multiple I - beams	5'	ballasted	Rattlesnake Pond	1875	remove & replace	$ 50,000
41.06	Deck Girder	45'	open	Ten Mile Brook	1904	clean, strengthen	$ 37,500
43.76	Through Girder	56'	open	Shepard's Brook	1902	clean, jack, strengthen, replace brgs	$ 85,000
46.27	Deck Girder	28'	open	Little Saco River	1911	clean, strengthen	$ 37,500
						Total =	**$ 4,972,500**

Notes:

1. All deck girders, deck trusses, through girders and through trusses prior to 1950 are riveted steel construction. Deck beams and I - beams are rolled steel shapes.
2. Stone arches are cut stone blocks.
3. Estimated costs based and engineering judgement alone. Detailed estimates have not been performed.
4. Substructure repairs are assumed in all costs.

Appendix C:
Potential Parking and Trailhead Locations


Existing Parking/Trailhead:
Mountain Division Trail
Route 113, Fryeburg
(MP 46.8)
Potential Parking/Trailhead:
Brownfield, ME
GN's Convenience
Potential Parking/Trailhead:
Hiram, ME
Former Hiram Station
Potential Parking/Trailhead:
East Baldwin, ME
Whistle Stop General Store
Potential Parking/Trailhead:
West Baldwin, ME
Former Cornish Station
Existing Parking/Trailhead:
Sebago to Sea Trail
Route 35 / Johnson Field,
Standish (MP 16 +/-)
NEW HAMPSHIRE
MAINE
Fryeburg
Conway
Brownfield
Hiram
Baldwin
Parsonsfield
Standish
Limington
Limerick
Buxton
Hollis Center
Gorham
Westbrook
Windham
North Windham
Cumberland
Cumberland Center
Yarmouth
Freeport
Falmouth
Portland
Bridgton
Casco
Naples
Poland
New Gloucester
Lisbon
1035 ft
Pendexter Brook
Mill Stream
Mountain Division Rail/Trail Study
Legend
Proposed Mountain Division Trail
Existing Mountain Division Rail Line
N
0 2.5 5 10 Miles

HNTB